

Annual Report 2017

PATIENTS

We introduced Ocrevus for the treatment of two forms of multiple sclerosis. Ocrevus demonstrated superior efficacy by reducing relapses and slowing the worsening of disability caused by MS.

INNOVATION

A medicine for people with autism spectrum disorder is in phase III studies. It is the most common neuro-developmental condition, characterised by difficulties regarding social interaction.

PARTNERS

In collaboration with partners and authorities we are developing our next-generation diagnostic tests and medicines with the aim of diagnosing and treating multi-drug-resistant bacterial infections.

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Who we are

Innovation: It's in our DNA. We have always worked across disciplines and geographies to drive scientific discovery and redefine what is possible to improve patients' lives.

We are working on understanding how diseases differ down to the molecular level. So we can develop new tests and medicines that prevent, diagnose and treat diseases, and bring them to the patients who need them. With our combined strengths in diagnostics and pharmaceuticals, our personalised healthcare strategy aims to fit the right treatment to the right patient.

As the world's largest biotech company, we develop breakthrough medicines, improving the standard of care across oncology, immunology, infectious diseases, ophthalmology and neuroscience. We are

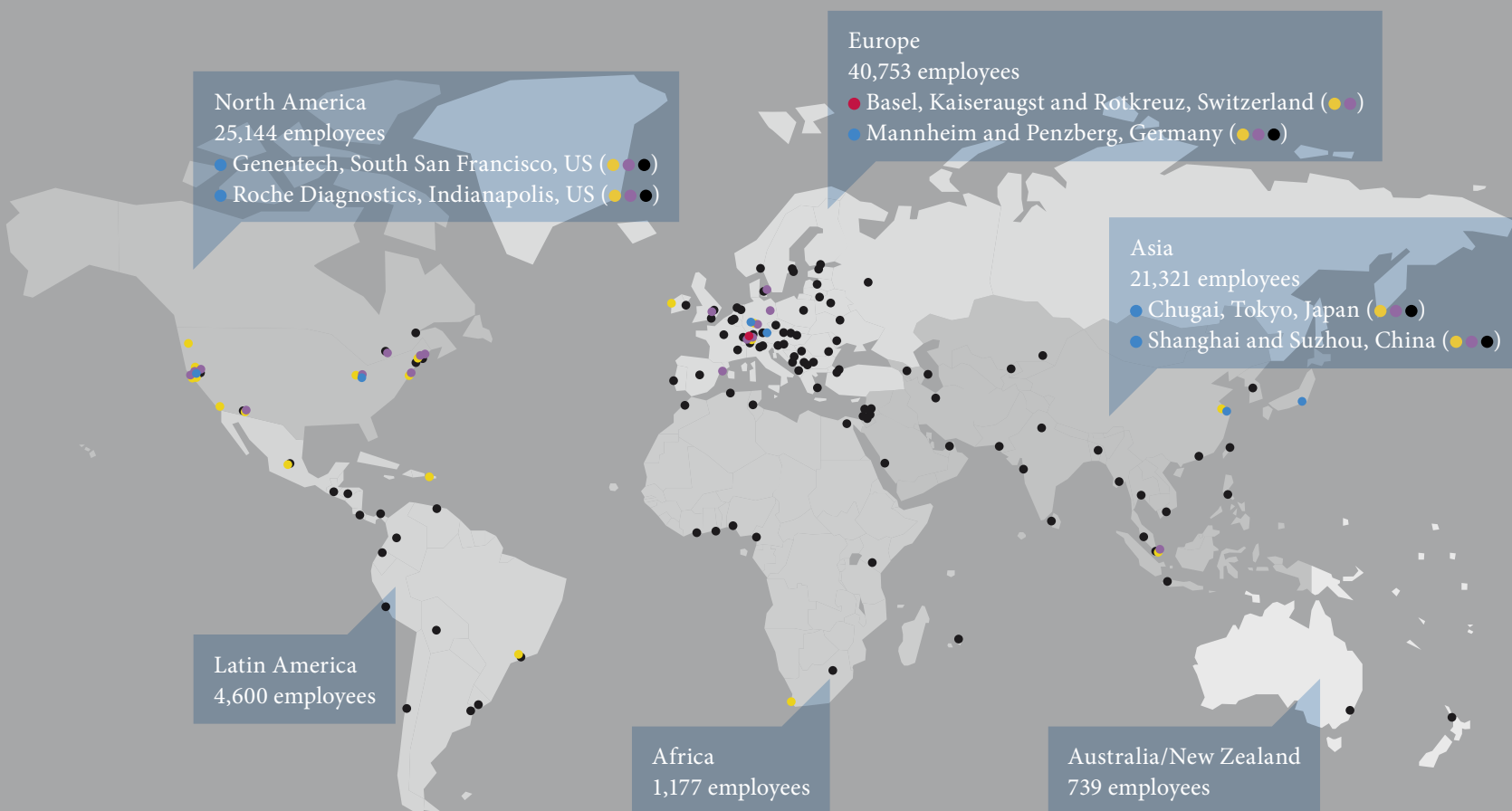
also the world leader in the *in vitro* diagnostics business. This track record allows us to build lasting and meaningful partnerships across the world with research academia and public healthcare institutions.

The founding families continue to hold the majority voting stake in the company. This stability allows for a tradition of sustainable thinking, so we can learn from setbacks and focus on lasting value for patients and society. We remain dedicated to the highest standards of quality, safety and integrity. Our legacy is based on respect for the individual as well as the communities and the world we live in.

Roche's global presence

93,734

employees* worldwide



30

Research and development sites in Pharmaceuticals and Diagnostics worldwide

26

Manufacturing sites in Pharmaceuticals and Diagnostics worldwide

- Roche Group headquarters
- Largest sites based on number of employees
- Research and development sites in Pharmaceuticals and Diagnostics

- Manufacturing sites in Pharmaceuticals and Diagnostics
- Sales sites in Pharmaceuticals and Diagnostics
- * Number of employees expressed in full-time equivalents

Highlights

Managing multiple sclerosis

Ocrevus successfully launched for treatment of two forms of multiple sclerosis, a debilitating disease

[+ Read more on page 36](#)

Testing for infectious diseases

Portfolio of cobas Liat system tests extended for fast diagnosis to help control the spread of infectious diseases

[+ Read more on page 28](#)

Treating rare blood disorder

Hemlibra approved for treatment of people with haemophilia A with factor VIII inhibitors, a blood disorder

[+ Read more on page 37](#)

Improving access to healthcare

Reimbursement for four Roche medicines in China—making them available to the entire population

[+ Read more on page 61](#)

Progress in cancer immunotherapy

Results from a number of Tecentriq clinical studies to date demonstrate its significant medical benefit

[+ Read more on page 38](#)

Contributing to sustainability

Roche ranked most sustainable healthcare company in the Dow Jones Sustainability Indices for the ninth year running

[+ Read more on page 13](#)

Key figures

CHF 53,299 million

Group sales +5%**

CHF 10,392 million

R & D core investments +5%

CHF 19,012 million

Core operating profit +3%

30 Roche medicines

on the WHO Model List of Essential Medicines

CHF 8.30

Dividend

137 million patients

treated with Roche medicines

** All growth rates in this report are at constant exchange rates (CER; average 2016).

Our reporting approach

Roche is committed to transparent reporting and we endeavour to drive our economic, social and environmental performance with the same diligence as our financial performance.



Online Annual
Report 2017:
ar17.roche.com

Roche Annual
Report 2017 (PDF):
[www.roche.com/
ar17e.pdf](http://www.roche.com/ar17e.pdf)

Roche Finance
Report 2017 (PDF):
[www.roche.com/
fb17e.pdf](http://www.roche.com/fb17e.pdf)

Risk management:
[roche.com/risk-
management](http://roche.com/risk-management)

Reporting scope and boundaries

We provide integrated information about our financial and non-financial performance in our Annual Report, our Finance Report, as well as in our online report, which cover all regions and divisions from 1 January to 31 December 2017. The reporting scope is defined and outlined in our Finance Report, and there have been no significant changes in scope in 2017 compared to 2016.

Reporting in accordance with the latest GRI guidelines

We have followed the GRI G4 guidelines (Global Reporting Initiative) since 2014. By using the GRI guidelines, we disclose the most critical impacts of our activities on the environment, society and the economy. As of the 2017 reporting period, we transitioned to the newly introduced GRI Standards, which are based on the key concepts and disclosures of the GRI G4 guidelines. We report in accordance with the standards at core level but also go beyond the requirements for core level for a number of indicators.

Risk management

Our Risk Management Policy sets out Roche's approach to identifying, managing and reporting internal and external risks and opportunities. We also identify

business sustainability risks and opportunities on an annual basis and integrate these into our existing risk management process.

A consolidated Group Risk Report, which covers all material risks, is discussed annually with the Corporate Executive Committee and reviewed by the Audit Committee of the Board of Directors and by the Board of Directors. The effectiveness of the risk management process is regularly monitored by the Group Risk Advisory team, and the overall process is reviewed externally when appropriate. Risk management is embedded at all levels of the Group. Our Pharmaceuticals and Diagnostics Divisions and global functions conduct a formal risk assessment process at least once a year and must develop risk plans for their most material risks.

Group Risk Advisory facilitates risk discussions to support the business in many specialist areas such as IT security, as well as compliance and sustainability. Training sessions and platforms have been established to help employees manage, monitor and mitigate risks appropriately.

[+](#) Read more in 'Corporate Governance' on page 106

External assurance

Our current Annual Report includes an independent assurance report on our non-financial reporting, prepared by PricewaterhouseCoopers AG.

⊕ See 'Independent assurance report' on page 148

Materiality

In accordance with the GRI Standards, we conducted a first materiality analysis at the corporate level in 2014 and gathered input and feedback through various internal and external sources, conferences, and by conducting regular interviews and one-on-one discussions with key stakeholders. These results have since been regularly vetted against ongoing stakeholder research across key markets and stakeholder groups. This enables us to include 21 topics from stakeholder groups that we consider important to our business and to the healthcare sector, such as patient organisations, physicians and laboratory staff, employees, media, investors, payers, regulators and governments. In 2017, 21 material topics were screened against priorities deemed key to Roche in three tiers—firstly, fundamental drivers of our ability to deliver on our core purpose in the long term; secondly, additional annually reviewed major influencing factors for our business success in the short and medium term; and finally, all other material topics, providing three levels of priority in addressing material topics.

These three tiers and 21 material topics are reflected in our business priorities, in the report content (highlighted at the beginning of each chapter), as well as in aspect boundaries according to the GRI. We build concrete actions relating to these topics into operational activities, and measure performance through defined indicators.

⊕ See 'Our strategy' on page 7

Our 21 material topics

Tier 1—Fundamental drivers of our ability to deliver on our core purpose in the long term

- R&D pipeline strategy and personalised healthcare
- Employee engagement and talent retention
- Growth strategy in emerging and developed markets
- Product portfolio strategy
- Patent policies
- Leadership Commitments

Tier 2—Major influencing factors for our business success in the short and medium term

- Pricing
- Disease awareness and treatment education
- Compliance
- Drug efficacy, safety and counterfeiting
- Supply chain management
- Biosimilar safety
- Sustainable healthcare

Tier 3—Additional material topics

- Executive remuneration
- Compensation/benefits
- Organisational effectiveness
- Environmental responsibility
- Community engagement
- Patient organisation support
- Data transparency on clinical trials
- Occupational accidents



Materiality:
roche.com/
materiality

Key performance
indicators:
roche.com/
performance

Our approach to sustainability



Our contribution
to the UN SDGs:
roche.com/un-sdgs

What sustainability means to us: It's the alignment of an individual's goals with the interests of society. Preserving natural resources ultimately helps to meet those goals. By acting sustainably, we contribute positively towards the development of the world.



We have been committed to sustainability for many years and contribute to a number of the 17 United Nations Sustainable Development Goals (SDGs).

Innovating for patients	<ul style="list-style-type: none"> • 137 million patients treated with Roche medicines • 19 billion tests conducted with Roche Diagnostics products • 30 Roche medicines on the WHO* Model List of Essential Medicines 	Supporting SDG 3
Being a trustworthy partner	<ul style="list-style-type: none"> • 41 new partnerships in Diagnostics • 118 new partnerships in Pharmaceuticals • 100% of approximately 1,000 business-critical suppliers risk-assessed 	Supporting SDGs 16, 17
Protecting the environment	<ul style="list-style-type: none"> • 11% decrease in water consumption since 2015 • 9% decrease in energy consumption since 2015 • 20% improvement in the eco-balance since 2014 	Supporting SDGs 6, 7, 13
Delivering continued growth	<ul style="list-style-type: none"> • +5%** in Group sales • +3% in core operating profit • Sustainability leader within the Pharmaceuticals, Biotechnology & Life Sciences Industry index (as per DJSI) 	Supporting SDGs 8, 9
Providing a great workplace	<ul style="list-style-type: none"> • 72% employee engagement rate • 28% of women in key leadership positions • 24% of key leaders with diverse work experience 	Supporting SDGs 4, 5

* World Health Organization | ** All growth rates in this report are at constant exchange rates (CER; average 2016).

What we do

Our focus
Fitting treatments to patients

Our distinctiveness
Excellence in science

Our delivery
Value for all stakeholders



Our people
Making their mark

Our decision-making
Accountable and transparent

Our structure
Built for innovation

How we do it

Our strategy

We focus on finding new medicines and diagnostics that help patients live longer, better lives and evolve the practice of medicine.

We are guided by our purpose:

Doing now what patients need next. Our company has a 120-year history of advancing the field of medicine and bringing novel treatments and diagnostics to patients. The patient is and will remain at the core of what we do, the reason we come to work every day.

What we do

Our focus is on fitting treatments to patients: providing the right therapy for the responding group of people at the right time. With our in-house combination of Pharmaceuticals and Diagnostics, we are uniquely positioned to deliver personalised healthcare. We are developing our internal capabilities and building strategic partnerships ready for the next stage in personalised healthcare: to combine insights from multiple data sources with sophisticated analytics to drive more effective and efficient research and allow for better therapeutic decisions for patients. Access to our products is also a critical part of our strategy. Our detailed access plans are embedded into the business at a local level.

We will continue to concentrate our energies entirely on prescription medicines and *in vitro* diagnostics, rather than diversify into other sectors like generics and biosimilars, over-the-counter medicines and medical devices.

In our pursuit of excellence in science, **our distinctiveness** rests on four key elements: an exceptionally broad and

deep understanding of molecular biology, the seamless integration of our pharmaceuticals and diagnostics capabilities, a diversity of approaches to maximise innovation, and a long-term orientation.

Our delivery is to create value for all our stakeholders: being a partner of choice; bringing significant medical benefit for patients, doctors and payers; offering a great place to work for employees; having a sustainable impact on society; and creating top-quartile total shareholder return for our investors.

How we do it

In the end, it takes people with integrity, courage and passion to make a difference for patients. It is **our people** who are proud to say: We are Roche. We embrace the diversity of cultures and people across the Group. We are inclusive and encourage the richness of ideas and approaches this brings.

Our decision-making principles and processes emphasise transparent dialogue, clear accountability, and encourage a high degree of empowerment.

Our structure is built for innovation. Our autonomous research and development centres and alliances with over 200 external partners foster diversity and agility. Our global geographical scale and reach enables us to bring our diagnostics and medicines quickly to people who need them.

Market environment

Digital technology is transforming healthcare

The ongoing digital revolution is driving a radical transformation in healthcare, bringing solutions that are improving research and development, patient involvement and care, outcomes and cost-efficiency. With demand for medical care continuing to grow, this transformation is urgently needed for economic sustainability.

Global healthcare expenditure is projected to reach USD 8.7 trillion by 2020, up from USD 7 trillion in 2015, placing further pressure on healthcare systems.¹

Key developments in technology—such as the Internet of Things, machine learning and robotics, and deep data—are enabling enormous progress in healthcare technology, applying sophisticated analytics to further personalised healthcare. As a result, treatment strategies of unprecedented precision are becoming reality.

The proper application of these developments will help us to find solutions for the complex challenges we face and move us towards more patient-centred and outcomes-based care, whilst making more efficient use of resources. These solutions will bring wide-ranging benefits, from complex individual treatment strategies to improved chronic care management.

As an innovation-focused company, we are at the forefront of driving these developments in diagnostics and pharmaceuticals. We see the digital revolution having a major impact in four key areas:

1. Transforming clinical studies

In 2017, Roche conducted clinical trials with more than 295,000 patients involved. We want to make our

trials simple for patients and investigating doctors to participate in, minimising their inconvenience and the time and effort entailed.

Digital developments are making this possible by decentralising clinical studies from the clinic or hospital to the patient's home. Many doctor-patient interactions can take place virtually, through telemedicine-enabled contact, supported by digital diagnostic and tracking tools, which facilitate physical examinations at a distance. For patients, this will increase access to clinical studies and significantly reduce travelling and waiting times as well as inconvenience.

We are piloting cutting-edge clinical study designs which feature continual evaluation of an array of data that can be fed back to refine the study and better identify potential drug combinations. Overall, these activities allow us to develop and bring the right safe medicine to the patient in the most efficient manner.

2. Improving treatment outcomes

Improvements in diagnostics possibilities, targeted therapies and combinations of medicines offer a wide range of treatment choices. But their complexity require clinical decision support tools.

Deep data is helping to take personalised healthcare to a new level. Roche is partnering with companies such as Flatiron Health, Foundation Medicine, Inc. (FMI) and GE Healthcare to help us better leverage data and advanced analytics to improve the development of medicines and decision-making in patient care. First data on a new blood-based assay for measuring



Our experts developed an industry-leading platform that uses cutting-edge imaging science to look inside a tumour and document the effect of new drug candidates in patients. The complex data generated are digitised and interpreted to drive better decisions for drug development.

tumour mutational burden, co-developed with FMI, improve our understanding of immune biology but will ultimately help match our therapies and combinations to the people most likely to benefit.²

Modern diagnostic tools, including point-of-care testing, connectivity of data and remote monitoring of disease have the potential to improve treatment outcomes through disease management and early detection. For example, our online platform for digital diabetes management helps healthcare providers to make better and faster therapy decisions while also improving communication with their patients. Roche also launched the Navify Tumor Board solution, a clinical workflow and decision support software that optimises decision-making for cancer patient case reviews in the clinic, so-called tumour boards, or multidisciplinary team meetings.

3. Enabling patient empowerment

Technology empowers patients by giving them more control over their health, for example by enabling self-management, providing information, connecting patients, and monitoring and enhancing treatment adherence.

Health apps, sensors and digital biomarkers provide a rich source of information, data and tracking, as well as improved convenience. For example, Roche has developed an app to continuously measure symptom fluctuations in Parkinson's disease patients, without them needing to visit the clinic.

In the future, individuals will be better informed about their genetic profile, the diseases they have and the availability of appropriate therapies that match their specific condition.

¹ The Economist Intelligence Unit. World Industry Outlook. Healthcare and Pharmaceuticals, June 2016. | ² European Society for Medical Oncology Congress, 8–12 September 2017, Madrid, Spain.



The Navify Tumor Board software supports decision-making to optimise therapy of patients with cancer.

4. Efficiency

Technology is enabling more timely and accurate diagnosis and treatment and improved success rates. It is also minimising unnecessary treatment, resulting in significant efficiency gains as the usage of resources available is optimised. In addition, Roche is utilising digital technology—whether to revamp how we conduct our clinical trials through the use of data or to change how we register our new products—to become much more efficient in what we do.

Roche's efforts in digitisation are part of its continued commitment to furthering the benefits that its products and services can bring to patients. These go hand in hand with the work that is currently ongoing in trying to better understand the science, interpret data quicker and use new technologies with the end goal of bringing innovative treatments to the right patient faster.

Our business model for innovation

To ensure we can continue providing innovative products and services for patients, we invest about one-fifth of our sales in research and development (R&D) activities every year. Thanks to our focus on science in areas of high unmet need, and with our expertise in pharmaceuticals and diagnostics under one roof, we have been successful in introducing six new medicines in different diseases and indications and many new diagnostic tests, instruments and services since late 2015. Additionally, we have broad and exciting pipelines in both our Pharmaceuticals and Diagnostics Divisions.

Investing today to bring hope for tomorrow

We focus on therapeutic areas where we can make significant contributions to society. This includes disorders of the central nervous system such as Alzheimer's disease and autism, where we are

conducting studies that need a high level of investment. In Diagnostics, we are advancing our vision of the ‘Integrated Core Laboratory’ with a broad range of diagnostic tests and fully automated processes.

Roche is also innovating in areas of unmet need by developing new medicines for diseases in which there has been no major progress for decades, including bladder cancer (Tecentriq), multiple sclerosis (Ocrevus) and giant cell arteritis (Actemra/RoActemra). Approved by the FDA in November, Hemlibra offers immense potential for an improved quality of life for those with haemophilia A. Our point-of-care cobas Liat system tests provide precise test results rapidly, when time is of the essence for a patient’s survival.

The value of innovation

Major advances in science, data and technology are aiding the development of increasingly sophisticated treatment options for diseases like cancer, such as immunotherapies and combination therapies. The real value of innovation is only realised when it actually reaches and benefits patients in need. This is why Roche is actively working with payers and governments to develop flexible pricing solutions that can facilitate public reimbursement, as well as assistance programmes to help patients access treatment.

Patents protect our intellectual property and allow our product portfolio to have commercial exclusivity over a limited period of time to recover our investments in research and development and benefit from a necessary innovation premium as a business enterprise. However, when a patent on a medicine expires, the innovation it represents continues to benefit society. Biosimilars or generics may become available at lower costs and further increase the number of patients who can be treated. Open competition between originator

Roche is developing new medicines for diseases that have not seen major progress for decades.

medicines and generics or biosimilars supports the financial sustainability of healthcare systems.

From a total of more than 400 drugs included in the WHO Model List of Essential Medicines, 30 are from Roche.³ These medicines are widely available and benefit a large number of people. More than a billion people have been treated with the Roche antibiotic Bactrim since its introduction in 1969, for example. Many more patients have been treated with its generic versions. Similarly, the foundational polymerase chain reaction (PCR) technologies developed by Roche—an efficient way to copy or ‘amplify’ small segments of DNA or RNA—still benefit millions of people, even though their patents have expired.

Regulators across the globe are implementing more flexible procedures to review and approve truly innovative medicines faster. Breakthrough therapy designations in the US and PRIME in the EU significantly reduce the lead time for life-saving drugs.⁴ This also helps Roche recover investments faster and enables further investment in additional areas, including studies in rare diseases such as spinal muscular atrophy or Erdheim-Chester disease.

Innovation is how we generate value. By developing products that advance the standard of care for diseases with significant unmet need we are able to meet our obligations not only to shareholders but to society as a whole.

³ Number as of December 2017. | ⁴ PRIME (PRiority MEDicines) is a scheme launched by the European Medicines Agency (EMA) to enhance support for the development of medicines that target an unmet medical need.

D

ear Shareholders,

Despite rapid medical and scientific advances, there are still no cures for common illnesses such as Alzheimer's disease; 400 million people all over the world have no access to basic healthcare; and infectious diseases believed to have been eliminated are now proving to be resistant to treatment. Against this backdrop, we must also measure the success of a business year in terms of the extent to which we find solutions to urgent medical problems.

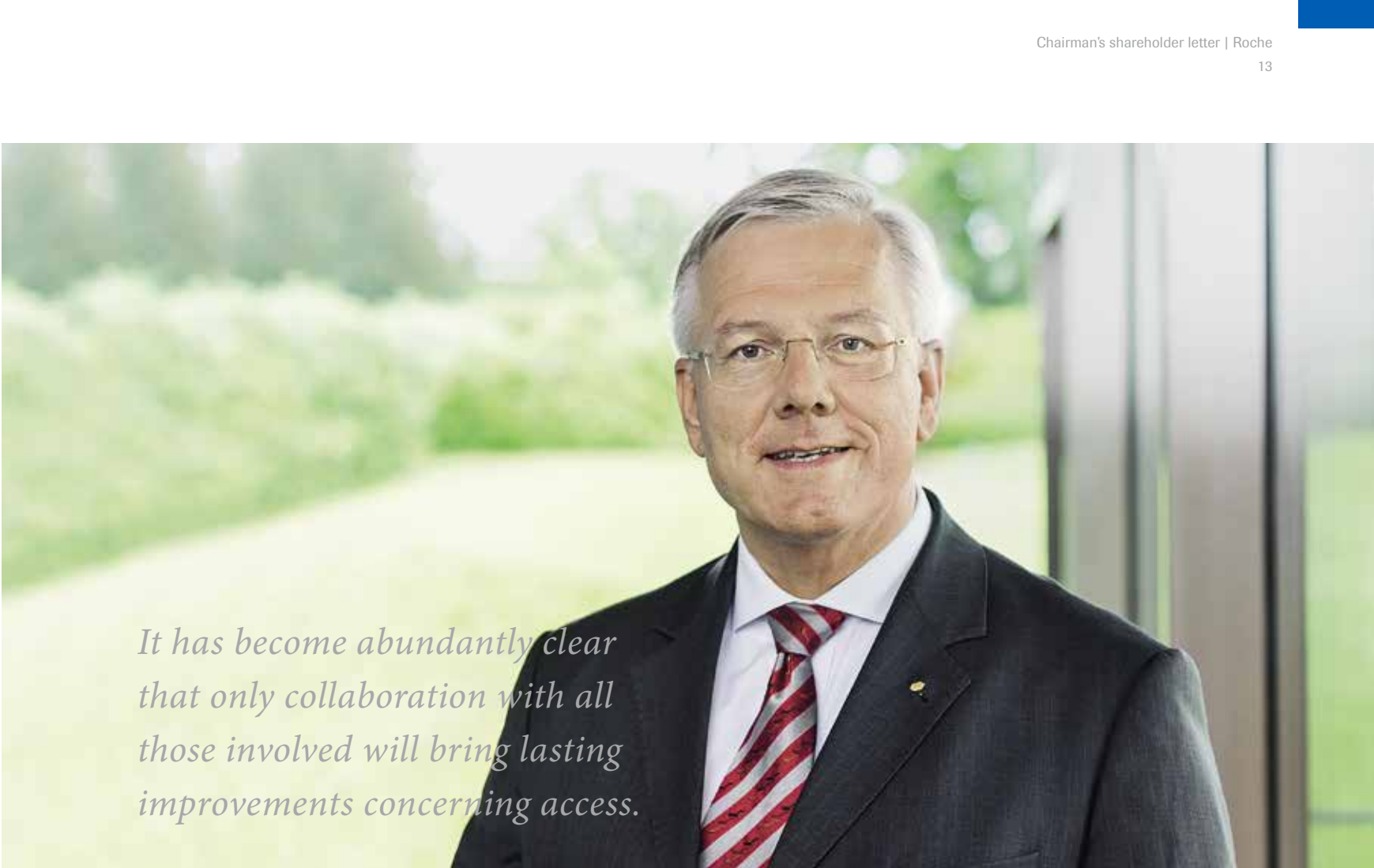
During the past year, we have made significant progress in drug development. Roche has received 'breakthrough therapy' designations for medicines or new compounds 19 times in recent years, four of them in 2017. This designation, which offers the prospect of faster approval, is only awarded by the US health authority, FDA, if initial clinical trial data exhibit promising efficacy in serious diseases. Roche leads the industry in terms of this indicator of innovative strength.

Given the rapid pace at which data volumes are growing, digital decision-making tools are becoming increasingly important in medical practice. As a consequence, Roche Diagnostics and GE Healthcare recently entered into a long-term strategic partnership focussed on developing comprehensive digital platforms—initially for oncology and intensive care medicines—to support doctors in identifying the best

treatment for each individual patient in the shortest possible time.

The remarkable progress in both divisions is attributable not least to the fact that, at CHF 10.4 billion, we have once again invested more in research and development than any other healthcare company. Our strength in innovation is also reflected in our good financial results, with sales at CHF 53.3 billion and core operating profit of CHF 19.0 billion. The 9%* decrease in net income in accordance with IFRS is due to extraordinary items such as amortisation and impairment.

Yet all these efforts are in vain if our products fail to reach the people who need them. We have been working for years to improve access to healthcare throughout the world. It has become abundantly clear that only dialogue and cooperation with all those involved and affected will bring lasting improvements. It is also important to systematically address all the limiting factors, such as inadequate infrastructure and education, and a lack of disease awareness. One significant problem is often the lack of basic health insurance. Jointly with partners, we have therefore extended the introduction of private insurance policies for cancer treatment from China to other Asian countries. At the same time, we are working with supervisory authorities, governments and the industry to combat new threats such as antibiotic



It has become abundantly clear that only collaboration with all those involved will bring lasting improvements concerning access.

resistance with the development of new types of diagnostic products and medicines.

Many of these tasks require both patience and stamina. Sustainability has long been an important component of our business strategy. We pursue an integrated approach here: not only do we want to constantly improve therapeutic standards, we are also working to improve access to our products and are taking social responsibility in crucial areas such as environmental protection, the supply chain and employee retention. We are delighted that our diverse sustainability efforts were rewarded once again in 2017—for the ninth consecutive year—with the top ranking in the Dow Jones Sustainability Indices.

On the whole, we can look back on a very successful year. I believe Roche is well positioned to continue contributing to medical solutions and a more efficient healthcare environment through innovation. We will

propose a dividend increase to 8.30 Swiss francs per share and non-voting equity security at the Annual General Meeting. Subject to your approval, this will be the 31st consecutive dividend increase.

I offer my thanks to all those who worked together with us in 2017 to achieve medical advances and improve access to medical care. I thank our employees for their tireless dedication during the past year. And I offer you, our shareholders, my heartfelt thanks for the trust you have placed in us.



Dr Christoph Franz
Chairman



Chairman's video:
roche.com/med-cor-2018-02-01.htm

* All growth rates in this report are at constant exchange rates (CER; average 2016).





Board of Directors

Bernard Poussot (1952) C, E

Dr Christoph Franz (1960)

Chairman, C, D*, E

Dr Severin Schwan (1967) F

Prof. Dr Richard P. Lifton (1953) C, E

Julie Brown (1962) B*, E

Dr Claudia Suessmuth Dyckerhoff (1967) A, B, E

Anita Hauser (1969) A, E

Paul Bulcke (1954) B, E

Prof. Sir John Bell (1952) B, E

Dr Andreas Oeri (1949)

Representative of the shareholder group with pooled voting rights, A*, E

André Hoffmann (1958)

Vice-Chairman, Representative of the shareholder group with pooled voting rights, A, C*, D, E

Peter R. Voser (1958) C, E

A Corporate Governance and Sustainability Committee

B Audit Committee

C Remuneration Committee

D Presidium/Nomination Committee

E Non-executive director

F Executive director

* Committee chairperson

Roche Board of Directors on 31 December 2017

D

ear Shareholders,

2017 was a very successful year for Roche—in terms of the financial results, certainly, but especially in the development of new medicines and diagnostic products. This is great news, but not only when looking back at the past year. It is also a solid basis for us to face the future with confidence. We have laid the groundwork to drive forward our delivery of personalised healthcare solutions and thus actively help shape change in the healthcare sector.

We exceeded our growth targets in both divisions. It is gratifying that 65%* of the growth in the Pharmaceuticals Division came from new products—Ocrevus, Tecentriq and Alecensa—and it shows that we are consistently achieving our goal of renewing the portfolio. Regionally, the US experienced particularly strong pharmaceutical sales growth, while in the Diagnostics Division, sales showed an especially sharp rise in China.

I am especially pleased that we were once again able to introduce new products in areas with significant medical need. The recent approval of Ocrevus, for example, gives patients with multiple sclerosis access to an effective treatment. Hemlibra, our innovative haemophilia A treatment, closes a major gap in the treatment of this serious blood disorder. It can prevent or halt bleeds in adults, young people and children. In recent trials, Hemlibra—given fast-track approval by

the FDA—has proven superior to established treatment methods. Furthermore, the latest results of important trials in the pioneering field of cancer immunotherapy demonstrate the potential of Tecentriq for the treatment of various types of cancer.

Immunology once again played a significant role in the growth of the Diagnostics Division. We have further expanded our fully automated immunodiagnosics portfolio, bringing us a step closer to the Integrated Core Lab, which will help central laboratories to become more efficient and competitive.

Digitisation in healthcare gives us the opportunity to make faster progress in the area of personalised healthcare. The analysis of real-world data—anonymised patient data from visits to doctors, medical records and other sources—will give a major boost to innovation in the medium to long term. With our diagnostic products alone, more than 19 billion tests were conducted in 2017. About 137 million patients were treated with our medicines last year, and more than 295,000 took part in clinical trials. We want to make better use of the underlying wealth of data in our cross-divisional research and development activities. This requires close collaboration with healthcare providers, health insurers and authorities, which is why we continued to expand such partnerships throughout the world during the past year.



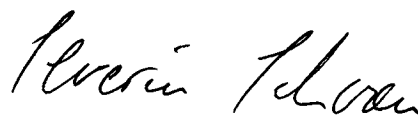
The growth of our new products demonstrates that we are consistently achieving our goal of renewing the portfolio.

In the midst of change, one thing is constant: the importance of our employees to the company. In the past year, they have shown a high degree of flexibility and passion to help shape our future. Ninety percent of employees worldwide participated in our internal employee survey. Eighty-two percent said they were proud to work for Roche. This is both confirmation of, and an incentive to continue with, our efforts to be a preferred employer, attracting and retaining the best talent in our industry.

2018 will be a year of transition: as has long been foreseen, we expect more competition from biosimilars for our cancer medicines MabThera/Rituxan and Herceptin, mainly in Europe, initially. At the same time, however, we are systematically renewing our portfolio with innovative products. Though the challenges are multiplying, we believe we are well positioned to successfully overcome them, thanks to our ongoing strength in medical innovation.

Sales are expected to grow in the stable to low-single digit range, at constant exchange rates. Core earnings per share are targeted to grow high-single digit, at constant exchange rates. Excluding the US tax reform impact core earnings per share are targeted to grow broadly in line with sales. Roche expects to further increase its dividend in Swiss francs.

I would like to thank you, our valued shareholders, for the trust you have placed in our company.



Dr Severin Schwan
Chief Executive Officer



CEO's video:
roche.com/med-cor-2018-02-01.htm

* All growth rates in this report are at constant exchange rates (CER; average 2016).





Corporate Executive Committee

Dr Stephan Feldhaus* (1962)
Head Group Communications

Dr Alan Hippe (1967)
Chief Financial and IT Officer

Osamu Nagayama* (1947)
Chairman and CEO Chugai

Dr Gottlieb A. Keller (1954)
General Counsel

Roland Diggelmann (1967)
CEO Roche Diagnostics

Cristina A. Wilbur (1967)
Head Group Human Resources

Daniel O'Day (1964)
CEO Roche Pharmaceuticals

Dr Michael D. Varney* (1958)
Head Genentech Research & Early Development (gRED)

Dr Severin Schwan (1967)
CEO Roche Group

Dr Sophie Kornowski-Bonnet* (1963)
Head Roche Partnering

Prof. Dr John C. Reed* (1958)
Head Roche Pharma Research & Early Development (pRED)

* Member of the Enlarged Corporate Executive Committee
Roche Corporate Executive Committee on 31 December 2017



Business performance

Three recently launched medicines contributed strongly to our growth. Top-selling products show continued double-digit sales increases.

