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Quantum Hi-Tech China Biological (300149 CH)

Establishing leading integrated CRO/CDMO platform

We initiate coverage on Quantum Hi-Tech China Biological ("The Company" or "Quantum") at BUY with TP of RMB25.5, given its fast-growing CRO/CDMO business and its leading position in prebiotics industry in China. Through the acquisition of ChemPartner in 2018, the Company has built integrated CRO/CDMO platforms for both chemistry drugs and biological drugs.

- **Fast growing CRO/CDMO business.** ChemPartner is one of the few China-based company offering a broad range of services, including pre-clinical CRO services and CDMO services for both small molecule drugs and biologics. ChemPartner has expanded its CRO capacity by over 30% to 24,000 m^2 from early 2020 thanks to the launch of a new laboratory facility in Shanghai, which will further strengthen the Company's leading position in CRO industry. ChemPartner is aggressively expanding its CDMO capacity to meet the strong demand from customers. ChemPartner plans to expand its capacity of biologicals CDMO from current 450L to 4,950L by the end of 2020E, and further expand to 13,950L~18,450L in the coming 3 years. In addition, ChemPartner's new cGMP facility in Fengxian, Shanghai will gradually commence operation from 2021E to fulfill manufacturing demand from clinical stage to commercial stage. Driven by the strong demand and expanding capacity, we forecast ChemPartner's revenue to grow at a 27% CAGR in 2019-22E, contributing 84% of the Company's total revenue in 2022E.
- **Strengthening leadership in prebiotics industry.** Prebiotics are substances which stimulate the growth of beneficial bacteria in the digestive system. As a conceptual intermediary between foods and drugs, prebiotics are added into different foods & beverages. The Company's core products, FOS and GOS, are the two most widely used prebiotics. The Company is also one of the major drafters of the FOS and GOS national standards. According to Global Market Insights, global prebiotic market size grew from US$3.3bn in 2015 to over US$4.0bn in 2018, and is expected to growth to US$8.0bn in 2026E, representing a CAGR of 9.5%.
- **Initiate at BUY with TP of RMB25.5**. We expect the Company's revenue to grow at a 26% CAGR in FY19-22E, driven by a 27% CAGR in CRO/CDMO business and a 23% CAGR in prebiotics business. We forecast the Company's attributable net profit to increase 41%/45%/34% YoY in FY20/21/22E. We derive TP of RMB25.5 based on 10-year DCF model (WACC:10.2%, terminal growth rate: 3.0%).
- **Catalysts:** CDMO capacity expansion; **Risks:** slower-than-expected organic growth.

Earnings Summary

(YE 31 Dec)	FY18A	FY19A	FY20E	FY21E	FY22E
Revenue (RMB mn)	997	1,328	1,590	2,048	2,652
YoY growth (%)	262	33	20	29	30
Net income (RMB mn)	161	139	196	285	383
EPS (RMB)	0.35	0.28	0.39	0.57	0.77
YoY growth (%)	155	(20)	41	45	34
P/E (x)	56.5	71.0	50.2	34.6	25.8
P/B (x)	4.2	4.3	4.0	3.6	3.1
Yield (%)	9.9	0.0	0.0	0.0	0.0
ROE	7.3	5.9	7.8	10.2	12.0
Net gearing (%)	34.15	38.87	36.32	35.19	30.96

Source: Bloomberg, CMBIS estimates

BUY (Initiation)

Target Price	**RMB25.5**
Up/Downside	**+26.4%**
Current Price	**RMB20.16**

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Mkt. Cap. (RMB mn)	10,076
Avg. 3mths t/o (RMB mn)	140.66
52W High/Low (RMB)	22.28/ 10.63
Total Issued Shares (mn)	500

Source: Bloomberg

Shareholding Structure

Management	32.38%
Hangzhou Cixuan Liangjia	11.82%
HKSCC	5.71%
Mega Star Centre	4.54%
Others	45.55%

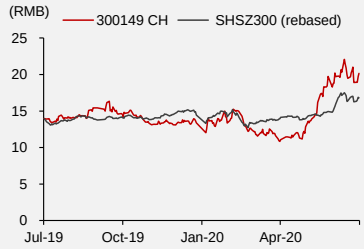
Source: Wind

Share performance

	Absolute	Relative
1-mth	7.9%	-5.3%
3-mth	82.0%	50.4%
6-mth	47.5%	26.2%

Source: Bloomberg

12-mth price performance



Source: Bloomberg

Auditor: PWC

Web-site: www.quantumbio.net.cn

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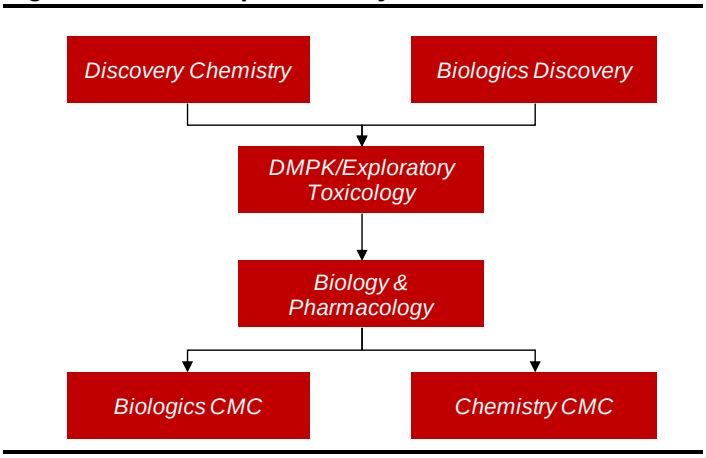
https://euromoney.com/brokers

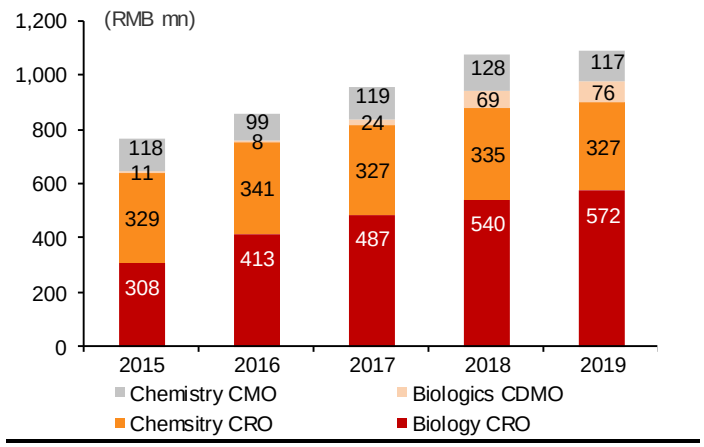
Focus Charts

Figure 1: Services provided by ChemPartner



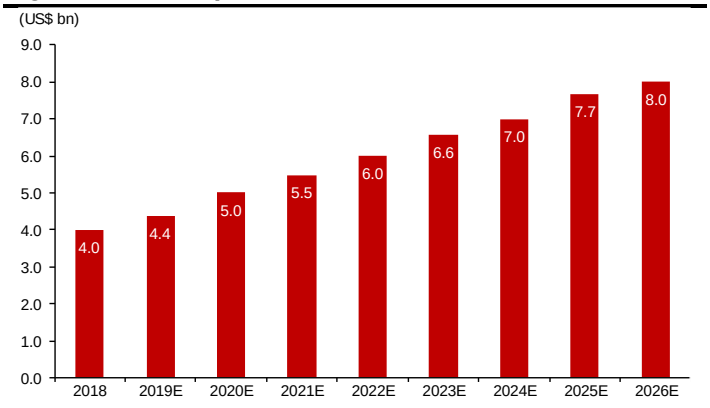
Source: Company data, CMBIS

Figure 2: Revenue mix of ChemPartner



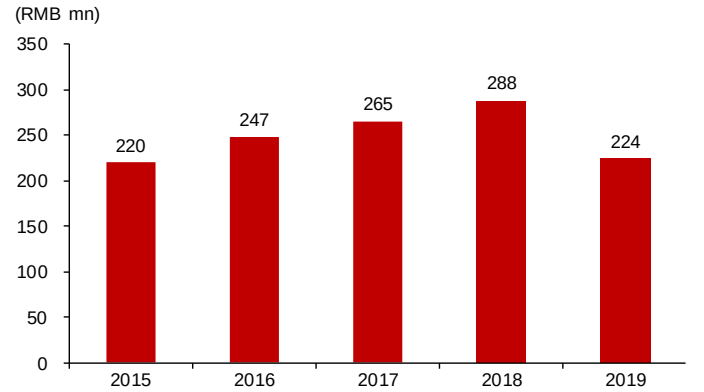
Source: Company data, CMBIS

Figure 3: Global prebiotics market size forecast



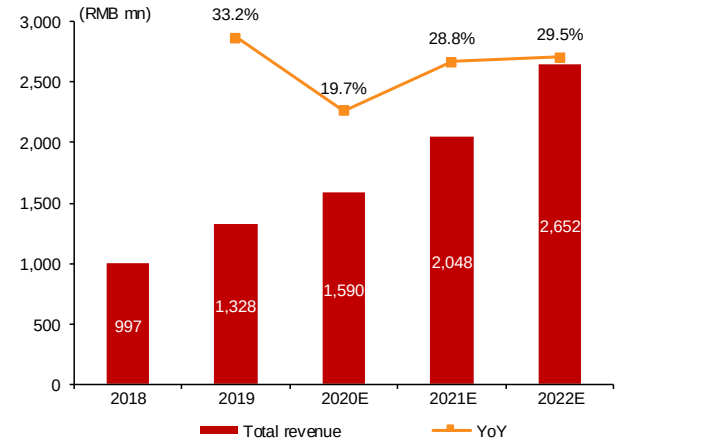
Source: Global Market Insights, CMBIS

Figure 4: QHT's prebiotic product sales



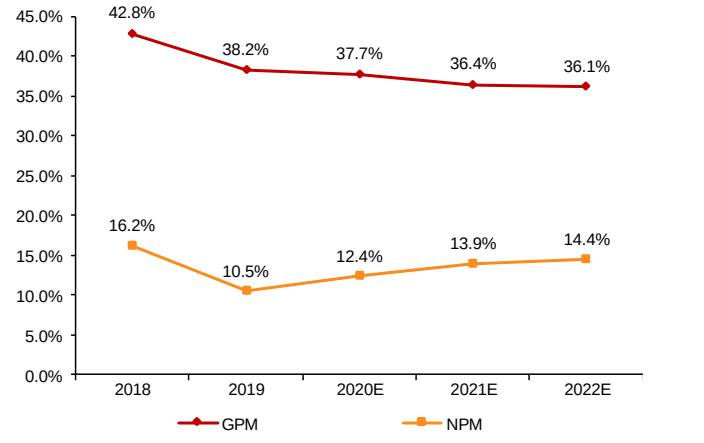
Source: Company data, CMBIS

Figure 5: Company's revenue trend (FY18A-22E)



Source: Company data, CMBIS estimates

Figure 6: Company's margin trend (FY18A-22E)



Source: Company data, CMBIS estimates

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Investment Summary

Building a comprehensive CRO/CDMO service platform

Established in Guangdong, China in 2000, Quantum Hi-Tech (QHT) specializes in prebiotic (益生元) products research, production and promotion. Its core products, Fructooligosaccharides (FOS, 低聚果糖) and Galactooligosaccharides (GOS, 低聚半乳糖), are widely recognized as essential probiotics that have significant beneficial effects of a properly balanced human digestive microbiome. QHT was listed on the Shenzhen Stock Exchange in 2010 and has developed into a leading brand and benchmarking enterprise in the microbiome health industry. QHT is the major proponent for Chinese approval of FOS as a nutritional fortifier and the major drafter of the FOS and GOS national standards.