Material topics covered in this chapter

- Product portfolio strategy
- Growth strategy in emerging and developed markets

Contribution to the UN SDGs



G

ood results in both divisions

In 2017, Group sales rose 5%* to CHF 53.3 billion. Core operating profit grew 3%, reflecting the strong underlying business performance. Core EPS increased 5%. On an IFRS basis net income decreased 9%. The IFRS result includes charges for the impairment of goodwill and intangible assets and the amortisation of intangible assets.

Sales in the Pharmaceuticals Division increased 5% to CHF 41.2 billion. The recently launched medicines Ocrevus, Tecentriq and Alecensa contributed CHF 1.4 billion of new sales, which represents 65% of the division's growth. Perjeta also continued its strong sales increase. This growth was partially offset by lower sales of Tarceva and Avastin.

In the US, sales advanced 10%, led by Ocrevus, Tecentriq, Xolair and MabThera/Rituxan. In Europe, sales declined 2%, mainly due to lower Mabthera/Rituxan sales driven by competition from biosimilars. In the International region, sales grew 4%, led by the Latin America and Asia-Pacific subregions. In Japan, sales increased 3%, with the main growth driver being Alecensa.

Diagnostics Division sales increased 5% to CHF 12.1 billion. Centralised and Point of Care

Solutions (+7%) was the main contributor, led by the growth of its immunodiagnostics business (+13%). In regional terms, growth was driven by Asia-Pacific (+15%), with continued strong growth in China (+21%). Sales increased 2% in Europe, Middle East and Africa (EMEA), 10% in Latin America, and were stable in North America.

Approvals and line extensions in Pharmaceuticals

In 2017, the US FDA approved two new medicines, namely Ocrevus for the treatment of relapsing and primary progressive forms of multiple sclerosis and Hemlibra for people with haemophilia A with factor VIII inhibitors.

In the course of the year, health authorities approved a number of new indications for existing products. In December, the US FDA approved Perjeta in combination with Herceptin and chemotherapy for adjuvant (after surgery) treatment of HER2-positive early breast cancer at high risk of recurrence; the approval is based on results of the phase III Aphinity study. US approval was granted for Alecensa in anaplastic lymphoma kinase (ALK)-positive non-small cell lung cancer (NSCLC) and Gazyva for untreated advanced follicular lymphoma.



In 2017, our development pipeline made very good progress, as shown by the approvals of our new medicines, line extensions and positive results from clinical studies in key areas. Highlights include data from studies in cancer immunotherapy, which clearly reflect the potential of Tecentriq for treating different kinds of cancer.

In Europe, key approvals were granted in the course of the year, including Alecensa as a monotherapy for the first-line treatment as well as for previously treated ALK-positive, advanced NSCLC.

In January 2018, Ocrevus was approved in the EU for the treatment of both the relapsing and the primary progressive form of multiple sclerosis and CHMP recommended approval of Hemlibra.

Integrated diagnostic solutions

In the course of the year, five new key instruments were launched that allow for further increasing

connectivity and automation in laboratories. These new instruments support efforts to expand the core laboratory, and consolidate and integrate a wider range of platforms and covering other diagnostic disciplines such as molecular diagnostics, lab coagulation, haematology and point-of-care testing.

This approach is supported by further expanding our existing broad test portfolio with additional new tests. These include the cobas Liat system with tests for rapid identification of life-threatening infectious diseases, healthcare-associated infections, methicillin-resistant bacteria and viral infections.

* All growth rates in this report are at constant exchange rates (CER; average 2016).

Sales in the Diagnostics Division grew strongly (+5%) to CHF 12.1 billion.

Centralised and Point of Care Solutions (+7%*) was the largest contributor to the division's sales growth. Integrated Serum Work Area solutions, comprising the immunodiagnosics (+13%) and clinical chemistry (+3%) segments, were the main growth drivers.

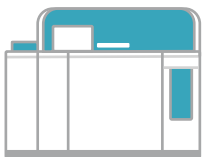
Sales in **Molecular Diagnostics** increased 4%. Sales in the human papillomavirus (HPV) screening and the blood screening businesses grew 15% and 1%, respectively. In virology, sales were stable. Growth in

HIV testing was impacted by lower sales for HCV tests, due to a base effect of strong HCV test sales in 2016.

Tissue Diagnostics sales increased 11%, driven by the advanced staining and primary staining portfolios, which grew 11% and 12%, respectively. The companion diagnostics business grew 13%.

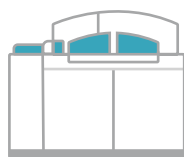
Diabetes Care sales decreased 4%, affected by challenging market conditions, particularly in North America.

Top-selling product portfolios in 2017 (CHF millions)



cobas
Immunodiagnosics

3,813
+13%



cobas
Clinical chemistry

1,733
+3%



Ventana
Advanced staining

779
+11%



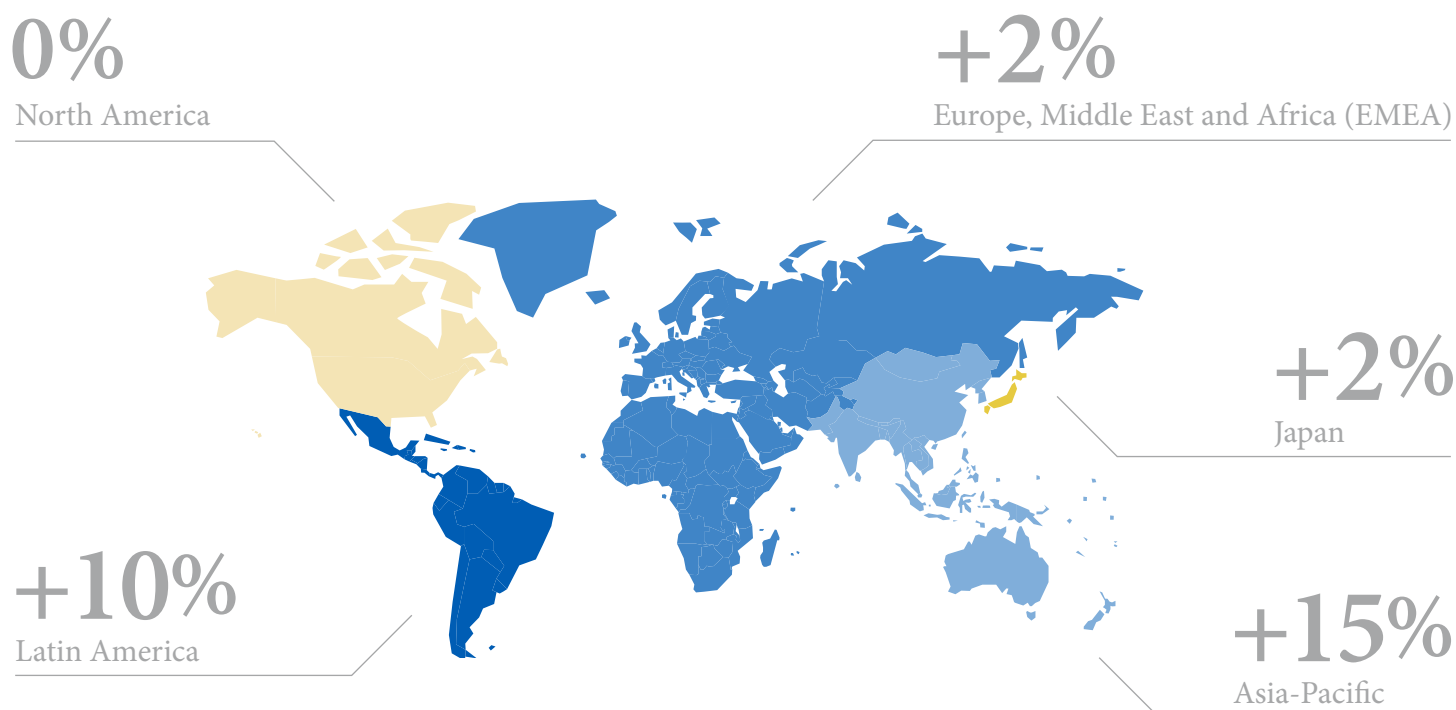
cobas
Virology

642
0%



Accu-Chek
Diabetes Care

1,965
-4%



The division's sales growth was again driven by the Asia-Pacific region.

Contributions by regions

Increased access to healthcare and to diagnostic solutions, demographic shifts, and advances in science and technology have led to a globally increased demand for diagnostics. As the leader in the field of *in vitro* diagnostics, Roche is well positioned to address these market dynamics. However, public funding constraints have led to a consolidation of laboratories and hospitals, resulting in continued price pressure for diagnostic providers. The number of people with diabetes continues to grow, along with awareness about the condition and the need to manage it with adequate blood glucose monitoring systems.

The **Asia-Pacific** region was the major driver of the division's growth, with immunochemistry as a key contributor. China generated almost half of the absolute sales growth. Most markets within the region continued to see volume growth and expanded access to testing. Diabetes Care sales were also up.

The sales increase in the **EMEA** region was driven by the core laboratory business. Contributions by markets

varied due to different levels of market maturity and economic development. In Africa, major healthcare access programmes have been implemented by a number of local governments in close collaboration with international organisations such as WHO, UNAIDS and partners from industry. Roche supports several such initiatives with sustainable commercial offers. Overall, Diabetes Care sales declined within this region, however, growth was seen in several markets.

In **Latin America**, all business segments contributed to growth, with sales expanding in Diabetes Care.

In **North America**, sales growth was led by Tissue Diagnostics. Roche continues to gain market share in both the laboratory and decentralised coagulation monitoring segments, and recently launched products won important new business. This development was offset by lower sales in the Diabetes Care business, which fell due to continued price pressure.

Sales growth in **Japan** was driven by Centralised and Point of Care Solutions. Diabetes Care sales declined.

* All growth rates in this report are at constant exchange rates (CER; average 2016).

Diagnostics

Medical value to improve health

Empowering laboratory leadership

We are developing new and integrated diagnostic solutions designed to address the challenges of today and anticipate the needs of tomorrow. The key is to expand the core laboratory, consolidating and integrating a wider range of platforms covering other diagnostic disciplines such as molecular diagnostics, lab coagulation, haematology and point-of-care testing. The Integrated Core Lab (ICL) vastly expands the efficiency, scope and quality of diagnostic capabilities in the laboratory.

In January 2017, the cobas m 511, our new dedicated haematology testing solution, became available in countries accepting the CE mark.* This marked our entry into the haematology diagnostics market. The cobas m 511 provides greater accuracy and consistency of results by identifying, counting, isolating and categorising abnormal cells within patient samples. This automation and digitisation reduces the need for resource-intensive manual microscope reviews and allows for quicker delivery of results, which ultimately aids in patient diagnosis.

The Roche Integrated Core Lab vastly expands the efficiency and quality of our customers' diagnostic capabilities.

In May, the cobas e 801 module received FDA approval. This expands the system's success in markets where it has already been launched and strengthens our ICL solutions. The cobas e 801 module offers high value through its flexibility and is designed for high throughput and continuous operation. At the same time it reduces waste.

Also in May, we launched our Avenio ctDNA analysis kits, a portfolio of three next-generation sequencing (NGS) liquid biopsy kits for oncology research. The kits detect all four mutation classes with high sensitivity. With these kits, researchers can profile the genomic complexities of different cancer stages and tumour types, obtaining results in five days. Our Avenio Millisect System, a tissue dissection instrument utilising an automated, digitally-assisted process to reliably and efficiently isolate clinically relevant cells for testing, became commercially available in July.

In our Diabetes Care business, we aim to enable better management of diabetes, a major healthcare burden.¹ Our focus is on integrated diabetes management and increased 'time in range' for people with diabetes. The acquisition of mySugr GmbH, Austria, in June is key to executing our Diabetes Care strategy.

The acquisition of Viewics, Inc., US, in November allows Roche to expand its leading position in the ICL with business analytics capabilities, enabling

laboratories to make faster data-driven informed decisions on their operations and processes.

In December, we entered into a strategic, long-term partnership with GE Healthcare to jointly develop and co-market digital clinical decision support solutions. The partnership will initially focus on products that accelerate and improve personalised treatment decisions for patients with cancer and those in critical care. With GE Healthcare, we aim to develop an industry-first digital platform that allows for the seamless integration and analysis of patient records, real-time data, medical best practice and the latest research outcomes.

Women's health

Improving access to healthcare means that women all over the world can now benefit from enhanced disease prevention, improved screening approaches and better diagnostic tests. At Roche, we currently offer a comprehensive range of tests covering fertility and pregnancy, bone health and breast cancer, ovarian cancer and cervical cancer. In February, we launched the Elecsys AMH Plus immunoassay, the first CE-marked companion test for fertility therapy.

In March, we launched the IVD cobas HPV test for cervical cancer screening on the cobas 6800/8800 systems in countries accepting the CE mark. This HPV DNA assay gives laboratories the ability to run HPV DNA testing simultaneously with other previously released cobas infectious disease assays.



Roche offers a broad range of tests in women's health, including areas such as fertility, bone health and cancer.

In April, we received 510(k) clearance from the FDA for the CINtec Histology test. This test is the only clinically validated p16 biomarker test that helps pathologists determine which women should receive treatment for cervical pre-cancer. This test is part of our cervical cancer portfolio, which includes the cobas HPV test and the CINtec Plus Cytology test (not available as an IVD test in the US). The CINtec Histology test is performed on the BenchMark IHC/ISH series of instruments. It is used to confirm the presence or absence of high-grade cervical disease in women who have had a tissue biopsy. Using the p16 biomarker enables a more conclusive diagnosis, providing a distinctive visual confirmation of pre-cancerous cervical lesions that may be missed by hematoxylin and eosin (H&E) interpretation alone.

* CE mark: certification mark that indicates conformity within EU. | 1 www.who.int/mediacentre/factsheets/fs312/en/

Infectious disease tests

Expanding our broad portfolio

Infectious diseases represent a serious and growing global threat. As the WHO announced, the world is running out of effective antibiotics to fight increasingly resistant bacteria.² Now more than ever, highly efficient and automated tests provide accurate diagnostics that are playing a critical role in preventing the overuse of antibiotics and in helping health systems control the spread of infectious diseases.

In April, we launched the cobas Liat system with four infectious disease assays into CE markets. The cobas Liat system now offers the first real-time PCR nucleic acid test to detect *Clostridium difficile* in just 20 minutes. Timely and accurate diagnosis of this infection is vital because it is one of the major causes of healthcare-associated infections (HAI). It can quickly become life threatening, especially to high-risk patients such as the elderly, those with compromised immune systems or those undergoing antibiotic treatment. The cobas Liat assay represents a breakthrough for patients since traditional diagnostic methods may take several hours for results to be delivered to clinicians. The cobas Liat Cdiff assay, part of the HAI portfolio, expands the existing diagnostic menu available on the cobas Liat system, which includes the respiratory assays cobas Strep A and Influenza A/B & RSV.

In June, we received approval for cytomegalovirus (CMV) viral load testing on the cobas 4800 system in countries accepting the CE mark. For transplant patients, CMV is the most common serious viral

infection and can be life threatening. Between 20% and 60% of people with a solid organ transplant develop a symptomatic CMV infection. The cobas CMV test is standardised to the first WHO International Standard for improving harmonisation in CMV testing results across healthcare institutions. In addition to the CMV assay, the cobas 4800 system has a comprehensive test menu, including viral load assays for HIV-1, HCV, HCV genotyping and HBV.

In July, the cobas Liat system menu was expanded with the CE launch of the cobas MRSA/SA test for the qualitative detection and differentiation of methicillin-resistant *Staphylococcus aureus* (MRSA) and *Staphylococcus aureus* (SA) at the point of care. As many as 53 million people carry MRSA, one of the most commonly identified antibiotic-resistant pathogens. In Europe, more than 150,000 patients develop MRSA infections each year, resulting in more than 1 million excess days of hospitalisation and EUR 380 million of extra in-hospital costs.³ Designed to support rapid screening and surveillance of MRSA and SA, the cobas Liat system is ideal for use in emergency settings and intensive care units. Conventional testing methods may take more than 24 hours to turn around culture results. With the cobas Liat system, testing takes just 30 minutes and can be used before admission or surgery to reduce the risk of transmission within the hospital. Also in July, we launched the first CE-marked HIV-1/HIV-2 qualitative tests for use on the fully automated



The cobas Plasma Separation Card, part of our Global Access Programme, helps expand access to diagnostics in countries hardest hit by HIV and underscores our commitment to providing life-saving diagnostics in the fight against HIV and AIDS. It allows testing even in areas where transportation to the lab may take weeks.

cobas 6800/8800 systems, allowing healthcare professionals to optimise treatment options.

In September, we announced plans to immediately initiate screening of blood samples with the cobas babesia test under an Investigational New Drug Application protocol. Performed on the cobas 6800/8800 systems, the test screens for the direct detection of babesia DNA and RNA in whole blood specimens from individual blood donors. Most commonly transmitted to humans through the bite of an infected tick, the babesia parasite can also be transmitted through blood transfusions or from mother to foetus. It infects and destroys red blood cells, potentially leading to anaemia and related life-threatening complications in people with compromised immune systems.

In October, the FDA approved the cobas Zika test for use on cobas 6800/8800 systems. The cobas Zika test

is the first commercially available test for detection of Zika virus RNA in samples of human plasma and is intended for use in screening blood donations. The newly approved cobas Zika test can now be used alongside other routine tests for the screening of blood and plasma donations in the US.

In December, Roche launched the cobas Plasma Separation Card, an innovative technology with easy sample collection while utilising the gold standard plasma sample type. With a small amount of blood collected on specially designed cards, blood collection and sample transportation is simplified in resource-limited settings. This is the first and only plasma separation card remaining stable under extreme heat and humidity while providing results that correlate to the plasma viral load standard of care and meeting the WHO decision requirements.



Alan Staple, Clinton Health Access Initiative, US

“Our partnership helped change the world’s attitude towards viral load testing.”

Before joining the Clinton Health Access Initiative (CHAI) nine years ago, I was working as an executive in the contract research industry. My focus was to reduce the time to market for new drugs through better management of the trials that demonstrate drug safety and efficacy. I felt truly motivated by the number of lives that could be saved by cutting months or even years off the development process.

I am now Head of the Global Markets Team at CHAI, and we are addressing a similar challenge: How do we work within the global regulatory, production and financial systems to get high-quality medicines and diagnostics to patients in lower-income countries at affordable and sustainable prices? With our global footprint, CHAI works with partners like Roche, companies that have a worldwide reach, and this can have a transformative impact on global public health problems.

A successful long-term collaboration

Our collaboration with Roche in the area of HIV goes back many years. Together, we pioneered Early Infant Diagnosis, which is now a routine programme. Currently some 800,000 infants are being tested every year. In 2014, we set up the Global Access Programme, which contributes to the 90-90-90 UNAIDS goal. In other words, by 2020, 90% of all people living with HIV will know their status; 90% of all people with

HIV status will receive treatment; and 90% of all people on treatment will be virally suppressed.

Prior to the launch of this programme, just a quarter of patients in lower-income countries had access to viral load testing.

When we started this project, viral load testing was considered too expensive and complicated. There was no infrastructure in place to transport and process samples. However, these assumptions were proven to be wrong and we now have both the infrastructure and cutting-edge technologies.

Our partnership with Roche has helped change the world’s attitude towards viral load testing in the developing world. On the back of this collaboration, the WHO, as well as funders, changed their recommendation. Previously, they weren’t recommending viral load testing for every patient, now they do.

The 90-90-90 goal includes viral load testing: HIV diagnostics evolved from something that wasn’t even mentioned five years ago to a key measure of the programme’s success. As a result, the standard of viral load testing that is in place in countries like Switzerland is now the same in lower-income countries as well.

Sales in the Pharmaceuticals Division increased 5% to CHF 41.2 billion, largely driven by growth of recently launched medicines.

Herceptin, Perjeta and **Kadcyla** (combined +7%*). For HER2-positive breast cancer and HER2-positive metastatic gastric cancer (Herceptin only). **Herceptin** sales were up 3%, led by growth in the US and Brazil. **Perjeta** (+19%) sales grew in all regions following increased demand in the neoadjuvant and metastatic settings. Sales of **Kadcyla** increased 10%.

MabThera/Rituxan (+1%). For forms of blood cancer, rheumatoid arthritis and certain types of vasculitis. Sales continued to rise; increases were recorded in the

US, driven by immunology, and in the International region. Sales in Europe (-11%) were affected by the market entry of biosimilars.

Avastin (-2%). For advanced colorectal, breast, lung, kidney, cervical and ovarian cancer, and relapsed glioblastoma (a type of brain tumour). In the US, sales declined 2%, largely due to increasing use of cancer immunotherapy medicines in lung cancer. Sales continued to grow in the International region (+5%).

Key growth-driving products in 2017 (CHF millions)



MabThera/Rituxan
Oncology and immunology

7,388
+1%



Herceptin
Oncology

7,014
+3%



Perjeta
Oncology

2,196
+19%



Actemra/RoActemra
Immunology

1,926
+14%



Xolair
Immunology

1,742
+16%

Sales in Europe (-5%) were affected by the removal of reimbursement for breast cancer in France.

Actemra/RoActemra (+14%). For rheumatoid arthritis, forms of juvenile idiopathic arthritis and giant cell arteritis. Sales growth was reported in all regions, supported by steady growth in demand for the subcutaneous formulation.

Xolair (+16%, US only). For chronic idiopathic urticaria and allergic asthma. Growth driven by demand in both indications.

Activase/TNKase (+10%). Thrombolytic, or clot-busting agent for acute ischaemic stroke. Sales increase was driven by broader use in hospitals and the higher number of treated patients.

Gazyva/Gazyvaro (+41%). For chronic lymphocytic leukaemia (CLL), rituximab-refractory follicular lymphoma and previously untreated advanced follicular lymphoma. Sales expanded in all regions where this product has been launched.

Recently launched medicines

Ocrevus (CHF 869 million), approved in more than 50 countries, experienced continued strong demand in both indications. **Tecentriq** (CHF 487 million) is approved in 55 countries. **Alecensa** (CHF 362 million), approved in 50 countries, showed very good uptake in the US and continued strong sales growth in Japan. In November, **Hemlibra** (CHF 3 million) was launched in the US and has had promising uptake.



Activase/TNKase
Cardiovascular

1,219
+10%



Kadcyla
Oncology

914
+10%



Ocrevus
Immunology

869
- **



Tecentriq
Oncology

487
+209%



Alecensa
Oncology

362
+101%

* All growth rates in this report are at constant exchange rates (CER; average 2016). | ** not applicable

Regional performance

Growth driven by the US, Brazil and China

US

The US market continues to be an area of significant opportunity, despite increasing complexity driven by rising competitive pressure, a dynamic regulatory environment and a shift towards value-based healthcare models. In 2017, the overall performance in this market was characterised by new product launches including Ocrevus and Hemlibra. In 2017, we received four breakthrough therapy designations (BTDs), which means we have been awarded a total of 19 BTDs since the FDA established the programme in 2012. In addition, the FDA also granted seven priority reviews. Fuelled by strong sales of both new and existing medicines, the US recorded 10% growth and now accounts for 50% of the total Pharmaceuticals business. Sales growth was largely driven by Ocrevus, Tecentriq, Xolair and MabThera/Rituxan.

Europe

We are working with a number of stakeholders at a European and national level to develop solutions that will ensure sustainable healthcare systems as well as more timely and equitable access to innovative medicines. Together with payers, we are developing and implementing more flexible pricing solutions aimed at supporting faster access to innovative

medicines. Demand for Foundation Medicine services is increasing as we make the service more broadly available across Europe and seek to take personalised cancer care to the next level. The region (-2%) contributed 22% to the overall Pharmaceuticals business as sales of Perjeta and Actemra/RoActemra remained robust. The region's performance was impacted by declining sales of MabThera/Rituxan and Avastin due to biosimilar competition and reimbursement reduction, respectively.

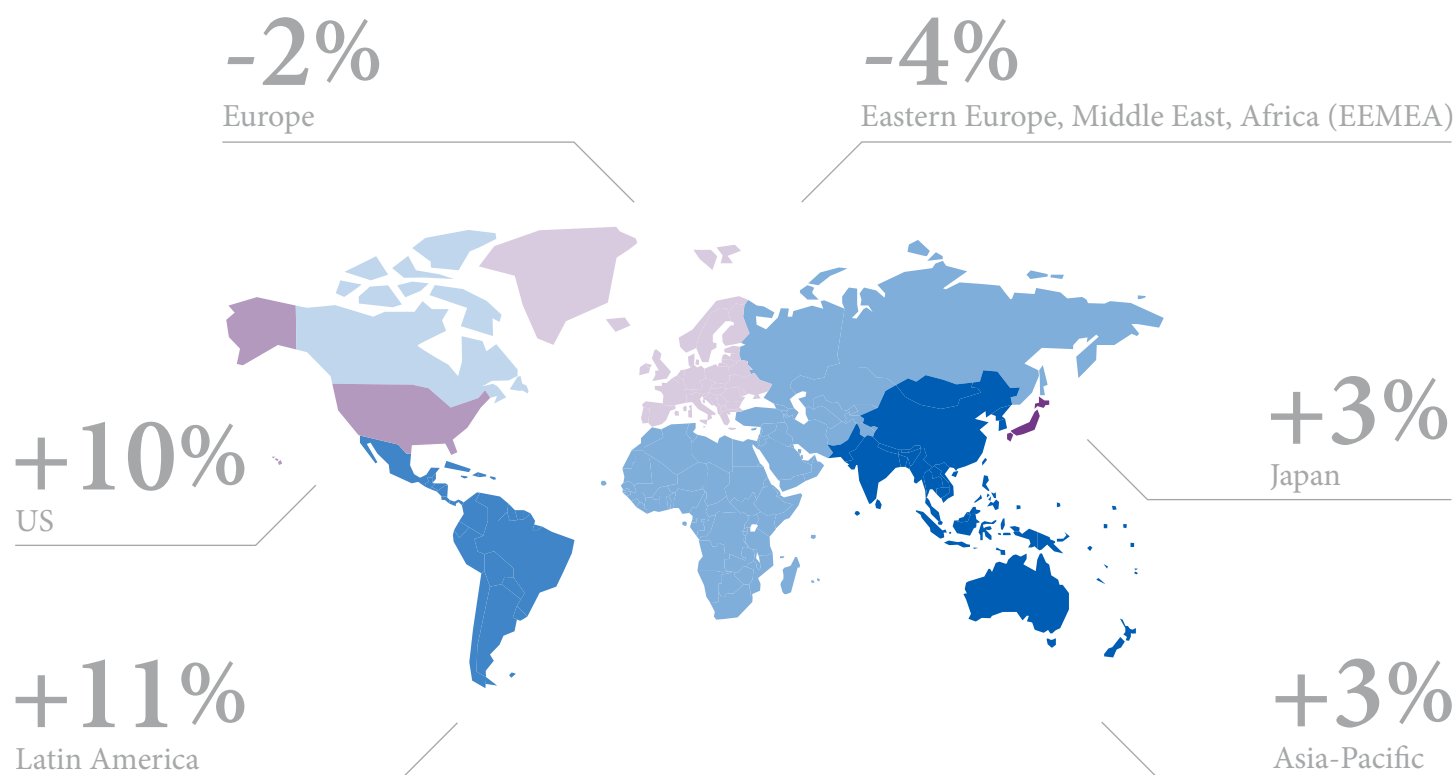
Japan

Sales grew 3%. Alecensa sales increased 41%. Sales of Tamiflu were up 25% and of Actemra/RoActemra +10%. The growth was partially offset by lower sales of various established products. Chugai contributed 9% to the overall Pharmaceuticals business.

International region

In recent years **Latin America** has seen stable growth. This has allowed governments to spend more on healthcare. However, significant challenges remain, as the landscape is marked by barriers that impede access to healthcare, including low levels of disease and symptoms awareness, late diagnosis, weak infrastructure, inefficient and insufficient funding and delays in the adoption of innovative medicines. Each country in Latin America faces unique challenges, and Roche's commitment is as varied as the region itself. Therefore, we partner with various stakeholders to develop tailored solutions to help increase access to

Fuelled by strong sales, the US is the growth driver of the division.



●●●● EEMEA, Latin America, Asia-Pacific and Canada form the 'International' region.

medicines and diagnostic tests. Latin America contributed 5% to the overall Pharmaceuticals business. Sales growth was driven by Brazil and Argentina.

In the **Asia-Pacific** region, sales growth was driven by established products, strategic products and new launches. In China, Herceptin, MabThera/Rituxan, Avastin and Tarceva were listed on the National Reimbursement Drug List (NRDL) in 2017. This is a significant step towards making these medicines available to the entire population of 1.4 billion people in the country. Several new medicines were launched in the region, including Ocrevus and Tecentriq. The Asia-Pacific region contributed 8% to the overall Pharmaceuticals business and growth was primarily driven by China, Taiwan, Vietnam and Australia.

Even with challenges in key markets impacting overall performance, many countries in the **EEMEA** region

achieved strong results. The region's priorities include improving access, competing against biosimilars and non-comparable biologics, and preparing for launches of our most innovative medicines. We achieved considerable success in accelerating registration timelines, with our medicines such as Tecentriq and Ocrevus becoming available to patients in several countries, even before EMA approval. At the same time, some markets experienced order shifts, and markets like Russia and Iran lost government tenders of biologics, which negatively impacted regional performance. The steady entry of our new medicines is mitigating the losses of products which face biosimilar competition. Strategic products contribute to growth, with Perjeta and Kadcyla among the top-selling medicines in the region. The EEMEA markets contributed 4% to the Pharmaceuticals business.

Additional options for patients

New products drive growth

The recently launched medicines Ocrevus, Tecentriq and Alecensa had a very good start following their arrival in multiple markets. Ocrevus, for the treatment of relapsing and primary progressive forms of multiple sclerosis (RMS and PPMS), met an extremely positive response on receiving approval in the US in March. Prescriptions have continued to increase throughout the year, leading to sales of CHF 869 million in 2017. By the end of 2017 over 30,000 people have been treated with Ocrevus globally.

Tecentriq, which was first approved in 2016 for the treatment of advanced bladder cancer in the US, in the meantime Tecentriq has also been approved for advanced lung cancer. This important new cancer immunotherapy treatment option has contributed CHF 487 million in sales. Roche is conducting a large number of studies of Tecentriq in combination with medicines from Roche's marketed and investigational portfolios as well as those with our external partners in an effort to improve treatment outcomes. Results from a number of clinical studies to date demonstrate its significant medical benefit.

Alecensa, first launched in Japan in 2014, has been approved for the treatment of a type of lung cancer. Sales total CHF 362 million.

Combined, these new medicines contributed CHF 1.4 billion in new sales. This represents 65% of the Pharmaceuticals Division's growth, driving overall growth while offsetting decreasing sales of products that are being phased out or affected by competition.

Continued strong sales increases

Several of our top-selling products show continued double-digit sales growth. For example, Perjeta, representing a major advance for the treatment of patients with breast cancer, generated total sales of CHF 2.2 billion (+19%) and contributed CHF 350 million of new sales in 2017. First launched in 2012, its usage is broadening as study results confirm its medical benefits in additional indications. In late 2017, the FDA approved Perjeta, in combination with Herceptin and chemotherapy for adjuvant (after surgery) treatment of HER2-positive early breast cancer at high risk of recurrence. This approval is based on results of the phase III Aphinity study.

Actemra/RoActemra sales increased 14%, totalling CHF 1.9 billion. Xolair, which is sold by Genentech in the US only, saw sales advance by 16% to CHF 1.7 billion. Activase/TNKase sales were up 10% to CHF 1.2 billion.

Ocrevus, Tecentriq and Alecensa contributed 65% of the division's growth.

New medicines for unmet needs

The approval of Tecentriq for the treatment of bladder cancer represents a major advance for people affected by a potentially life-threatening disease. There had been no major advances in the treatment of this type of cancer for the last 30 years.

Ocrevus is a highly effective treatment option for people with RMS and PPMS offering a favourable benefit-risk profile demonstrated in three phase III studies. Despite available therapies, some people with relapsing forms of MS continue to experience disease activity and disability progression/worsening of disability. People with PPMS, who had no approved treatment previously, experience a faster accumulation of disability. Ocrevus, given every six months, has the potential to transform the therapy of both forms of MS.

The approval of Actemra/RoActemra in giant cell arteritis added to the list of major breakthrough therapies in diseases with a high unmet need. Actemra/RoActemra is the first new treatment option for this debilitating disease in more than 50 years.

Hemlibra received FDA approval in November and contributes to Roche's strong history of innovation that transforms medical practice. Hemlibra is a bispecific monoclonal antibody designed to restore the blood clotting process in people with haemophilia A with factor VIII inhibitors. It is administered by an injection of a ready-to-use solution under the skin once weekly. The clinical development programme looks at its potential to help overcome current challenges such as the short-lasting effects of existing treatments, the development of factor VIII inhibitors and the need for frequent infusions.

Three of these innovative medicines—Actemra/RoActemra, Alecensa and Hemlibra—originate from the research laboratories of Chugai, Japan, which has been a member of the Roche Group since 2002. They were brought to market through collaborations with experts across the entire Roche Group and represent major contributions to patients, physicians and society as a whole.

Multiple sclerosis forced former Taekwondo World Champion Amr Khairy into a wheelchair.





Dr Amr Khairy, former Taekwondo World Champion, Egypt

“Multiple sclerosis patients truly do suffer a lot.”

I was initially interested in sports like tennis and was really good at it. I even took part in the national tennis championships. Then it was squash and football before I finally took up Taekwondo seriously. At the same time, I was continuing my studies and was accepted at the Faculty of Medicine in Cairo. My father, a surgeon, wanted to reward me with a trip to America. Instead, I asked him to send me to Korea to improve my Taekwondo skills. My first Olympics were in Seoul in 1988 and then I went to Barcelona in 1992. In between, I won gold at various world championships, until I was diagnosed with multiple sclerosis.

I had my first attack in 1999, when I was 32 years old, and was knocked out cold. I couldn't move my hands and legs. I was overwhelmed by fatigue, which surprised me as I was a fit sportsman. I visited countless doctors in Egypt, who directed me to seek treatment in the US, where I was diagnosed with multiple sclerosis at a reputed hospital. I started treatment, taking five shots of cortisone after each attack, but there was no long-term benefit. Dozens of attacks later, I was left with continuous seizures and numbness throughout my body.

Looking around for a therapy

That was when, in the absence of any other treatment option, I decided to look around the world for a

therapy that would be beneficial to me. I used to travel around the globe to participate in Taekwondo tournaments and now I was doing the same in search of treatment. When I had an attack, I couldn't move or talk. I used to be paralysed; I couldn't even swat a fly.

I finally underwent experimental stem cell treatment in China, in 2002. As a trained physician, I understood the risks, but I decided to proceed with the treatment. This therapy left me confined to a wheelchair, and yet I have had almost no attacks of the kind that used to knock me out almost every few days. For me, the potential benefits from seeking a risky treatment to reverse the long-term effects of my multiple sclerosis far outweighed the daily challenges of the disease. So I went to China not to cure my multiple sclerosis, but to relieve the symptoms.

This also highlighted to me the real need for a safe and effective treatment. I am happy that there is now a Roche medicine that has been approved for use in the US and other parts of the world.

Hopefully, it will come to Egypt soon. Until now there has been nothing. A treatment such as this involves much research and funding, but I pray to God that it comes through soon as multiple sclerosis patients truly do suffer a lot.



Science and innovation

Translating a brilliant idea into a medicine constitutes a complex ‘value chain’ of diverse activities. This chapter looks at some of the steps of this journey.

Material topics covered in this chapter

- Product portfolio strategy
- R&D pipeline strategy and personalised healthcare

Contribution to the UN SDGs



A *deep understanding of the biology of a disease is only the first step on the long road towards creating a safe and effective medicine.*

Translating a molecule into a medicine that really matters for patients calls for the combined creativity and unrelenting perseverance of thousands of people with specialised knowledge in a broad range of areas—from early discovery to late-stage development, from manufacturing to regulatory, from distribution to sales. Drug research and development (R&D) must tackle a multitude of variables that all have to be optimised in tandem. Experts across the Roche Group do not shy away from the complexity of this task in their search for a medicine that truly makes a difference in patients' lives.

Beyond the countless challenges that need to be mastered by scientists in their labs, translating a molecule into a medicine demands a high degree of cross-functional teamwork, not only within the company but often with external partners as well. Blazing new trails in the medical sciences means pushing the boundaries of our knowledge and navigating unfamiliar terrain where no standard textbooks exist to provide guidance. Setbacks and failures are part of this process and all the learnings derived from these disappointments will ultimately propel science ahead, resulting in breakthrough medicines.

Roche investigates diseases in such diverse areas as oncology, neurodevelopmental and neurodegenerative conditions, ophthalmology, immunology, inflammation and infectious diseases.

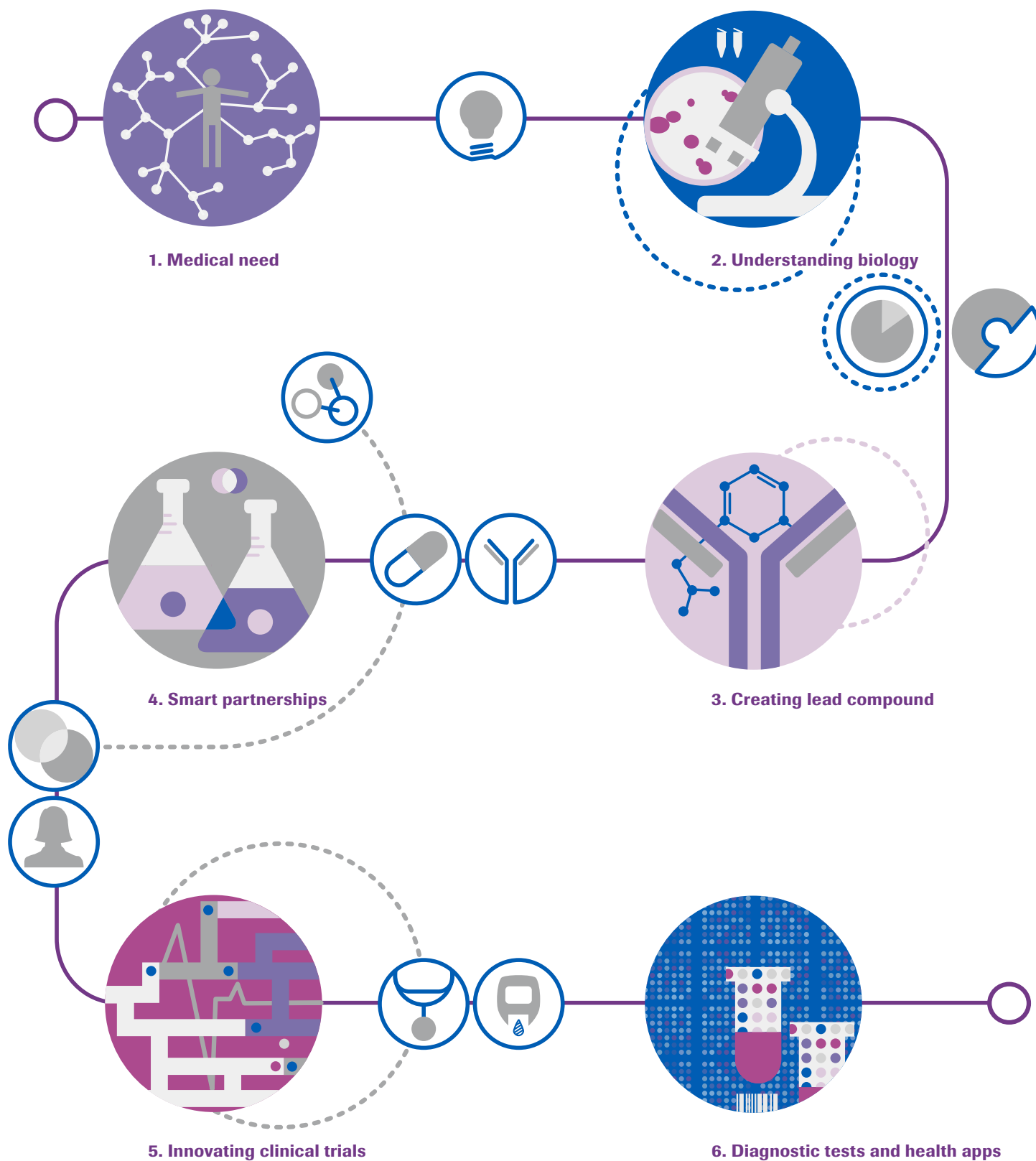
In the following pages, we will take a look at a few examples from six major phases or steps in this R&D 'value chain':

- identifying medical need and initiating appropriate action;
- understanding the underlying biology triggering a disease;
- creating a lead compound with all the right qualities;
- cultivating smart partnerships across academia, physicians, patients and industry;
- innovating and accelerating clinical trials;
- developing diagnostic tests and health apps that provide deeper insights into a patient's condition, so that doctors can make the best decisions for patients.



Identifying medical need

The discovery of antibiotics, starting with penicillin in 1928, is rightly considered one of the greatest medical achievements of the 20th century. Yet, for all their 'miraculous' qualities, these medicines are increasingly losing their lustre as rapidly mutating pathogens are acquiring resistance to widely used antibiotics. The challenge of the multi-drug-resistant 'superbug' is being addressed by the WHO and is conjured up at regular intervals in public debate. According to estimates,



This discovery-to-delivery 'value chain' can deliver 'value' only if all the links in the chain work to perfection. This chapter takes a look at a selection of interesting molecules and innovative technologies from key phases in this approach with more than 20 major steps.

10 million people are projected to die from untreatable bacterial infections by 2050.¹ Weakened, hospitalised patients suffering from underlying diseases are often more prone to healthcare-associated infections (HAI).

The spread of multi-drug-resistant strains of bacteria such as methicillin-resistant *Staphylococcus aureus* (MRSA), carbapenem-resistant *Enterobacteriaceae* or hard-to-eradicate, pneumonia-causing *Streptococci* has been recognised by the WHO and other health authorities as a worldwide crisis. It is a public health emergency demanding the combined efforts of multiple players such as the industry, hospitals, universities, governments, physicians and patients if the problem is to be tackled successfully. Addressing this unmet need by creating new medicines that are able to cure severe multi-drug-resistant infections would represent a valuable contribution to society.

In an unprecedented effort, Roche—along with over 100 companies and 14 industry associations—signed the Industry Declaration on Antimicrobial Resistance (AMR) at the World Economic Forum in Davos in 2016. This was followed by the adoption of an action plan by a number of pharmaceutical companies, including Roche, later that year.

In 2016, Roche also announced it was entering into a multi-year strategic alliance with BARDA, the Biomedical Advanced Research and Development Authority of the US Department of Health and Human Services. BARDA's Broad Spectrum Antimicrobials Programme aims to engage industry partners in an effort to jointly combat the rise of antibiotic resistance through the development of new medicines and diagnostic tests.

Starting in 2017, in line with these commitments, Roche began extensive efforts to develop new antibiotics and launched several diagnostic tests for our cobas Liat system to rapidly identify MRSA and other HAI-causing bacteria (see page 28).

Re-entering the antibiotic space

Roche has significantly stepped up its efforts in this space in the last few years, reviving its strong legacy in antibiotic research which had culminated in the launches of Bactrim in 1969, and Rocephin in 1982. The alliances with BARDA and the Industry Declaration on AMR support our internal R&D activities.

In addition to several promising pre-clinical compounds, Roche has two antibacterials in early clinical development: nacubactam for severe, hard-to-treat, Gram-negative *Enterobacteriaceae* infections and an antibody-antibiotic conjugate (AAC) for the treatment of MRSA. The AAC uses a breakthrough technology previously used in the oncology setting, where the antibody tags a specific bacterium and delivers the antibiotic right into the infected cell compartments, where it becomes activated to attack the bacteria.

Nacubactam's dual mechanism of action

Roche in-licensed its next-generation beta-lactamase inhibitor, nacubactam, in 2015 from Meiji Seika Pharma and Fedora Pharmaceuticals. It is a potent inhibitor of bacterial beta-lactamase enzymes and makes them ineffective, but is also an antibiotic in its own right, inhibiting bacterial cell wall synthesis. The development plan for nacubactam foresees administering it in hard-to-treat Gram-negative *Enterobacteriaceae* infections which have recently spread in intensive care units across Europe and the US. The FDA has given this molecule fast-track

designation, endorsing accelerated development plans, thus making the medicine available for physicians and patients much earlier. In the summer of 2017, the first patients were recruited for Roche's phase I study in patients with complicated urinary tract infections. The accelerated development plans will mean that the programme can then move on to the pivotal or registration trial directly.



Understanding the biology of disease

The human body can be likened to a 'machine' of mind-boggling complexity. More often than not, it works miraculously well. When things go awry, causing a disease, it is the research scientists who are called upon to understand, target and repair the underlying malfunction. Is this 'error' the result of a single missing gene in a specific cell? Or is the immune system in overdrive? More often than not, it could be a combination of diverse factors that have gone amiss.

Identifying the precise biological origin of a disease, and the potential disease-modifying targets for intervention, is the first step in the modern discovery of a medicine at Roche. This approach has proven valuable in oncology, neuroscience, ophthalmology and rare diseases and albeit quite recent is now consistently used in Roche's immunology research as well. Traditional treatment approaches for immune-mediated diseases focused on suppressing the whole immune system. Roche in contrast aims at finding molecules which fine-tune the system and restore the immune balance.

Target identification is grounded in a number of different approaches and technologies. These can



Currently available antibiotics are increasingly losing their effect as rapidly mutating pathogens are acquiring resistance. Increasingly, bacterial infections become life-threatening diseases.

include standard research technologies but also innovative imaging methods, sequencing of genes, as well as new ways of collecting and analysing deep data (also referred to as big data). When a suitable target for therapeutic intervention has been identified, the hunt for and design of the right molecule starts. With the help of automated high-throughput screening and state-of-the-art computer-aided molecular modelling, thousands of chemical molecules can be created and tested in a very short time. Target identification also represents the start of activities for the development of antibodies; however, very different methods and procedures are applied in this case. The lead compounds finally chosen then have to undergo iterative, multidimensional optimisation to achieve the best balance between dose, exposure, side effects and efficacy. The ultimate goal is to find a compound with the best possible active structure that fits the intended target perfectly, is well tolerated and highly effective.

¹ www.un.org/press/en/2016/ga11825.doc.htm

Molecule optimisation in SMA

Spinal muscular atrophy (SMA) is a neuromuscular disease caused by a missing or mutated single gene called survival motor neuron 1 (*SMN1*) which encodes the SMN protein. Without this protein, the nerve cells in the spinal cord cannot survive, resulting in muscle weakness and atrophy. SMA is one of the most frequent monogenetic rare diseases and the leading cause of infant mortality.

In healthy people, the *SMN1* gene is very efficient at making sufficient amounts of full-length protein leading to normal motor neuron function. In patients affected by SMA, this gene is missing, so the critically important SMN protein is absent as well. But evolution has created a 'backup' gene or rescue gene called *SMN2* that is very similar to the *SMN1* gene. In this gene, the RNA splicing machinery acts differently and most of the *SMN2* gene is translated into a truncated and unstable protein. The result is that only about 10 to 20% of the amount of SMN protein that humans need is produced.

Roche took on the challenge and this research project is also the most advanced one in its rare diseases portfolio. For the first time ever, an oral *SMN2* splicing modifier to treat SMA is now moving forward to hopefully help children with this devastating disease. A deep understanding of disease biology was a major prerequisite in the *SMN2* alternative splicing programme. It started back in 2006 when a patient organisation, the SMA Foundation, initiated a discovery programme with the company PTC Therapeutics. In November 2011, Roche gained an exclusive worldwide licence to the discovery programme. Over the course of four years, the molecule underwent several optimisation steps for safety and efficacy. Scientists greatly improved the molecule's ability to access difficult areas in the body such as the brain. They also ensured that the potential

medicine would remain in the body long enough to achieve its medical purpose. The main challenge, however, was that most human genes are alternatively spliced and depend on correct splicing for their specific functions. The task was to investigate about 60,000 potential other targets to differentiate them and spare any other critical gene. The results of these efforts were published in the journals *Science* and *Nature Communications*.^{2,3} The molecule RG7916 received fast-track designation from the FDA in April 2017 and is the first small molecule RNA splicing modifier to be tested for efficacy in a phase III clinical trial.



Creating a lead compound with the right qualities

New technologies enable scientists to better understand the root cause of diseases, especially in cancer. Increased granular insights into the vast and varied landscape of causative disease factors in cancer have brought the creation of potentially game-changing new therapies a big step closer to realisation. A striking example of such a novel treatment modality is a new class of personalised cancer vaccines (PCV) which are specifically tailored to the tumours of individual patients, thus taking personalised healthcare to the next level. A German biotech company, BioNTech, developed a novel mRNA vaccine approach, and Genentech, a member of the Roche Group, signed a strategic collaboration with BioNTech in September 2016 to co-develop this platform.

Attempts at developing therapeutic cancer vaccines targeting self-antigens on tumours have been notoriously unsuccessful in the past as most cancer cells are regarded as 'self' by the immune system. However, scientists have identified a different type of tumour antigen, called neoantigens, which are encoded by

acquired mutations. When neoantigens are presented to the immune system, they are seen as 'non-self' or foreign. Since tumour neoantigens are unique for each patient, a molecular fingerprint for each tumour can be identified by sequencing the tumour's genome. The exact fingerprint derived from this analysis can then be used to develop a vaccine. Our PCV platform, which we are developing with BioNTech, is designed to deliver mRNA that can code up to 20 unique neoantigens using a lipoplex formulation that allows for intravenous administration. When injected, mRNA is delivered to immune-presenting cells that can process and present neoantigens to the immune system. T cells can then recognise—and be taught to target and destroy—tumours that express the tumour-specific neoantigens.

The emergence of personalised vaccines, such as those from BioNTech, has been made possible thanks to the combination of state-of-the-art genomic sequencing and modern bioinformatics, a growing understanding of cancer biology and the emergence of the cancer immunotherapy field. Enthusiasm for neoantigen-based vaccines has also been spurred by observations that patients with higher neoantigen burden respond better to checkpoint inhibitors such as Tecentriq. Thus, personalised neoantigen vaccines such as BioNTech's have the potential to be broadly combined across Roche's cancer immunotherapy portfolio and research programmes. This could be considered the next wave of immunotherapy.

In July 2017, the journal *Nature* published the results of a BioNTech study in which an mRNA-based vaccine was tested in carefully selected melanoma patients for the first time. Eight of the 13 patients remained tumour-free at 23 months.⁴ In late 2017, we included the first patient in the phase I study of our vaccine RG6180 combined with Tecentriq in solid tumours.

For the first time ever, an oral medicine is moving forward to hopefully help children with SMA.

Unrivalled expertise in protein engineering

MabThera/Rituxan was launched in 1997 by Genentech. At that time, it was the company's first biotechnologically produced monoclonal antibody giving true hope for people with cancer. Two decades later, the Roche Group has a portfolio of highly differentiated biologics that can recognise more than one antigen, leverage the body's own immune system to fight disease or act as transporting proteins to deliver, for instance, a toxic payload directly into specific target cells.

Gazyva/Gazyvaro, introduced in 2013, leverages a new technology: By designing and controlling the type of sugar molecules in a specific region of this antibody, the affinity of the antibody for immune effector cells is increased, triggering the death of cancerous cells more effectively.

Scientists across the Roche Group have continued their efforts to further broaden the toolbox for physicians and patients to fight cancer by developing new classes of anti-cancer medicines. In cancer immunotherapy, for example, new antibodies are being created that can engage immune cells to kill tumour cells, eliminate cells which suppress the immune response, or generate more immune cells to recognise tumour cells. One of these promising new cancer immunotherapy platforms is a T cell bispecific antibody, which can be engineered to target different antigens in solid and blood-based (haematological) tumours.

² Naryshkin N, et al. *Science*, 2014. | ³ Sivaramakrishnan M, et al. *Nature Communications*, 2017. | ⁴ Sahin U, et al. *Nature*, 2017.



A new, blood-based assay is in development to ultimately help tailor treatment options to the specific immune biology of an individual's tumour.

Diversity of approaches: bispecific antibodies

We are currently developing two T cell bispecific antibodies that target CD20, a protein expressed only on the surface of B cells (a type of white blood cell); they are both in phase I clinical development.

The CD20 T cell bispecific (TCB) is based on a structural format that is engineered to have two antibody fragment ('Fab') regions which bind to CD20, and one 'Fab' region which binds to CD3 (a protein that plays a role in T cell activation). In contrast, the CD20 T cell-dependent bispecific (TDB) has a structure with one 'Fab' region targeting CD20 and another 'Fab' region targeting CD3. These antibodies have the potential to be a long-term differentiator in haematology as they could provide a level of clinical benefit for patients with B cell malignancies beyond current anti-CD20-targeting antibodies. Such new

antibody formats also hold promise in specific cancer settings in terms of combination trials with approved cancer immunotherapies such as Tecentriq.



Smart partnerships across academia and industry

Researchers are facing huge complexity in the medical sciences today and it is impossible to master these challenges alone. For example, what we term 'lung cancer' can now be segmented into at least 40 different molecular subtypes, each driven by a distinct set of genomic drivers. Each of them requires a distinct set of tailored treatment approaches. Add to that an abundance of targeted investigational compounds available in this setting, and we are confronted with almost limitless choices. In view of the naturally limited resources of any one single company, collaborations with diverse partners are therefore essential.

Seeking and securing new first-in-class or best-in-class opportunities to address unmet medical need is the remit of the partnering units of Roche in the Pharmaceuticals and Diagnostics Divisions. They complement and strengthen the respective internal R&D organisations in their search for transformative technologies and therapies.

Roche Pharmaceuticals is engaged in over 200 partnerships worldwide. Every year, several more new collaborations are sealed. A significant proportion of this division's sales and its pipeline are the result of partnered projects. The goal of such collaborations is to successfully leverage the combined strengths of both internal and external stakeholders, ensuring mutually beneficial partnerships that will ultimately help patients.

Advancing personalisation in oncology

One example of such collaboration is the agreement signed between Roche and GNS Healthcare, in June 2017. Roche will use the GNS technology REFS (Reverse Engineering and Forward Simulation) to analyse massive volumes of proprietary data such as electronic medical records and next-generation sequencing data. Using these real-world data the collaboration aims to generate unique insights and unravel the hidden drivers of drug response and cancer progression. There are still many challenging cancers, such as CD20-positive diffuse large B cell lymphoma, and we hope to find new personalised next-generation cancer treatments to address such challenges.

Having established a strategic alliance with Foundation Medicine (FMI), Roche announced first positive results of a new assay being jointly developed by the two companies in September 2017.⁵ Its aim is to advance personalisation of cancer immunotherapy by capturing and subsequently leveraging progress in biomarker science, ultimately helping to tailor treatment options to the specific immune biology of an individual's tumour. This is facilitated by a novel assay, bTMB, or blood-based tumour mutational burden, a quantitative clinical marker that measures the number of mutations within a tumour genome.

The bTMB biomarker study was conducted using 794 plasma samples from the pivotal phase II Poplar and phase III Oak Tecentriq studies. TMB has been found to correlate with and be indicative of the likelihood of progression-free survival benefit from immunotherapies such as Tecentriq. Until now, TMB could only be measured using a tumour biopsy. By using this testing approach, it may be possible to extend TMB testing to significantly more patients.



Innovating and accelerating clinical trials

The emergence of entirely new classes of drugs is opening up hitherto closed doors for highly targeted treatment options and staggered combination regimens. This development is also calling for unconventional approaches in the clinical trials space—from the recruitment and selection of trial participants to the identification and validation of novel endpoints. In the neurosciences, or central nervous system disorders, where Roche has developed a very strong position in R&D in the last few years, there are several factors which complicate both the exact diagnosis of disease and the setup of meaningful trial protocols.

In cancer, a tissue biopsy can be taken which more often than not reveals its molecular underpinnings, for example a specific genetic mutation. By contrast, in neurodegenerative diseases such as Alzheimer's disease or in neurodevelopmental diseases such as autism spectrum disorder, both affecting the brain, it is evident that no such biopsies can be taken directly. Fortunately, alternative methods such as different imaging technologies allow revealing glances into the brain and are becoming more effective.

For oncology clinical trials, there are certain 'objective' endpoints whose change over time can be measured quite well, such as tumour shrinkage, overall survival

Collaborations with diverse partners are essential to master today's complexity in medical science.

⁵ Gandara D R, et al. European Society for Medical Oncology (ESMO) Congress, 8-12 September 2017, Madrid, Spain.

and progression-free survival. In the neuroscience area, however, the identification and validation of endpoints is much more difficult, requiring innovative thinking and collaborative approaches.

Imaging tau pathology in Alzheimer's disease

Tau pathology is a hallmark of Alzheimer's disease (AD) and certain other neurodegenerative disorders. In AD, post-mortem studies suggest that the amount and specific location of tau pathology in the brain correlates with the types of cognitive symptoms and overall disease severity present during life. It would therefore be valuable to be able to detect tau pathology in people living with AD, in order to assess disease progression and support therapeutic clinical trials. Radiochemists at Roche have identified small molecules that selectively bind to tau pathology and are amenable to radioisotope labelling—enabling the use of positron emission tomography (PET) to detect tau in people living with AD.

The lead tau PET tracer is currently under evaluation in a phase I observational study. In this study, patients with AD undergo imaging with the tracer every six months, and preliminary data suggest that this technology is sensitive to disease progression. This novel and valuable technology has already been incorporated into every AD trial in the portfolio across the Roche Group, including trials of crenezumab, gantenerumab and RO7105705 (anti-tau).

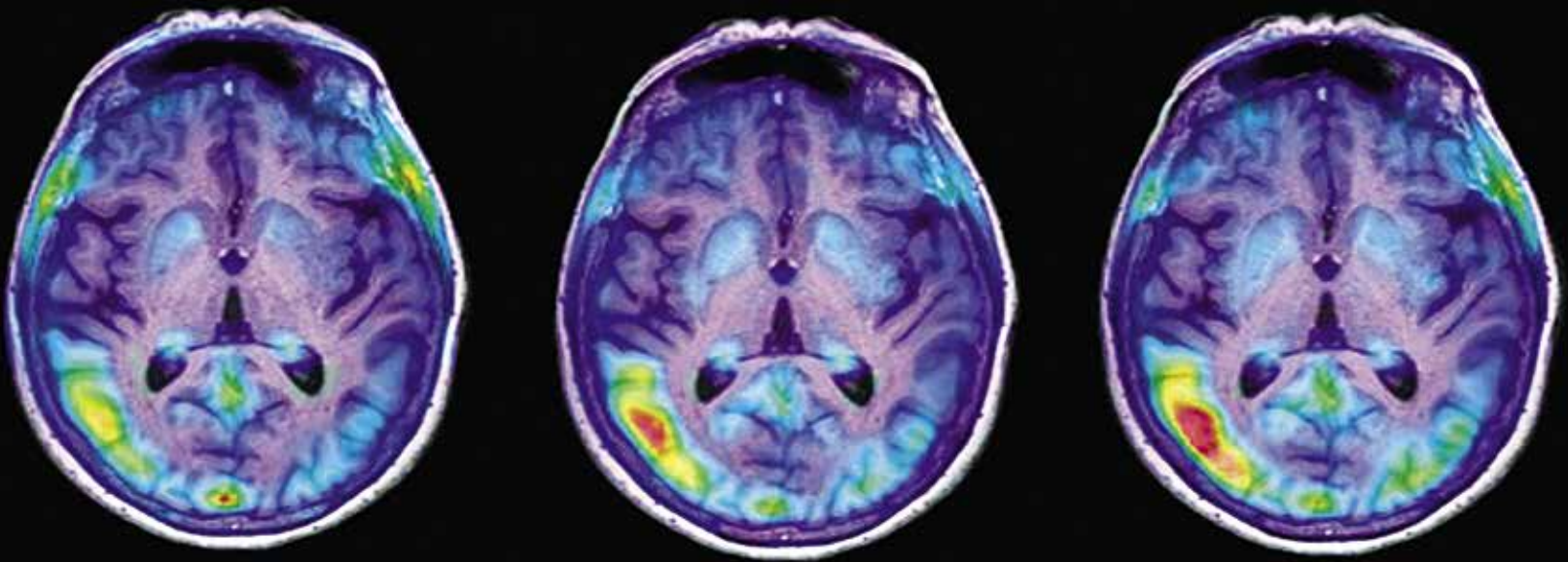
Clinically meaningful change in autism

Medicinal chemists at Roche did groundbreaking work on vasopressin-receptor antagonists starting back in 2002, and they ultimately succeeded in creating a small molecule in 2008, RG7314, balovaptan. Fast-forward to 2017: This molecule is now being investigated in late-stage pivotal trials for the treatment of individuals with autism spectrum disorder (ASD), the most common neurodevelopmental condition, characterised by difficulties regarding social interaction and communication. Hitherto, only behavioural and cognitive treatments have been available for people with autism.

Discovering and designing the optimal molecule was a major achievement, but it was not the only one. Before going into the clinic to assess the molecule's efficacy in potentially improving the core social and communication challenges faced by people with autism, the big challenge was: How do we measure change in this context? How do we demonstrate that balovaptan is really improving adaptive behaviours needed for everyday life? How can we make sure that the positive change is clinically meaningful enough for patients, caregivers and the authorities, so that it warrants the significant investment required for late-stage development?

Roche scientists investigated the Vineland Adaptive Behaviour Scales, a very robust and useful tool to quantify social behaviours and communication skills as well as impact on daily living. In collaboration with key players in the field (international consortia, academic institutions, major foundations and patient advocacy groups), Roche scientists collected data from approximately 10,000 Vineland Adaptive Behaviour Scale results. They applied very rigorous statistical methods and estimated thresholds or numbers

In the CNS area, the identification and validation of endpoints requires innovative thinking and approaches.



Positron emission tomography (PET) enables scientists to detect tau in people living with AD. The time points from left to right are 0, 6 and 12 month scans, same patient and same axial plane.

indicative of minimal changes. These are now agreed as being meaningful. For the first time, a behavioural scale was in place and was used in clinical trials. In short, and based on all this successful work, Roche is now being recognised by top researchers and the scientific community, as well as by patient groups, for setting new standards and for progressing clinical research in the area of ASD. In January 2018, balovaptan has received FDA breakthrough therapy designation.



Developing diagnostic tests and health apps

In June 2017, Roche announced the start of a phase II study co-developed with Prothena, using its anti-alpha-synuclein antibody RG7935 in Parkinson's disease (PD), an area of high unmet need which lacks a disease-modifying treatment. By binding to

aggregated alpha-synuclein, this first-in-class molecule targets the underlying pathology of PD, halting an infection-like spread of neuronal death. PD is a progressive degenerative disorder of the central nervous system (CNS) affecting one in 100 people over age 60. It is characterised by the neuronal accumulation of aggregated alpha-synuclein in the CNS that results in a wide spectrum of worsening motor symptoms (resting tremor, muscle stiffness, walking difficulties, balance problems).

The current clinical assessment standard is the Movement Disorder Society's Unified Parkinson's Disease Rating Scale (MDS-UPDRS). This relies on the physician testing the patients. The scale also includes asking the patient about perceived severity. However, the details of what happens between clinic visits are largely unknown. Roche scientists designed an app with an integrated assessment suite to remotely

Pharmaceuticals clinical pipeline

	Phase I	Phase II	Phase III	Registration
Oncology				1
			3	
		2		
	21			
Inflammation/ Immunology			1	
		8		
	7			
Neuroscience			4	
		7		
	5			
Infectious diseases			1	
	5			
Ophthalmology		1		
	2			
Others		1		
	3			

Our pipeline of 72 new molecular entities (NMEs) covers a broad range of diseases, and highly innovative technologies are applied to create and produce the active molecules.



Pipeline:

roche.com/pipeline

measure and capture motor symptoms in PD patients via continuous monitoring. With this smartphone clinicians are equipped with much more sensitive and comprehensive outcome data than would ever be possible using one-off testing on short visits to the neurologist's clinic. The ultimate goal is to capture vast amounts of data fast and reliably to monitor individual treatment response and subsequently to allow personalisation of treatments.

Applying machine learning to large data sets

Active tests register signals on tremor, dexterity and balance among others. For instance, to check the level of tremor, the patient holds the phone in the

outstretched hand while the phone's accelerometer records the hand movement. Passive monitoring registers signals on gait, activity and mobility without patient interaction by using the accelerometer and GPS sensors to get a picture of the patient's daily activity, how far they walk, and how often they sit down or get up. Value can be extracted from these massive data sets by applying machine learning, namely a toolbox of algorithms capable of providing interpretable results. In the study, sensors did indeed detect significant rest tremor in patients clinically scored as having no tremor. On the basis of these encouraging results, the impact of targeting alpha-synuclein with RG7935 and its impact on disease progression as measured

using a next-generation Parkinson's app plus a smartwatch are being evaluated in the global phase II study that started in June 2017. The first results obtained so far are highly promising, and they point to the great potential of digitisation in healthcare.

Connecting the past with the future

Historically, Roche has been very productive in bringing important medicines to patients. The fact that 30 medicines developed by Roche are included in the WHO Model List of Essential Medicines is ample proof of that. Twenty-five of these are patent-free and include life-saving antibiotics, anti-malarials and cancer medicines.

Recent history proves that Roche's continuous massive investment in R&D, now totalling roughly one-fifth of sales or CHF 10.4 billion on a Group level in 2017—the largest single R&D budget in the life sciences industry and one of the largest across all industries—has borne rich fruit in the last few years. Roche now has 72 new molecular entities in its Pharmaceuticals' R&D portfolio, all being tested in hundreds of early- and late-stage clinical trials. The number of medicine launches between 2011 and 2017 was three times higher than in the previous seven years.

We continue this legacy of drawing on our world-class pharmaceuticals and diagnostics capabilities, complemented by solid expertise in the areas of next-generation sequencing and actionable real-world clinical data. Roche is uniquely positioned to take personalised healthcare to the next level.

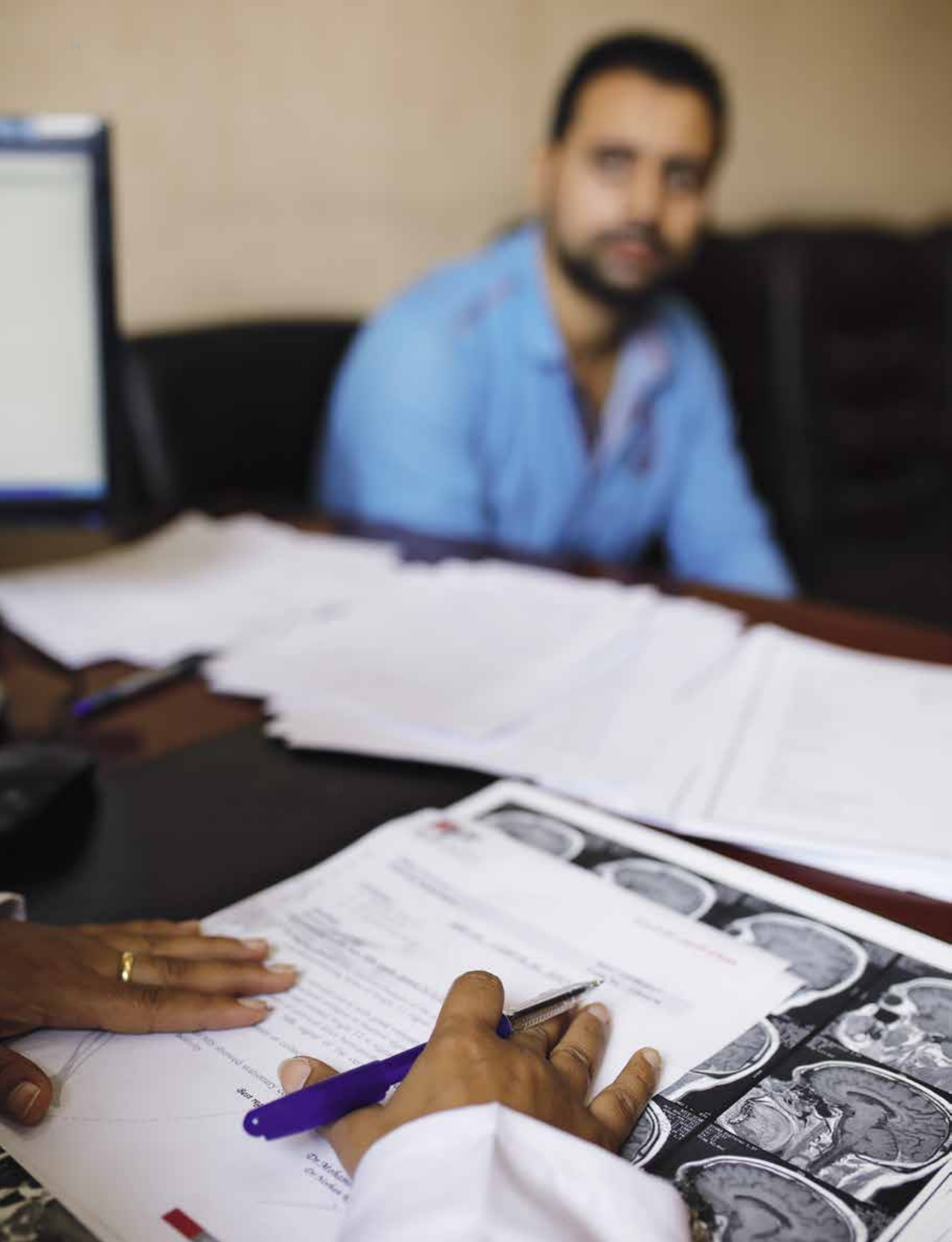
In an era of digital technology, we will be able to increasingly tailor medical treatment to the needs of individuals and small sub-groups of patients,

because we can review more information about how diseases manifest themselves and how patients experience them day-to-day. This development will bring disruptive change to how we research, develop, approve and pay for medicines.