In 2018, QHT completed the merger with ChemPartner. QHT acquired 90% stake in ChemPartner at a cost of RMB2,144mn in May 2018. Previously, in 2017, QHT has already acquired 10% stake in ChemPartner at a cost of RMB238mn. After the merger, ChemPartner's management team remained intact, and its routine business continued to operate as a standalone entity.

Based in China, ChemPartner is a full-service life science CRO (Contract Research Organization) / CDMO (Contract Development & Manufacturing Organization) provider with 17 years of operation experiences. ChemPartner offers a broad range of CRO services including biologics discovery, discovery chemistry, biology and pharmacology, DMPK and exploratory toxicology.

Capturing the fast-growing CRO and CMO/CDMO demand

Established in Shanghai in 2003, ChemPartner is one of the few China-based CROs offering a broad range of services, including pre-clinical CRO services and CDMO services for both small molecule drugs and biological drugs.

In early 2020, ChemPartner announced the opening of a new, state-of-the-art, 24,000 m^2 laboratory facility in Shanghai, China. The building houses approximately 700 employees and new laboratories for ChemPartner's discovery chemistry, biology and pharmacology, and the DMPK and exploratory toxicology departments. It also has a nearly 2,000 m^2, AAALAC accredited animal facility. With the new facility, ChemPartner's CRO capacity has over 30% growth, which will further drive its CRO revenue growth.

ChemPartner is aggressively expanding its CDMO capacity to meet the strong demand from customers. ChemPartner plans to expand its capacity of biologicals CDMO from current 450L to 4,950L by the end of 2020E, and further expand to 13,950L-18,450L in the coming three years. In addition, ChemPartner's new cGMP facility in Fengxian, Shanghai will have over 40 tons of production capacity for intermediates, small molecule APIs and polypeptide APIs. The facility will gradually commence operation from 2021E to fulfill manufacturing demand from clinical stage to commercial stage.

Driven by the strong demand and expanding capacity, we forecast ChemPartner's revenue to grow at a 27% CAGR in 2019-22E, and contribute 84% of the Company's total revenue in 2022E.

Global and China pharmaceutical companies have increased the proportion of R&D outsourcing for better cost control and higher efficiency. Drug development process includes early stage R&D, pre-clinical, clinical research, commercialized manufacturing,

etc. F&S estimates that, on average, development process of a new molecule takes more than 10 years and requires over US$1bn costs while the success rate for developing a new molecule from drug discovery to approval could be lower than 0.01%.

According to F&S, the China-based CRO market size will rise from US$5.9bn in 2018 to US$21.4bn in 2023E, representing a CAGR of 29.6%. The penetration rate of the China-based CRO market will increase from 35.8% in 2018 to 49.3% in 2023E.

F&S estimates that China-based CDMO market size will increase from US$2.4bn in 2018 to US$8.5bn in 2023E, indicating a 28.9% CAGR, mainly driven by strong growth in biologics CDMO demand.

Strengthening the leading position in prebiotics in China

Strengthening leadership in prebiotics business. Prebiotics are substances which stimulate the growth of beneficial bacteria in the digestive system. As a conceptual intermediary between foods and drugs, prebiotics are added into different foods & beverages such as health supplements, dairy, cereals, baked goods, fermented meat and dry foods.

The Company's core products, FOS and GOS, are the two most widely used prebiotics. The Company is also one of the major drafters of the FOS and GOS national standards.

According to Global Market Insights, global prebiotic market size grew from US$3.3bn in 2015 to over US$4.0bn in 2018, and is expected to grow to US$8.0bn in 2026E, representing a CAGR of 9.5%.

Expect revenue/ attributable net profit to grow at 26%/40% CAGR in FY19-22E

We expect the Company's revenue to grow at 26% CAGR in FY19-22E, driven by 23%/ 19%/ 61%/ 35% CAGR in biologics CRO services/ chemistry CRO services/ biologics CDMO services/ chemistry CMO services and 23% CAGR in prebiotics business. We expect the Company's attributable net profit to grow at 40% CAGR in FY19-22E with 41%/ 45%/ 34% YoY growth in FY20/21/22E, respectively.

Risks

1) Slower-than-expected organic earnings growth; 2) Failure to retain the Company's existing customers or expand its customer base; 3) Volatilities in prebiotics demand.

Successful merger of ChemPartner and Quantum Hi-Tech

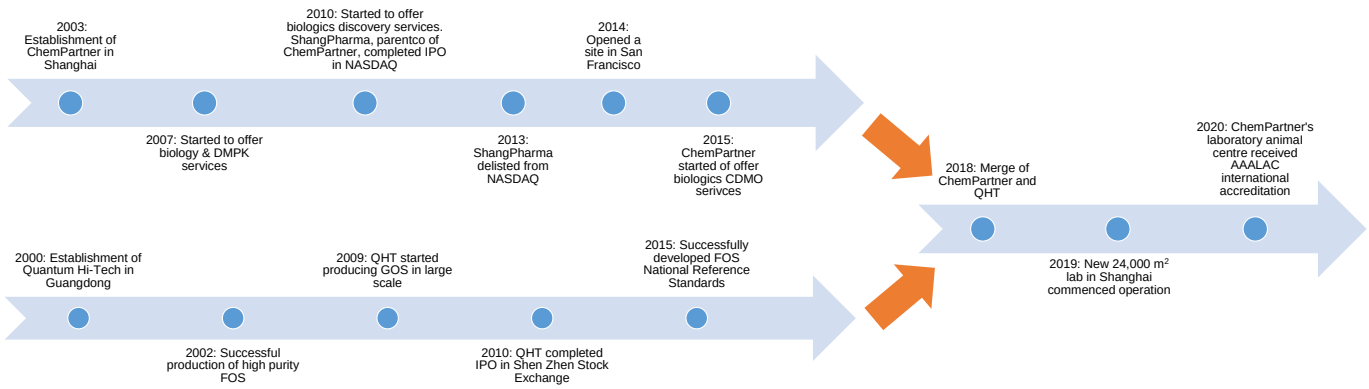
Established in Guangdong, China in 2000, Quantum Hi-Tech (QHT) specializes in prebiotic (益生元) products research, production and promotion. Its core products, Fructooligosaccharides (FOS, 低聚果糖) and Galactooligosaccharides (GOS, 低聚半乳糖), are widely recognized as essential probiotics that have significant beneficial effects of a properly balanced human digestive microbiome.

QHT was listed on the Shenzhen Stock Exchange in 2010 and has developed into a leading brand and benchmarking enterprise in the microbiome health industry. QHT is the major proponent for Chinese approval of FOS as a nutritional fortifier and the major drafter of the FOS and GOS national standards. In 2013 QHT was rated as one of Asia's 200 Best Small and Mid-Sized Companies by Forbes magazine, which has further enhanced its reputation and brand value. In 2015, QHT successfully released six FOS national standard samples. In 2015, QHT got the International Arch of Europe (IAE) Award in the Gold category in Frankfurt. And in 2017, QHT developed the Chinese national standard of four FOS components and three GOS components.

In 2018, QHT completed the merger with ChemPartner. QHT acquired 90% stake in ChemPartner at a cost of RMB2,144mn in May 2018. Previously, in 2017, QHT has already acquired 10% stake in ChemPartner at a cost of RMB238mn. After the merger, ChemPartner's management team remained intact, and its routine business continued to operate as a standalone entity.

Based in China, ChemPartner is a full-service life science CRO (Contract Research Organization) / CDMO (Contract Development & Manufacturing Organization) provider with 17 years of operation experiences. ChemPartner offers a broad range of CRO services including biologics discovery, discovery chemistry, biology and pharmacology, DMPK and exploratory toxicology. ChemPartner also began to offer CDMO services for small molecules in 2009 and biological drugs in 2015. ChemPartner plans to expand its capacity of biologicals CDMO from current 450L to 4,950L by the end of 2020E, and further expand to 13,950L-18,450L in the coming three years.

Figure 7: Development history of ChemPartner and Quantum Hi-Tech



Source: Company data, CMBIS

This strategic maneuver enables the Company to expand its global presence and access new markets (CRO and CMO). After the merger, the Company provides CRO/CDMO, prebiotics and medical service through three business units namely ChemPartner, QHT and Quantum Medical, respectively.

Figure 8: Core business segments of Quantum Hi-Tech China Biological

Source: Company data, CMBIS

Building a comprehensive CRO/CDMO service platform

Established in Shanghai in 2003, ChemPartner is one of the few China-based CROs offering a broad range of services, including pre-clinical CRO services and CDMO services for both small molecule drugs and biologics. Its integrated service platform allows the Company to cross-sell its services and enhances its service offerings.

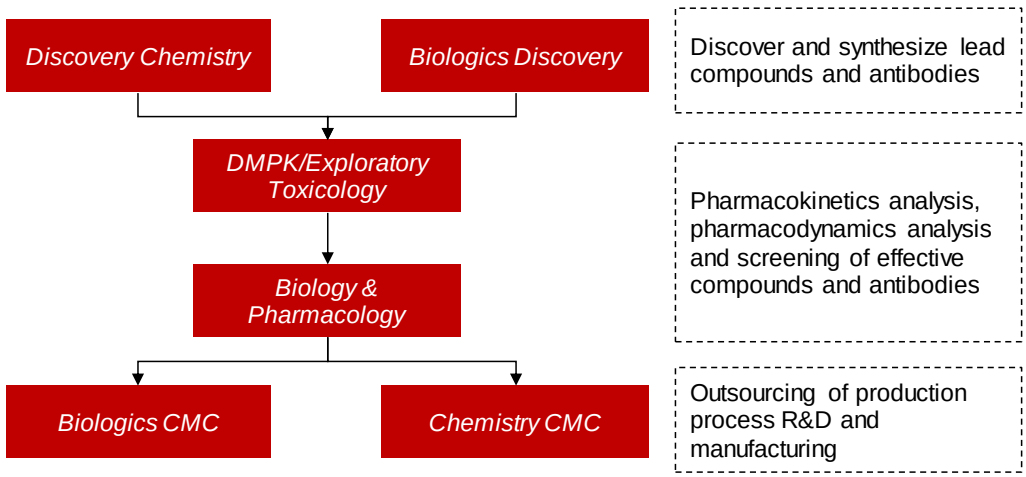
ChemPartner now has over 110,000 m^2 of laboratory areas and approximately 7,000 m^2 of AAALAC (Association for Assessment and Accreditation of Laboratory Animal Care) accredited animal housing and breeding facility. The Company has established a global operation network in Shanghai, Qidong, Chengdu, Horsholm of Denmark, Tokyo, San Francisco and Boston.

In early 2020, ChemPartner announced the opening of a new, state-of-the-art, 24,000 m^2 laboratory facility in Shanghai, China. The building houses approximately 700 employees and new laboratories for ChemPartner's discovery chemistry, biology and pharmacology, and the DMPK and exploratory toxicology departments. It also has a nearly 2,000 m^2, AAALAC accredited animal facility. With the new facility, ChemPartner's CRO capacity has over 30% growth, which will further drive its CRO revenue growth.