Since 2013, the FDA has granted Roche 19 breakthrough therapy designations (BTDs) to expedite the development and review of medicines with early evidence of potential clinical benefit in serious or life-threatening diseases. Roche leads the industry in terms of the number of BTDs, which bears witness to the innovative power of Roche's worldwide R&D efforts and clearly reflects the value of our products for patients, and for society at large.

The year 2017 saw a strong flow of positive news for Roche. Regulatory approvals of important new medicines such as Ocrevus and Hemlibra as well as positive data from key clinical studies such as Alur, Alex, IMpower150 and 151 in non-small cell lung cancer and kidney cancer as well as Haven 1, 2 and 3 in haemophilia A were among the major highlights of the year. These positive developments were tempered by some trials failing to meet their primary endpoint. However, the many positive results from our clinical trials and approvals of new medicines represent a strong validation of our pipeline during a time of major change in our industry.

The positive developments reported in 2017 represent a strong validation of our pipeline.



Access to healthcare

Groundbreaking advances in medical science are only meaningful when they reach the people who need them.

Material topics covered in this chapter

- Sustainable healthcare
- Pricing
- Disease awareness and treatment education
- Growth strategy in emerging markets

Contribution to the UN SDGs



W*e develop comprehensive access plans adjusted to local requirements and embed them into our business strategy.*

According to the WHO, 400 million people lack access to basic healthcare.¹ It is a multidimensional challenge that does not have a 'one size fits all' solution. Complex treatments, such as those for cancer, often require sophisticated diagnosis, specialised training and hospital infrastructure for successful therapy. The barriers to this differ from country to country. Roche focuses on locally tailored solutions because access is so intricately linked to how healthcare systems work. We address the multidimensional challenge of access through focusing on four key areas:

1. *Awareness*
2. *Diagnosis*
3. *Healthcare capacity*
4. *Funding*

In order to properly address these four factors, we need a deep understanding of the root causes of why people might not have access to medicines and diagnostics. To this end, we systematically apply our Access Planning Framework country by country, creating comprehensive access plans which are then embedded into our business strategy. To date, we have these detailed plans in more than 70 countries.

Joining forces to make a difference

Roche is playing a leading role in an initiative which brings together more than 20 leading biopharmaceutical companies along with the World Bank and the Union for International Cancer Control (UICC). The Access Accelerated Initiative was launched in 2017 and focuses on improving access to treatments for non-communicable diseases (NCDs), such as cancers, cardiovascular diseases, chronic respiratory diseases and diabetes. In doing so, it takes up the UN Sustainable Development Goal to reduce deaths from NCDs by a third by 2030.

A key pillar of this initiative is the commitment of individual companies to scale up their own efforts to improve access. Roche launched new programmes in 2017, one in Pakistan, to offer a sustainable financial solution for those needing Roche oncology and immunology biologic medicines (details page 61).

Another programme is being conducted in Kenya, where Roche is working with the government to increase access to treatment for HER2-positive breast cancer. Roche supported a comprehensive plan which addresses awareness, diagnosis and healthcare capacity as well as treatment.



Breast cancer, Morocco
Breast cancer, USA
Breast cancer, Colombia



HIV, sub-Saharan Africa
HER2 testing, Asia



Diabetes, Africa/Asia
Breast cancer, Saudi Arabia
Elderly care, Japan



PRM, Europe
Differential pricing, Egypt
Financial support, USA

Awareness of disease and symptoms is essential for screening and early detection.

Diagnosis of the disease can be complex, but is vital to ensuring the right treatment choice.

Healthcare capacity needs well-trained teams working together with the right equipment to provide the best chances for patients.

Funding for healthcare investment and reimbursement of medicines and tests is critical to protect patients from financial burden.

Increasing awareness to help early detection

Successful treatment begins with an awareness of the symptoms of a disease and a visit to a healthcare professional. Lack of awareness can keep patients from accessing care. Roche runs awareness campaigns and builds strong partnerships all over the world to improve this.

The impact of such awareness programmes has been demonstrated in Morocco. The local Roche organisation partners with the Lalla Salma Foundation in the Contre le cancer campaign which initiated breast cancer awareness and screening programmes. To date, free screenings have been provided for about one million women, enabling early breast cancer diagnosis for hundreds.

Meanwhile, in the Middle East, we are developing a breast cancer policy project in collaboration with international partners to better understand the attitudes and priorities around cancer in the region, and to use this research to develop a white paper.

This will be used with local governments to increase understanding of cancer and its impact on the public, and to help improve healthcare funding.

Following an agreement with key partners in the United Arab Emirates, Roche is supporting local health authorities in reducing cancer mortality by 2021 through conducting workshops, educational activities and awareness campaigns to train healthcare professionals. In addition, Roche is partnering with stakeholders in the Dubai Cancer Initiative to provide unlimited access to screening and cancer treatment for all of the four million people who live in Dubai.

Successful therapy begins with awareness of the symptoms of a disease and a visit to a healthcare professional.

¹ WHO. Tracking universal health coverage: first global monitoring report, June 2015.

In Latin America, we teamed up with the Economist Intelligence Unit to raise awareness of the impact cancer is having in the region.² At a presentation at the War on Cancer LATAM conference in Bogota, it was highlighted that deaths from cancer in the region will increase by 106% by 2035 and that better disease awareness, diagnosis, healthcare capacity and funding as well as partnership and collaboration were needed.

Timely diagnosis to ensure right treatment choices

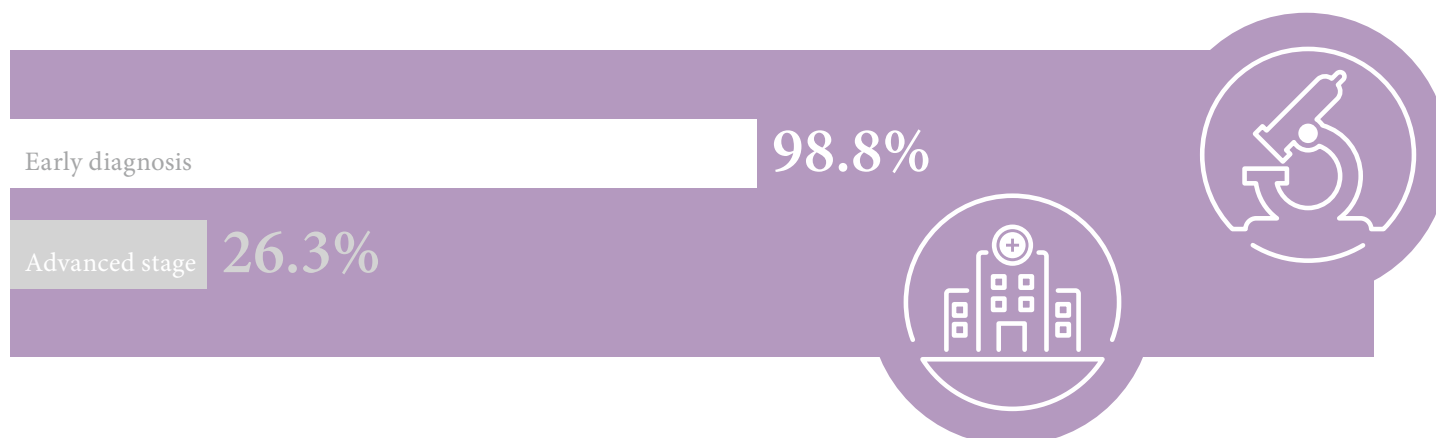
Diagnosis is critical and can be complex, requiring specialist laboratory technicians or facilities for testing that may not be accessible for many people. Proper diagnosis is the only way to ensure that the right treatment choice is made.

Early, accurate diagnosis can significantly increase a patient's chance of survival. In breast cancer for example, 98.8% of patients survive five years if diagnosed early compared with only 26.3% if diagnosed with the disease at an advanced stage.³ As a result of modern diagnosis and therapy, breast cancer death rates dropped 39% between 1989 and 2015 in the US.⁴

As a result of modern diagnosis and therapy, breast cancer death rates dropped 39% between 1989 and 2015 in the US.

However, in many countries, early diagnosis is rare. In a number of African countries, up to 80% of cancer patients are diagnosed at the late-to-end stage. In addition to the lack of general awareness, many hospitals or clinics are simply not equipped with the instrumentation or qualified personnel needed to provide treatment. This is why the placements of Roche's automated Ventana Benchmark diagnostic equipment for tissue diagnosis (immunohistochemistry, IHC) and respective training programmes are critical components of our support for access in sub-Saharan Africa (SSA). To date, 50 technicians have been trained and this will have an impact on disease areas other than breast cancer. A total of eight cancer centres across SSA now have this state-of-the-art technology.

The breast cancer project initiated by Roche in Turkmenistan enabled significant improvement of early detection and differentiated diagnosis of disease. One of the main pillars of the project is the introduction of IHC diagnostics with our automated equipment. Switching from a manual system to automated testing allowed an increase in HER2 biomarker testing for women from 100 in 2015 to 800 in 2017. This included patients from regional hospitals and remote areas of the country. Another pillar is widespread disease awareness campaigns, regularly conducted with Roche's support since 2011 in the capital Ashgabat and in five regions of the country, resulting in a 10% increase in early breast cancer detection versus 2010.



In breast cancer, the vast majority of patients survive five years if diagnosed early while only about one quarter of women survive if their disease is caught at a late stage.

Having diagnostic capabilities in place is only meaningful if people can get to the clinic to be tested. In Colombia, for instance, breast cancer causes the highest number of deaths in women from cancer each year. However, many Colombian women are not aware of the risk factors for cancer or of the importance of early detection and diagnosis.

Roche is working with some of Colombia's largest healthcare organisations to address this issue by providing training and awareness campaigns and by creating Consultorios para la mujer (women's consulting rooms) throughout the country. These are specialised clinics working towards improved access to early diagnosis and improved treatment. The objective is to reduce the barriers and hurdles a patient may encounter on the way to diagnosis, treatment and, hopefully, recovery where possible. This is done by working with health insurance companies, healthcare professionals and providers, as well as with the government. So far, almost 5,000 healthcare professionals have attended plenary lectures on our patient journey programmes, while

another 900 have attended 26 workshops on conducting clinical breast examinations. In 2017, more than 100,000 women were screened. Overall, this approach might serve as a template for other types of cancer as well.

Improving healthcare capacity

Limited healthcare infrastructure—such as a lack of healthcare facilities and trained healthcare professionals—is often a major barrier to accessing modern medicines and diagnostics in some of the world's poorest countries. To help overcome these barriers, Roche has established a number of programmes aimed at making lasting improvements in local capabilities. These range from educating and training healthcare professionals and regulatory personnel to helping establish clinics and laboratories and strengthening local manufacturing capabilities and supply chains.

Our focus is on increasing local capabilities, as we believe this provides the most sustainable way of addressing local health needs and helping develop



Women undergoing rehabilitation activities following breast cancer surgery.

healthcare systems for the future. One such example is The Blue Tree Programme in India, which was presented as an example of best practice at a side event during the 72nd United Nations General Assembly (UNGA) in 2017. It is a unique cancer patient support initiative tailored to address the multiple hurdles that patients experience during the course of their treatment—primarily around diagnosis, affordability and adherence. In 2017, the project supported over 4,000 patients. Roche partnered with more than 750 doctors and this enabled access to treatment across 300 cancer centres in India. Patients on the programme have shown a 40% increase in therapy adherence rates.

In Latin America, the online platform Diálogo Roche was established in 2015 to keep healthcare professionals across the region updated with information about clinical studies, scientific advances and congresses.

This negates the need for healthcare professionals to travel to major cities to attend necessary ongoing medical education. In 2017, Diálogo Roche reached more than 50,000 registered physicians in seven countries across Latin America.

The health infrastructures of many countries in Africa do not have the capacity to meet the rising need for care for non-communicable diseases, including cancer. The current healthcare workforce in sub-Saharan Africa would need to be scaled up by some 140% to meet existing need. To help address the acute shortage of oncology healthcare professionals, Roche conducted 116 training sessions for oncology specialists across the region in 2017.

Enabling sustainable healthcare funding

We have developed a number of pricing solutions, such as Personalised Reimbursement Models (PRM),

which enable pricing according to the value the medicine brings in different indications, and International Differential Pricing, which sets the price of a medicine according to a country's economic situation with a purchasing power parity adjusted GDP per capita formula. One example of how this hurdle has been overcome is Roche's collaboration with private insurance companies in countries where public coverage may not be adequate.

In China, four of our cancer medicines—Herceptin, MabThera/Rituxan, Avastin and Tarceva—were included in the National Reimbursement Drug List (NRDL) as of 2017. For the first time, cancer patients all over China will have access to these potentially life-saving treatments. This agreement came as a result of Roche's systematic approach of identifying local access hurdles and creating a tailored local plan.

In Uruguay, as a result of a commercial agreement with the country's National Resources Fund, HER2-positive breast cancer patients will now have full access to Herceptin, Perjeta and Kadcyla from 2017 to 2019, with 900 patients expected to receive treatment during this time period.

In order to protect patients from financial burden, funding is needed for investment in healthcare and the reimbursement of medicines and diagnostic tests. However, many countries do not provide universal healthcare that spreads the risk of catastrophic disease across the population as is done in the more developed parts of the world. In countries lacking such coverage, too often, patients are turned away or go into debt

Collaborations with insurance firms provide millions of patients better access to cancer medicines.

because they cannot afford proper cancer care. In Southeast Asia for example, 75% of patients diagnosed with cancer suffer financial catastrophe or die within a year. Meanwhile, medical insurance schemes cover less than 8% of the population in Africa.

Innovative funding solutions

Where funding barriers exist, we find practical ways to overcome them. In Georgia, we entered into an agreement with the city municipality of Tbilisi to improve funding for HER2-positive early breast cancer patients eligible for Herceptin. In 2017, this programme was expanded to include breast cancer patients receiving Perjeta and Herceptin in the metastatic setting by offering flexible pricing solutions. Now, all women with early breast cancer in Georgia can be treated with Herceptin, and we are pursuing efforts to enable the treatment of advanced breast cancer patients across the country.

In Pakistan, we launched a patient support programme in collaboration with a number of partners in 2017 that enables us to provide funding to indigent patients who are eligible for Herceptin, MabThera/Rituxan, Avastin and Perjeta. Since August 2017, more than 500 patients have been able to receive potentially life-saving medicines that otherwise would have been out of reach.



Micha Nussbaum, Roche, Brazil

“By doing our jobs well, we are making a contribution to the community.”

I am Swiss and studied medicine at the University of Zurich. I have always been interested in translating scientific innovation into patient benefits. That is what eventually led me, after an interlude as a business consultant, to the pharmaceutical industry.

My interest in Brazil began with an exchange programme during my MBA studies. It is a huge and fascinating country, with many different subcultures brought by waves of immigrants. Despite the current economic crisis, there is an underlying dynamism that rewards people who take the initiative and are persistent. I joined Roche in São Paulo in 2014. Together with functional experts across the company, we focus on expanding access to therapy for cancer patients. Like many other developing countries, Brazil has a rising incidence of breast, cervical and colorectal cancer.

Partnership with Brazilian healthcare authorities

Working alone, Roche can have only a limited impact in such a large country. But by collaborating with federal, state and municipal healthcare authorities in Brazil, our public access managers are making a difference. For example, we have reached agreements with the states of Goiás and Maranhão to expand access for patients to advanced oncology treatments, and negotiations are proceeding with other states.

Together, we made a detailed analysis of every step in the cancer patient's journey—from prevention and screening to diagnosis and treatment. We try and

look for sustainable solutions. When we identified healthcare bottlenecks caused by a lack of training, Roche organised courses for 5,000 doctors, nurses and community workers across Brazil. When we discovered that many women were not picking up their cancer screening results, we developed a system to inform them with messages on their mobile phones.

We leveraged our international connections and invited an expert on Canada's oncology healthcare policies to share best practices at a congress for national public policymakers. We also commissioned a benchmarking report from the Economist Intelligence Unit on Brazil's current oncology healthcare policies. The findings are being presented at local congresses to highlight successes as well as areas for improvement.

I appreciate working with public policymakers as partners and in this way helping to improve access to healthcare. I will continue this collaboration at Roche as I transitioned from Pharmaceuticals to my new position in Diagnostics.

People in Brazil can feel that we at Roche have a long-term commitment, and see us as both a global and a local company. In my case, there is also a personal connection. I am married to a Brazilian cardiologist, and we are raising two children here. We are both convinced that by doing our jobs well, we are making a contribution to the community.



Our people

Talented individuals connected and inspired by our purpose are the basis of our success. Our people drive healthcare innovations that touch the lives of millions of patients.

Material topics covered in this chapter

- Employee engagement and talent retention
- Compensation/benefits
- Leadership Commitments
- Organisational effectiveness

Contribution to the UN SDGs



*T*here is something special about working at Roche and it starts with our culture.

After more than 120 years, we remain a majority family-owned Swiss company, committed to innovation and focused on the long term to ensure that what we do is sustainable for future generations. When asked about our culture, Roche employees describe the deeply engrained values of integrity, courage and passion. They also highlight collaboration, the thrill of working on the cutting edge of science and the inspiration that outstanding leadership provides. Underpinning it all is our shared purpose: *Doing now what patients need next*. People working at Roche know their work contributes to breakthrough diagnostic solutions and innovative medicines to treat cancer, multiple sclerosis and a host of other serious diseases.

We also continue to receive accolades for being a top employer and creating an excellent environment for our people. Year after year, our headquarters in Switzerland and Roche affiliates around the world are awarded top marks by the Great Place to Work Institute and the Top Employers Institute in their respective countries. In the US, Genentech and Roche were once again recognised by the highly coveted Fortune's The 100 Best Companies to Work For list.

Innovating in our people practices

In addition to pushing into new frontiers of science, innovation is also present in how we focus on our people. A company-wide project serves to transform

our core global people practices with principles of simplicity, flexibility, accountability and speed. A critical component of this transformation is technology, which plays a key role in offering us more sophisticated, yet user-friendly options that provide our people with easy system access, from any place on any device at any time. To embed the mindset required for our new practices, we have reshaped one of the ways our people interact to support more timely and meaningful conversations. Via 'Check-Ins', the dialogue between employees and managers puts a conscious focus on four essential themes: connections, capabilities, contributions and career. This simple and powerful framework further fosters relationships based on trust, and shared ownership, and also ensures that conversations focus on what matters most.

Leveraging diversity and enhancing wellbeing

The importance of mutual respect in the workplace is reflected in our commitment to Diversity and Inclusion (D&I). We were one of the first major corporations in Europe to state our D&I goals publicly, and have made substantial progress in achieving them. We think beyond the physical characteristics to the qualities that make each person unique. In order to leverage diversity as an engine of innovation, we strive for an inclusive workplace where each individual is respected and can fully contribute his or her skills, experiences and perspectives. Complementing the

support from our leaders, we have a global network of D&I champions who lead efforts within sites and functional areas. A grass-roots example is 'Do one thing for Diversity', an initiative where employees globally posted pledges and videos of how they are or will be positively impacting D&I.

We want our top leadership to reflect our organisation and society as a whole. Roche also believes that building up first-hand knowledge of the healthcare environment is beneficial as it can help in expanding access to treatment and guide us in doing what is right for patients. By supporting our people to gain experience living and working in high-growth and developing markets as well as mature, established markets, we strengthen our capabilities and embed this critical understanding.

We established corporate goals several years ago to increase the percentage of women leaders and, more recently, added a focus on increasing the percentage of leaders that bring experience from diverse markets. The percentage of women in leadership roles at Roche overall has risen 28% since 2014. In terms of leaders with breadth of experience, we have also achieved our initial milestones.

Importance of work-life balance

As a healthcare company, we believe that a healthy lifestyle is a major factor in the overall wellbeing of our employees. This is the basis for Live Well at Roche. This initiative, tailored by each site to best represent their needs, may include medical check-ups

and screenings, fitness centres, workplace ergonomic evaluations and counselling services. Once a year, we also dedicate a special week for Roche sites globally to collectively focus on wellbeing and heighten overall awareness of the importance of this topic. Employees learn more about our Live Well offering and participate in activities organised by their local teams ranging from sports and relaxation techniques to lectures on health topics and nutrition.

Finding the desired balance between the many priorities in life can be challenging and varied for each person. Roche firmly supports flexible work arrangements, part-time work and job sharing. Flexibility also means finding new ways of working with technology and alternative work environments. Our people use video-conferencing and telepresence. They are also engaged in several online communities for best practice sharing, solving problems, and virtually connecting with colleagues across geographies. This benefits our people and also the environment by reducing the carbon footprint. We have also progressively introduced work environments with diverse concepts that encourage collaboration, enable quiet as well as private space and foster a spirit of teamwork and innovation for our people.

Flexibility also means finding new ways of working with technology and alternative work environments.

Learning and leadership development

Adapting to an ever-changing world

At Roche, we strive to help our people realise their full potential and contribute at a high level as our organisation evolves in a fast-changing world. That is why learning is integral to our daily work and we emphasise the continuous building of capabilities for now and the future. Managers partner with employees to ensure that the most impactful actions are taken to support an employee's learning and professional growth. These can range from building new connections to gaining new experiences, classroom courses or online learning.

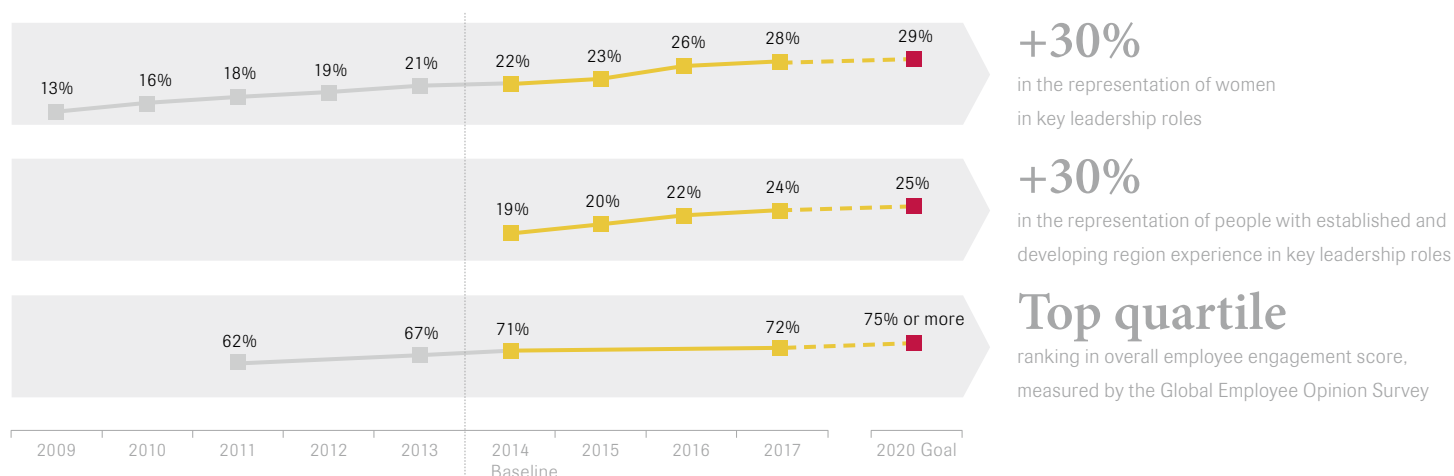
Learning and development have many dimensions at Roche. It may be a 'stretch' assignment that challenges an employee to grow professionally, a Changing Perspectives temporary assignment at an affiliate on another continent, or a micro-secondment for volunteer work in Africa. In the case of our Pharma Technical Operations team representing more than 10,000 employees, it means learning by doing, working in a more efficient way through LEAN manufacturing. Or it may be 'reverse mentoring', in which different generations of people work together, learn from one

Our Leadership Commitments

I firmly believe that each person at Roche deserves a great leader. Every day I strive to lead by example, consistently demonstrating our values of Integrity, Courage and Passion.

1. I take a genuine interest in people.
2. I listen carefully, tell the truth, and explain 'the why'.
3. I empower and trust people to make decisions.
4. I discover and develop the potential in people.
5. I strive for excellence and extraordinary results.
6. I set priorities and simplify work.
7. I congratulate people for a job well done.

People: five-year goals based on 2014 figures



another and find opportunities to leverage collective strengths.

Kinesis and NJIA: a new kind of leadership development

We believe that every employee deserves a great leader. The touchstone of what that means at Roche can be found in our Leadership Commitments—created through a collaborative effort across the company. We expect our leaders to bring these commitments to life in their daily behaviour. These expectations are reinforced through a range of learning experiences for leaders such as Leading@ Roche, a suite of programmes for all leaders in the organisation.

Our newest executive leadership development offering is Kinesis, aptly named because it represents the ever-changing landscape and the agility needed in our leadership response to those changes. The emphasis is much less on traditional instruction and much more on peer-to-peer learning, personal introspection and solving real-world problems.

Experience-based leadership development is also the focus of NJIA (Kiswahili for 'path'). Mid-level managers undergo an intensive week in rural Tanzania, where they work with local counterparts on results-oriented projects such as expanding screening for cervical cancer. For many participants, the personal and professional impact is life-changing (see page 72).

World-class talent shaping the future

Enhancing our digital capabilities

A key reason why many prospective employees join Roche and choose to stay with us is the calibre of the people who work here. From award-winning scientists with pioneering inventions to top experts and professionals in various fields of study, we attract and retain some of the world's most talented people.

Applause: recognition that reflects the way we work

Recognition for a job well done is a powerful motivator and contributes a great deal to overall work satisfaction. At Roche, we have a number of awards for extraordinary achievements. In addition, we have implemented an innovative programme known as Applause that encourages peer-to-peer recognition. Employees can send their colleagues anywhere in the world customised thank-you notes and nominate them for points that can be redeemed from an online catalogue. This method of recognition works especially well for our many project teams that collaborate across national and functional boundaries. Roche employees made use of Applause over 231,649 times in 2017.

Cutting-edge science and personalised healthcare

Roche is a science-driven company, and we are constantly looking for talent to drive the next wave of healthcare breakthroughs. One important trend shaping our industry is deep data. With our leadership position in personalised healthcare—using molecular diagnostics and targeted medicines to customise therapy for each individual—we are in a unique position to translate deep data into patient benefits. To realise this new medical paradigm, we are developing and enhancing the digital capabilities of our people as well as recruiting software engineers, bioinformatics specialists, real-world data analysts, machine learning experts and other digital professionals who connect to our purpose.

Under the umbrella of Code4Life, Roche launched a coding game on its career website for engineers to present their coding skills. The goal of this game is to equip a laboratory to produce medicines for patients—and ultimately to attract talented digital professionals to Roche. Winners received the opportunity to visit the company, see real laboratories and meet with senior executives. The number of teams that participated in the game was impressive and provided excellent insights for future initiatives.



Our talent strategy is to pursue recruitment excellence by attracting the best highly skilled, motivated people.

Roche offers a highly competitive salary and performance-based rewards. There is a wide variety of generous benefits tailored to the needs and expectations of our various locations. These may include pension plans, health insurance, child care, on-site medical facilities and fitness centres, preventive health screenings, and transportation to and from the workplace. Employees are given the opportunity to buy Roche stock at a discounted price in many countries.

Our outreach programmes for young people are another way of shaping the future and ensuring that we have qualified candidates for the future. To help

students acquire technical and scientific skills needed in the coming years, Roche has established excellent partnerships with universities in several countries such as China, Spain and the US to shape their curriculum. In Switzerland, the Roche apprenticeship programme has achieved such strong results that the local government has requested we train additional students to provide more qualified graduates. This apprenticeship programme has been so successful that it is being replicated in South Korea. Finally, we have invested in Futurelab in South San Francisco and the world-class Experio lab in Switzerland to give back to society and help prepare the next generation of scientific leaders.



Ashley Magargee, Roche, Singapore

“I think about the impact we had and the magnitude of the unmet need.”

As General Manager of the Roche affiliate in Singapore, I am accustomed to working in a fast-moving, dynamic environment. But my experience in Tanzania took it to a whole new level. The leadership development programme NJIA—Kiswahili for ‘path’—is about keeping your focus in an ambiguous environment. NJIA is a partnership between Roche, the Tanzanian government, and not-for-profit organisations.

I was part of the third team from Roche and local healthcare leaders who came together in rural Tanzania to apply our leadership skills to preventing cervical cancer. During my 12-day stay, which was part of a longer six-month programme, we learned that the medical need is compelling. Tanzanian women are 20 times more likely to die of this disease than women in developed countries.

We were based in Bukoba on the western shore of Lake Victoria. My group’s focus was on getting treatment for 65 women on a nearby island who had tested positive for pre-cancerous cervical cells. A previous NJIA team had developed materials to raise awareness about screening and treatment.

Different approach to leadership

At Roche, we are used to implementing meticulous project plans. That did not work in Tanzania, where things did not always go as planned. During our first lake crossing, for example, a powerful storm rocked our boat and knocked out all electricity on the island.

I learned to step back and not look immediately for solutions. A different kind of leadership was needed here—one that emphasised working with and through our Tanzanian counterparts. It replaces decisions and delegation with listening, asking and empowering. One way to do that was role modelling: We demonstrated how to structure a meeting, get all ideas on the table and ensure clear individual responsibilities. I remember one team member in particular, Happy. It was so gratifying to see how she developed new skills and gained more confidence every day. In return, Happy showed me how much you can do with few resources and passion.

An official from the local healthcare district was part of my group. With new-found skills from NJIA, he made a convincing case to his superiors for acquiring inexpensive cryotherapy equipment through locally available resources to treat pre-cancerous cervical lesions. Our group also included a healthcare practitioner who went to the island to perform the cryotherapy. I am convinced that he saved lives by diagnosing the disease early among those 65 women. Since then, he has screened more than 700 women living on the islands.

When I reflect on my experience in Tanzania, I think about the impact we had and the magnitude of the unmet need. It gives me renewed energy for our mission at Roche and challenges me at the same time: How can I do more?



Environment

At Roche, protecting the environment is not just a legal or social obligation, it is integral to our values.

Material topics covered in this chapter

- Environmental responsibility

Contribution to the UN SDGs



A *s a global company we have been committed to mitigating our impact on the environment for many years.*

We proactively seek new, more sustainable technologies and processes to achieve our environmental goals. We focus our efforts and activities on many environmental issues, supporting several of the world's serious environmental challenges, for example, climate change, water scarcity and pharmaceuticals in the environment.

So, what are we doing to address environmental issues?

Environmental risks are mitigated via a system of prevention and a successful environmental management system (EMS). We have established a proactive EMS to reduce costs, increase efficiency and enhance competitiveness.

The effectiveness of our EMS is reviewed frequently. Expert teams at each Roche site identify risks and develop mitigation plans. We have a dedicated team to audit our chemical, pharmaceutical and diagnostic manufacturing facilities. Plant management and local officers conduct more frequent checks and inspections. Furthermore, we have developed a clear and defined process to create progress through target setting and initiating action plans. The goals we set in the areas of people, environment and business are challenging but feasible.

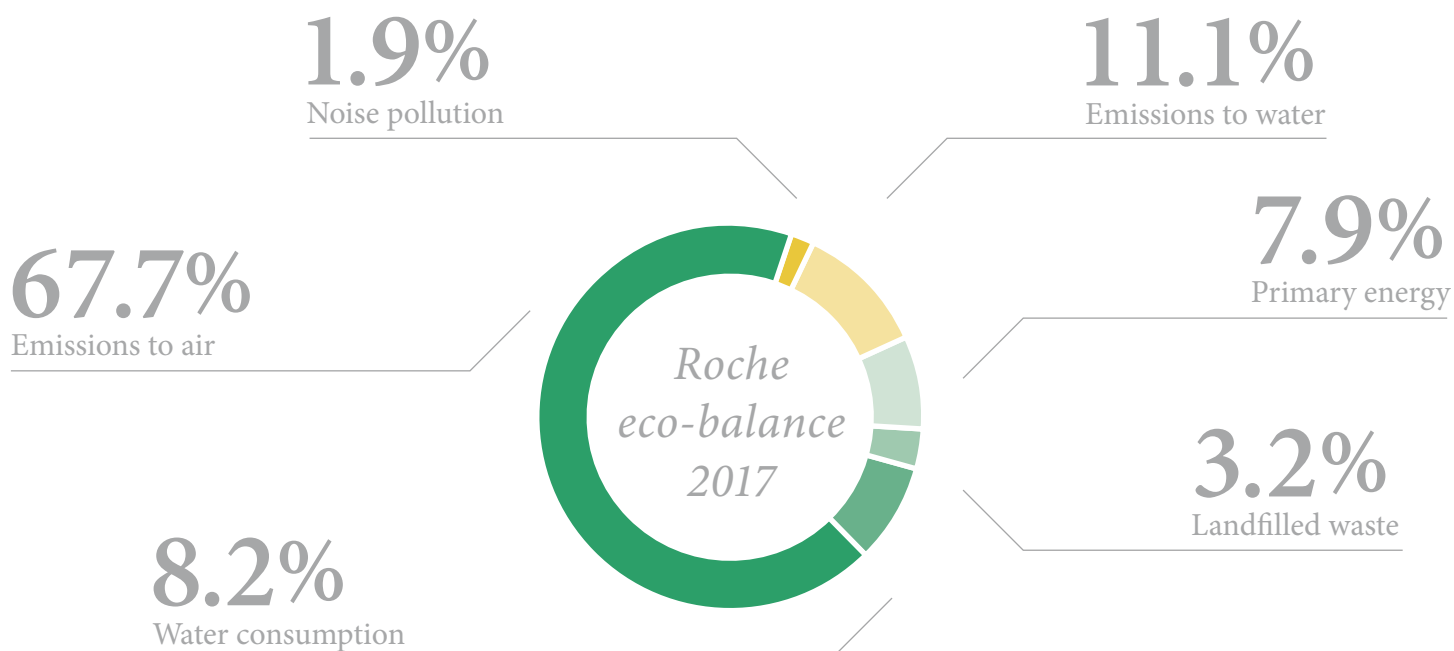
Furthermore, we invest in innovative technologies and conduct training programmes for all Roche employees. In 2017, a total of 107,444 employees participated in 322,859 hours of dedicated training, an average of approximately 3.0 hours per employee.

We are committed to continuously monitoring key performance indicators to ensure compliance with our standards and objectives. Our aim is to achieve at least 95% of each key performance indicator.

Roche eco-balance 2017

We measure our impact on the environment by using the eco-balance metric, developed by the Swiss Federal Office for the Environment, and we are compliant with their latest guidelines.¹ This metric provides us with a global view of how we are impacting the Earth's ecosystems.