ChemPartner's CRO services mainly contains pre-clinical CRO services, including discovery chemistry, biologics discovery, biology & pharmacology, DMPK / exploratory toxicology. The Company has accumulated pre-clinical CRO experiences in a wide range of therapeutic areas, such as oncology, CNS diseases, immune inflammation, etc.

ChemPartner's CDMO services cover both biologics CMC services and chemistry CMC services. Its biologics CMC services include stable cell line development, process development, formulation development, analytic development and testing, GMP production, etc. Its chemistry CMC services include process R&D, process safety, analytical development, formulation development, manufacturing, etc.

Figure 9: Services provided by ChemPartner

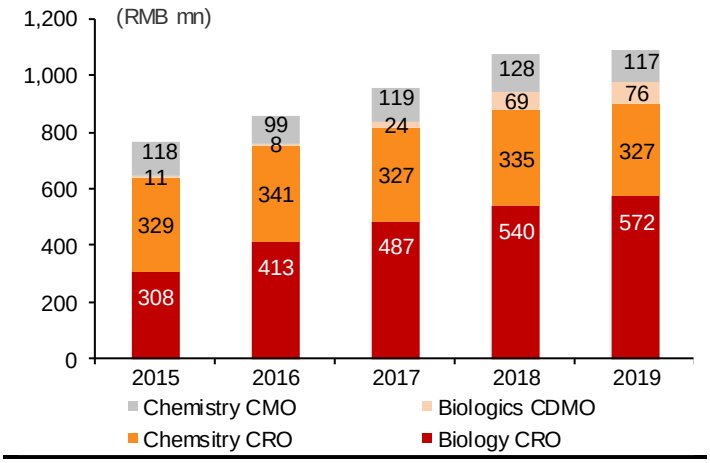


Source: Company data, CMBIS

As of 2019, ChemPartner had 52% of total revenue from biology CRO services, 30% from chemistry CRO services, 11% from chemistry CMO services and the remaining 7% from biologics CDMO services. Currently, CRO business is more profitable than CDMO business due to larger economies of scale. In 2019, biology CRO business recorded 48%

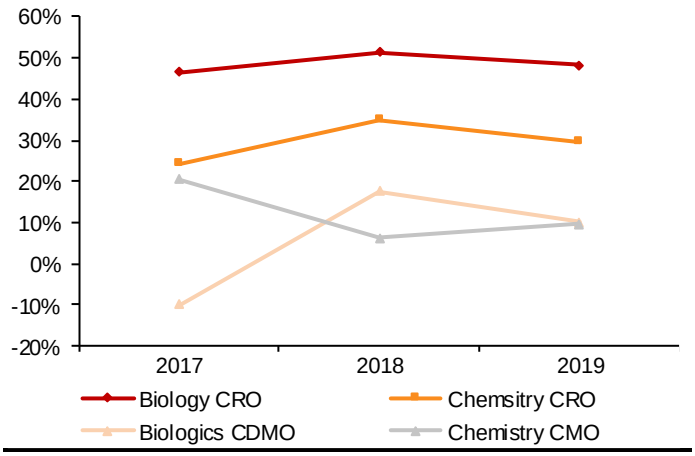
gross profit margin and chemistry CRO reached 30% gross profit margin. Meanwhile, biologics CDMO had 10% gross profit margin and chemistry CMO had 11% gross profit margin in 2019. With improving facility utilization, we forecast significant room for margin improvement of the CDMO business.

Figure 10: Revenue mix of ChemPartner



Source: Company data, CMBIS

Figure 11: Gross profit margin by segment



Source: Company data, CMBIS

Majority of ChemPartner's revenue were from overseas customers. In 2019, overseas customers contributed 63% of ChemPartner's total revenue while the remaining 37% of revenue were from domestic customers.

Through 17 years of operation, ChemPartner has established good reputation among customers. Capitalizing on ChemPartner's broad service offerings, the experience and expertise of skilled scientists and state-of-the-art facilities, ChemPartner has accumulated a diversified global customer base of over 1,600 customers, including 18 out of the top 20 pharmaceutical and biotechnology companies in the world. In addition, ChemPartner has deep collaboration with top-level academic research institutes to support their innovative research such as development of novel NMEs & therapies and novel technologies.

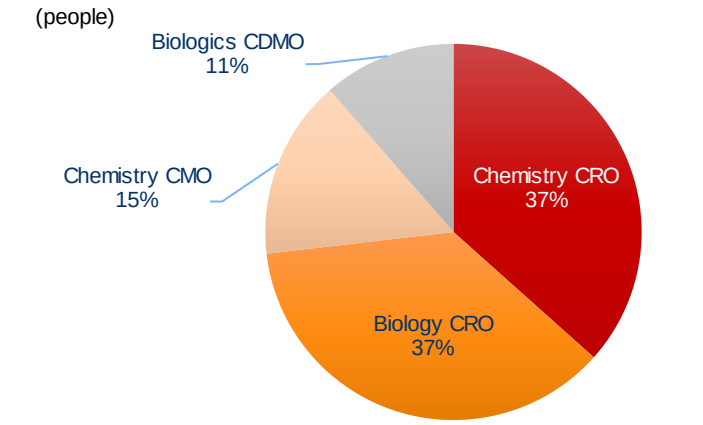
Figure 12: Selected customers of ChemPartner

Source: Company data, CMBIS

As a China-based CRO, ChemPartner is strategically positioned to benefit from the advantages of doing business in China, including a large talent pool, relatively low-cost labor, developed infrastructure and favorable government incentives.

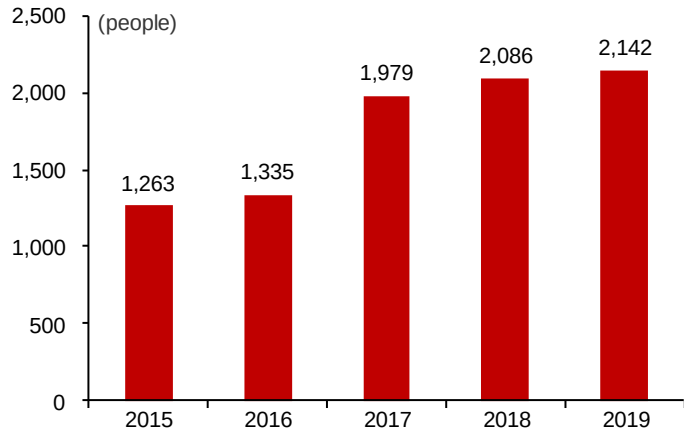
As of end-2019, ChemPartner had over 2,100 staff, including 172 PhDs. In past years, ChemPartner's employee number has risen significantly from 1,263 in 2015 to 2,142 in 2019. Expanding staff size has supported the income growth for ChemPartner.

Figure 13: Staff mix of ChemPartner (as of end-2019)



Source: Company data, CMBIS

Figure 14: ChemPartner has rising staff number

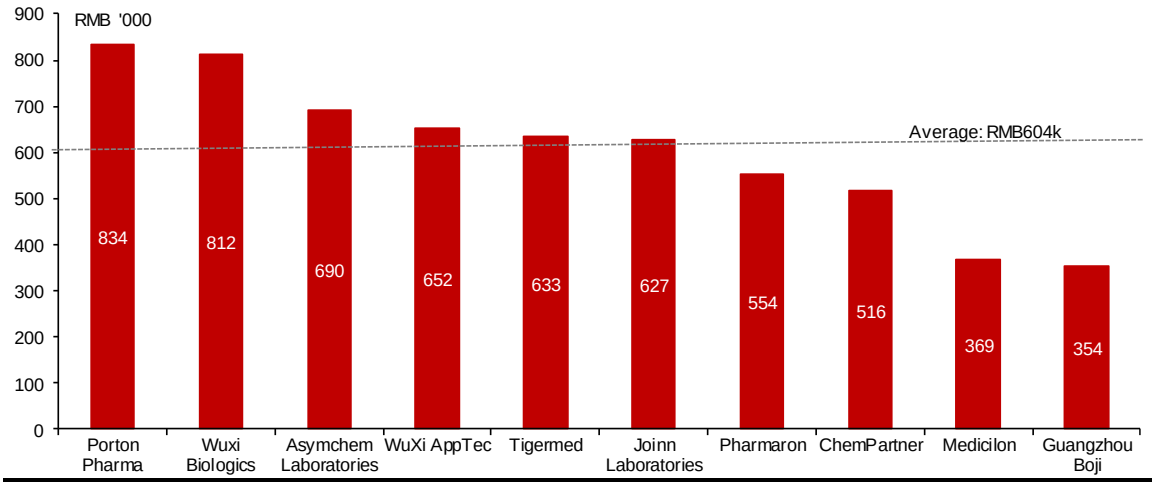


Source: Company data, CMBIS

For China leading CRO/CDMOs, Porton Pharma (300363 CH, NR) Biologics recorded the highest output per capital of RMB834k in FY19 while the industry average level was RMB604k in FY19.

The average output per capita of ChemPartner was RMB516k in FY19, which was slightly below industry average in China and approximately 60% below the average level of global CRO/CDMO companies. This was mainly because ChemPartner's current focus was on CRO services which was labor intensive and generated lower revenue per capita than CDMO services. With increasing contribution from CDMO business, improving operation efficiency and market share gain from international players, we believe ChemPartner's output per capita will have significant room for growth in the long term.

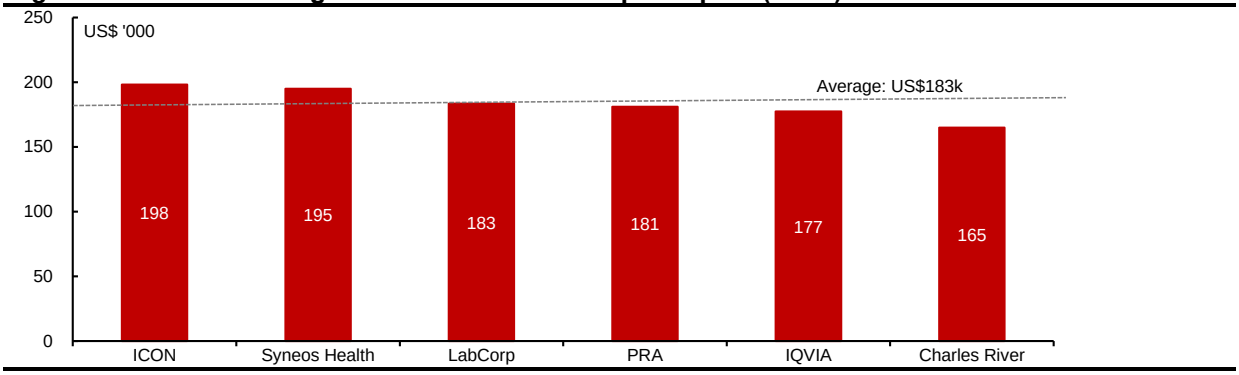
Figure 15: China leading CRO/CDMO's revenue per capita (FY19)



Source: Annual reports, CMBIS

Compared with global peers, China-based CRO companies still have small scale in terms of revenue size and employee size while China-based CRO companies also generate lower revenue per capital vs global peers. For leading overseas CRO/CDMO players, the average output per capita of selected CRO/CDMOs was US$183k in FY19, ranging from US$165k to US$198k per capita.

Figure 16: Global leading CRO/CDMOs' revenue per capital (FY19)

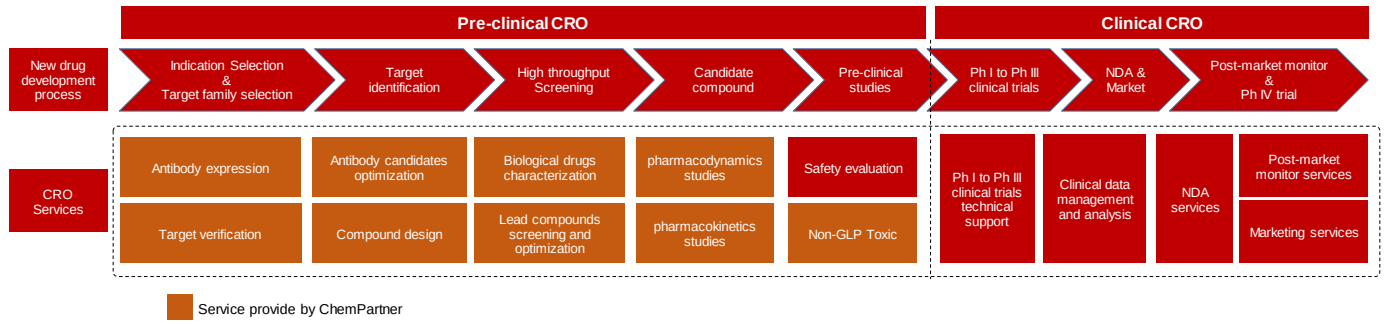


Source: Annual reports, CMBIS; Note: Covance was acquired by LabCorp in 2014. LabCorp's data showed here include Covance's part.

Integrated pre-clinical CRO provider

ChemPartner provides a broad range of high-quality, integrated CRO services across the drug discovery and development process to international and Chinese pharmaceutical and biotechnology companies. ChemPartner's CRO services mainly covers the pre-clinical stage, including discovery chemistry, biologics discovery, biology & pharmacology and DMPK / exploratory toxicology.

Figure 17: ChemPartner's CRO business mainly focus on pre-clinical CRO services



Source: Company data, CMBIS

Discovery Chemistry

ChemPartner is one of the largest and most experienced chemistry service organizations in China. ChemPartner's chemists have designed and synthesized millions of molecules for customers over its 17-year history. ChemPartner has also accumulated experiences in discovery of over 200 drug targets. A number of these molecules have contributed to the clinical development pipelines of ChemPartner's customers.

ChemPartner excels at medicinal chemistry design, custom synthesis and library synthesis as well as peptide, nucleoside and natural product chemistry. ChemPartner's medicinal

chemists also worked closely with its biologists and DMPK staff to provide integrated pre-clinical CRO services.

In 2015, ChemPartner introduced a US-based scientific team and opened a new site in San Francisco. Working in close collaboration with the teams in China, scientists in the US site offer clients diversified and state-of-the-art services.

Biologics Discovery

ChemPartner has world-class biologics drug discovery capabilities, with the experiences in discovery, expressing, purifying, and analyzing monoclonal antibodies and recombinant proteins. As of end-2019, ChemPartner has helped customers on near 80 antibody projects.

In terms of antibody discovery, ChemPartner has the capabilities to develop antibody-drug conjugates, humanized mouse monoclonal antibodies and affinity matured monoclonal antibodies. ChemPartner has also discovered novel high-affinity monoclonal antibodies by hybridoma technology (including human antibodies from mice) and phage display technology.

In addition, ChemPartner specializes in the expression of recombinant proteins in all modern expression systems and purification of client targets. Besides, ChemPartner has constructed production cell lines that can be used to express monoclonal antibodies in large scale to support IND filings and clinical trials.

Biology & Pharmacology

ChemPartner started offering biology & pharmacology services in 2007. The Company specializes in drug discovery services for several key bio-therapeutic areas: oncology, cell biology, tumor immunology, immunology/inflammation, neuroscience/metabolic disorders and histology/pathology.

ChemPartner provides customized designs of the needed *in vitro* & *in vivo* assays and disease models for customers. ChemPartner has numerous validated key discovery assays and assay panels for many different targets (e.g. extensive cancer cell panel (700+), epigenetic enzyme panel, kinase panels, hERG QPatch).

ChemPartner owns over 7,000 m^2 of Assessment and Accreditation of Laboratory Animal Care (AAALAC) accredited, state-of-the-art animal housing and breeding facility. Thus, the Company has *in vivo* models like patients-derived xenografts, cancer cell-derived xenografts, syngeneic models, along with many CNS-related (5XFAD mice), or metabolic disease-related (e.g. *Ob/Ob*, *db/db* mice) transgenic rodent models, etc.

DMPK / Exploratory Toxicology

ChemPartner's Drug Metabolism Pharmacokinetic (DMPK) and Exploratory Toxicology services consist of bioanalytical, *in vitro* ADME, pharmacokinetics and toxicology services. ChemPartner also conducts studies for many Pharma and Biotech clients in support of their Regulatory Filings.

ChemPartner has conducted extensive ADME profiling (>80,000) and PK & Exploratory Toxicology studies (>10,000) for customers since 2007.

Fast CDMO capacity expansion to capture growth opportunities

ChemPartner provides manufacturing services for its customers to manufacture drug substances under cGMP regulations in sufficient quantities to conduct early stage drug development and clinical stage studies. ChemPartner's cGMP-quality kilo-lab & pilot plant in Fengxian for small molecules CDMO and in Shanghai Zhangjiang Hi-Tech Park for biological drugs CDMO, have the capacity to manufacture drugs in increasing quantities ranging from lab quantities, which are measured in grams, to scale-up quantities, which are measured in kilograms, to process optimization quantities, which are measured in hundreds of kilograms.

Small Molecule CMC (Chemistry CMC)

ChemPartner's started its chemistry CMC business in 2009, providing small molecule pharmaceutical development and manufacturing services, including process development, pre-formulation development, analytical method development and validation, CTD support for regulatory filings and GMP production. ChemPartner has an expert chemistry CMC team of more than 291 chemists, engineers, quality assurance, and plant operational and support staff.

ChemPartner also has made a significant investment in its multi-purpose, hi-tech facility for process R&D, chemical development, and API manufacturing in the Fengxian Industrial Park in the greater Shanghai area.

ChemPartner is constructing a new cGMP facility in Fengxian, Shanghai. When finished, the new facility will have over 40 tons of production capacity for intermediates, small molecule APIs and polypeptide APIs. The facility will gradually commence operation from 2021E to fulfill manufacturing demand from clinical stage to commercial stage.

Biologics CMC

ChemPartner entered into biologics CDMO business in 2015. Currently, ChemPartner provides one-stop biologics CMC services covering cell line development, process development, formulation development, aseptic filling and freeze-drying, drug developability / manufacturability study, final container extractables and leachables, analytic development and testing and GMP production. ChemPartner has established complete quality system which complied with ICH guidelines and the highest standards of CFDA, FDA and EMA. ChemPartner's biologics CMC team consists of over 100 experienced scientists.

ChemPartner currently has 450L biologics production capacity in Shanghai and is planning to add 4,500L (1*500L + 2*2,000L) of capacity in Qidong, Jiangsu Province by this year-end. The Company plans to further expand its capacity in Qidong to 13,500L-18,000L in the next three years, adding the total capacity to 13,950L-18,450L.

By enhancing CDMO service capabilities, ChemPartner will be able to provide full-integrated services for its customers. This helps ChemPartner to maximize income from a single project and lift its stickiness to customers.

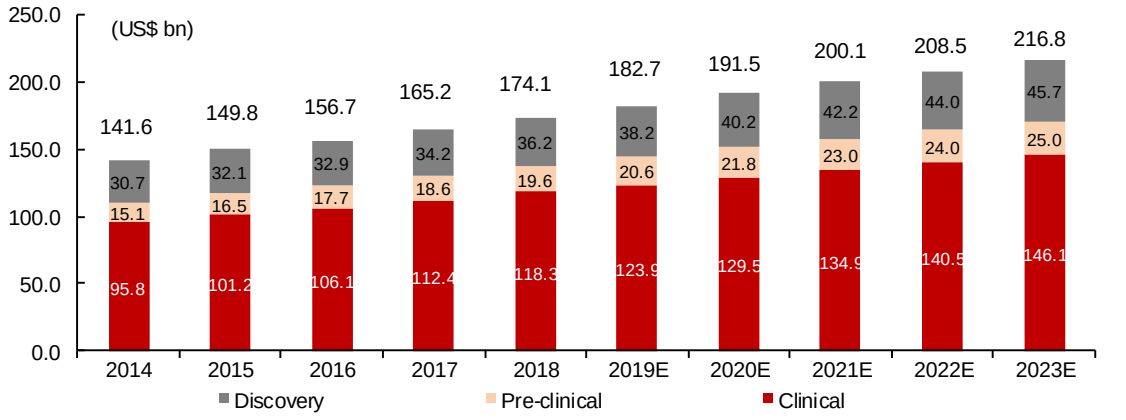
China CRO/CDMO demand to continue strong growth

Rising global R&D spending

Both global and China R&D spending grow strongly in recent years, which is led by 1) a more conducive regulatory environment with increase in FDA and NMPA drug approvals, 2) a shift by pharmaceutical companies towards externalized R&D models with around half of pipelines externally sourced, 3) a robust biotech funding environment for biotech companies, and 4) a smaller percentage of drug sales exposed to patent expirations.

Frost & Sullivan forecasts the global R&D expenditure to increase from US$174.1bn in 2018 to US$216.8bn in 2023E, representing a 4.5% CAGR. The increase in R&D expenditures has laid a foundation for the continuous growth of the global pharmaceutical R&D outsourcing services industry.

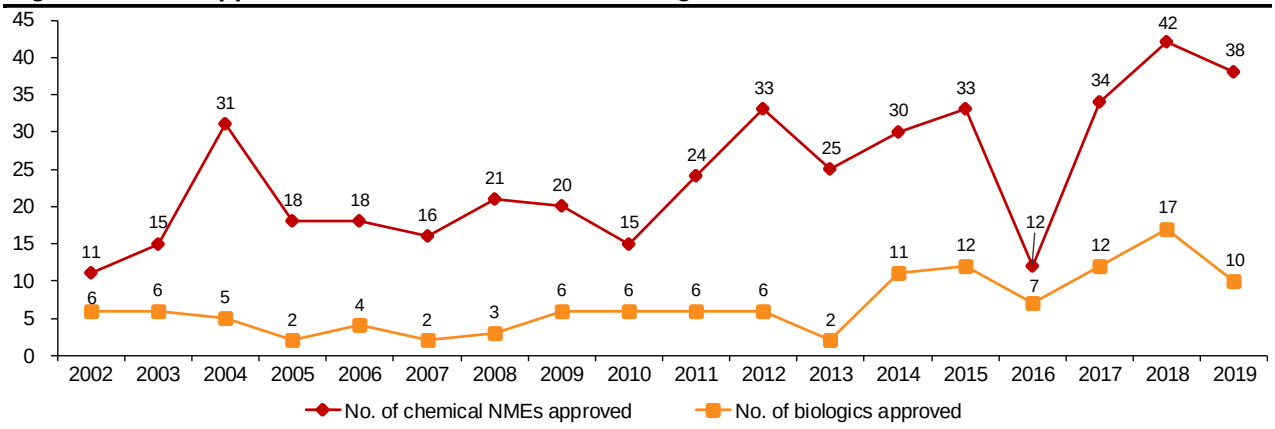
Figure 18: Global R&D expenditure and breakdown by discovery, preclinical and clinical



Source: F&S, CMBIS

The number of new drugs approved by the FDA has been steadily increasing in past 17 years, rising from 27 in 2013 to 48 in 2019. Notably, more new biological products obtained approvals from the US FDA during recent years, which motivates pharmaceutical companies investing more in biologicals R&D. In 2019, the US FDA approved 38 chemical NMEs (new molecular entities) and 10 new biological products.