In 2016, we reached our eco-balance goal (10% reduction compared to 2014). Since then, we have aimed to reduce our eco-balance goal by a further 2% each year. Our improvements in terms of decreasing energy consumption, air emissions and the volume of water consumed, as well as in reducing the weight of chemical waste, led to a further improvement of 8.7% in 2017 compared to 2016. We achieved these results despite growing production capacities and additional buildings across sites.

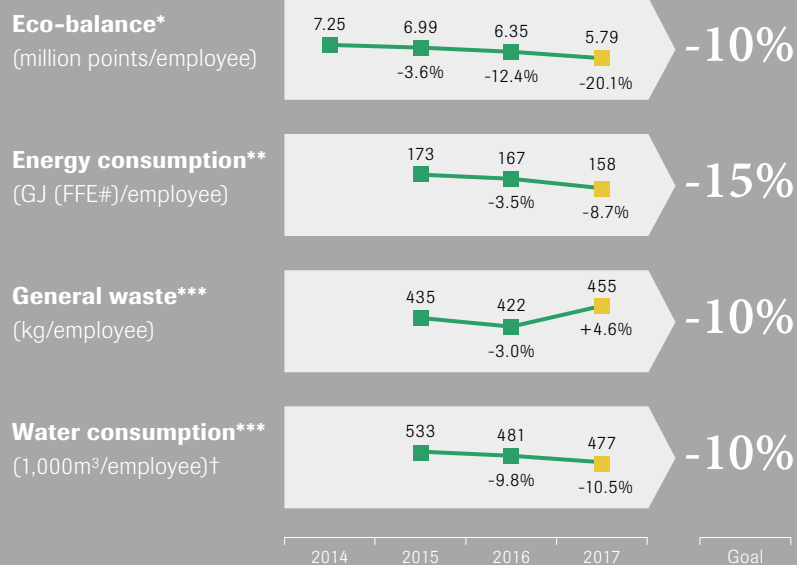


Natural capital assessment

In parts of the world where water is becoming increasingly scarce and its quality is in gradual decline, restrictions around use and potential costs of supply may increase, so we believe it is important to develop a strategy for this now.

In 2017 we committed to assessing water management at our site in South San Francisco, US, using the Natural Capital Protocol. This is an internationally agreed framework that sets out how businesses can measure the monetary value of their environmental impacts and dependencies to both society and themselves.

Five-year goals



* 2014-2019 | ** 2015-2025 | *** 2015-2020 | # FFE: Fossil Fuel Equivalent |
† weighted by water stress

Reducing energy and water consumption

Introducing eco-efficient technologies

A large proportion of the energy used in our operations currently comes from fossil fuel sources such as oil and gas. In the long term, however, our goal is to fully substitute fossil and nuclear energies with energy from renewable sources. Roche utilises a wide range of practices, techniques and skills to keep energy consumption to a minimum. In 2017, our total energy consumption decreased by 5.4%, while sales grew 5%. This included a 6.8% decrease in energy used in buildings and stationary equipment (gas, fuel oil, waste, electricity, district heating).

Energy consumption in terajoules

	2017	2016	2015	2014
Total (scope 1* and scope 2**)	9,219	9,824	10,297	10,808
Energy (scope 1 and 2) consumption (GJ/employee)#	91	98	105	108
Scope 3*** Business flights	2,871	2,953	2,876	2,672

* Scope 1: energy generated within own facilities (eg. combustion of gas)

** Scope 2: purchased energy | *** Scope 3: business flights

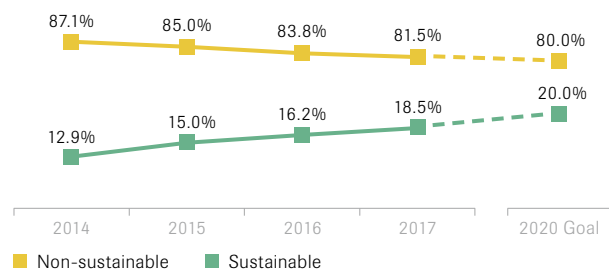
Data collected by Group SHE | (GJ = gigajoule)

We focus on measures to reduce our energy consumption and, in parallel, to decrease CO₂ emissions.

At our Diagnostics site in Tucson, US, for example, we have established a 20-year-term agreement with the local utility provider. This will allow our local site to be 100% solar-powered using renewable energy from the utility provider. In addition, the provider can validate the usage of solar power, which allows Roche to acquire renewable energy certificates showing reduction in emissions versus fossil fuel usage. There will be considerable environmental benefits associated with this initiative, including an expected 90% reduction in CO₂ emissions from our Tucson site over a four-year period starting in 2015.

Vacaville, US, is another Roche site to install solar power arrays. Since the solar plant came online in May 2017, it has generated approximately 7,700 MWh of electrical energy, avoiding 5,489 t of carbon dioxide. During the first five months, this venture has saved Vacaville approximately USD 800,000. It is anticipated that first-year savings will be around USD 950,000.

Share of sustainable energy



Reducing our water consumption

Our goal, to reduce water consumption per employee by 10% by 2020, was reached this year. Our aim now is a continuous improvement in both the long and short term. Our approach is to manage and monitor water use locally. Even though most of the sites that use large volumes of water are not located in areas of water scarcity, we adopt conservation and reduction programmes according to local needs.

Water usage and discharge

	2017	2016	2015	2014
Water withdrawn (million m ³)	15.9	18.2	18.9	18.4
Water consumed (million m ³)	3.0	3.1	3.5	3.0
Water discharged to treatment plant (million m ³)	5.8	5.7	7.8	5.8
Organic matter discharged to waterways after treatment (t)	144	149	190	141
Heavy metals discharged to waterways after treatment (kg)	129	164	160	236

To this end, all Roche sites are either working on or implementing programmes to reduce water usage or to increase efficiency in water usage.



Andreas Oeri, representative of the founding family and member of the Board of Directors, shows strong interest in sustainability. He joined a safety, security, health and environmental protection (SHE) audit of a third-party provider in India in 2017.

In 2017, for the first time, Roche was identified as a global leader for its actions to manage water more sustainably. CDP, the not-for-profit global environmental disclosure platform, awarded Roche a position on this year's Water A List. Through CDP, more than 800 institutional investors with assets of over USD 100 trillion are asking companies to disclose how they are managing the risks posed by worsening water security. Companies on the Water A List receive the highest rating in accordance with CDP's water scoring methodology.

Reducing emissions to air and water

Phasing out greenhouse gases

At Roche, we want to reduce emissions at their source. To support this, sites are required to develop action plans that are closely monitored for implementation and effects.

With these plans in place, we are able to maintain the low level of emissions to the air achieved so far, and to make further improvements at our manufacturing sites. And this approach is working. Since 2002, the company has reduced halogens and halogenated refrigerants by approximately 91%.

Upgrading technology to reduce environmental harm
We are reducing our carbon footprint by purchasing energy-efficient equipment, including hybrid cars, and by increasing sustainable energy supplies, as well as by monitoring employee travel needs and work processes. Since 2010, a total of 1,411 projects have been completed, resulting in an avoidance of 177,050 tonnes of CO₂ emissions in 2017. This led to an estimated cost saving of CHF 40.5 million per year.

Our site in Oceanside, US, successfully installed more environmentally friendly freeze-thaw natural refrigerant systems, which are used for drug substance freezing. The new units use 15% less energy than the previous ones, leading to estimated annual electrical savings of 17,600 kWh, USD 2,280 in utility cost and a reduction of 13.1 tonnes of carbon dioxide.

Greenhouse gases are being phased out

The majority of greenhouse gases (GHG) emitted by the Roche Group come from energy generation and consist, for the most part, of CO₂. Less than 1% is halogenated hydrocarbons from refrigeration and cooling plants.

In 2017, our emissions to air from nitrogen oxides and sulphur dioxide increased by 5.9% and 19.7%, while particulates and volatile organic compounds decreased by 5.8% and 18.9%, respectively. Our absolute scope 1 and scope 2 GHG emissions were cut by 12.6% in 2017.

Halogens, halogenated refrigerants and fire suppressants are GHGs that can remain in the atmosphere for a long period of time. We have therefore committed to a 20% reduction in our use of these halogens by 2020 compared with 2015.

Halogenated hydrocarbons in tonnes*

	2017	2016	2015	2014
Inventory	114.3	134.3	154.6	167.3
Consumed released	1.3	2.7	1.8	2.6

* Global inventory including Chugai, Genentech and Ventana



The production of pharmaceuticals and diagnostic products at a site such as Penzberg, Germany, would not be possible without clean water.

CO₂-equivalent emissions in tonnes

	2017	2016	2015	2014
Scope 1				
Fuel combustion	291,850	319,538	379,457	356,348
Halogenated hydrocarbons	3,469	6,463	4,964	6,234
Scope 2				
Pre-2015				376,159
Market-based	270,123	320,860	322,046*	–
Location-based	343,711	403,924	408,078*	–
Total (Scope 1 and Market-based)	565,442	646,861	706,467*	738,741
Scope 3				
Business flights	203,814	209,660	204,179	189,714
Energy-intensive utilities**	9,081	15,170	20,064	–
Waste	66,522	63,560	–	–

* Due to changes in reporting methodology, this number is different to that reported in 2015. | ** Compressed air and liquid nitrogen

Reducing waste

Safeguarding the ecosystem

We aim to implement the following waste management strategy in all our activities: avoid, reduce, reuse, recycle and thermally destroy. We permit landfilling only as a last resort and, even then, only for inert materials such as slag or ashes.

We only discharge wastewater and pollutants if they comply fully with relevant regulations, including pre-treatment requirements. At above 90%, the elimination rates in our wastewater treatment plants are already high.

Using 2015 as a baseline, our aim is to reduce general waste per employee by 10% by 2020. In 2017, this performance indicator increased by approximately 4.6% compared to 2015. The reason for this increase is likely to be awareness campaigns aimed at an improved reporting under this category.

Chemical waste (incinerated and landfilled) decreased by approximately 21% in 2017. In parallel, however, the weight of contaminated soil, from remediation activities at Grenzach, Germany, as well as environmental-related activities at our site in South San Francisco, US, increased by approximately 98%. These one-off activities contributed approximately 86% of the 126,011 tonnes.

Good ideas do not go to waste

There are various innovative activities underway at our sites to help reach our goals, and often these ideas come from within the organisation. One example is at Roche's packaging plant in Kaiseraugst, Switzerland, where syringes prefilled with medicines are among the products packed. Any rejected prefilled syringes cannot be repacked, and this means the medicine must be discarded as chemical waste.

Employees worked with the manufacturer of the packaging machine to find a way to reintroduce the rejected syringes into the packaging process. The result is an annual saving of almost CHF 6 million and a significant reduction in chemical waste.

Landfilled and incinerated waste in tonnes

	2017	2016	2015	2014
General waste generated	12,478	12,498	26,314	16,730
Chemical waste generated	17,245	21,906	25,742	27,142
Contaminated soil	108,766	54,937	—*	—*
Construction waste	16,189	12,804	8,223	15,064

* Prior to 2016 this data was not collected separately.

Roche's Genentech site in South San Francisco collaborated with the City of South San Francisco and the US Environmental Protection Agency (EPA) to reassess whether specific streams of wastewater from biotechnology production processes that required collection could instead be sent to the city's wastewater treatment plant.

Based on the studies performed by the EPA, it was concluded that these wastewater streams will not adversely affect the city's wastewater treatment operations.

Following this collaboration, the South San Francisco site was able to reduce the 2017 wastewater volume collected from 246 m³ to 60 m³ lessening CO₂ emissions from transportation and off-site treatment. This change reduces the disposal cost by almost USD 200,000 per year.

Sharing our knowledge, investing in the future

Switzerland is at the forefront of efforts in environmental protection due to its long history and broad experience of coping with environmental pollution issues.

In 2017, the 14th International Conference on the Biogeochemistry of Trace Elements (ICOBTE) was held in Zurich, and we partnered with ETH Zurich, the internationally top-ranking university in Switzerland, to enable ten PhD students and postdoctoral scientists from different countries to attend. We also sponsored a technical excursion for conference participants to learn about corporate responsibility and our innovative approach towards remediating a former landfill.

About 20 young scientists from countries including India, Brazil, Russia, Chile, Japan, Poland, Pakistan,

Our first goal is to safeguard the ecosystem while protecting our business against long-term risks.

Mexico, China and Iran were hosted at a former landfill in Grenzach-Wyhlen, Germany. Showing our remediation approach to young scientists is a way to share best practice and ensure it is implemented elsewhere.

Pharmaceuticals in the environment

Traces of pharmaceutical products can enter the environment in a variety of ways, including via the manufacturing process, improper disposal of unused medicines and through natural metabolic processes following normal patient use.

Roche is acting on concerns about the impact of pharmaceuticals on the environment by considering the entire lifecycle of its products.

MabThera/Rituxan, Herceptin, Avastin, Perjeta and Lucentis are monoclonal antibodies which generated CHF 24.7 billion in sales in 2017. They belong to a defined class of active pharmaceutical ingredients (APIs) exempt from the European Medicines Evaluation Agency guideline on environmental risk assessment. They have a low excretion rate and are judged to present no significant risk to sewage works and surface waters. They are therefore termed 'benign in nature' and constitute environmentally sustainable compounds. All of our chemical products are, however, subject to a rigorous environmental risk assessment.



Ben Fu, Roche, China

“Our engagement will lead to a sustainable contribution to the local community.”

I am an environmental engineer and work as the Safety, Health and Environmental Officer at the new Roche Diagnostics manufacturing site in Suzhou, near Shanghai. When fully operational in 2018, our plant will produce high-quality reagents and immunoassays for laboratories, hospitals and doctors' surgeries. This will contribute to improving healthcare for patients in China and help us to supply our products to other Asian countries.

But we need to look at more than just production, and ensure a safe environment for those working on site, as well as for the neighbourhood in general. During the construction of the site, our engineering teams have put safety first. In the course of over six million hours of work, we had no serious accident that needed to be recorded. This is due in part to a 'SpeakUp' culture that encourages workers to point out potential safety issues.

Achieving the highest standards for sustainability

From the outset, our 48,000 m² manufacturing site in Suzhou was designed to meet the highest environmental standards. To reduce energy consumption, we have installed thicker insulation than is legally required, solar-protective glazing and fixed window shadings. Decentralised air conditioning switches off when not used and efficient LED lighting shuts off when no one is present. Photovoltaic panels on the roofs produce enough electricity from sunlight to cover 78% of the energy needs of the administration building—or enough to power almost 500 private homes for an entire year.

Water-efficient taps and showerheads, as well as carefully planned landscaping, reduce overall water consumption. Wastewater from our production is treated and reused for other purposes.

Thanks to our comprehensive approach in Suzhou, we aim to achieve the Leadership in Energy and Environmental Design (LEED) Platinum certificate—the highest environmental standard from the US Green Building Council—for our administration building.

My colleagues and I feel proud and energised to be part of the team building this new site, which will have a beneficial impact on patients, shape our environment in a positive way and enhance our reputation in China. Our engagement will lead to a sustainable contribution to the local community.

As part of my job, I take a holistic approach to safeguarding the health of our employees. This includes a programme to deal with air pollution. Our air quality guidelines are an accurate information source; employees can check the air quality via the popular social app WeChat. Air purifiers are installed in all offices and financial support is offered to employees who buy them for home use. Air filtration masks are available at no charge.

I don't yet have a family. But someday, if my child asks me about my job, I will say: “Look at the sky. It used to be grey. Your father is helping to keep it blue.”



Community engagement

We foster innovative philanthropy that makes a long-term, sustainable difference to communities around the world.

Material topics covered in this chapter

- Community engagement

Contribution to the UN SDGs



At Roche, our common purpose is to make a difference to the lives of patients and their families, and to society at large.

Our global and local philanthropic efforts have one common focus: strengthening communities to make a long-term, sustainable difference through innovative interventions.

We aim to build stronger communities and environments by partnering with local authorities and non-governmental organisations (NGOs) while respecting local customs and needs. We engage our employees where appropriate through skills-based volunteering and capacity-building projects inspired by our long, deeply-embedded history of philanthropy.

Our approach has been recognised externally. In 2017, we achieved the maximum score of 100 on Corporate Citizenship & Philanthropy in the Dow Jones Sustainability Indices, the gold standard measure for corporate sustainability. This compares to an industry average of 54. Additionally, our philanthropic activities support nine of the 17 UN Sustainable Development Goals.

It is the local impact that matters most, whether we support the potential of individuals and organisations, strengthen local communities or form strategic partnerships that can make a difference.

Strengthening local communities

Strengthening the communities in which we operate—whether through infrastructure support, training or education—is an important part of Roche’s responsibility as a global citizen. Our ‘thinking globally and acting locally’ perspective is best exemplified by the annual Roche Children’s Walk. In 2017, 145 company sites in 70 countries came together to donate funds for children’s education and health initiatives. Employees raise money individually and the company matches all funds raised for the campaign.

Since the first company-wide walk in 2003, more than 200,000 Roche employees have participated and raised more than CHF 17 million in total. We are very proud that in 2017, more than 100 global children’s projects were directly supported through this initiative.



The annual Roche Children's Walk is our biggest employee fund-raising project. All money raised is doubled by the company and used for children's programmes supporting education, health or social development around the world. The picture above shows Roche ambassadors visiting such a project in Malawi.

One example of a local project that has benefitted from the funds raised during the walk is the Roche Children's Centre in Mumbai, India. Roche Pharma India partnered with the not-for-profit organisation St Jude India ChildCare Centres to facilitate this social initiative, providing holistic care to children with cancer. This is an important effort as there are about 70,000 children living with cancer in India and only a few receive proper treatment.

The centre offers families from remote areas of India a free place to stay while their child receives treatment. In addition to helping with accommodation, transport

and meals, the centre provides psychological support, counselling and basic skills training to family members and the children. This is not just a place where children recover from cancer, but a place where everyone can learn a new way of life that will hold them in good stead for the future.

Strengthening the communities in which we operate is an important part of Roche's responsibility as a global citizen.



Students from 19 countries worked on the theme of 'Fostering the next entrepreneur'. Hosted by the International Swiss Talent Forum, this event provides a platform for students to exchange their views and learn from each other.

Supporting potential

We also believe that supporting the potential of individuals or initiatives at the right time can have a tremendous long-term impact. Roche encourages future leaders and innovators to reach their potential by supporting scholarship programmes, empowering organisations, employee volunteer programmes and science engagement initiatives.

An example of one of Roche's longer partnerships in this area is the collaboration with Schweizer Jugend forscht (Swiss Youth in Science), a 50-year-old foundation that focuses on identifying potential in young scientists and inspiring innovation. Roche was

the founding sponsor for the organisation's signature think tank programme, the International Swiss Talent Forum, which brings together 70 motivated young people from around the world to address current global issues. In 2017, the Forum hosted students from 19 nations and focused on the theme of 'Fostering the next entrepreneur'.

To contribute to the good partnership, Roche provides Schweizer Jugend forscht with support on practical matters. One of our employees completed a skills-based volunteering assignment with the foundation, providing pro bono consulting advice on business and marketing process improvements.

Partnering to make a difference

Making a sustainable difference entails partnering with communities, NGOs and local authorities on initiatives that address local needs and capacity-building.

As a long-term supporter of the International Committee of the Red Cross (ICRC) and founding member of its Corporate Support Group, Roche has contributed to water and habitat activities in several countries, including Pakistan, Ethiopia, Liberia, Uganda, Burundi, Eritrea, Guinea and Mali. These activities aim to ensure that people affected by armed conflict have access to clean water, proper sanitation and sustainable living environments.

In 2017, Roche contributed to ICRC projects in Mali that aim to improve access to clean water for over 630,000 people. These projects built and upgraded water supply systems in violence-affected communities for personal consumption, for livestock and for agricultural use.

Besides Roche's support for global organisations, we believe in partnerships between our employees, NGOs and local communities to share knowledge and individual skills. To this end, we offer skills-based volunteering programmes for employees to work with NGOs to help improve health and education in

developing countries. These volunteering programmes combine the capabilities and skills of Roche and its employees with those of NGOs to build capacity, deliver sustainable outputs and escalate impact. Roche offers short- and long-term volunteering programmes. For the short-term 'micro-secondment' programme, NGO partners request temporary, skill-specific consultative support for health- or education-related assignments.

Roche has collaborated with a variety of organisations for pro bono skills-sharing assignments, including the ICRC, Schweizer Jugend forscht, B360 Education Partnerships and Medicines for Malaria Venture (MMV). Roche paired MMV, a foundation focused on antimalarial drug development, with one of our procurement experts when the foundation wanted to expand its knowledge and capacity in the area of academic-research organisation collaborations to accelerate drug research.

We believe supporting the potential of individuals or initiatives at the right time can have tremendous long-term impact.



Belinda Holdsworth, Roche, Switzerland

“I was there to teach, but I also learned a lot from them.”

I have always been interested in engineering, which led me to study biochemical engineering at university. After graduation, I started my career as a process engineer, but quickly moved into commissioning and qualification of pharmaceutical manufacturing facilities. Having joined Roche in 2013, I am now the Operational Site Manager for a contract manufacturer located in France. I hold overall responsibility for all production activities at the site and lead a team of technical experts.

I am always looking for new challenges outside my comfort zone. At the end of 2016, I learned of a skills-based secondment programme managed by Roche Corporate Donations and Philanthropy, for which I applied. This programme offers NGOs the opportunity to submit a request for short-term, skill-specific support for health- or education-related assignments.

I was selected for a micro-secondment assignment which was organised in cooperation with B360 Educational Partnerships. For almost three weeks, I was a visiting lecturer on operations and supply chain topics at the Namibia University of Science and Technology in Windhoek. I love Africa—the natural beauty, the friendly people, the special energy. But being a tourist is different from going there to work on a short-term assignment.

Problem-solving from many different perspectives

Since I had never taught a class before, I was a little nervous on my first day as a visiting lecturer. That feeling quickly disappeared when I saw the friendly

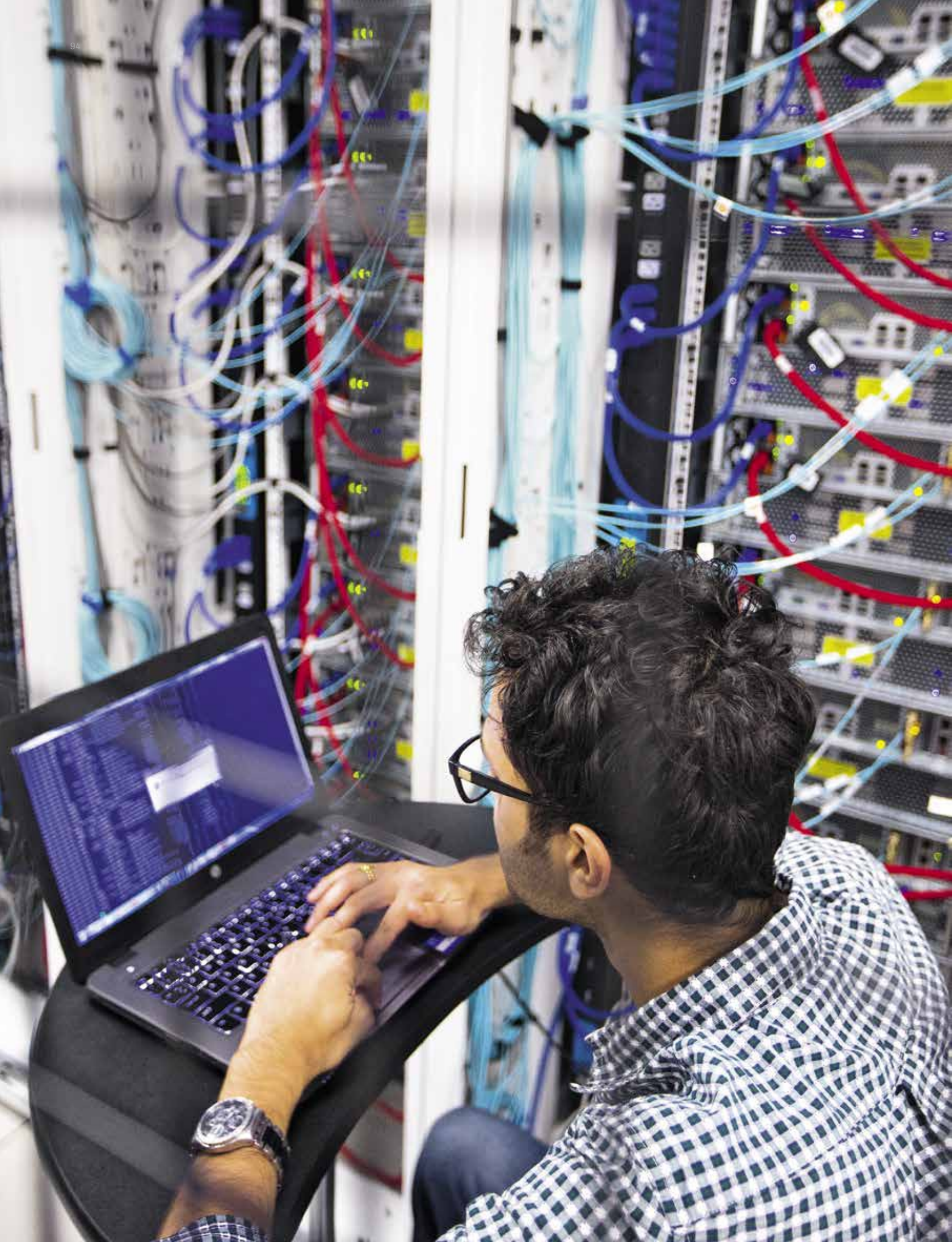
faces of students who were very eager to learn. I used an interactive, hands-on and practical approach in my classes. Simulations and group activities helped me to teach fundamental principles of supply chain management, LEAN manufacturing and teamwork.

I presented the case study of the ‘dabbawallas’, who supply hot lunches to workers in India using a low-tech, but incredibly reliable supply chain. This case study was part of my MBA, so I thought I knew it inside out. But the students raised questions and offered insights I had never considered. I was there to teach, but I also learned a lot from them.

It brought home to me the importance of diverse ways of thinking to solve problems. Diversity is another one of my passions. I lead the EU division of Pharma Technical Women Professionals, a grass-roots initiative at Roche that fosters the professional development of women.

Looking back, I think about the enthusiasm of and positive feedback from the students. It gives me the feeling that I inspired them in their studies and, hopefully, in their future careers. On my final day of teaching, the students presented me with a gift: a small chair that symbolised I had a place in Africa. It wrapped up my experience in a beautiful and touching way.

I would strongly recommend this volunteering experience to others who want to share their skills and see the impact each one of us can make.



Integrity in business

Integrity is a compass that guides us in every aspect of our business behaviour and allows us to fulfil our purpose of serving patients.

Material topics covered in this chapter

- Compliance
- Drug efficacy and safety
- Patient organisation support
- Supply chain management
- Occupational accidents

Contribution to the UN SDGs



What is 'compliance'? In a very general sense, it means adhering to rules and regulations. At Roche, however, it goes much deeper.

Compliance means internalising not only the letter but, first and foremost, the spirit of the law as part of our daily behaviour, thereby making it impact-oriented. It means moving from a formal concept of 'ticking the boxes' to a way of doing business where integrity matters at every level. It is our licence to operate from society and it is essential to our efforts in delivering innovative products to patients.

Putting our Group Code of Conduct into practice

These compliance guidelines are documented in the Roche Group Code of Conduct. They come to life in decisions that employees make every day in

their work. When there are grey areas or questions regarding conflicts of interest, improper advantages, discrimination or harassment, the first point of contact is the line manager. In a recently launched course for compliance officers, we aim to translate formal guidelines into business- integrated compliance. This creates a positive impact on business practice. Our objective is to build a common understanding on Roche's comprehensive Compliance Management System.

Roche has dedicated regional and local compliance officers in affiliates around the world who work with our Chief Compliance Officer to keep integrity top of mind. In Poland, for example, the local compliance officer translates her passion for her job into helping colleagues understand why the topic is essential for Roche. The selection of external distributors, for instance, is based on ethical and sustainability criteria that are integrated into business decisions in Poland.

Compliance

In 2017, a total of 176 employees used the Roche Group SpeakUp Line, which is available in 53 languages in 103 countries. The Chief Compliance Officer received 685 reports relating to alleged violations of the Code of Conduct via the Business Ethics Incident Reporting system. Of these incidents, 292 were unfounded, 102 are still under investigation and 291 were substantiated. As a result, 131 employment contracts and 4 agreements with business partners were terminated on the grounds of unethical behaviour.

Transparency vis-à-vis healthcare stakeholders

Roche strives for mutually beneficial partnerships with diverse groups that interact with patients to advance access and improve quality of care. Our Patient Group Council ensures that the patient voice is integrated across the entire lifecycle of our medicines. Patients help us understand their personal experiences and

the challenges posed by their disease. This provides us with invaluable insights which help us to improve our product development and clinical trial programmes. A dialogue with physicians is essential to increase our knowledge about the effectiveness and safety of our current therapies and diagnostics and also to prioritise our discovery efforts. In accordance with industry guidelines, we make details of our interactions with patient organisations public. We have strengthened the internal control and verification processes in our interactions with healthcare professionals and organisations. In addition, we have also developed guidance for affiliates on how to communicate about the impact of healthcare contributions in a transparent way. These contributions to healthcare stakeholders are published online (see link).

As rules around ethical business practices become more and more complex, it is difficult for employees to keep an overview. The compliance officer in Roche Belgium tackled this challenge by creating a document using simple icons for common topics such as educational grants, promotional events or meetings with healthcare practitioners. Employees can click on an icon and are connected to an internal repository, where they can see key compliance criteria, approval workflow and required forms. A condensed version has also been created specifically for use by sales representatives.

Roche's Safety Risk Management Department systematically monitors all Roche medicines worldwide. When patients suffer side effects, these adverse events are captured in a global database and



We maintain high marketing standards while engaging with healthcare professionals.

reported promptly to the appropriate regulatory authorities. All Roche employees are required to report any drug safety or quality issue immediately and to complete annual awareness training on adverse event reporting.

Embedding human rights in our business

Roche is fully committed to supporting and respecting human rights within our sphere of influence. This includes labour rights and freedom of association. We have established a methodology to strengthen human rights in the risk assessment of our relevant suppliers and service providers. This way we further increase transparency along the supply chain. Based on impact assessments of our operations, we integrate findings into our internal business functions.



Healthcare contributions:
roche.com/performance.htm?tab_id=tab2

Ensuring business continuity

Improving operational resilience

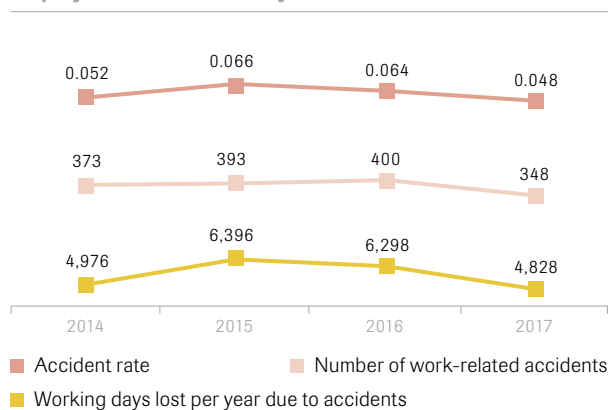
Our data show that Roche continues to have a solid track record in key health and safety performance indicators. We also help employees stay safe in their private lives with campaigns such as increasing night visibility and preparing for home emergencies. In addition, we have established a threat assessment team and process at Roche Basel for employees who have security concerns at their workplace or at home.

In 2017, site security officers from all Western European sites discussed measures to protect our logistics network and our intellectual property, as well as training in adequate security measures for sales and marketing organisations.

Mental wellbeing in the workplace

When employees are engaged and able to cope with the challenges of their work, they perform better and are happier overall. For this reason, Roche began to implement mandatory workplace mental health risk assessments at all affiliates in 2014. The emphasis is on preventing burnout, depression or other mental issues through early identification of the problem. Some sites screen employees with questionnaires while others hold discussions in small groups. When someone at risk is identified, there are in-depth discussions with managers or external experts. Some sites also offer a 24-hour helpline that employees can call anonymously. In 2017, audits on mental health protection began at Roche sites around the world and the resulting best practices are now being shared among affiliates.

Employee health and safety



Ensuring quality in manufacturing

Pharmaceuticals and diagnostics are among the most highly regulated industries. In addition to regulations from the FDA and EMA, most countries have their own requirements. Staying aligned with these ever-changing regulations requires precise communication, planning and execution on a global scale, as well as training. Highly qualified technicians who prepare medicines in sterile rooms need special certification. Like aeroplane pilots, these technicians must work a certain number of hours per year and take tests to ensure they maintain a high standard.

In Pharma Technical Operations alone, 3,200 people work in Quality and Compliance at 15 sites around the world. This includes internal auditors who regularly inspect our manufacturing sites to ensure adherence

to Roche quality standards, which are often tougher than those required by the law. In 2016, we launched a project in collaboration with the FDA to ensure inspection readiness, with workstreams in production system, facilities and equipment, quality and laboratory system and materials management. Our ongoing efforts include speeding up corrective and preventive actions when issues are identified.

At Roche, we have different manufacturing sources to supply products in the event of natural disasters or other unforeseeable events. We use our own manufacturing sites at an appropriate capacity level, and have contract manufacturing sites that can cover emergencies or sudden increases in demand. We also maintain safety stockpiles of products and raw materials and have back-up equipment set up. This helps when we need to deliver a life-saving medicine or a crucial diagnostic test in an emergency.

Safeguarding data for personalised healthcare

Data privacy is a fundamental human right. That is why protection and responsible use of personal data is anchored in the Roche Group Code of Conduct and reflected in our daily operations. In response to the European Union's new comprehensive General Data Protection Regulation, which comes into effect in May 2018, Roche has embarked on a company-wide project to meet the more detailed requirements, including documentation and assessment of the processing of

personal data. This refers to personal data of all potential Roche stakeholders including employees and patients. To ensure that we adhere to the stricter regulations, we are embedding data privacy governance in the business, and will develop training modules for all employees. When developing medicines, we tap into huge amounts of patient data and genomic information. We can only get access to that valuable information as long as we continue to uphold the trust placed in us by always protecting and respecting the individual's privacy when we process and use personal data.

General managers lead compliance

In Roche's decentralised structure, the general managers (GM) in the affiliates play a very important role and are ultimately responsible for compliance. In Brazil, for example, the GM works with the local compliance officer to ensure that every employee is adequately trained and feels comfortable asking questions. The GM regularly reviews compliance cases at management meetings, asking his direct reports: "What would you do?" He leads by example by showing that Roche is not interested in unethical business deals and has zero tolerance for employees who cross the line of non-compliant behaviour. There is a clear message to everyone: Compliance is good business.