Figure 19: FDA approval of chemical NMEs and biologicals

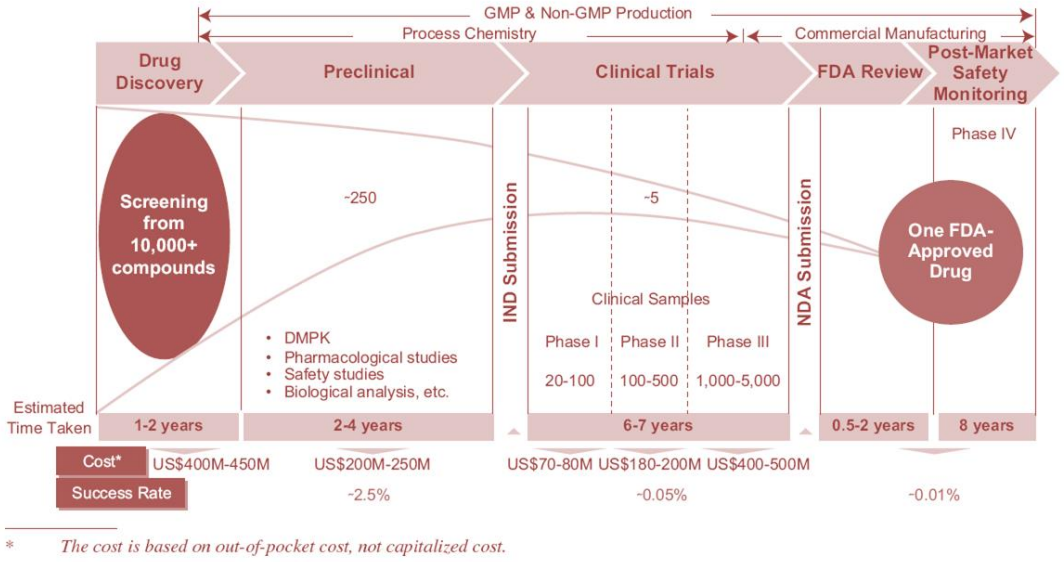


Source: FDA, CMBIS

Lengthy and costly drug development process drives outsourcing demand

Global and China pharmaceutical companies have increased the proportion of R&D outsourcing for better cost control and higher efficiency. Drug development process includes early stage R&D, pre-clinical, clinical research, commercialized manufacturing, etc. F&S estimates that, on average, development process of a new molecule takes more than 10 years and requires over US$1bn costs while the success rate for developing a new molecule from drug discovery to approval could be lower than 0.01%.

Figure 20: Drug development process



Source: Nature Review-Drug Discovery, CMBIS

As the patent protection period is usually 20 years for a certain innovative molecule, shortened R&D cycle will directly lead to longer remaining patent protection period after launch and higher return for pharmaceutical companies. Thus, it is expected that pharmaceutical companies to be more reliant on CRO companies in order to save time and money for drug R&D.

Pharmaceutical R&D outsourcing services mainly contain two types, namely 1) Contract Research Organisations (CROs), and 2) Contract Development & Manufacturing Organisations/Contract Manufacturing Organisations (CDMOs/CMOs, briefly referred to as CDMOs).

CRO service providers usually help pharmaceutical companies to conduct a proportion of R&D work or organise clinical trials. Thus, CRO services usually can be divided into two types: 1) preclinical outsourcing services and 2) clinical outsourcing services.

Preclinical CROs mainly engaged in drug discovery and preclinical research services, including new drug discovery, target lead identification and lead generation & optimization, safety evaluation research services, pharmacokinetics, pharmacology and toxicology and animal models, etc. Major pre-clinical CRO players in preclinical CRO field include WuXi AppTec, Charles River, Pharmaron Beijing, ChemPartner, Joinn Lab, etc.

Clinical CROs mainly engaged in the provision of clinical trial services through Phase I to IV, clinical data management and statistical analysis, new drug registration and others. Major clinical CRO players include IQVIA, Covance, PRA Health, ICON, Tigermed, Boji Medical, etc.

CDMOs provides drug manufacturing services for pre-clinical and clinical trial materials, APIs and preparations, packaging and labeling. They also provide development-related services such as process R&D, optimization, formula development, etc. Major CDMO players include Lonza, Boehringer Ingelheim, Catalent, Samsung Biologics, WuXi AppTec, WuXi Biologics, Asymchem Laboratories, Porton Pharma Solution, etc.

Figure 21: Pharmaceutical outsourcing service value chain

Source: F&S, CMBIS

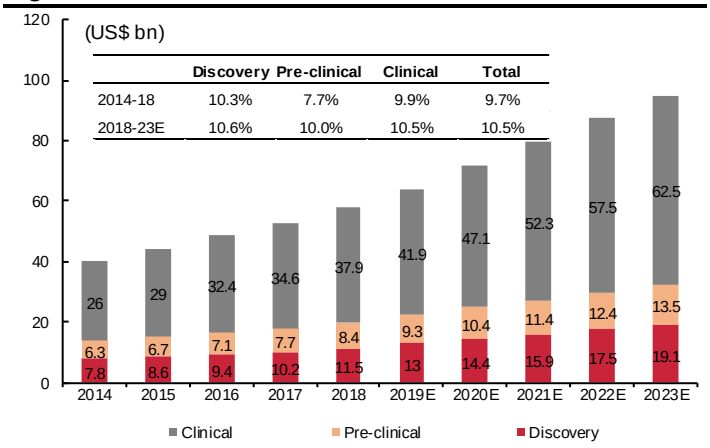
Larger fraction of R&D spending will be outsourced

The CRO market includes R&D services provided for drug discovery, pre-clinical and clinical stages. The global CRO market size is expected to grow from US$57.9bn in 2018 to US$95.2bn in 2023E, indicating a 10.6% CAGR, according to F&S.

The penetration rate of the global CRO services, measured as CRO market size as percentage of total pharmaceutical R&D spending, increased from 32.6% in 2014 to 37.2% in 2018 and may further rise to 48.0% in 2023E.

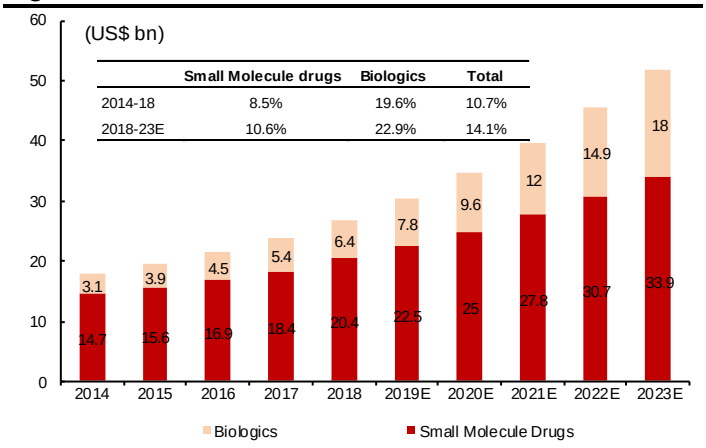
The CDMO market contains services for manufacturing of small molecule drugs and biologics. F&S forecasts the global CDMO market size to increase from US$26.8bn in 2018 to US$51.8bn in 2023E, representing a 14.1% CAGR. In particular, the CDMO for biologics may grow at a 22.9% CAGR to US$18.0bn in 2023E.

Figure 22: Global CRO market breakdown



Source: F&S, CMBIS

Figure 23: Global CDMO market breakdown



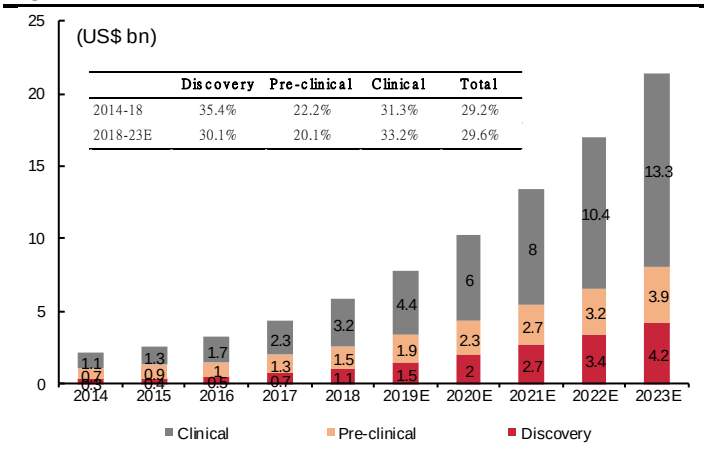
Source: F&S, CMBIS

Similar to the US market, Chinese pharmaceutical CRO and CDMO market is also driven by 1) encouraging policies, such as NMPA's accelerated review of drug and improving reimbursement coverage, 2) pharmaceutical companies seeking for cost efficiencies, and 3) growing demand for high quality CROs from both Chinese pharmas' overseas expansion and increasing drug importation after China joining ICH.

According to F&S, the China-based CRO market size will rise from US$5.9bn in 2018 to US$21.4bn in 2023E, representing a CAGR of 29.6%. The penetration rate of the China-based CRO market will increase from 35.8% in 2018 to 49.3% in 2023E.

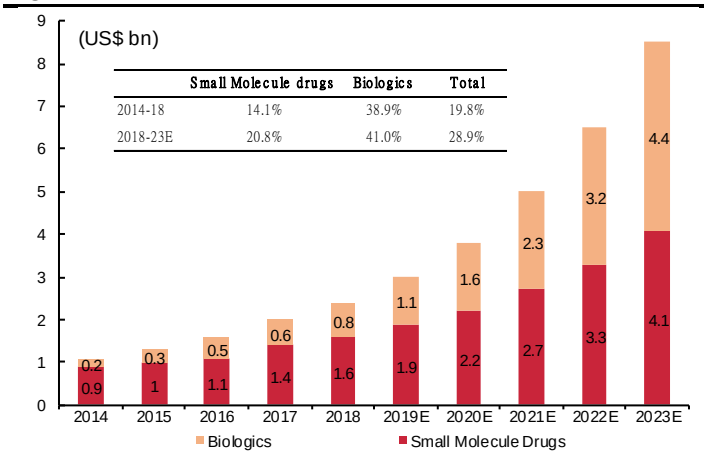
F&S estimates that China-based CDMO market size will increase from US$2.4bn in 2018 to US$8.5bn in 2023E, indicating a 28.9% CAGR, mainly driven by strong growth in biologics CDMO demand.

Figure 24: China-based CRO market and breakdown



Source: F&S, CMBIS

Figure 25: China-based CDMO market and breakdown



Source: F&S, CMBIS

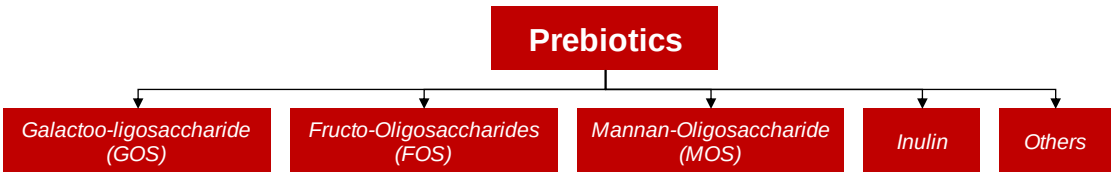
Microecological nutrients demand grows with rising health awareness

Prebiotics are important to human health

Prebiotics are substances which stimulate the growth of beneficial bacteria in the digestive system. They primarily consist of soluble fibers which feed intestinal microbes, and release short-chain fatty acids that have a beneficial impact on the gastrointestinal tract and distant organs. Prebiotics are non-digestible in the human gut, which allows them to pass through intact into the large intestine, where they undergo fermentation. Prebiotics enhance the concentration of healthy bacteria in the digestive system, stimulate the production of essential vitamins and strengthen the immune system, which restrains the growth of pathogenic bacteria.

The importance of probiotics, prebiotics and synbiotics have been widely studied in the past few decades. Most commonly used probiotic strains are: *Bifidobacterium, Lactobacilli, S. boulardii, B. coagulans.* Prebiotics like Fructooligosaccharides (FOS), Galactooligosaccharides (GOS), Mannan-Oligosaccharide (MOS), Inulin and fructans are the most commonly used fibers which when used together with probiotics are termed synbiotics and are able to improve the viability of the probiotics.

Figure 26: Major ingredients of prebiotic



Source: Global Market Insights, CMBIS

FOS are made of plant sugars linked in chains and sourced from asparagus, Jerusalem artichokes, onion and soybeans. FOS prebiotics are combined in probiotic supplements with the species Lactobacilli and Bifidobacterium to support digestive system, and improve health. As a dietary supplement, FOS is used to improve constipation, diarrhea, control cholestrol level, and promote colon health.

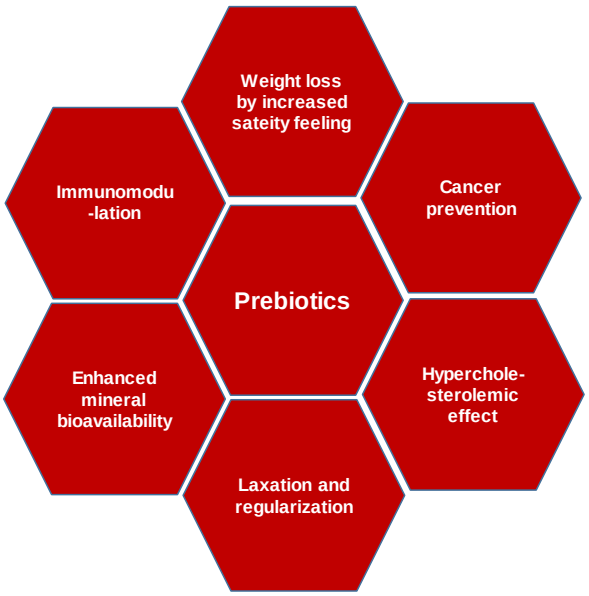
GOS are indigestible compound carbohydrate complex with strong prebiotic and immunity strengthening properties, increasing its application in food & beverage industry. It has effect on gastro-intestinal microflora supporting growth of Bifidobacterium and lactobacillus spp. GOS has high thermal stability, good solubility in water and non-carcinogenic. GOS when used in bakery products attracts moisture with low calorific value, thereby improving texture and taste.

MOS are non-digestible short-chain carbohydrates composed of up to 10 mannose molecules, linked by alpha (1,3) and (1,6) bonds. These are nutritional based supplements which are produced from the yeast Saccharomyces cerevisiaee. MOS provides a broad spectrum of pathogen binding effect and can be phosphorylated to increase pathogen binding capacity.

Inulin is a soluble plant fiber which is produced from chicory plant. It is a type of fructan and oligofructose carbohydrate, considered as functional plant-based ingredient which enhances digestion. These fibers are used to improve bowel function and gut health, maintain heart rate and curb appetite which finds extensive application in the pharmaceutical industry. Dietitians recommends intake of inulin in diets which helps in decreasing appetite and weight loss.

Prebiotics exhibit several health benefits like reducing the prevalence and duration of diarrhea, relief from inflammation and other symptoms associated with intestinal bowel disorder and protective effects to prevent colon cancer. They are also implicated in enhancing the bioavailability and uptake of minerals, lowering of some risk factors of cardiovascular disease, and promoting satiety and weight loss thus preventing obesity.

Figure 27: Summary of health benefits imparted by prebiotics

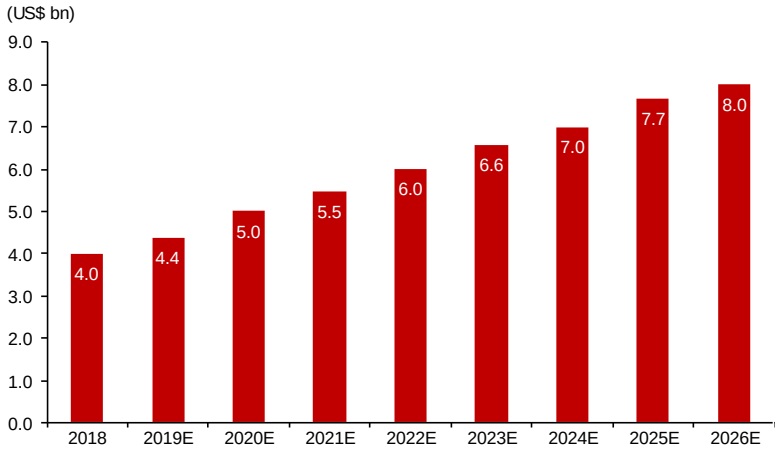


Source: J Food Sci Technol. 2015 Dec; 52(12): 7577–7587, CMBIS

As a conceptual intermediary between foods and drugs, prebiotics are added into different foods & beverages such as health supplements, dairy, cereals, baked goods, fermented meat and dry foods.

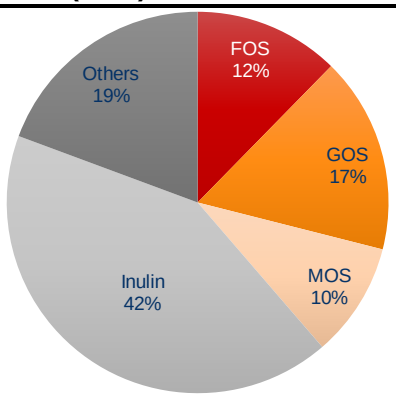
Growing demand in dairy consumption along with health supplements should drive the prebiotics market growth. According to *Global Market Insights*, global prebiotic market size grew from US$3.3bn in 2015 to over US$4.0bn in 2018, and is expected to grow to US$8.0bn in 2026E, representing a CAGR of 9.5%. Among all prebiotic products, FOS, Inulin and GOS dominate the prebiotic market with over 70% market share. By region, EU and Asia Pacific are the two largest markets with 39% and 36% market share in terms of prebiotics consumption in 2018.

Figure 28: Global prebiotics market size forecast (2019E-2026E)



Source: Global Market Insights, CMBIS

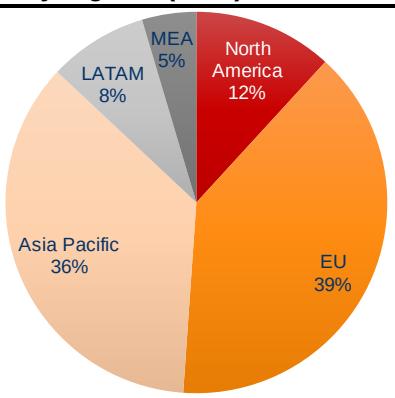
Figure 29: Global prebiotics consumption breakdown by ingredients (2018)



In 2018, global consumption of prebiotics reached 854.9 kilo tons.

Source: Global Market Insights, CMBIS

Figure 30: Global prebiotics consumption breakdown by regions (2018)



In 2018, global consumption of prebiotics reached 854.9 kilo tons.

Source: Global Market Insights, CMBIS

QHT is a leading prebiotic products provider in China

QHT is a pioneer in prebiotic industry in China. It specializes in prebiotic products research and development, production and sales. Its core products, FOS and GOS, are widely recognized as essential probiotics to help balance human digestive microbiome. The Company is also one of the major drafters of the FOS and GOS national standards.

FOS and GOS are the two most widely used prebiotics. FOS and GOS occurs in commercially available products such as food for both infants and adults.

FOS was officially classified as a soluble dietary fiber by US FDA, exists naturally in more than 36,000 kinds of plants. FOS is recognized as an ideal prebiotic because of its significant health benefits, excellent processability and good taste. As a result, it has been used extensively in food industries.

GOS is galactooligosaccharide with great similarities to the composition of human milk, which is the best nutrition for babies. Oligosaccharides are so important for mother's milk, which can keep babies' intestines healthy and enhance their immunity system. It is highly

recommended for use in infant formula and health foods because of its combination of benefits and safety.

EUOLIGO FOS and GOSYAN GOS are the prebiotic brands under Quantum Hi-Tech (QHT, the prebiotic sector of the Company after the merger). EUOLIGO and GOSYAN have been the national leader in sales for 17 consecutive years and are widely used in food industry such as health foods, dairy products, infant foods, beverages, bakery, etc. Quantum is the only company that is able to manufacture both high-purity FOS and GOS.

Majority of QHT's prebiotics sales were from China while income from overseas accounted for 13% of the total sales in 2019. QHT has diversified customer base, including health supplements manufacturers such as Wanmei (完美中国), Tianshi (天狮), Tangchenbeijian (汤臣倍健) and dairy manufactures such as Mengiu (蒙牛), Yili (伊利), Yashili (雅士利), Feihe (飞鹤), Junlebao (君乐宝), etc.

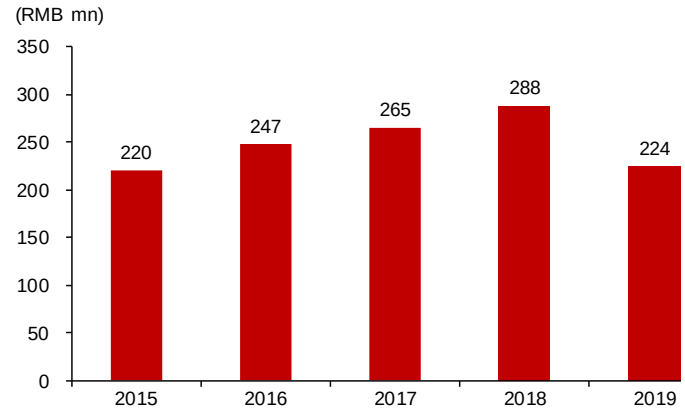
Figure 31: Selected customers of QHT

Source: Company data, CMBIS

In 2019, QHT recorded RMB224mn prebiotic sales, which declined 22% YoY. In 2019, the "Quanjian scandal (权健传销门)" has led to a sharp decline in health supplements sales and a shrink in prebiotics demand during the same period.