Developing lasting partnerships

Fostering engagement

Roche depends on a network of about 1,000 business-critical suppliers and service providers. In addition to ensuring compliance with quality standards, we also expect them to adhere to high principles for ethics, labour, environment, health and safety and management systems, as well as mitigate risk and ensure business continuity. These principles are covered in detail in our Roche Supplier Code of Conduct, which all suppliers and service providers are required to adhere to.

Because we see our suppliers and service providers as partners, we go beyond the standard concept of audits by conducting 'supplier sustainability assurance visits'. Our assurance visits aim to build trust and add value—in contrast to conventional audits that are often seen as policing acts. In 2017, we made 156 visits, at least one every second working day, around the world.

Constructive engagement with governments

Roche wants to make its voice heard to inform public discussion on healthcare. Our aim is to help advance the regulatory framework in healthcare and ensure the sustainable development of our industry. We actively engage in public discussions through our memberships in trade and industry associations such as EFPIA, MedTech Europe and BIO. Our Government Affairs teams in the US and the EU advocates for policies that will ensure that patients have access to the medicines and diagnostic tools they need. Our goal is to inform lawmakers, policymakers and advocacy organisations on the potential impact of policies on biomedical innovation and the patients we serve. All Roche employees involved in lobbying efforts must comply with applicable laws and regulations. In the EU, the amount of funding for policy-related activities is documented in the EU Transparency Register ([see link](#)). In the US, our lobbying expenditure on federal initiatives in 2017 was approximately USD 4.0 million.

Engaging with political institutions

Roche remains independent of any political affiliation. When we do support associations and political institutions, we are transparent in our dealings. In Switzerland, we spent CHF 8.8 million in 2017, which includes payments to industry associations and various chambers of commerce, financial assistance to trade unions, and donations to political parties at the cantonal and federal level. Donations to political parties are each in the low double-digit thousand range in Swiss francs, and together accounted for approximately 3% of total contributions and donations.

In addition, Genentech's Political Action Committee and Roche's Good Government Committee allow employees to have a voice in encouraging the election of legislators. They are funded solely by voluntary employee contributions and governed by an independent board. In 2017, we contributed approximately USD 430,500 to federal political candidates in a bipartisan manner.

Accelerating access to treatment

At a time when government healthcare budgets are increasingly stretched, health technology assessment (HTA) is an important tool for policymakers in weighing evidence about clinical effectiveness, safety and cost-effectiveness of therapies approved by regulatory agencies. EUnetHTA was established to create a network for HTA across Europe, including a homogenous approach on relative effectiveness assessment. Currently, there are over 60 HTA national and regional bodies in Europe—each using different criteria—which potentially slows down access to newly approved medicines.

Roche is now collaborating with EUnetHTA on a pilot in which one HTA body is authorised to do a relative effectiveness assessment and then shares the report with other HTA bodies—avoiding duplication of effort. The pilot study will focus on our lung cancer medicine Alecensa. The pilot will help Roche learn more about local and regional needs in the HTA process and how to achieve greater harmonisation and mitigate redundancies to speed up access.

Collaborating with regulatory agencies

Members of our development and regulatory teams work closely with agencies around the world. Roche

Recognition for business ethics in Mexico

The Confederation of Industrial Chambers of the United Mexican States has awarded Roche Mexico the 2017 'Ethics and Values Award'. The purpose of the award is to highlight best practices in ethical business. More than 500 companies from different sectors were assessed in 2017. Roche Mexico was the only multinational company in the pharmaceutical industry to receive this recognition.

has acted as a trusted partner, for example, with the FDA by participating as an industry representative during the drafting of the newest iteration of the Prescription Drug User Fee Act—the key source of funding for the medicine review process. In addition, Roche is working with the FDA to foster greater focus on developing therapies for children with cancer.

In Europe, direct interactions with the EMA take place, for example, through scientific advice and the EU's Priority Medicines (PRIME) scheme, which supports accelerated regulatory approvals. Roche actively fosters public-private exchanges of information through the Innovative Medicines Initiative (IMI) and EFPIA, or as a member of the Drug Information Association, and will co-chair a meeting in 2018 in Basel focusing on collaboration between regulators, HTA bodies and payers.



EU Transparency
Register:
[ec.europa.eu/
transparencyregister/
public/consultation/
displaylobbyist.
do?id=18940431725-51](https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=18940431725-51)



Funke Abimbola, Roche, UK

“I compare my role in compliance to that of being an orchestra conductor.”

I am a British citizen of Nigerian descent. I come from a family where both my parents, three of my siblings as well as several uncles and cousins are all physicians. So when I decided on a career in law, there was a lot of convincing to do. From the age of 10, I was determined to become a lawyer because of the opportunities it offered for achieving social justice.

With the support of my family, I attended a top UK university. After graduating with an honours law degree in 1994, there was a rude awakening: I couldn't find a job because of discrimination due to my race. I managed to find a position within a respected in-house legal team. But there was another shock when I returned from maternity leave. The London firm I worked for still expected very long hours that were impossible for a working mother. I left London to work in a regional firm with regular working hours.

Embedding compliance into our daily work

I joined Roche in 2012. For us, compliance means respecting the spirit as well as the letter of the laws governing our industry. It has different implications for people in diverse jobs such as research, clinical development or sales. Proactive communication about making the right decisions in relevant compliance situations is so important.

I often compare my role in compliance to that of being an orchestra conductor. Most of the time, our people are in sync and playing harmoniously. My job is to

listen for the occasional notes that are out of key, make individuals aware of it and take corrective action when needed.

Compliance is crucial to protecting our reputation. Patients need to know our products meet the standards that we profess. Physicians need to be convinced they can rely on us when a patient's life is at stake. Regulatory and reimbursement authorities need assurance that we are transparent and act in good faith. Only then can we conduct our business upholding high levels of integrity and make a sustained contribution to society that is not just measured in sales figures.

Outside my work, I spend a great deal of time speaking to young people across Britain about difficulties in my career and how they too can overcome barriers. I also share my story with senior leaders—from members of parliament to chief executives—and suggest ways they can get involved in 'levelling the playing field' by advancing equality. I am proud that my son, now 14, has been recognised at school for his leadership in supporting others and championing equality.

In 2017, I was stunned and humbled by the news that I had been awarded a Queen's Honour and appointed as a Member of the Most Excellent Order of the British Empire (MBE) for my equality work and helping young people reach their potential. This has opened new doors for me to positively impact many more people.



Corporate Governance

Principles

Roche's corporate governance principles put the focus of its business activities on sustainable value creation and innovation and prescribe a management culture conforming to recognised standards of good corporate governance and a policy of transparent communication. These principles build the basis for the successful implementation of Roche's commitment to serving all its stakeholders.

A strong Board of Directors, which represents the interests of the shareholders and all other stakeholders, and highly skilled managers that act with integrity are extremely important.

In 2017, for the 9th consecutive year, Roche has been recognised by the Dow Jones Sustainability Indices as the Group Leader in sustainability within the pharmaceuticals, biotechnology and life sciences industry. Sustainability is at the core of our business practices and this award reflects our commitment to running our business in a way that is ethical, responsible and creates long-term value for stakeholders.

This Corporate Governance Report sets out the structures, processes and rules which Roche takes as the basis for well-functioning corporate governance. In doing so, Roche complies with all relevant

corporate governance requirements, in particular with all applicable laws, the Swiss Stock Exchange (SIX Swiss Exchange) directives and the Swiss Code of Best Practice for Corporate Governance promulgated by the Swiss business federation 'economiesuisse'. The company's internal governance framework, particularly its Articles of Incorporation and Bylaws, embodies all the principles needed to ensure that the company's businesses are managed and supervised in a manner consistent with good corporate governance, including the necessary checks and balances.¹

The printed Annual Report contains selected links to the Roche website (www.roche.com). Readers are thus provided not only with a 'snapshot' of our company at the reporting date but are also directed to sources which they can consult at any time for up-to-date information about corporate governance at Roche. Whereas each annual report covers a single financial year ending 31 December, our website contains information of a more permanent nature, as well as the latest Roche news. The company's Articles of Incorporation, Bylaws and the curricula vitae of the members of the Board of Directors and the Corporate Executive Committee are published on our website.

For further details please refer to the following report.

Annual General Meeting

Annual General Meeting

Board of Directors

Board of Directors and Board Committees

Board Committees

Presidium and Nomination Committee

Remuneration Committee

Audit Committee

Corporate Governance and Sustainability Committee

Corporate Executive Committee

Corporate Executive Committee

CEO
Roche Group

CEO
Pharmaceuticals

CEO
Diagnostics

CFO

HR

General
Counsel

Enlarged Corporate Executive Committee

Enlarged Corporate Executive Committee

gRED

pRED

Partnering

Communications

Chugai

¹ roche.com/governance

Board of Directors

At the 99th Annual General Meeting (AGM) of Roche Holding Ltd, on 14 March 2017, shareholders re-elected Dr Christoph Franz as Chairman of the Board of Directors.

Furthermore, the AGM re-elected André Hoffmann, Prof. Sir John Bell, Julie Brown, Paul Bulcke, Prof. Dr Richard P. Lifton, Dr Andreas Oeri, Bernard Poussot, Dr Severin Schwan, Dr Claudia Suessmuth Dyckerhoff, Peter R. Voser and elected Anita Hauser as a new member of the Board of Directors for a term of one year as provided by the Articles of Incorporation. Prof. Dr Pius Baschera did not stand for re-election.

In addition, the AGM elected Dr Christoph Franz, André Hoffmann, Prof. Dr Richard P. Lifton, Bernard Poussot and Peter R. Voser as members of the Remuneration Committee.

At its organising meeting immediately following the AGM, the Board of Directors has determined the structure and composition of its remaining committees as shown below (see also pages 14 to 15 and page 111 'Board of Directors and Corporate Executive Committee').

On 13 March 2018, at the forthcoming AGM the Board of Directors nominates the Chairman and all remaining Members of the Board of Directors for re-election.

Moreover, the Board of Directors nominates Dr Christoph Franz, André Hoffmann, Prof. Dr Richard P. Lifton, Bernard Poussot and Peter R. Voser for re-election as members of the Remuneration Committee by the AGM in 2018.

As in the previous year, the Board of Directors nominates BDO AG as the independent proxy for the period from 2018 until the conclusion of the 2019 ordinary Annual General Meeting of Shareholders for election by the AGM.

Composition as at 31.12.2017

	Name (year of birth)			First elected
Board of Directors	Dr Christoph Franz (1960)	C, D*, E	Chairman	2011
	André Hoffmann (1958) (representative of the shareholder group with pooled voting rights)	A, C*, D, E	Vice-Chairman	1996
	Dr Andreas Oeri (1949) (representative of the shareholder group with pooled voting rights)	A*, E		1996
	Prof. Sir John Bell (1952)	B, E		2001
	Julie Brown (1962)	B*, E		2016
	Paul Bulcke (1954)	B, E		2011
	Anita Hauser (1969)	A, E		2017
	Prof. Dr Richard P. Lifton (1953)	C, E		2015
	Bernard Poussot (1952)	C, E		2015
	Dr Severin Schwan (1967)	F		2013
	Dr Claudia Suessmuth Dyckerhoff (1967)	A, B, E		2016
	Peter R. Voser (1958)	C, E		2011
	Dr Gottlieb A. Keller (1954)			
Secretary to the Board of Directors				
Honorary Chairman of the Board of Directors	Dr Fritz Gerber (1929)			

A Corporate Governance and Sustainability Committee

D Presidium/Nomination Committee

* Committee chairperson

B Audit Committee

E Non-executive director

C Remuneration Committee

F Executive director

Corporate Executive Committee

All memberships of the Corporate Executive Committee remained unchanged in 2017.

Information on each member of the Corporate Executive Committee and of the Enlarged Corporate Executive Committee is listed below (see also pages 18 to 19 and page 111 'Board of Directors and Corporate Executive Committee').

Composition as at 31.12.2017	Name (year of birth)	Position	Since
Corporate Executive Committee	Dr Severin Schwan (1967)	CEO of the Roche Group	2008
	Daniel O'Day (1964)	CEO Roche Pharmaceuticals	2010
	Roland Diggelmann (1967)	CEO Roche Diagnostics	2012
	Dr Alan Hippe (1967)	Chief Financial and IT Officer	2011
	Cristina A. Wilbur (1967)	Head Group Human Resources	2016
	Dr Gottlieb A. Keller (1954)	General Counsel	2003
Enlarged Corporate Executive Committee	Osamu Nagayama (1947)	Chairman and CEO Chugai	2006
	Dr Michael D. Varney (1958)	Head Genentech Research and Early Development (gRED)	2015
	Prof. Dr John C. Reed (1958)	Head Roche Pharma Research and Early Development (pRED)	2013
	Dr Stephan Feldhaus (1962)	Head Group Communications	2010
	Dr Sophie Kornowski-Bonnet (1963)	Head Roche Partnering	2012
	Per-Olof Attinger (1960)		
Secretary to the Corporate Executive Committee			
Statutory Auditors of Roche Holding Ltd	KPMG Klynveld Peat Marwick Goerdeler SA (reporting years 2004–2008)		
	KPMG AG (since 2009)		
	Auditor in charge: John A. Morris (2004–2010)		
	Ian Starkey (since 2011)		
Chief Compliance Officer	Mark Baillache (as of business year 2018)		
	Dr Urs Jaisli (1956)		

Corporate Executive Committee

Enlarged Corporate Executive Committee

Corporate Executive Committee					
CEO Roche Group	CEO Pharmaceuticals	CEO Diagnostics	CFO	HR	General Counsel
Enlarged Corporate Executive Committee					
gRED	pRED	Partnering	Communications	Chugai	

Group structure and shareholders

Roche's operating businesses are organised into two divisions: Pharmaceuticals and Diagnostics. The Pharmaceuticals Division comprises the two business segments Roche Pharmaceuticals and Chugai, whereas Genentech as the former third segment has been integrated into Roche Pharmaceuticals. The Diagnostics Division consists of the following four business areas: Centralised and Point of Care Solutions (formerly named Professional Diagnostics), Molecular Diagnostics, Tissue Diagnostics and Diabetes Care.

Business activities are carried out through Group subsidiaries and associated companies. Detailed information on Roche Holding Ltd and on significant subsidiaries and associated companies (including company name, listing information, domicile, share capital, and equity interest) is listed in the Finance Report, Note 31 to the Roche Group Consolidated Financial Statements ('List of subsidiaries and associates', page 113).

Major shareholders are listed in the Finance Report, Notes 21 and 30 to the Roche Group Consolidated Financial Statements ('Equity attributable to Roche

shareholders' and 'Related parties', pages 83 and 111) and in Note 4 to the Financial Statements of Roche Holding Ltd ('Significant shareholders', page 155). In addition, significant shareholders are published on the relevant webpage of the disclosure office of SIX Exchange Regulation.

André Hoffmann, Vice-Chairman of the Board of Directors and Chairman of the Remuneration Committee, and Dr Andreas Oeri, member of the Board of Directors and Chairman of the Board's Corporate Governance and Sustainability Committee, serve in their respective capacities on the Board and its committees as representatives of the shareholder group with pooled voting rights and receive the remuneration set forth in the Remuneration Report on page 131 and in the Finance Report, Note 30 to the Roche Group Consolidated Financial Statements ('Related parties', page 111). With the exception of Dr Jörg Duschmalé, who works as a post-doc at Roche, no other relationships exist with the shareholders with pooled voting rights.

There are no cross-shareholdings.



SIX Exchange
Regulation:
[six-exchange-regulation.com/
significant-
shareholders](https://six-exchange-regulation.com/significant-shareholders)

Pharmaceuticals

Roche Pharmaceuticals (incl. Genentech)

Chugai

Diagnostics

Centralised and Point of Care Solutions

Molecular Diagnostics

Tissue Diagnostics

Diabetes Care

Composition as at 31.12.2017

Capital structure

Information on Roche's capital structure is provided in the Finance Report, Notes to the Financial Statements of Roche Holding Ltd (page 154). Additional details are contained in the Articles of Incorporation of Roche Holding Ltd.²

Movement in recognised amounts during the last three financial years are detailed in the Finance Report, Notes to the Financial Statements of Roche Holding Ltd (page 155).

The company has a share capital of CHF 160,000,000, divided into 160,000,000 fully paid bearer shares with a nominal value of CHF 1 each. There are no restrictions on the exercise of the voting rights of these shares. Upon deposit, shares can be voted without any restrictions.

There is no authorised or conditional capital.

In addition, 702,562,700 non-voting equity securities (NES) have been issued in bearer form. They do not form part of the share capital and confer no voting rights. Each NES confers the same rights as one share to participate in available earnings and in any liquidation proceeds following repayment of the share capital. Roche's NES and the rights pertaining thereto (including the provisions protecting the interests of

NES holders) are described in §4 of the Articles of Incorporation of Roche Holding Ltd.

Information on debt instruments which have been issued and on outstanding bonds is provided in the Finance Report, Note 20 to the Roche Group Consolidated Financial Statements ('Debt', page 78).

Information on employee stock options is provided in the Finance Report, Note 26 to the Roche Group Consolidated Financial Statements ('Equity compensation plans', page 96), including detailed information on the Stock-settled Stock Appreciation Rights (S-SARs) Plan, the Roche Restricted Stock Unit (RSU) Plan, the Roche Performance Share (PSP) Plan, Roche Connect and the Roche Option Plan.

Roche has issued no options apart from employee stock options as described in the Finance Report, Note 26 to the Roche Group Consolidated Financial Statements ('Equity compensation plans', page 96) and options issued in connection with debt instruments.

Neither the options awarded to employees nor the debt instruments which have been issued have any effect on Roche's share capital.

² [roche.com/article_of_incorporation](https://www.roche.com/article_of_incorporation)

³ [roche.com/board_of_directors](https://www.roche.com/board_of_directors) and [roche.com/executive_committee](https://www.roche.com/executive_committee)

⁴ [roche.com/article_of_incorporation](https://www.roche.com/article_of_incorporation)

⁵ [roche.com/annual_general_meetings](https://www.roche.com/annual_general_meetings)

⁶ [roche.com/article_of_incorporation](https://www.roche.com/article_of_incorporation)

⁷ [roche.com/committees](https://www.roche.com/committees)

⁸ [roche.com/article_of_incorporation](https://www.roche.com/article_of_incorporation)

Board of Directors and Corporate Executive Committee

Information on each member of the Board of Directors and on each member of the Corporate Executive Committee is listed on pages 107 and 108. Members of the Board of Directors have no age limit or restriction on their term of office. Curricula vitae of all current and former members (of the last five years) of both bodies and other information (including information on the years of their first election as board members, additional positions, memberships and activities) are available and continuously updated on the Internet.³

Rules pursuant to article 12 para. 1 point 1 VegüV on the number of permitted activities of the Board of Directors and the Corporate Executive Committee members are outlined in §22.4 of the Articles of Incorporation of Roche Holding Ltd.⁴

Since 2014, the Annual General Meeting has elected all members of the Board of Directors, the Chairman of the Board of Directors and the members of the Remuneration Committee on an annual basis in elections in which each nominee is voted on separately (see §18 of the Articles of Incorporation of Roche Holding Ltd⁴ and the Minutes of the 99th Annual General Meeting of Roche Holding Ltd, held on 14 March 2017⁵).

With the exception of Dr Severin Schwan none of the members of the Board of Directors in office at the end of 2017 has been a member of Roche's Corporate Executive Committee or served in an executive capacity at any Group subsidiary during the five financial

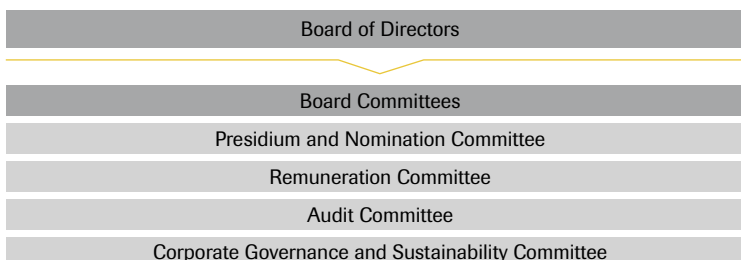
years preceeding the current reporting period and they are for lack of existing business connections with any Group subsidiary independent. Roche's Board of Directors' independence definition is based on the definition in the Swiss Code of Best Practice for Corporate Governance of 'economiesuisse' and is complemented by specific preceding criteria (see roche.com/board_of_directors).

The Principles of Governance (principles of delegation and competence, reservation of powers and management of a group of companies) of the executive bodies of the company include economic, environmental and social topics. The principles together with the internal organisation of the Board of Directors, the division of authority and responsibilities between the Board and management, the remits of the Board Committees, and the information and control mechanisms available to the Board in its dealings with corporate management, are governed by the Bylaws.⁶

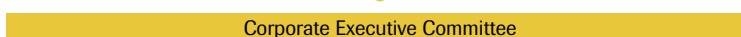
The Board of Directors of Roche Holding Ltd is organised so as to ensure that the Group conducts its businesses responsibly and with a focus on long-term value creation. To this end, the Roche Board has delegated certain responsibilities to several committees.⁷ Their composition and chairpersons as at 31 December 2017 are described on page 107. Each committee's authorities and responsibilities are defined in detail in the Bylaws of the Board of Directors.⁸

All the committees are chaired by independent directors.

Board of Directors and Board Committees



Corporate Executive Committee



According to the Bylaws of the Board of Directors, a Board meeting may be convened without the Chairman present at the request of any of its members. The Roche Board meets once a year to assess the Chairman's performance. This meeting, which is not attended by the Chairman, is chaired by the Vice-Chairman.

As part of the Management Information System (MIS), the Board of Directors is regularly informed about the most important issues, sales performance etc. The Board has access to an electronic information platform which provides timely information to the Board of Directors and the Board's committees as does the system of controls as set forth below.

The Board of Directors has established a system of controls which is continuously monitored by the Audit Committee, by the Corporate Governance and Sustainability Committee and by the Board of Directors and consists of the following elements:

- Report on operating and financial risks (risk management system)

The Roche Group has established a risk management process covering the entire company with a system in place to identify and manage all type of risks potentially affecting its business (including economic, environmental and social impacts, risks and opportunities and containing stakeholder input). The Board of Directors is the highest governance body involved. Roche's Risk Management Policy sets out the approach and accompanying responsibilities. The Pharmaceuticals and Diagnostics Divisions and global functions conduct a formal risk assessment process at least once a year and must develop risk plans for their most material risks. These are monitored and deviations reviewed in regular performance dialogues. The consolidated Group Risk Report including target risk profile is discussed by the Corporate Executive Committee and approved together with the Group Business Plan. All material risks are reviewed by the Board on a yearly basis. The effectiveness of the risk management process is monitored by the Group Risk Advisory team and the overall process is regularly reviewed by external

auditors, with findings presented to the Audit Committee and the full Board. For details on risk management, including risk factors and the Risk Management Policy see 'Risk Management' on our website.⁹ Financial risk management is specifically described in the Finance Report.¹⁰

- System of internal controls over financial reporting (see pages 127 and 136 of the Finance Report)

- Internal audit

Group Audit reports to the General Counsel, has direct access and gives regular briefings to the Audit Committee and to the Corporate Governance and Sustainability Committee about ongoing activities and audit reports. The Chief Audit & Risk Advisory Executive attends the Audit Committee and partly the Corporate Governance and Sustainability Committee meetings, as do the external auditors. Group Audit is an independent appraisal function which evaluates and reviews the Group's activities as a service to management. The annual audit plan with yearly defined focus areas (eg, market access, third-party management) is validated by Senior Management and presented to the Audit Committee. The Roche Group is committed to maintaining a high standard of internal control throughout its worldwide operations. Management is responsible for assessing the business risks in all aspects of its operation and for implementing effective and efficient processes and controls whilst ensuring compliance with internal and external rules and regulations.

By conducting operational audits, Group Audit determines management's response to the risks surrounding business processes and systems, and evaluates the appropriateness, completeness and efficiency of the processes and controls. Action plans to implement necessary changes and enhancements are developed together with the business/auditee and are tracked to completion.

- Statutory auditors, see page 116
- Chief Compliance Officer and Compliance Officers in subsidiaries, see page 119
- Safety, Health and Environmental Protection Department¹¹
- Corporate Sustainability Committee¹²

⁹ [roche.com/risk-management](https://www.roche.com/risk-management)

¹⁰ Additional information is provided in the Finance Report, Note 29 to the Roche Group Consolidated Financial Statements, 'Risk management', page 102.

¹¹ [roche.com/environment](https://www.roche.com/environment)

¹² [roche.com/sustainability](https://www.roche.com/sustainability)

- Science and Ethics Advisory Group (SEAG), for issues relating to genetics and genetic engineering¹³

The members of the Corporate Executive Committee are invited to attend meetings of the Board of Directors for, and report in person on, those agenda items concerning them. When the situation warrants, members of the Enlarged Corporate Executive Committee may also be invited to attend. The Board Committees invite the Chairman of the Board and Corporate Executive Committee members to deliver reports at committee meetings and may elect to commission independent expert reports and call on the services of consultants.

Each year several black-out periods are imposed during which senior employees are prohibited from trading in company stock. The following black-out periods are in effect for 2018:

26 December 2017 to 1 February 2018

1 April to 26 April 2018

26 June to 26 July 2018

1 October to 17 October 2018

Black-out periods can be changed by the Chairman of the Board of Directors if circumstances warrant.

In 2017, the Board of Directors met for 7 meetings, generally each from 3 to 6 hours in length; including a full-day meeting and in addition for a 4-day visit to a major subsidiary**.

The Board Committees met as follows in 2017:

- Presidium of the Board of Directors/Nomination Committee: 6 meetings (approx. 2 hours each**)
- Remuneration Committee: 2 meetings¹⁴ (approx. 2 to 3 hours each**)
- Audit Committee: 4 meetings (approx. 3 to 4 hours each**)
- Corporate Governance and Sustainability Committee: 3 meetings (approx. 3 hours each**)

The Board of Directors regularly conducts an assessment (self-assessment/assessment by third parties via electronic survey and personal interviews) of its performance. In 2017, a self-assessment of the Board of Directors and in addition a self-assessment of the Audit Committee was conducted.

Members of the Corporate Executive Committee have a maximum ordinary notice period of twelve months. There are no change-of-control clauses in the employment contracts.

There are no management contracts which fall within the scope of Subsection 4.4 (annex) of the SIX Directive on Information relating to Corporate Governance.

¹³ roche.com/ethical_conflicts

¹⁴ Remuneration Committee members recuse themselves from deliberations and decisions on matters that affect their interests.

** These figures indicate the actual length of meetings and do not include the directors' extensive pre-meeting preparations and post-meeting follow-up activities.



Dr Andreas Oeri, Chairman of the Corporate Governance and Sustainability Committee, during a SHE-Audit in India (photo: GAK).

Board and Board Committees attendance 2017

	Board	Presidium/ Nomination Committee	Remuneration Committee	Audit Committee	Corporate Governance and Sustainability Committee
Number of meetings	7	6	2	4	3
Ch. Franz	7	6	2	4*	3*
A. Hoffmann	7	6	2	1*	3
J. Bell	7	-	-	4	-
J. Brown	7	-	-	4	-
P. Bulcke	7	-	-	4	-
A. Hauser (since March 2017)	6	-	-	-	2
R.P. Lifton	7	-	2	-	-
B. Poussot	7	-	2	-	-
S. Schwan	7	-	-	4*	-
A. Oeri	7	-	-	-	3
C. Suessmuth Dyckerhoff	7	-	-	4	3
P.R. Voser	6	-	2	-	-
Retired Board members (retired in March 2017)					
P. Baschera	1	-	-	-	1

- Not a member of that committee

* Invited as a guest to these Board Committee meetings

Remuneration, shareholdings and loans

All details regarding remuneration, shareholdings and loans (content and method of determining the compensation and the shareholding programmes, basic principles and elements of compensation and shareholding programmes for serving and former members of the Board of Directors and Corporate Executive Committee, together with a description of the authorities and procedure for determining such) are set forth in the separate Remuneration Report on pages 120 to 146 and in the Finance Report, Notes 21 and 30 to the Roche Group Consolidated Financial Statements ('Equity attributable to Roche shareholders' and 'Related parties', pages 83 and 111), and are listed in Note 6 to the Financial Statements of Roche Holding Ltd ('Board and Executive shareholdings', page 156).

The following rules on Remuneration, shareholdings and loans for the Board of Directors (Board) and the Corporate Executive Committee (CEC) are set forth in the Articles of Incorporation (AoI)¹⁵:

Content	Rules in AoI ¹⁵ for	
	Board	CEC
Rules on the principles applicable to performance-related pay	\$25.1–6	\$25.1–6
Rules on the principles to the allocation of equity securities, convertible rights and options	\$25.7	\$25.7
Additional amount for payments to members of the Executive Committee appointed after the vote on pay at the General Meeting of Shareholders		\$24.5
Rules on loans, credit facilities and post-employment benefits	\$25.1 and 3	\$25.2 and 3
Rules on the vote on pay at the AGM	\$24	\$24

Participatory rights of shareholders

The participatory rights of shareholders are defined in Roche's Articles of Incorporation.¹⁵ As Roche shares are issued to bearer, there are no restrictions on admission to Annual General Meetings, with the exception that shares must be deposited within a specified period before the date of a meeting and an admittance card must be issued in the shareholder's name, as provided in §12 of the Articles of Incorporation. Any shareholder can elect to be represented by a third party at an Annual General Meeting.

The Articles of Incorporation contain no restrictions on the exercise of voting rights, and the only quorum requirements are those stipulated in §16, in conformity with the Swiss Code of Obligations.

Under §10.2 of the Articles of Incorporation, shareholders representing shares with a nominal value of at least CHF 1 million can request the placement of items on the agenda of an Annual General Meeting. This must be done no later than 28 days before the date of the meeting.

The rules on the issue of instructions to the independent proxy and rules on the electronic participation in the AGM are laid down in the corresponding invitation to the AGM and are not regulated in the Articles of Incorporation.

¹⁵ [roche.com/article_of_incorporation](https://www.roche.com/article_of_incorporation)

Change of control and defensive measures

The Articles of Incorporation contain no provisions on the mandatory bid rule. Swiss law applies.

There are no change-of-control clauses. Those components of remuneration based on Roche NES

would be terminated in the event of an acquisition, and vesting period restrictions on pre-existing awards would be removed, so that all such options could be exercised immediately.

Relationship to statutory auditors

At the Annual General Meeting of Roche Holding Ltd on 14 March 2017, the shareholders voted to appoint KPMG AG (KPMG) as statutory auditors. Based on the existing legal requirements of the Swiss Code of Obligations (Article 730a) concerning the maximum term of office of seven years of the auditor in charge, Ian Starkey as auditor-in-charge since business year 2011 was replaced by Mark Baillache starting with the business year 2018 (information on how long the auditors and auditor-in-charge have been serving in these capacities is provided on page 108). The statutory auditors participate in Audit Committee meetings. They prepare written and oral reports on the results of their audits. The Audit Committee oversees and assesses the auditors and makes recommendations to the Board (for information on the authorities and responsibilities of the Audit Committee, see Article 8.1 of the Bylaws¹⁶). The statutory auditors participated in all 4 meetings of the Audit Committee in 2017.

The reports of the statutory auditor on the Consolidated Financial Statements and on the Financial Statements can be found on pages 128 and 160, respectively, of this year's Finance Report.

KPMG received the following remuneration for their services as statutory auditors of Roche Holding Ltd and as the auditors of other Roche companies (including Chugai):

	2017	2016
	(millions of CHF)	
Auditing services	21.0	21.5
Audit-related services		
– Assurance	0.5	0.8
– Non statutory audits	–	2.6
Tax services	1.4	1.4
Other services	0.4	2.2
Total	23.3	28.5

¹⁶ roche.com/article_of_incorporation

The statutory auditors are elected each year by the Annual General Meeting.

Auditing services are provided as legally required.

Audit-related services include assurance and accounting services provided by auditors but which are not necessarily provided by the statutory auditor. These services which go beyond the legal requirements could include other attestation services, comfort letters, consents and consultations.

Tax services include services with respect to compliance, tax returns and tax advice except those services related to the audit of tax.

Other services include advice relating to process improvements, regulations and trainings.

The company has a formal policy governing the engagement of the statutory auditor for non-audit services. The policy prohibits certain services from being provided but permits certain other services up to limits agreed by the Audit Committee. Each potential non-audit service engagement is reviewed against this policy before any authority to proceed is given.

Relationship to the independent proxy

In recent years, BDO AG served as the independent proxy and at the Annual General Meeting on 14 March 2017, shareholders elected BDO AG as the independent proxy for the period from 2017 until the conclusion of the 2018 ordinary Annual General Meeting of Shareholders. BDO AG was paid for its services for the Annual General Meeting 2017 according to expenditure totalling CHF 16,848 (2016: CHF 17,334).

The rules on the issue of instructions to the independent proxy and rules on the electronic participation in the AGM are laid down in the corresponding invitation to the AGM and are not regulated in the Articles of Incorporation.

Information policy

As provided by §34 of the Articles of Incorporation¹⁷, corporate notices are published in the Swiss Official Gazette of Commerce and in other daily newspapers designated by the Board of Directors ('Basler Zeitung', 'Finanz und Wirtschaft', 'L'Agefi', 'Le Temps', 'Neue Zürcher Zeitung').

Roche reports its half-year and full-year results in business reports (published in print and/or online formats) and at media events. In addition, detailed first-quarter and nine months sales figures are published each year in April and October. The most current list of publication dates is available in English and German on the Internet.¹⁸

All relevant information and documents, including all media releases, investor updates¹⁹ and presentations to analyst and investor conferences are available on the Internet. Further publications are available on roche.com/publications or can be ordered by e-mail or fax: basel.warehouse-services@roche.com
fax: +41 (0)61 688 69 02

The contact address for Investor Relations is:
F. Hoffmann-La Roche Ltd, Investor Relations,
Group Finance, 4070 Basel, Switzerland
tel.: +41 (0)61 688 88 80
fax: +41 (0)61 691 00 14

Additional information, including details on specific contact persons, is available on the Internet.²⁰

¹⁷ roche.com/article_of_incorporation

¹⁸ roche.com/media

¹⁹ roche.com/investors

²⁰ roche.com/investors/contacts

Chief Compliance Officer and Compliance Officers network

The Chief Compliance Officer with his Compliance Officers network is committed to ensuring that the Roche Group Code of Conduct²¹ is consistently complied with throughout the Roche Group. He also serves as a contact person for shareholders, employees, customers, suppliers and the general public on issues relating to the implementation of and compliance with this Code. Employees and other parties who become aware of violations of the Roche Group Code of Conduct can bring them to the attention of their managers or supervisors, to the local Compliance Officer or report them to the Chief Compliance Officer (Dr Urs Jaisli, direct phone number: +41 (0)61 688 40 18, e-mail: urs.jaisli@roche.com). Such disclosures will be treated confidentially. In addition, as of the end of 2009, employees may anonymously report irregularities or complaints in their mother tongue via a 'SpeakUp Line'. Starting in December 2013, a new compliance tool on Group level, the so-called Roche Group Code of Conduct Help & Advice Line, was introduced which strives to provide guidance in case of questions or uncertainties about the interpretation of the Roche Group Code of Conduct and its reference documents. It furthermore will serve as a platform for ideas and suggestions concerning those documents.