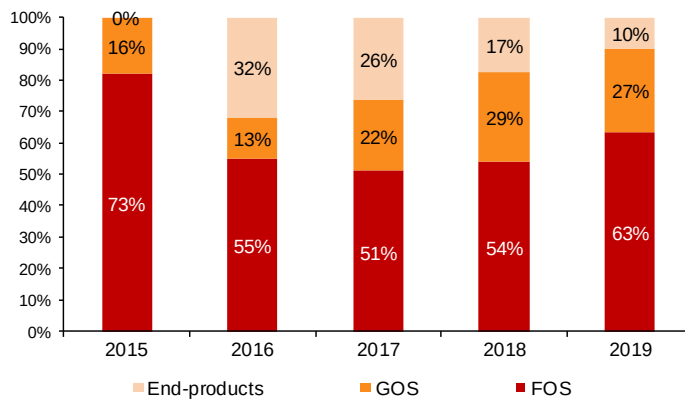
Thanks to a low base in 2019, people's increasing health awareness during COVID-19 pandemic and recovery of health supplements, QHT's prebiotics sales recorded a good recovery of 14.1% YoY growth to RMB60.5mn in 1Q20. Meanwhile, prebiotic sector's net profit grew 25.1% YoY to RMB12.0mn in 1Q20.

Figure 32: QHT's prebiotic product sales



Source: Company data, CMBIS

Figure 33: Prebiotics revenue breakdown



Source: Company data, CMBIS

Financial Analysis

Strong growth outlook

ChemPartner was consolidated from Jun 2018. The Company's revenue record 262% YoY and 33% YoY growth in 2018 and 2019, respectively.

The Company's business operations were impacted in 1Q20 due to the COVID-19 pandemic. In 1Q20, the Company's revenue was down 6.3% YoY to RMB278.7mn and it recorded a net loss of RMB14.2mn vs RMB25.5mn net profit in 1Q19. However, the Company experienced significant business recovery in 2Q20 thanks to the weakening impact from COVID-19 in China. The Company announced a 0-25% YoY decline in net profit in 1H20, indicating RMB36.9mn-49.2mn net profit in 1H20.

Driven by the release of new laboratory capacity and additional biological CDMO and chemical CMO capacity, we expect the CRO/CDMO income growth to accelerate from 2020E. Meanwhile, we expect prebiotics revenue to continue steady growth thanks to demand recovery from the "Quanjian scandal" in 2018, and the Company's market share gain from overseas markets.

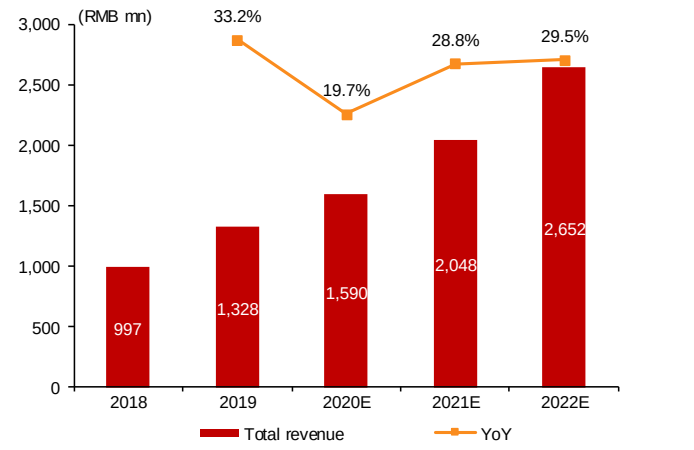
We expect the Company's revenue to grow at a 26% CAGR in FY19-22E, driven by a 27% CAGR in CRO/CDMO business and a 23% CAGR in prebiotics business. We forecast the Company's total revenue to grow by 20%/ 29%/ 30% in FY20E/21E/22E.

Figure 34: Revenue forecasts for the Company

(YE 31 Dec) (RMB mn)	2018	2019	2020E	2021E	2022E
Outsourcing service	**694**	**1,091**	**1,290**	**1,689**	**2,223**
YoY	*-27.7%*	*57.2%*	*18.2%*	*30.9%*	*31.7%*
Biology CRO	344	572	673	849	1,069
YoY	*-29.3%*	*66.2%*	*17.8%*	*26.0%*	*26.0%*
Chemistry CRO	205	327	369	450	548
YoY	*-37.4%*	*59.8%*	*12.7%*	*22.0%*	*22.0%*
Biologics CDMO	49	76	110	197	316
YoY	*103.6%*	*53.2%*	*45.1%*	*80.0%*	*60.0%*
Chemistry CMO	96	117	138	193	289
YoY	*-19.0%*	*21.5%*	*17.8%*	*40.0%*	*50.0%*
Prebiotics and medical service	**288**	**224**	**287**	**344**	**413**
YoY	*8.7%*	*-22.2%*	*27.9%*	*20.0%*	*20.0%*
FOS	156	142	182	218	262
YoY	*14.7%*	*-8.7%*	*28.0%*	*20.0%*	*20.0%*
GOS	82	60	77	92	111
YoY	*38.5%*	*-27.0%*	*27.5%*	*20.0%*	*20.0%*
End-products	50	22	28	34	40
YoY	*-28.3%*	*-56.5%*	*28.0%*	*20.0%*	*20.0%*
Others	**14**	**13**	**14**	**15**	**17**
YoY	*43.5%*	*-13.4%*	*10.0%*	*10.0%*	*10.0%*
Total revenue	**997**	**1,328**	**1,590**	**2,048**	**2,652**
YoY	*262.0%*	*33.2%*	*19.7%*	*28.8%*	*29.5%*

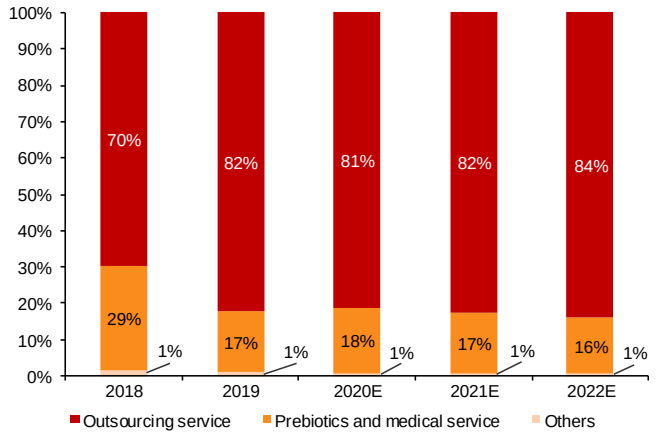
Source: Company data, CMBIS estimates

Figure 35: Revenue growth trend (FY18A-22E)



Source: Company data, CMBIS estimates

Figure 36: Revenue mix by services (FY18A-22E)



Source: Company data, CMBIS estimates

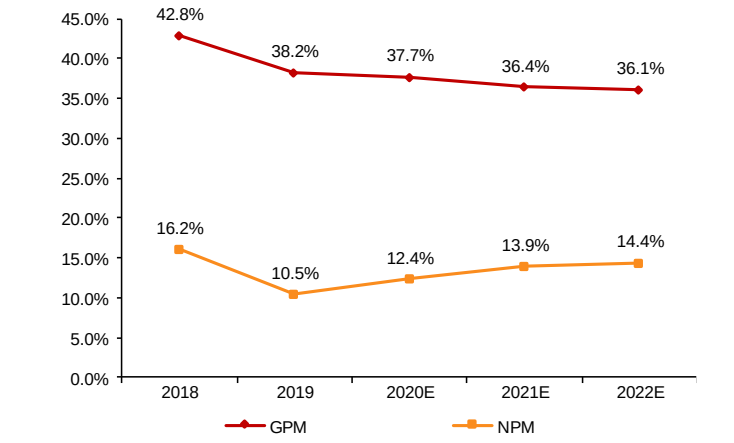
We expect the Company's blended GPM can stably maintain at around 36-38% from 2020E to 2022E mainly due to 1) stable CRO and CMO/CDMO service for both small molecules and biologics, and 2) steady prebiotic market growth in China.

Meanwhile, the Company's administrative expense ratio and selling & distribution expense ratio is quite low, which might benefit from its healthy sales mode and excellent execution ability.

The Company's recorded strong operating cash flow of RMB243mn/215mn in FY18A/19A, vs. corresponding attributable net profit of RMB161mn/139mn during the same period. We expect the Company to consistently generate strong operating cash flows, forecasting operating cash flows of RMB282mn/424mn/515mn in FY20E/21E/22E.

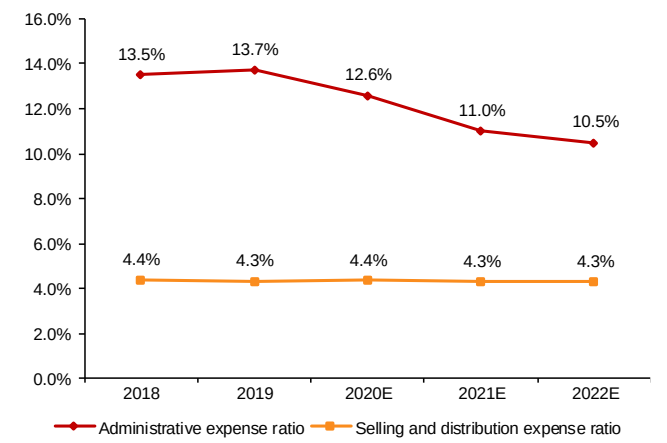
We forecast the Company's attributable net profit to increase 41%/45%/34% YoY in FY20/21/22E.