In addition, Roche has established a Business Ethics Incident Reporting (BEIR) system which enables the Chief Compliance Officer to capture, track and monitor alleged violations, from initial reports by local Compliance Officers through to resolution.

Business ethics incidents are recorded in the system when the Group Internal Investigation department or the regional/local management receives specific and concrete information about an alleged violation of the Roche Group Code of Conduct in one of certain pre-defined categories.²² The Corporate Governance and Sustainability Committee and the Audit Committee of the Board of Directors are informed of substantial violations and management's corrective actions made.

The Chief Compliance Officer reports to the General Counsel and also submits regular reports to the Corporate Governance and Sustainability Committee and as needed to the Audit Committee of the Board of Directors.

Non-applicability/negative disclosure

It is expressly noted that any information not contained or mentioned herein is either non-applicable or its omission is to be construed as a negative declaration

(as provided in the SIX Swiss Exchange Corporate Governance Directive and the Commentary thereto).

²¹ roche.com/code_of_conduct

²² roche.com/risk-management



Remuneration Report

Material topics covered in this chapter

- Executive remuneration

1. Principles

Roche's success depends substantially on the expertise, motivation and performance of its employees. This conviction forms the basis of our compensation policy.

Roche aims to remunerate all employees fairly, transparently and in line with market conditions, to enable them to participate appropriately in the company's success. We pursue this goal by providing competitive, performance-based and results-oriented compensation.

We strive for a balanced mix of fixed and variable compensation components geared to each employee's position and management responsibility.

Firstly, the variable components are intended to create additional financial incentives to achieve corporate goals and to keep innovation at a consistently high level while increasing the value that the company creates for all stakeholder groups. Secondly, in order to allow employees and managers to participate in the company's business success, adequate compensation measures are key. Both objectives are incentivised by annual bonus payments and long-term share-based programmes.

For a global company like Roche, market-competitive remuneration plays a key role along with a performance-based, transparent compensation structure. To ensure that compensation packages are competitive, both the structure and individual components are regularly benchmarked against Swiss, European and international criteria. Our remuneration guidelines and their underlying principles are also subject to regular outside comparisons.

However, compensation policy is only one factor in safeguarding Roche's future success. Another key element is a corporate culture that offers employees conditions in which they can make their best possible contribution to the shared corporate goal of improving healthcare to patients. This includes a sound value system that is based on integrity, courage and passion. At the same time, our decentralised management approach plays a major role with its wide scope for individual decision-making, respectful interactions, openness to diversity, wide-ranging training and development opportunities and an attractive working environment. An unidimensional diminishment to questions on remuneration would fall by far too short.

Roche is committed to a fair, performance-based and results-oriented compensation policy that links employees' interests with those of various other stakeholder groups.



Compensation
policy:

roche.com/rewards

Sound value system:

roche.com/living_our_values

2. Remuneration decision process and approval framework

2.1 Overview

Each year the Remuneration Committee of Roche's Board of Directors decides the remuneration of Board members and the members of the Group's Corporate Executive Committee.

The terms of the long-term oriented Performance Share Plan (PSP) awards are decided annually by the Board of Directors, acting upon recommendations from the Remuneration Committee.

Remuneration decision process and approval framework

Remuneration components	Beneficiary		Decision by	Approval by
	Board of Directors (BoD) Chairman (C)	Corporate Executive Committee (CEC) incl. CEO Roche Group		
Base pay/remuneration	✓	✓	Remuneration Committee	Annual General Meeting
Bonus	✓ (C only)	✓		
Stock-settled Stock Appreciation Rights	–	✓		
Performance Share Plan	–	✓	Board of Directors upon recommendation from Remuneration Committee	
Decisions on pension	✓ (C only)	✓	Remuneration Committee	

The Remuneration Committee tracks market data on salaries at other leading global pharmaceutical companies¹ and at major Swiss companies² and reports its findings to the full Board. The external consulting firm PricewaterhouseCoopers (PwC) assists the Remuneration Committee of Roche in performing market comparisons and in advising. Information on the Remuneration Committee's remit, powers and procedures for making remuneration decisions can be found in the Bylaws of the Roche Board of Directors³ and in the Articles of Incorporation.⁴ They are also outlined in the sections below on the principles governing specific remuneration components (see 3.).

Since 2014, total aggregate amounts which are based on these decisions have been submitted to the General Meeting for approval implementing the 'Ordinance against excessive compensation in listed corporations' (Verordnung gegen übermässige Vergütungen bei börsenkotierten Aktiengesellschaften [VegüV]). The General Meeting shall vote annually and with binding effect on the approval of the remuneration (that the Board of Directors has resolved) of the Board of Directors and the Corporate Executive Committee (for details see 4. and 5.).

¹ Peer set for 2017: Abbott Laboratories, AbbVie, Amgen, Astellas, AstraZeneca, Bayer, Bristol-Myers Squibb, Eli Lilly, GlaxoSmithKline, Johnson & Johnson, Merck & Co., Novartis, Pfizer, Sanofi, Takeda (no change in composition of peer set compared to 2016).

² ABB, Credit Suisse, LafargeHolcim, Nestlé, Sonova, Straumann, Swiss Re, UBS, Zurich Insurance.

³ [roche.com/article_of_incorporation](https://www.roche.com/article_of_incorporation)

⁴ [roche.com/article_of_incorporation](https://www.roche.com/article_of_incorporation)



André Hoffmann, Chairman of the Remuneration Committee.

Peer set for 2017

Abbott Laboratories
AbbVie
Amgen
Astellas
AstraZeneca
Bayer
Bristol-Myers Squibb
Eli Lilly
GlaxoSmithKline
Johnson & Johnson
Merck & Co.
Novartis
Pfizer
Sanofi
Takeda

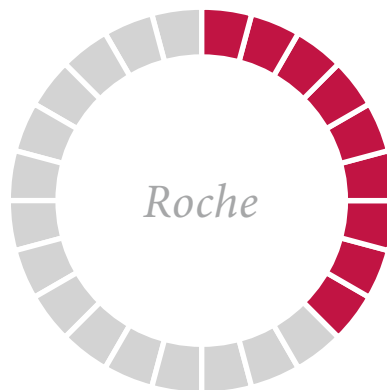


ABB
Credit Suisse
LafargeHolcim
Nestlé
Sonova
Straumann
Swiss Re
UBS
Zurich Insurance

Peer set for 2017

Market comparison companies for salary assessment

- Pharma peer set
- Major Swiss companies

2.2 Procedure for submitting total Board and Executive remuneration for shareholder approval at the Annual General Meeting

Each year at the Annual General Meeting (AGM) shareholders approve the total remuneration for the Board of Directors and for the Corporate Executive Committee as decided by the Board of Directors' Remuneration Committee and the Board of Directors, respectively.

According to the approval at the AGM 2014, Roche has committed itself to obtaining separate and binding shareholder approvals of the total remuneration paid to the Board of Directors and to the Corporate Executive Committee as follows:

Retrospective approval

Total aggregate bonus amounts for the Corporate Executive Committee and the Chairman of the Board of Directors for the financial year just ended will be submitted retrospectively at each ordinary AGM for separate and binding approval.

Prospective approval

All other Board and Executive aggregate remuneration will be submitted prospectively to the AGM for separate and binding approval for the period between two ordinary AGMs.

Approval of total remuneration at the Annual General Meeting 2018

Retrospective:

Chairman of the BoD (C):

- Bonus for financial year 2017 (total amount)

Corporate Executive Committee (CEC) including CEO Roche Group:

- Bonus for financial year 2017 (total amount)

Prospective:

Board of Directors (BoD) including C:

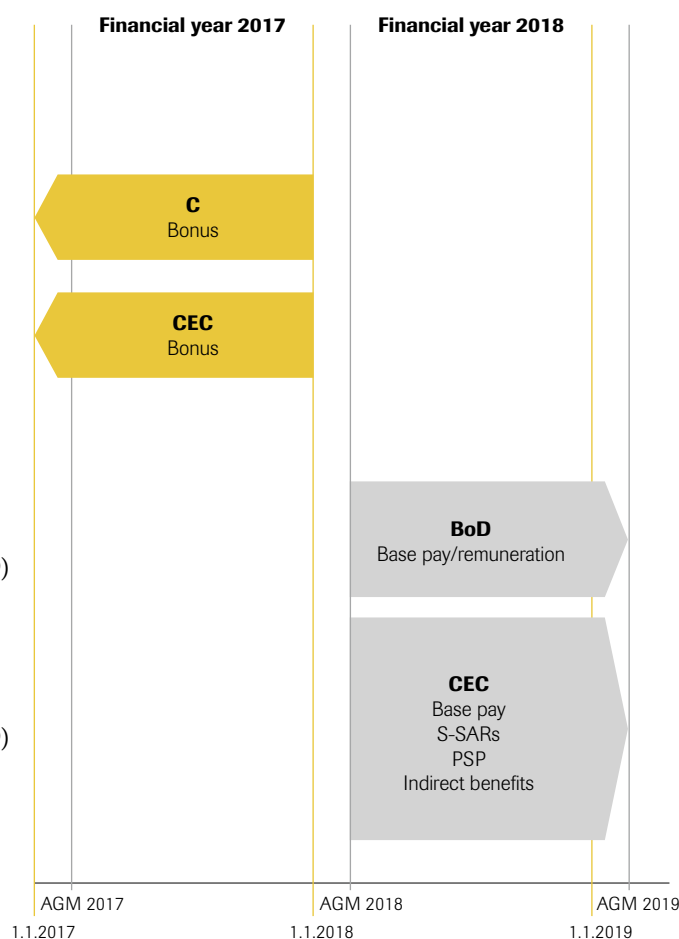
Aggregate total remuneration (AGM 2018–AGM 2019)

- Base pay/remuneration

Corporate Executive Committee (CEC) including CEO Roche Group:

Aggregate total remuneration (AGM 2018–AGM 2019)

- Base pay
- Stock-settled Stock Appreciation Rights (S-SARs)
- Performance Share Plan (PSP)
- Indirect benefits



3. Remuneration components

3.1 Overview of remuneration elements

Remuneration to the members of the Board of Directors and the Corporate Executive Committee are composed of the following elements (for concrete composition see chart below: 'Composition of remuneration to the Board of Directors and the Corporate Executive Committee'):

The LTI remuneration components are intended to sustainably and homogeneously and long-term oriented align management's interest with those of shareholders and holders of non-voting equity securities and to give participating managers an additional incentive to achieve value growth in the form of long-term total shareholder returns.

The fixed base salary is complemented with the annual variable bonus as **Short-Term Incentive (STI)** and with perennial variable remuneration elements (S-SARs, PSP) as **Long-Term Incentive (LTI)**.

The remuneration components are linked to the employees' performance, the company's financial performance and commercial success and thus align the interests of Roche and its employees with those of shareholders.

Composition of remuneration to the Board of Directors and the Corporate Executive Committee

Annual remuneration elements	Description	C	BoD	CEO Roche Group	CEC
Base pay/ remuneration	Monthly payment (see 3.1.1 below)	✓	✓ Quarterly payments	✓	✓
Bonus	Annual payment (see 3.1.2 below)	✓ For 10 years blocked shares	–	✓ For 10 years blocked shares	✓ Cash
Pensions etc.	(see 3.1.6 below)	✓	–	✓	✓
Perennial remuneration elements					
Stock-settled Stock Appreciation Rights (S-SARs)	(see 3.1.3 below)	–	–	✓	✓
Performance Share Plan (PSP)	(see 3.1.4 below)	–	–	✓ For 10 years blocked non-voting equity securities or shares	✓

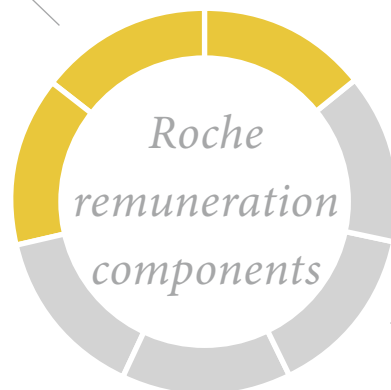
■ Variable

STI:

- Bonus

LTI:

- Stock-settled Stock Appreciation Rights
- Performance Share Plan



Base salary

Indirect benefits (employer contribution):

- Pensions and insurance contributions
- Roche Connect
- Tax consulting services

Expense allowances

Others:

- Children's schooling costs
- Foreign tax obligation
- AHV/IV/ALV

■ Fixed

3.1.1 Base pay (fixed)

Base pay (cash payment) is determined for each position based on salary market data of other leading global pharmaceutical companies (see footnote 1) and of other major Swiss companies (see footnote 2) and reflects individuals' abilities, experience and performance over time. Pay adjustments are likewise linked to individual performance and take into account prevailing market conditions and the company's overall financial situation.

The Remuneration Committee makes and reviews the final decision on the individual base pay paid to the Chairman of the Board of Directors and members of the Corporate Executive Committee and on the remuneration of the other members of the Board.

3.1.2 Bonuses (variable)

Bonuses are annually awarded for individual contributions of value creation in a business year and are meant to be an incentive to strive for outstanding results and to create new business opportunities. Bonus amounts are linked to Group and divisional core profits, sales growth at constant exchange rates, Operating Profit After Capital Charge (OPAC) based on core operating profit, core earnings per share and non-voting equity security (NES) growth at constant exchange rates, product development pipeline, diversity of employees and managers, environmental goals and

to the achievement of measurable and qualitative individual or functional performance objectives. For competitive reasons, Roche does not disclose the individual performance objectives of members of its Corporate Executive Committee and of its Chairman.

In December at the end of a reporting year or in January following a reporting year, the Remuneration Committee decides on the bonuses and their amounts payable to the Chairman of the Board and the members of the Corporate Executive Committee in respect of the current reporting year, based on performance against the aforementioned objectives. At the same time, the Remuneration Committee also decides in what form bonuses will be awarded, ie, cash payments and/or long-term blocked non-voting equity securities and/or blocked shares.

3.1.3 Stock-settled Stock Appreciation Rights (S-SARs) (variable)

S-SARs entitle holders to benefit financially from any increase in the value of Roche's non-voting equity securities between the grant date and the exercise date. As of 2012, S-SARs granted all vest together after three years and then have to be exercised within seven years of the grant date. Unexercised S-SARs lapse without compensation. Since 2012, the fair value of S-SARs has been calculated at the grant date using the trinomial model for American options (for details see page 138).

S-SARs to the Corporate Executive Committee are allocated individually at the Remuneration Committee's discretion. In 2017 in addition, around 19,500 employees received S-SARs.

3.1.4 Performance Share Plan (PSP) (variable)

The PSP was established in 2002 for periods of three years each and is based on a three-year comparison of the Total Shareholder Return (TSR) with 15 peer companies (see footnote 1).

In a respective year, the PSP consists of three overlapping performance cycles, with a new cycle starting at the beginning of each year and a cycle finishing at the end of each year. In 2017, there were the three overlapping performance cycles PSP 2015–2017, PSP 2016–2018 and PSP 2017–2019, of which PSP 2015–2017 closed on 31 December 2017 (see 5.7 and 5.3).

The plan's key performance metric for an award, the TSR, is calculated as a three-month moving average rate before the start of and before the end of the performance cycle. The payment of the PSP is determined by the Board of Directors on an annual basis, acting upon recommendations from the Remuneration Committee.

Since 2016, PSP awards as a remuneration component are reserved for the Corporate Executive Committee and the Enlarged Corporate Executive Committee whilst in previous years other members of senior management participated in the PSP. Since 2016, the long-term incentive programmes for the other previous PSP participants comprise S-SARs and RSUs (see 5.16.3), approximately 50% each.

3.1.5 Restricted Stock Units (RSUs)

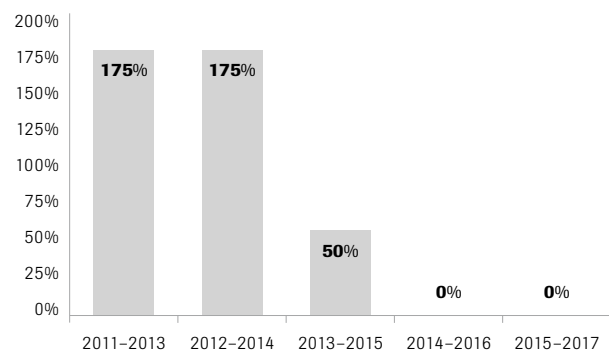
In 2016, Restricted Stock Units (RSUs) as remuneration component for the Corporate Executive Committee were replaced by awarding of corresponding PSPs (see 5.16.3). Therefore, the long-term incentive programmes for the Corporate Executive Committee comprise PSP awards and S-SARs, approximately 50% each. With this, the structure of the LTI is simplified, and in comparison with competitors the company's long-term performance, which is mirrored in the share price and the TSR, shall be reflected more strongly in the Corporate Executive Committee's remuneration.

3.1.6 Indirect benefits

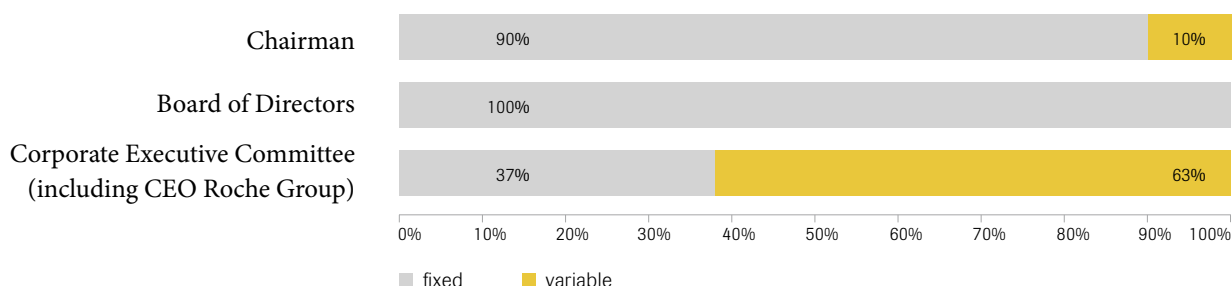
As shown in 5.9 (5.3 [for the CEO Roche Group] and 4.3 [for the Chairman], respectively), members of the Corporate Executive Committee additionally received indirect benefits (payments in pension funds, MGB [Stiftung der F. Hoffmann-La Roche AG für Mitarbeiter-Gewinnbeteiligung als Ergänzung der beruflichen Vorsorge, ie, employee profit-sharing foundation supplementing occupational pension benefits], insurances, Roche Connect, payments for foreign tax obligation and tax consulting services and annual expense allowances) and as shown under 5.10 individual members of the Corporate Executive Committee received payments for schooling costs for their children.

PSP: historical performance

(% of award of originally targeted NES)



3.2 Weighting (fixed/variable) of 2017 remuneration components (at target and as percentage of total remuneration in 2017)



3.3 Ratio of variable remuneration components relative to fixed base pay of the Corporate Executive Committee 2017

Ratio of variable remuneration components (bonuses, S-SARs and PSP) relative to % of value of fixed base pay

Criteria	STI	LTI	
	Bonus	S-SARs	PSP
Individual target value*	≤100%	66.66%	66.66%**
Minimum	0%	0%	0%
Maximum	200%	66.66%	133.33%
Performance criteria	Group objectives (Group and divisional business performance) and individual objectives considering core profits, sales growth at constant exchange rates, Operating Profit After Capital Charge (OPAC) based on core operating profit, core earnings per share and non-voting equity security (NES) growth at constant exchange rates, product development pipeline, diversity of employees and managers, environmental goals	Value development determined by performance (plus a value adjustment for dividends) of NES after grant	Value development determined by performance (plus a value adjustment for dividends) of NES/bearer shares after grant. Group performance of TSR in relation to TSR performance of peer set (TSR definition see 5.7)
Split in %			
a) Group objectives	70%	n.a.	100%
b) Individual objectives	30%	n.a.	–

n.a. – not applicable

* Assessed in consideration of the performance of competitors and the macro-economic development

** Based on annual base pay measured at 1 January of first year of cycle

For all further details please refer to the following sections of this Remuneration Report.⁵

⁵ See also in the Finance Report Note 30 to the Roche Group Consolidated Financial Statements ('Related parties', page 111) and Note 6 to the Financial Statements of Roche Holding Ltd ('Board and Executive shareholdings', page 156).

4. Remuneration of the Board of Directors

4.1 Resolution and approval

Remuneration of the Chairman of the Board of Directors and of members of the Board of Directors was decided at the Remuneration Committee's discretion, taking into account market comparisons.

The remuneration is in form of cash payments and is annually tracked against market data on directors' pay at other leading global pharmaceuticals companies (see footnote 1) and other major Swiss companies (see footnote 2) which is assisted by the consultancy of PwC.

As in the previous year, in 2018, the Board of Directors will separately submit the total aggregate bonus of the Chairman of the Board of Directors to the General Meeting for the 2017 financial year for retrospectively binding approval.

The maximum amounts of the total aggregate remuneration of the Board of Directors for the period between the ordinary General Meeting 2018 and the ordinary General Meeting 2019 will be tabled in 2018 as in the previous year for the General Meeting's prospectively binding approval (see 2.2).

4.2 Amount of remuneration to the members of the Board of Directors

In 2017, the members of the Board of Directors⁶ received remuneration and additional compensation in form of quarterly fixed cash payments as shown in the 'Remuneration of members of the Board of Directors 2017' table on page 131 for their Board activities. Roche paid legally required employer's contributions of total CHF 195,955 to Swiss social security programmes providing retirement, disability and unemployment benefits (AHV/IV/ALV) for the members of the Board of Directors beside the legally required contributions separately stated for the Chairman of the Board of Directors.

The basic remuneration of the Board of Directors (excluding the Chairman) has remained unchanged since 2001.

With the exception of the Chairman of the Board of Directors (bonus in form of blocked shares) and Dr Severin Schwan as an executive member of the Board, members of the Board of Directors were not awarded any shares, non-voting equity securities or S-SARs.

There are no loans or credits granted to the members of the Board of Directors.

In his capacity as a member of the Chugai International Council (CIC) of Chugai Pharmaceutical Co., Ltd. André Hoffmann received in 2017 honoraria amounting to a total of USD 40,000 (CHF 39,392).

For his advisory service on the Genentech Scientific Review Board, Prof. Dr Richard P. Lifton received in 2017 honoraria amounting to a total of USD 18,750 (CHF 18,465).

AUDITED

⁶ For a list of members, their positions and their committee memberships and chairmanships see page 107.

Remuneration of members of the Board of Directors 2017 (in CHF)

	Basic remuneration	Additional remuneration for committee members/chairs ⁷	Additional special remuneration	Total remuneration
Ch. Franz, Chairman	(see '4.3 Total remuneration paid to the Chairman of the Board of Directors')			
A. Hoffmann, Vice-Chairman	400,000 ⁸	–	39,392 (see page 130)	439,392
J. Bell	300,000	30,000	–	330,000
J. Brown	300,000	60,000	–	360,000
P. Bulcke	300,000	30,000	–	330,000
A. Hauser (since March 2017)	250,000 ⁹	30,000	–	280,000
R.P. Lifton	300,000	30,000	18,465 (see page 130)	348,465
A. Oeri	300,000	60,000	–	360,000
B. Poussot	300,000	30,000	–	330,000
S. Schwan	(see '5.3 Highest total remuneration paid to Dr Severin Schwan as a member of the Corporate Executive Committee', remuneration received in his primary function as CEO Roche Group and reflected in total remuneration for the Corporate Executive Committee)			
C. Suessmuth Dyckerhoff	300,000	60,000	–	360,000
P.R. Voser	300,000	30,000	–	330,000
P. Baschera (retired in March 2017)	75,000 ¹⁰	7,500 ¹⁰	–	82,500 ¹⁰
Total¹¹	3,125,000	367,500	57,857	3,550,357

AUDITED

7 With the exception of members of the Presidium (Chairman, Vice-Chairman) Board members receive CHF 30,000/year for each committee they serve on and CHF 60,000/year for each committee they chair.

8 Remuneration for serving as Vice-Chairman of the Board.

9 Prorated remuneration for the period from March to December 2017.

10 Prorated remuneration paid for the period January to March 2017.

11 Additionally, employer contribution to AHV/IV/ALV totalling CHF 427,155 (including the Chairman) was paid that does not form part of remuneration.

Remuneration of members of the Board of Directors 2016 (in CHF)

AUDITED		Basic remuneration	Additional remuneration for committee members/chairs ¹²	Additional special remuneration	Total remuneration
	Ch. Franz, Chairman		(see '4.3 Total remuneration paid to the Chairman of the Board of Directors')		
	A. Hoffmann, Vice-Chairman	400,000 ¹³	–	39,411	439,411
	P. Baschera	300,000	30,000	–	330,000
	J. Bell	300,000	30,000	–	330,000
	J. Brown (since March 2016)	250,000 ¹⁴	60,000	–	310,000
	P. Bulcke	300,000	30,000	–	330,000
	R.P. Lifton	300,000	30,000	–	330,000
	A. Oeri	300,000	60,000	–	360,000
	B. Poussot	300,000	30,000	–	330,000
S. Schwan	(see '5.3 Highest total remuneration paid to Dr Severin Schwan as a member of the Corporate Executive Committee', remuneration received in his primary function as CEO Roche Group and reflected in total remuneration for the Corporate Executive Committee)				
C. Suessmuth Dyckerhoff (since March 2016)	250,000 ¹⁴	60,000	–	310,000	
P.R. Voser	300,000	30,000	–	330,000	
D. Julius (retired in March 2016)	75,000 ¹⁵	15,000 ¹⁵	–	90,000 ¹⁵	
B. Weder di Mauro (retired in March 2016)	75,000 ¹⁵	7,500 ¹⁵	–	82,500 ¹⁵	
Total¹⁶	3,150,000	382,500	39,411	3,571,911	

12 With the exception of members of the Presidium (Chairman, Vice-Chairman) Board members receive CHF 30,000/year for each committee they serve on and CHF 60,000/year for each committee they chair.

13 Remuneration for serving as Vice-Chairman of the Board.

14 Prorated remuneration for the period from March to December 2016.

15 Prorated remuneration paid for the period January to March 2016.

16 Additionally, employer contribution to AHV/IV/ALV totalling CHF 426,354 (including the Chairman) was paid that does not form part of remuneration.

4.3 Total remuneration paid to the Chairman of the Board of Directors

As Chairman, Dr Christoph Franz received total remuneration for 2017 as shown below. The Remuneration Committee's bonus proposal (adopted in late 2017) in respect of the 2017 financial year

(in form of bearer shares blocked for 10 years, payable in April 2018) will be put for shareholder binding vote at the 2018 ordinary Annual General Meeting (AGM).

The Chairman's total remuneration is contained in the total remuneration of the Board of Directors in 4.4.

Total remuneration paid to the Chairman of the Board of Directors (in CHF)

	2017	2016
Base salary (in cash)	3,500,000	3,500,000
Bonus (subject to approval of the Annual General Meeting)	558,390*	558,390*
Pension funds/MGB ¹⁷ /insurances/annual expense allowances	1,681,401**	1,665,122**
Total	5,739,791¹⁸	5,723,512

* In form of shares blocked for 10 years (calculation of number of shares based on the share price at the date of transfer in April 2018 and 2017, respectively, after approval at the AGM 2018/AGM 2017, respectively), calculation of value in consideration of reduction of value due to blocking period of 10 years (reduced market value: 55.839%) to be submitted for shareholder approval at the AGM 2018/as approved at the AGM 2017, respectively

** Including employer contribution of social securities' beneficial parts

¹⁷ MGB: Stiftung der F. Hoffmann-La Roche AG für Mitarbeiter-Gewinnbeteiligung (employee profit-sharing foundation supplementing occupational pension benefits).

¹⁸ Additionally, employer contribution to AHV/IV/ALV of CHF 231,200 (2016: CHF 231,240) was paid that does not form part of remuneration.

4.4 Total remuneration paid to the Board of Directors

For the 2017 calendar year the members of the Board of Directors received remuneration including bonuses and employer contribution of social securities' beneficial parts totalling CHF 9,364,757 (2016: CHF 9,295,423), excluding additional employer's contribution paid to AHV/IV/ALV totalling CHF 427,155 (2016: CHF 426,354) that does not form part of remuneration.

4.5 Remuneration paid to the former members of the Board of Directors

Former member of the Board of Directors Dr Franz B. Humer in 2017 received fees amounting to a total of USD 89,800 (CHF 88,434) for serving a member of the Board of Directors and of the Chugai International Council (CIC) of Chugai Pharmaceutical Co., Ltd.

Former member of the Board of Directors William M. Burns in 2017 received honoraria amounting to a total of USD 40,000 (CHF 39,392) in his capacity as a member of the Chugai International Council (CIC) of Chugai Pharmaceutical Co., Ltd.

No additional remuneration was paid.

4.6 Board remuneration subject to approval at the Annual General Meeting**4.6.1 Submission of the Chairman's total aggregate bonus for a binding vote at the Annual General Meeting**

Remuneration to the Chairman of the Board of Directors includes a bonus award of CHF 558,390 in form of shares blocked for 10 years as shown in the table in section '4.3 Total remuneration paid to the Chairman of the Board of Directors'. The Board of Directors will submit the Remuneration Committee's bonus proposal (adopted in late 2017) for the Chairman of the Board, Dr Christoph Franz, in respect of the 2017 financial year (payable in April 2018, excluding legally required employer's contributions to AHV/IV/ALV) for the shareholder binding vote to the 2018 ordinary Annual General Meeting.

Retrospective approvals of the Chairman's total aggregate bonus (in CHF)*

	Proposal AGM 2018	AGM 2017	AGM 2016
	Aggregate amount for financial year 2017	Aggregate amount for financial year 2016	Aggregate amount for financial year 2015
Total aggregate amount proposal for approval/ approved by the AGM	558,390**	558,390**	558,390**

* Excluding legally required employer's contributions to AHV/IV/ALV

** Bonus award (in form of shares blocked for 10 years [calculation of number of shares based on the share price at the date of transfer in April 2018/ April 2017/April 2016, respectively after approval at the AGM 2018/AGM 2017/AGM 2016, respectively], calculation of value in consideration of reduction of value due to blocking period of 10 years [reduced market value: 55.839%] to be submitted for shareholder approval at the AGM 2018/as approved at the AGM 2017 and AGM 2016, respectively)

4.6.2 Submission of the Board's total aggregate future remuneration for a binding shareholder vote

The Board of Directors proposes that the 2018 ordinary AGM approve Board remuneration totalling not more than CHF 10,000,000 (excluding legally required employer's contributions to AHV/IV/ALV and excluding bonuses) for the period ending at the 2019 ordinary AGM.

Dr Severin Schwan's remuneration as shown in 5.3 which he receives in his function as CEO Roche Group and member of the Corporate Executive Committee is not included here but is part of the Corporate Executive Committee's total remuneration.

Prospective approvals of the Board's total aggregate future remuneration (in CHF)*

	Proposal AGM 2018	AGM 2017	AGM 2016
	Aggregate amount for the period AGM 2018–AGM 2019	Aggregate amount for the period AGM 2017–AGM 2018	Aggregate amount for the period AGM 2016–AGM 2017
Total aggregate amount proposal for approval/ approved by the AGM	10,000,000	10,000,000	10,000,000

* Excluding legally required employer's contributions to AHV/IV/ALV and excluding bonuses

4.6.3 Reconciliation of the reported remuneration with the shareholders' approved remuneration for the members of the Board of Directors

The 2016 ordinary AGM approved Board remuneration totalling not more than CHF 10,000,000 (excluding legally required employer's contributions to AHV/IV/ALV and excluding bonuses) for the period ending at the 2017 ordinary AGM.

For comparison from 2016 ordinary AGM to ordinary 2017 AGM actual remuneration amounted to CHF 8,637,246 (excluding legally required employer's contributions to AHV/IV/ALV and excluding bonuses).

Prospectively approved total remuneration for the members of the Board of Directors in comparison to the actual total payments made (in CHF)*

	Total remuneration for the period AGM 2017–AGM 2018	Total remuneration for the period AGM 2016–AGM 2017	Total remuneration for the period AGM 2015–AGM 2016
Maximum of total remuneration approved by the AGM	10,000,000	10,000,000	10,000,000
Actual total remuneration paid	Calculation at end of period	8,637,246	8,623,576
Within the approved limit	Calculation at end of period	Yes	Yes

* Excluding legally required employer's contributions to AHV/IV/ALV and excluding bonuses

4.7 Security holdings

Directors André Hoffmann and Dr Andreas Oeri and members of the founders' families who are closely associated with them belong to a contractually bound shareholder group with pooled voting rights. At the end of 2017 this group held 72,018,000 shares (45.01% of issued shares). Detailed information about this group can be found in the Finance Report, Note 30 to the Roche Group Consolidated Financial Statements

(‘Related parties’, page 111) and in Note 4 to the Financial Statements of Roche Holding Ltd (‘Significant shareholders’, page 155). In addition, as at 31 December 2017 (as at 31 December 2016, respectively) the members of the Board of Directors and persons closely associated with them held Roche shares, non-voting equity securities (NES) and American Depositary Receipts (ADRs***) as shown in the table ‘Security holdings’ below.

Security holdings (shares and NES)

	(as at 31 December 2017)				(as at 31 December 2016)			
	Shares (number)	Non- voting equity securities (NES) (number)	Close relatives' security holdings (number/type)	Others (number)	Shares (number)	Non-voting equity securities (NES) (number)	Close relatives' security holdings (number/type)	Others (number)
Board of Directors								
Ch. Franz	11,522	4,810	–	–	7,639	4,810	–	–
A. Hoffmann	–*	200	–	–	–*	200	–	–
J. Bell	1,115	1,647	–	–	300	1,647	–	–
J. Brown	729	–	–	–	–	–	–	–
P. Bulcke	–	4,000	–	–	–	2,500	–	–
A. Hauser	–	150	20 NES	–	n.a.	n.a.	n.a.	n.a.
R.P. Lifton	–	–	–	300 ADRs	–	–	–	–
A. Oeri	–*	187,793	–	–	–*	187,793	–	–
B. Poussot	500	500	–	–	–	–	–	–
S. Schwan	(see ‘5.16 Security holdings’ Corporate Executive Committee on page 144)				(see ‘5.16 Security holdings’ Corporate Executive Committee on page 144)			
C. Suessmuth Dyckerhoff	–	621**	–	–	–	621**	–	–
P.R. Voser	–	5,000	–	–	–	5,000	–	–
Retired Board members (retired in March 2017)								
P. Baschera	n.a.	n.a.	n.a.	n.a.	1	4,600	–	–
Total	13,866	204,721	20 NES	300 ADRs	7,940	207,171	–	–

n.a. – not applicable

* Shares held by the shareholder group with pooled voting rights not listed

** Jointly held with close relative

*** Roche's ADR (American Depositary Receipt), listed on OTCQX www.otcmkt.com/stock/RHHBY/quote International Premier under the symbol RHHBY, ISIN US771195104. Traded in USD, eight (8) ADRs represent one (1) underlying NES.

5. Remuneration of the Corporate Executive Committee

5.1 Resolution and approval

Remuneration of the members of the Corporate Executive Committee was decided at the Remuneration Committee's discretion, taking into account market comparisons.

As in the previous year, in 2018, the Board of Directors will separately submit the total aggregate bonuses of the Corporate Executive Committee to the General Meeting for the 2017 financial year for retrospectively binding approval.

The maximum amounts of the total aggregate remuneration of the Corporate Executive Committee for the period between the ordinary General Meeting 2018 and the ordinary General Meeting 2019 will be tabled in 2018 as in the previous year for the General Meeting's prospectively binding approval (see 2.2).

5.2 Amount of remuneration to members of the Corporate Executive Committee

The general provisions assigning authority for decisions on Corporate Executive Committee remuneration to

the Remuneration Committee and to the Board of Directors are outlined on page 123, '2. Remuneration decision process and approval framework'.

In 2017, members of the Corporate Executive Committee received remuneration for their work as shown in 5.3–5.12. The amount of remuneration for the CEO Roche Group, Dr Severin Schwan, is explained in 5.3 in detail.

5.3 Highest total remuneration paid to Dr Severin Schwan as a member of the Corporate Executive Committee

Dr Severin Schwan, executive member of the Board of Directors, received his remuneration in his primary function as CEO Roche Group. It is reflected as the highest total remuneration paid to a member of the Corporate Executive Committee (see below) and included in the total amount paid to the Corporate Executive Committee (see '5.12 Total remuneration paid to the members of the Corporate Executive Committee', page 141).

Highest total remuneration paid to Dr Severin Schwan as a member of the Corporate Executive Committee (in CHF)

	2017	2016 ¹⁹
Base salary	4,000,000	4,000,000
S-SARs ²⁰	2,666,851	2,666,711
Pension funds/MGB ²¹ /insurances	578,506**	561,576**
Roche Connect	100,008	100,008
Bonus (subject to approval of the total aggregate bonuses for the Corporate Executive Committee by Annual General Meeting)		
– Blocked non-voting equity securities/shares	2,791,950 ^{22*}	2,791,950*
PSP	1,488,970 ^{23*}	1,489,025 ^{24*}
Other payments: expense allowance/for tax consulting services	62,778	33,186
Total	11,689,063²⁵	11,642,456

* Calculation of value of non-voting equity securities/shares in consideration of reduction of value due to blocking period of 10 years (reduced market value: 55.839%)

** Including employer contribution of social securities' beneficial parts

¹⁹ For detailed calculation of the remuneration for 2016 and 2015 see Annual Report 2016, page 141.

²⁰ Number of S-SARs 2017: 85,476, grant value according to the trinomial model for American call options: CHF 31.20. Trinomial model for American call options value as described in '5.6 Stock-settled Stock Appreciation Rights (S-SARs) of the other members of the Corporate Executive Committee', page 138.

Number of S-SARs 2016: 89,517, grant value according to the trinomial model for American call options: CHF 29.79. Trinomial model for American call options value as described in '5.6 Stock-settled Stock Appreciation Rights (S-SARs) of the other members of the Corporate Executive Committee', page 138.

²¹ MGB: Stiftung der F. Hoffmann-La Roche AG für Mitarbeiter-Gewinnbeteiligung (employee profit-sharing foundation supplementing occupational pension benefits).

²² Shares blocked for 10 years (calculation of number of shares based on the share price at the date of transfer in April 2018 after approval at the AGM 2018).

²³ Target number of non-voting equity securities for PSP 2017–2019 (11,565 non-voting equity securities) multiplied per non-voting equity securities' price averaged over the three months (October to December 2016) prior to the start of the performance cycle 2017–2019, CHF 230.57/non-voting equity security.

²⁴ Target number of bearer shares for PSP 2016–2018 (9,968 bearer shares) multiplied per bearer share price averaged over the three months (October to December 2015) prior to the start of the performance cycle 2016–2018, CHF 267.52/bearer share.

²⁵ Includes an annual expense allowance (CHF 30,000) and payments for tax consulting services (CHF 32,778; 2016: CHF 3,186). Additionally, employer contribution to AHV/IV/ALV of CHF 555,967 (2016: CHF 612,119) was paid that does not form part of remuneration.

AUDITED

5.4 Base pay of the other members of the Corporate Executive Committee**Base pay** (in CHF)

	2017	2016
R. Diggelmann	1,300,000	1,300,000
A. Hippe	1,600,000	1,600,000
G.A. Keller	1,500,000	1,500,000
D. O'Day	2,500,000	2,500,000
C.A. Wilbur	825,000	686,668*
Total	7,725,000	7,586,668

* Base pay 2016 including prorated remuneration for the period from March to December 2016 as member of the Corporate Executive Committee

AUDITED

5.5 Bonuses of the other members of the Corporate Executive Committee

The Remuneration Committee of the Board of Directors determined the Corporate Executive Committee members' bonuses based on the performance 2017 against the agreed objectives. The total aggregate amount of bonuses will be brought forward for a binding vote by the Annual General Meeting 2018.

Except for Dr Severin Schwan, all members of the Corporate Executive Committee will receive the bonus 2017 as a 100% cash payment which is due in April 2018. Dr Severin Schwan will receive the bonus in form of Roche shares which are blocked for 10 years. Bonus payment is due in April 2018 (see page 137).

Bonus (in CHF)

	2017	2016
	(subject to approval of the total aggregate bonuses of the Corporate Executive Committee by the Annual General Meeting 2018)	
R. Diggelmann	1,350,000	1,250,000
A. Hippe	2,000,000	1,900,000
G.A. Keller	1,400,000	1,300,000
D. O'Day	3,100,000	3,000,000
C.A. Wilbur	950,000	850,000*
Total	8,800,000	8,300,000

* Prorated remuneration for the period from March to December 2016

5.6 Stock-settled Stock Appreciation Rights (S-SARs) of the other members of the Corporate Executive Committee

The S-SARs shown in the 5.16.2 'S-SARs' table on page 145 entitle holders to benefit financially from any increase in the value of Roche's non-voting equity securities (NES) between the grant date and the exercise date. The strike price for S-SARs under the terms of this multi-year plan was the closing price for Roche NES at grant date. All S-SARs vest three years after the grant date. Vested S-SARs can be exercised (converted into NES) within seven years of the grant date. Unexercised S-SARs lapse without compensation.

The fair value of the S-SARs is calculated at the grant date using the trinomial model for American options. The trinomial model is an effective method for valuation of American call options, as it considers the possibility of exercising the option any time prior to maturity (called 'American' option, as compared to a 'European' option, which only allows exercise at their maturity date).²⁶

The numbers of S-SARs, the strike prices, expiry dates and grant values for S-SARs are shown in the 5.16.2 'S-SARs' table on page 145. The numbers of S-SARs as calculated at the time of issue have been entered as values in the table on pages 139 and 137.²⁷

²⁶ For further information on the trinomial model for American options: Please refer to Boyle, Phelim P.: 'A lattice framework for options pricing with two state variables', The Journal of Financial and Quantitative Analysis, Volume 23, Issue 1 (Mar 1988), 1–12, roche.com/trinomial-model.pdf

²⁷ See strike prices in table 5.16.2 'S-SARs', page 145.

Stock-settled Stock Appreciation Rights (S-SARs) (in CHF)

	S-SARs 2017	S-SARs 2016
R. Diggelmann	866,923	866,889
A. Hippe	1,066,759	1,066,810
G.A. Keller	1,000,022	1,000,050
D. O'Day	1,666,829	1,666,751
C.A. Wilbur	500,198	456,949
Total	5,100,731	5,057,449

AUDITED

5.7 Performance Share Plan (PSP) of the other members of the Corporate Executive Committee

Since 2016, PSP awards as a remuneration component are reserved for the Corporate Executive Committee and the Enlarged Corporate Executive Committee while in previous years other members of senior management also participated in the Performance Share Plan.

The PSP consists of overlapping three-year performance cycles, with a new cycle beginning each year. In 2017, there were thus three cycles in progress (PSP 2015–2017, PSP 2016–2018 and PSP 2017–2019), whereas PSP 2015–2017 closed on 31 December 2017 with none of the targeted bearer shares awarded (PSP 2014–2016 [per 31 December 2016]: none of the targeted NES awarded; PSP 2013–2015 [per 31 December 2015]: 50% of the targeted NES awarded). For the historical PSP performance see 3.1.4.

Under the provisions of this plan, a number of non-voting equity securities (NES) or bearer shares have been reserved for the participants in each cycle. The number of securities actually awarded will depend on whether and to what extent an investment in Roche securities (shares and NES) outperforms the average return on an investment in securities issued by a set of peer companies.²⁸ Comparisons are based on the securities' market prices and dividend yields, ie, on Total Shareholder Return (TSR). To reduce the effect of short-term market fluctuations, security prices are averaged over the three months (October to December) prior to the start of a performance cycle and over the three months (October to December) at the end of the cycle.

If Roche securities perform better than the average of the peer set, the Board of Directors can elect to increase the NES or bearer shares award. The maximum award is double the original-level reserved target number of NES or bearer shares according to the PSP plan (plus a value adjustment being the amount equivalent to the sum of the dividend paid during the vesting period attributable to the number of non-voting equity securities or bearer shares for which an individual award has been granted) and requires that Roche securities perform as well as or better than those of 75% of the peer set. In the event that an investment in Roche securities underperforms the average return delivered by the peer companies, fewer or no NES or bearer shares will be awarded.

In 2017, NES were reserved under the plan for members of the Corporate Executive Committee as shown in the table on page 140 and on page 137. The Board of Directors will decide on the actual level of NES, bearer shares or cash equivalent awards for the PSP cycles 2016–2018 and 2017–2019 after the close of the 2018 and 2019 financial years, respectively. The aim of the PSP is to provide an incentive to participants to achieve long-term value growth.

At the end of the PSP 2015–2017 cycle (based on a three-month average) with distributed dividends totalling CHF 20.961 billion (2017: CHF 7.073 billion; 2016: CHF 6.987 billion; 2015: CHF 6.901 billion), according to the terms of the plan, the participants received none of the originally targeted bearer shares.

²⁸ See footnote 1, page 123.

Performance Share Plan (PSP)

AUDITED	2017				2016		
	Target number of non-voting equity securities (NES) for PSP 2017–2019 (number)	Fair value at grant per non-voting equity securities (NES), NES prices averaged over the three months (October to December 2016) prior to the start of the performance cycle PSP 2017–2019 (value in CHF)	Fair value of target number of non-voting equity securities (NES) for PSP 2017–2019 (value in CHF)		Target number of bearer shares for PSP 2016–2018 (number)	Fair value at grant per bearer share, bearer share prices averaged over the three months (October to December 2015) prior to the start of the performance cycle PSP 2016–2018 (value in CHF)	Fair value of target number of bearer shares for PSP 2016–2018 (value in CHF)
R. Diggelmann	3,758	230.57	866,482		3,239	267.52	866,497
A. Hippe	4,626	230.57	844,857*		3,987	267.52	844,845*
G.A. Keller	4,337	230.57	558,380**		3,738	267.52	999,990
D. O'Day	7,228	230.57	1,666,560		6,230	267.52	1,666,650
C.A. Wilbur	2,168	230.57	499,876		1,706	267.52	456,389
Total	22,117	230.57	4,436,155		18,900	267.52	4,834,371

* Calculation of value of non-voting equity securities/shares in consideration of reduction of value due to blocking period of 4 years (reduced market value: 79.209%)

** Calculation of value of non-voting equity securities in consideration of reduction of value due to blocking period of 10 years (reduced market value: 55.839%)

5.8 Restricted Stock Units of the other members of the Corporate Executive Committee

In 2016, RSUs (see 5.16.3) as remuneration component for the Corporate Executive Committee were replaced by awarding of corresponding PSPs. Therefore, the variable long-term incentive programmes for the Corporate Executive Committee comprise PSP awards and S-SARs, approximately 50% each.

5.9 Indirect benefits of the other members of the Corporate Executive Committee

Employer contributions made in 2017 to social security schemes, pension plans and a Group-wide employee stock purchase plan (Roche Connect) in respect of members of the Corporate Executive Committee are shown in the 'Indirect benefits (employer contributions)' table on page 141 and employer contributions as shown in the table on page 137.

Roche Connect is a voluntary stock purchase plan offering employees the opportunity to buy Roche non-voting equity securities (NES) up to an amount equal to 10% of their annual salary at a 20% discount. NES purchased under this plan are subject to a holding period, which is four years in Switzerland.

In addition, members of the Corporate Executive Committee received annual expense allowances and some members payments for foreign tax obligations and tax consulting services as shown in the table on page 141.

Indirect benefits (employer contributions) (in CHF)

	2017				2016			
	Pension funds/ MGB ²⁹ / insurances*	Annual expense allowances	Roche Connect	Payments for tax/tax consulting services	Pension funds/ MGB ²⁹ / insurances*	Annual expense allowances	Roche Connect	Payments for tax/tax consulting services
R. Diggelmann	328,506	30,000	30,000	8,611	311,576	30,000	15,000	–
A. Hippe	328,506	30,000	39,996	15,545	311,576	30,000	39,996	11,818
G.A. Keller	115,314	30,000	37,500	1,623	98,384	30,000	37,500	–
D. O'Day	328,506	30,000	62,496	628,039	311,576	30,000	56,244	915,793
C.A. Wilbur	319,506	30,000	18,744	37,147	242,084	30,000	9,372	28,508
Total	1,420,338	150,000	188,736	690,965	1,275,196	150,000	158,112	956,119

* Including employer contribution of social securities' beneficial parts

29 MGB: Stiftung der F. Hoffmann-La Roche AG für Mitarbeiter-Gewinnbeteiligung (employee profit-sharing foundation supplementing occupational pension benefits).

5.10 Other remuneration and loans of members of the Corporate Executive Committee

Based on contractual obligations, in 2017, Roche paid to individual members of the Corporate Executive Committee for their children's schooling costs totalling CHF 42,300 (2016: CHF 42,300).

All aforementioned additional payments are included in the total remuneration to members of the Corporate Executive Committee.

In 2017, there are no loans or credits granted to the members of the Corporate Executive Committee.

The maximum regular period of notice for members of the Corporate Executive Committee is 12 months. There are no change-of-control clauses in the employment contracts.

5.11 Remuneration to former members of the Corporate Executive Committee

In 2017, pensions totalling CHF 2,049,180 (2016: CHF 2,049,180) were paid to former Corporate Executive Committee members.

5.12 Total remuneration paid to the members of the Corporate Executive Committee

For the 2017 calendar year, the members of the Corporate Executive Committee received

remuneration including bonuses and employer contribution of social securities' beneficial parts totalling CHF 40,243,288 (2016: CHF 42,700,144), excluding additional employer's contribution paid to AHV/IV/ALV totalling CHF 1,975,317 (2016: CHF 1,972,422) that does not form part of remuneration.

No additional remuneration other than the above mentioned payments was paid to current or former members of the Corporate Executive Committee.

5.13 Executive remuneration subject to approval at the Annual General Meeting

5.13.1 Submission of Executive total aggregate bonuses for a binding vote at the Annual General Meeting

The Board of Directors proposes awarding the members of the Corporate Executive Committee bonuses (for Dr Severin Schwan in form of Roche shares which are blocked for 10 years, for all other members of the Corporate Executive Committee as a 100% cash payment, see 5.5) totalling CHF 11,591,950 in respect of the 2017 financial year (2016: CHF 11,891,950), excluding legally required employer's contributions to AHV/IV/ALV, and will submit this proposed total amount to the ordinary Annual General Meeting (AGM) 2018 for a binding vote.

Retrospective approvals of the members of the Executive Committee's total aggregate bonuses (in CHF)*

	Proposal AGM 2018	AGM 2017	AGM 2016
	Aggregate amount for financial year 2017	Aggregate amount for financial year 2016	Aggregate amount for financial year 2015
Total aggregate amount proposal for approval/ approved by the AGM	11,951,950	11,891,950	12,726,984

* Excluding legally required employer's contributions to AHV/IV/ALV

5.13.2 Submission of Executive total future aggregate remuneration for a binding shareholder vote

The Board of Directors proposes that the 2018 ordinary AGM approves remuneration for the Corporate Executive Committee totalling not more than CHF 41,000,000 (excluding legally required employer's contributions to AHV/IV/ALV and excluding bonuses) for the period ending at the 2019 ordinary AGM.

The amount of Executive total future aggregate remuneration is composed of base pay, long-term

incentives S-SARs (calculated at grant value without considering reductions of value due to blocking periods if applicable) and PSP (calculated at the time of reservation of non-voting equity securities or bearer shares and taking into account their maximal potential to double, without considering reductions of value due to blocking periods), contributions to pension benefits (excluding legally required employer's contributions to AHV/IV/ALV) as well as contributions for expenses, payments for foreign tax obligations, tax consulting services and Roche Connect.

Prospective approvals of the members of the Executive Committee's total future aggregate remuneration (in CHF)*

	Proposal AGM 2018	AGM 2017	AGM 2016
	Aggregate amount for the period AGM 2018–AGM 2019	Aggregate amount for the period AGM 2017–AGM 2018	Aggregate amount for the period AGM 2016–AGM 2017
Total aggregate amount proposal for approval/ approved by the AGM	41,000,000	41,000,000	41,000,000

* Excluding legally required employer's contributions to AHV/IV/ALV and excluding bonuses

5.13.3 Reconciliation of the reported remuneration with the shareholders' prospectively approved remuneration for the members of the Corporate Executive Committee

The 2016 ordinary AGM approved remuneration for the Corporate Executive Committee totalling not more than CHF 41,000,000 (excluding legally required employer's contributions to AHV/IV/ALV and

excluding bonuses) for the period ending at the 2017 ordinary AGM.

For comparison, from 2016 ordinary AGM to 2017 ordinary AGM remuneration amounted to CHF 40,001,760 (excluding legally required employer's contributions to AHV/IV/ALV and excluding bonuses. PSP: Assumption of maximum value).

Prospectively approved total remuneration of the members of the Executive Committee in comparison to actual total remuneration effected (in CHF)*

	Amount for the period AGM 2017–AGM 2018	Amount for the period AGM 2016–AGM 2017	Amount for the period AGM 2015–AGM 2016
Maximum of total remuneration prospectively approved by the AGM**	41,000,000	41,000,000	37,000,000
Total remuneration calculated at end of corresponding AGM–AGM period**	Calculation at the end of period AGM 2017–AGM 2018	40,001,760	33,938,257
Actual total remuneration realised (for corresponding AGM–AGM period based on the actual amount calculated retrospectively after the end of the corresponding PSP cycle)	Calculation at the end of 2019 (after the end of the PSP cycle 2017–2019)	Calculation at the end of 2018 (after the end of the PSP 2016–2018 cycle)	26,273,042***
Within the approved limit	Calculation at end of period	Yes	Yes
Additional amount paid for new members of the Corporate Executive Committee after approval by the AGM and not within the approved total amount	No	No	No

* Excluding legally required employer's contributions to AHV/IV/ALV and excluding bonuses

** Including assumption amount of 200% (maximum possible award) of bearer shares/non-voting equity securities of the corresponding PSP cycle

*** Due to no award of bearer shares under the PSP 2015–2017 cycle and their originally included calculation of 200% (maximum possible award), the amount of the total remuneration for the period AGM 2015–AGM 2016 is reduced to CHF 26,273,042.

5.14 Clawback

In addition to applicable statutory provisions, Roche's long-term incentive plans include the option to partially reclaim distributed compensation as a result of special circumstances (clawback).

If the employee voluntarily serves notice of termination of employment, S-SARs (see 5.16.2) and RSUs (see 5.16.3) which are unvested at the date of termination of employment lapse immediately without any compensation.

Upon termination of employment as a result of serious misconduct, all S-SARs and RSUs granted and outstanding, whether vested or unvested, shall lapse immediately without any compensation. According to the S-SARs plan rules, serious misconduct by the participant may include (inter alia):

- activity leading to serious disciplinary action
- repeated or willful failure to perform such duties as have been reasonably assigned by Roche
- violation of any law or public regulation
- commission of a crime
- gross negligence or willful misconduct in employment
- engaging in conduct bringing disgrace or disrepute to Roche and/or any of its subsidiaries
- violation of any of Roche's directives and guidelines relating to business conduct

According to the regulations of the PSP programme, the originally targeted but not awarded NES or shares shall lapse without any compensation upon notice of termination of employment being given for any reason other than redundancy, disability or retirement.

5.15 Guidelines for security holdings

In 2012, the Board of Directors decided that the CEO Roche Group and other CEC members must acquire shares and/or NES equivalent to two annual base salaries (CEO Roche Group since 2018 equivalent to five annual base salaries) and one annual base salary, respectively, by the end of 2016 and retain these holdings for as long as they serve on the CEC. With the exception of Cristina A. Wilbur, who joined the Corporate Executive Committee in 2016 and who must fulfil the requirement by the end of 2020, all other members of the Corporate Executive Committee fulfil this requirement.

5.16 Security holdings

As at 31 December 2017 (as at 31 December 2016, respectively) the members of the CEC and persons closely associated with them held securities as shown in the tables 'Shares and non-voting equity securities (NES)', 'S-SARs', 'Restricted Stock Units (RSUs)' below.

	Type of security	Value to be acquired
CEO Roche Group	Shares and/or NES	5 × annual base salary
Members of the Corporate Executive Committee	Shares and/or NES	1 × annual base salary

5.16.1 Shares and non-voting equity securities (NES)

	(as at 31 December 2017)			(as at 31 December 2016)		
	Shares (number)	NES (number)	Close relatives' security holdings (number/type)	Shares (number)	NES (number)	Close relatives' security holdings (number/type)
Corporate Executive Committee						
S. Schwan	153,428	27,040	-	138,011	29,836	-
R. Diggelmann	-	8,058	-	-	5,776	-
A. Hippe	6,970	16,585	-	6,970	13,305	-
G.A. Keller	19,191	18,445	1,100 shares	19,191	18,277	1,100 shares
D. O'Day	3,065	16,091	-	3,065	12,896	-
C.A. Wilbur	-	3,141	-	-	1,714	-
Total	182,654	89,360	1,100 shares	167,237	81,804	1,100 shares

5.16.2 S-SARs

	Number of S-SARs held on 31 December 2017						
	2017	2016	2015	2014	2013	2012	2011
Corporate Executive Committee							
S. Schwan	85,476	89,517	59,997	54,453	30,000	-	-
R. Diggelmann	27,786	29,100	18,006	16,338	17,874	15,000	12,732
A. Hippe	34,191	35,811	24,003	21,783	-	-	-
G.A. Keller	32,052	33,570	22,503	20,424	-	-	-
D. O'Day	53,424	55,950	30,000	27,231	-	-	-
C.A. Wilbur	16,032	15,339	4,164	5,754	4,594	2,122	-
Total	248,961	259,287	158,673	145,983	52,468	17,122	12,732
Price (CHF)	251.90	251.50	256.10	263.20	214.00	157.50	140.10
Market price per NES on 31 December 2017 (CHF)	246.50						
Expiry date	16.3.2024	3.3.2023	5.3.2022	6.3.2021	7.3.2020	8.3.2019	28.2.2018
Grant value per S-SAR (CHF)	31.20	29.79*	43.34*	47.75*	36.38*	24.41*	15.38*
Since 1.1.2012:							
- Trinomial model for American call options							
* Values according to corresponding annual reports							

5.16.3 Restricted Stock Units (RSUs)

		Number of RSUs held on 31 December	
		2016	2015
Corporate Executive Committee	Since 2016 for Corporate Executive Committee replaced by award of corresponding PSPs		
S. Schwan			5,466
R. Diggelmann			1,639
A. Hippe			2,186
G.A. Keller			2,049
D. O'Day			2,733
C.A. Wilbur			379
Total			14,452
Grant value per RSU			CHF 256.10
		(NES closing price at grant date on 5 March 2015)	

In 2016, RSUs as remuneration component for the Corporate Executive Committee were replaced by award of corresponding PSPs. RSUs contain rights to receive non-voting equity securities and/or shares after a three-year vesting period plus a value adjustment (being the amount equivalent to the sum of the dividend paid during the vesting period attributable to the number of non-voting equity securities for which an individual award has been granted). In 2015, for the last time RSU awards were allocated individually for the Corporate Executive

Committee at the Remuneration Committee's discretion. They will be vested to the recipient after three years only. Thereafter, resulting non-voting equity securities may remain blocked for up to 10 years. With the vesting and blocking periods the interests of the RSU recipients shall be aligned with the company's long-term success and the commitment of employees to the company shall be increased.

RSUs as a remuneration component will be continued for all other around 20,000 eligible Roche employees.



Statutory Auditor's Report

To the General Meeting of Roche Holding Ltd, Basel

We have audited the accompanying remuneration report of Roche Holding Ltd for the year ended 31 December 2017. The audit was limited to the information according to articles 14–16 of the Ordinance against Excessive Compensation in Stock Exchange Listed Companies (the Ordinance) contained in the sections marked with a grey line, including the respective footnotes, on pages 120 to 146 of the remuneration report.

Responsibility of the Board of Directors

The Board of Directors is responsible for the preparation and overall fair presentation of the remuneration report in accordance with Swiss law and the Ordinance. The Board of Directors is also responsible for designing the remuneration system and defining individual remuneration packages.

Auditor's Responsibility

Our responsibility is to express an opinion on the accompanying remuneration report. We conducted our audit in accordance with Swiss Auditing Standards. Those Standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the remuneration report complies with Swiss law and articles 14–16 of the Ordinance.

An audit involves performing procedures to obtain audit evidence on the disclosures made in the remuneration report with regard to compensation, loans and credits in accordance with articles 14–16 of the Ordinance.

The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatements in the remuneration report, whether due to fraud or error. This audit also includes evaluating the reasonableness of the methods applied to value components of remuneration, as well as assessing the overall presentation of the remuneration report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Opinion

In our opinion, the remuneration report for the year ended 31 December 2017 of Roche Holding Ltd complies with Swiss law and articles 14–16 of the Ordinance.

KPMG AG

Ian Starkey
Licensed Audit Expert
Auditor in Charge

Marc Ziegler
Licensed Audit Expert

Basel, 29 January 2018



Independent Assurance Report on the Roche Sustainability Reporting 2017

To the Corporate Governance and Sustainability Committee of Roche Holding AG, Basel.

We have been engaged to perform assurance procedures to provide limited assurance on the aspects of the 2017 Sustainability Reporting of Roche Holding AG, Basel and its consolidated subsidiaries ('Roche') included in the Annual Report 2017 ('Report').

Scope and Subject matter

Our limited assurance engagement focused on the following data and information disclosed in the Sustainability Reporting of Roche for the year ended on December 31, 2017:

- the management of reporting processes with respect to the Sustainability Reporting in all material aspects and the preparation of Safety, Security, Health and Environmental protection ('SHE'), contributions, people key figures as well as the related control environment in relation to the data aggregation of these key figures;
- the materiality determination process of Roche at group level according to the requirements of the 'GRI Standards' and as disclosed on page 3 of the Report;
- the design of the sustainability risks and opportunities determination process based on Roche corporate-level activities, disclosed on page 2 in the paragraph 'Risk management' of the Report;
- the people key figures disclosed on pages 68 to 70 of the Report and the SHE key figures (including greenhouse gas emissions for scope 1 & 2 and scope 3 resulting from business travel, compressed air, liquid nitrogen and waste generated in operations) in the tables and graphs on pages 76 to 83 and page 98 of the Report; and
- the figures on the Roche Group level in relation to the political contributions, disclosed on pages 100 and 101 of the Report.

We have not carried out any work on data reported for prior reporting periods, nor have we performed work in respect of projections and targets.

Criteria

The management reporting processes with respect to the Sustainability Reporting and key figures were prepared by Roche based on the internal policies and procedures as set forth in the following:

- the Roche Group internal Sustainability Reporting guidelines based on the 'Responsible Care Health, Safety and Environmental

Protection reporting guidelines' published by the European Chemical Industry Council CEFIC and the 'GRI Standards' published in October 2016 by the Global Reporting Initiative (GRI);

- the Roche Group internal Corporate Reporting Manual, 'Sustainability Reporting Guidance—Economic Performance' issued October 1, 2016;
- the Roche materiality determination process at corporate level based on the 'GRI Standards' published in October 2016 by the Global Reporting Initiative (GRI); and
- the defined guidelines, by which SHE, people and contributions key figures, and sustainability risks and opportunities are internally gathered, collated and aggregated.

Inherent Limitations

The accuracy and completeness of sustainability indicators are subject to inherent limitations given their nature and methods for determining, calculating and estimating such data. Our assurance report should therefore be read in connection with Roche's internal guidelines, definitions and procedures on the reporting of its sustainability performance.

Roche's Responsibilities

The Roche Corporate Governance and Sustainability Committee is responsible for both the subject matter and the criteria as well as for the selection, preparation and presentation of the selected information in accordance with the criteria. This responsibility includes the design, implementation and maintenance of related internal control relevant to this reporting process that is free from material misstatement, whether due to fraud or error.

Our Responsibility

Our responsibility is to form an independent opinion, based on our limited assurance procedures, on whether anything has come to our attention to indicate that the identified sustainability information selected and contained in this report is not stated, in all material respects, in accordance with the reporting criteria.

We planned and performed our procedures in accordance with the International Standard on Assurance Engagements (ISAE 3000) (revised) 'Assurance engagements other than audits or reviews of historical financial information'. This standard requires that we plan and perform the assurance engagement to obtain limited assurance on the identified sustainability information prepared, in all material aspects, in accordance with Roche's internal policies and procedures.

A limited assurance engagement under ISAE 3000 (revised) is substantially less in scope than a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal control, and the procedures performed in response to the assessed risks. Consequently, the nature, timing and extent of procedures for gathering sufficient appropriate evidence are deliberately limited relative to a reasonable assurance engagement and therefore less assurance is obtained with a limited assurance engagement than for a reasonable assurance engagement. The procedures selected depend on the assurance practitioner's judgement.

Our Independence and Quality Control

We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

Our firm applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Summary of work performed

Our assurance procedures included, amongst others, the following work:

- **Review of the application of Roche Group guidelines**
Reviewing the application of the Roche Group internal corporate sustainability and contributions guidelines;

- **Site visits and management inquiry**

Visiting selected sites of Roche's Pharmaceuticals and Diagnostics divisions in the US, Germany, Philippines, South Africa and Switzerland. The selection was based on quantitative and qualitative criteria;

Interviewing personnel responsible for internal sustainability reporting and data collection at the sites we visited and at the Roche Group level to determine the understanding and application of Roche's internal sustainability guidelines;

- **Assessment of the key figures**

Performing tests on a sample basis of evidence supporting selected SHE, contributions and people key figures (eg, Roche accident rate, energy consumption, greenhouse gas emissions related to energy consumption, water, waste, contributions to healthcare institutions, patient organisations, public policy bodies, and philanthropic organisations, headcount/FTE data, and training hours) concerning completeness, accuracy, adequacy and consistency;

- **Review of documentation and analysis of relevant policies and principles**

Reviewing relevant documentation on a sample basis, including Roche Group sustainability policies, management of reporting structures and documentation;

Reviewing the principles of the Roche materiality process providing the definition for the development of its adherence to GRI's environmental, social and economic reporting requirements addressing the soundness of the identification process, determination of impacted stakeholders, peer and competition review, integration of relevant regulatory requirements, integration of key organisational values and objectives and report prioritisation of material aspects; Inspecting the integration of the sustainability risks and opportunities in the Group Risk Management Process and its adherence to the internal guidelines;

- **Assessment of the processes and data consolidation**

Reviewing the management of/and Sustainability Reporting processes for SHE, contributions and people key figures; and Assessing the consolidation process of data at Roche Group level.

We have not conducted any work on data other than outlined in the subject matter as defined above. We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our assurance conclusion.

Conclusion

Based on our work performed and described in this report on the identified Roche Sustainability Reporting 2017 nothing has come to our attention causing us to believe that in all material respects:

- the Roche Group internal sustainability reporting guidelines based on the 'GRI Standards' as well as the 'CEPIC Guidelines' are not applied;
- the Roche materiality determination process at corporate level as disclosed does not adhere to the principles and guiding factors (eg, soundness, stakeholder determination, peer review, relevance of regulatory environment, integration of key organisational values and objectives) defined with the 'GRI Standards';
- the design of the sustainability risks and opportunities determination process at corporate level as disclosed does not function as designed;
- the internal reporting processes to collect and aggregate SHE and people data are not functioning as designed and provide an appropriate basis for its disclosure;
- the internal reporting processes to collect and aggregate contributions data are not functioning as designed and provide an appropriate basis for its disclosure; and
- the sustainability information mentioned in the subject matter and disclosed within the Sustainability Reporting in the Roche Annual Report 2017 is not stated, in accordance with the reporting criteria.

Zurich, 01 February 2018

PricewaterhouseCoopers AG

Christophe Bourgoin

Stephan Hirschi



Key dates for 2018

Annual General Meeting

13 March 2018

First-quarter sales

26 April 2018

Half-year results

26 July 2018

Nine months sales

17 October 2018

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This Annual Report contains certain forward-looking statements. These forward-looking statements may be identified by words such as 'believes,' 'expects,' 'anticipates,' 'projects,' 'intends,' 'should,' 'seeks,' 'estimates,' 'future' or similar expressions or by discussion of, among other things, strategy, goals, plans or intentions. Various factors may cause actual results to differ materially in the future from those reflected in forward-looking statements contained in this Annual Report, among others: (1) pricing and product initiatives of competitors; (2) legislative and regulatory developments and economic conditions; (3) delay or inability in obtaining regulatory approvals or bringing products to market; (4) fluctuations in currency exchange rates and general financial market conditions; (5) uncertainties in the discovery, development or marketing of new products or new uses of existing products, including without limitation negative results of clinical trials or research projects, unexpected side effects of pipeline or marketed products; (6) increased government pricing pressures; (7) interruptions in production; (8) loss of or inability to obtain adequate protection for intellectual property rights; (9) litigation; (10) loss of key executives or other employees; and (11) adverse publicity and news coverage.

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Our reporting consists of the actual Annual Report and of the Finance Report and contains the annual financial statements and the consolidated financial statements. With regards to content, the Management Report as per the Articles of Incorporation consists of both aforementioned reports with the exception of the Remuneration Report.

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*Doing
now
what
patients
need next*

We believe it's urgent to deliver medical solutions right now—even as we develop innovations for the future. We are passionate about transforming patients' lives. We are courageous in both decision and action. And we believe that good business means a better world.

That is why we come to work each day. We commit ourselves to scientific rigour, unassailable ethics, and access to medical innovations for all. We do this today to build a better tomorrow.

We are proud of who we are, what we do, and how we do it. We are many, working as one across functions, across companies, and across the world.

We are Roche.







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Cover shows woman diagnosed with cancer.

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