Figure 37: Margin trend (FY18A-22E)



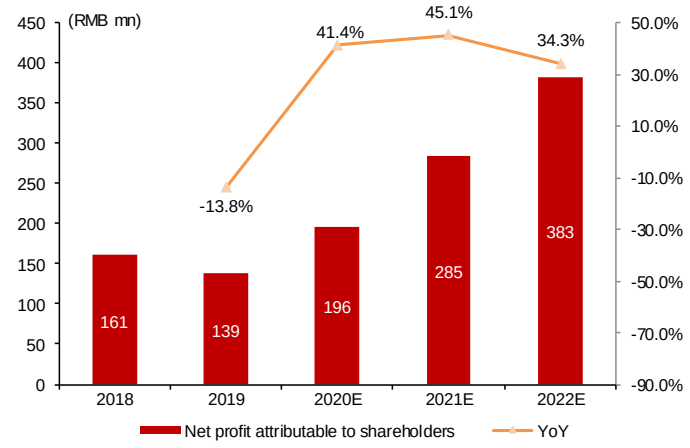
Source: Company data, CMBIS estimates

Figure 38: Expense ratio (FY18A-22E)



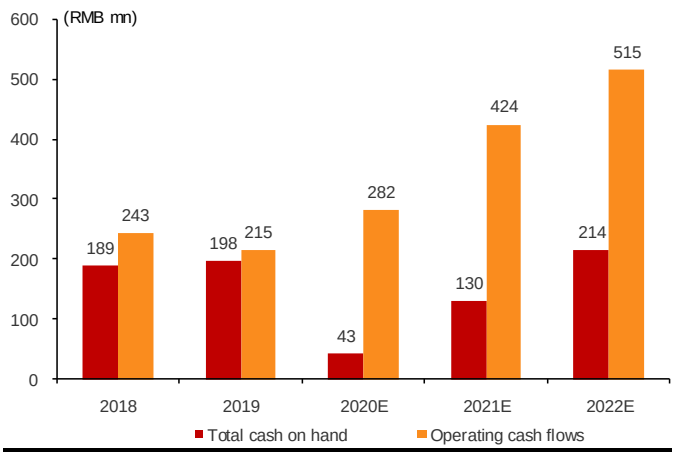
Source: Company data, CMBIS estimates

Figure 39: Net profit trend (FY18A-22E)



Source: Company data, CMBIS estimates

Figure 40: Strong operating cash flows (FY18A-22E)



Source: Company data, CMBIS estimates

Figure 41: P&L forecasts

(RMB mn)	2018	2019	2020E	2021E	2022E
Revenue	**997**	**1,328**	**1,590**	**2,048**	**2,652**
YoY	*262.0%*	*33.2%*	*19.7%*	*28.8%*	*29.5%*
Cost of services	-570	-821	-991	-1,302	-1,696
% of revenue	*-57.2%*	*-61.8%*	*-62.3%*	*-63.6%*	*-63.9%*
Gross profit	**427**	**507**	**599**	**745**	**956**
GPM	*42.8%*	*38.2%*	*37.7%*	*36.4%*	*36.1%*
Other gains	8	9	15	16	16
% of revenue	*0.9%*	*0.7%*	*0.9%*	*0.8%*	*0.6%*
Investment gains	15	1	0	0	0
% of revenue	*1.5%*	*0.1%*	*0.0%*	*0.0%*	*0.0%*
R&D expenses	-55	-63	-77	-82	-106
% of revenue	*-6%*	*-5%*	*-5%*	*-4%*	*-4%*
Administrative expenses	-135	-182	-200	-225	-279
% of revenue	*-13.5%*	*-13.7%*	*-12.6%*	*-11.0%*	*-10.5%*
Selling and distribution expenses	-44	-58	-69	-88	-114
% of revenue	*-4.4%*	*-4.3%*	*-4.4%*	*-4.3%*	*-4.3%*
Finance cost	-27	-51	-40	-37	-31
% of revenue	*-2.8%*	*-3.8%*	*-2.5%*	*-1.8%*	*-1.2%*
Profit before tax	**178**	**144**	**221**	**322**	**433**
PBT margin	*17.9%*	*10.8%*	*13.9%*	*15.7%*	*16.3%*
Income tax expense	-18	-8	-27	-39	-52
% tax rate	*10.3%*	*5.6%*	*12.0%*	*12.0%*	*12.0%*
Total net profit	**160**	**136**	**194**	**283**	**381**
Minority Interests	1	3	2	2	2
Net profit attributable to shareholders	**161**	**139**	**196**	**285**	**383**
NPM	*16.2%*	*10.5%*	*12.4%*	*13.9%*	*14.4%*
YoY	*178.6%*	*-13.8%*	*41.4%*	*45.1%*	*34.3%*

Source: Company data, CMBIS estimates

Initiate at BUY with TP of RMB25.5

Considering that DCF model is widely used for CRO and CMO/CDMO peers' valuation. Given the strong cash flow of the Company's business, we believe DCF model is a reasonable method to value the Company. We derive our TP of RMB25.5 assuming a terminal growth rate of 3.0% and WACC of 10.2%. Our TP represents 65x / 45x FY20E / 21E P/E.

Figure 42: DCF model for valuation

DCF Valuation (Rmb mn)	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
EBIT	358	464	638	778	945	1,144	1,378	1,654	1,976	2,351
Tax rate	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%
EBIT*(1-tax rate)	315	408	561	684	832	1,006	1,213	1,455	1,739	2,069
+ D&A	170	193	201	221	242	264	286	309	332	355
- Change in working capital	(151)	(198)	(265)	(292)	(319)	(348)	(377)	(408)	(438)	(469)
- Capx	(300)	(200)	(200)	(200)	(200)	(200)	(200)	(200)	(200)	(200)
FCFF	**35**	**204**	**297**	**414**	**554**	**722**	**921**	**1,156**	**1,433**	**1,756**
Terminal value										**25,269**

Terminal growth rate	**3.0%**
WACC	**10.2%**
Cost of Equity	13.0%
Cost of Debt	4.0%
Equity Beta	1.0
Risk Free Rate	3.0%
Market Risk Premium	10.0%
Target Debt to Asset ratio	30.0%
Effective Corporate Tax Rate	12.0%

Terminal value	9,605
Total PV	13,322
Net debt	575
Minority interest	7
Equity value	12,740
# of shares (mn)	500
Price per share (in RMB)	**25.5**

Source: CMBIS estimates

Figure 43: Sensitivity analysis (RMB)

	WACC				
Terminal growth rate	**9.2%**	**9.7%**	**10.2%**	**10.7%**	**11.2%**
2.0%	27.6	25.1	23.0	21.1	19.4
2.5%	29.3	26.5	24.1	22.1	20.3
3.0%	31.2	28.1	**25.5**	23.2	21.2
3.5%	33.5	30.0	27.0	24.5	22.3
4.0%	36.3	32.2	28.8	26.0	23.5

Source: CMBIS estimates

Figure 44: Peers comparison

Company	Ticker	Rating	Price (LC)	Mkt Cap (US$ mn)	Net profit YoY		P/E (x)		P/B (x)		ROE (%)	
					FY20E	FY21E	FY20E	FY21E	FY20E	FY21E	FY20E	FY21E
H-share												
WuXi AppTec	2359 HK	NR	114.10	36,080	21.7%	30.3%	84.7	65.2	11.2	9.8	13.4	15.2
WuXi Biologics	2269 HK	BUY	160.00	28,021	25.8%	40.3%	135.0	96.9	12.9	11.6	9.8	11.8
PharmaRon	3759 HK	NR	84.00	11,653	63.1%	31.5%	68.7	51.6	6.9	6.0	10.2	11.9
Frontage	1521 HK	NR	4.15	1,086	20.4%	31.2%	41.2	31.5	3.7	3.3	9.8	10.2
Viva	1873 HK	NR	9.00	2,134	174.4%	38.5%	31.3	22.4	5.7	4.6	19.7	22.5
				Average	**61.1%**	**34.4%**	**72.2**	**53.5**	**8.1**	**7.1**	**12.6**	**14.3**
A-share												
Quantum Hi-Tech	300149 CH	BUY	20.16	1,439	41.4%	45.1%	51.3	35.3	4.1	3.6	7.8	10.2
WuXi AppTec	603259 CH	BUY	110.02	36,080	21.7%	30.3%	91.8	70.6	12.2	10.7	13.4	15.2
Tigermed	300347 CH	BUY	107.28	11,481	33.0%	31.8%	77.1	58.7	15.3	12.3	20.4	21.7
Pharmaron	300759 CH	NR	108.17	11,653	63.1%	31.5%	99.3	74.6	10.0	8.7	10.2	11.9
Joinn Laboratories	603127 CH	NR	98.32	3,183	60.3%	35.3%	79.6	58.7	20.8	16.2	23.9	25.1
Asymchem Laboratories	002821 CH	NR	217.20	7,175	29.2%	31.4%	69.1	52.9	13.3	10.7	19.3	20.2
				Average	**41.4%**	**34.2%**	**78.0**	**58.5**	**12.6**	**10.4**	**15.8**	**17.4**

Source: Bloomberg, CMBIS estimates

Financial Summary

Income statement

YE 31 Dec (RMB mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Revenue	**997**	**1,328**	**1,590**	**2,048**	**2,652**
Outsourcing service	694	1,091	1,290	1,689	2,223
Prebiotics and medical service	288	224	287	344	413
Others	14	13	14	15	17
Cost of services	(570)	(821)	(991)	(1,302)	(1,696)
Gross profit	**427**	**507**	**599**	**745**	**956**
Business taxes	(7)	(5)	(6)	(8)	(10)
Selling and distribution expenses	(44)	(58)	(69)	(88)	(114)
Administrative expenses	(135)	(182)	(200)	(225)	(279)
R&D expenses	(55)	(63)	(77)	(82)	(106)
Finance cost	(27)	(51)	(40)	(37)	(31)
Other gains	8	9	15	16	16
Investment gains	15	1	0	0	0
Profit before tax	**178**	**144**	**221**	**322**	**433**
Income tax expense	(18)	(8)	(27)	(39)	(52)
Total net profit	**160**	**136**	**194**	**283**	**381**
Minority Interests	(1)	(3)	(2)	(2)	(2)
Profit attributable to shareholders	**161**	**139**	**196**	**285**	**383**

Cash flow summary

YE 31 Dec (RMB mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Net Profit	**160**	**136**	**194**	**283**	**381**
Financial cost	38	48	40	37	31
Change in working capital	(21)	(99)	(81)	(66)	(90)
Others	15	51	50	50	50
Depreciation of PP&E	52	79	79	121	144
Net cash from operating activities	**243**	**215**	**282**	**424**	**515**
Capex	(110)	(254)	(400)	(300)	(200)
Acquisition of subsidiaries	(856)	0	0	0	0
Other investing activities	(1,602)	(453)	0	0	0
Net cash from investing activities	**(940)**	**(255)**	**(400)**	**(300)**	**(200)**
Net proceeds from shares issued	0	0	0	0	0
Net bank borrowing	680	129	0	0	(200)
Advance from related parties	0	0	0	0	0
Other financing activities	(86)	(81)	(40)	(37)	(31)
Net cash from financing activities	**594**	**48**	**(40)**	**(37)**	**(231)**
Net change in cash	(102)	8	(158)	88	84
Cash at the beginning of the year	291	189	201	43	130
Cash at the end of the year	**189**	**198**	**43**	**130**	**214**

Balance sheet

YE 31 Dec (RMB mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Non-current assets	**2,612**	**2,968**	**3,239**	**3,369**	**3,375**
Long-term equiy investment	63	116	116	116	116
Intangible assets	212	192	170	148	126
Goodwill	1,617	1,617	1,617	1,617	1,617
PP&E	553	606	927	1,107	1,163
Long-term deferred expenses	59	260	233	205	177
Others	108	176	176	176	176
Current assets	**735**	**800**	**683**	**922**	**1,204**
Inventories	50	68	71	93	122
Accounts and other receivables	336	409	447	576	746
Held for trading financial assets	0	64	64	64	64
Bank balances and cash	191	201	43	130	214
Others	159	58	58	58	58
Current liabilities	**355**	**789**	**750**	**835**	**943**
Accounts and other payables	70	85	98	128	167
Advances from customers	43	48	48	48	48
Non-current liabilities due within 1yr	54	275	275	275	275
Tax payables	10	12	12	12	12
Non-current liabilities	**789**	**675**	**675**	**675**	**475**
Long-term payables	0	9	9	9	9
Deferred tax liabilities	25	21	21	21	21
Total net assets	**2,205**	**2,303**	**2,498**	**2,781**	**3,162**
Minority interest	14	11	9	7	5
Shareholders' equity	**2,190**	**2,292**	**2,488**	**2,773**	**3,156**

Key ratios

YE 31 Dec	FY18A	FY19A	FY20E	FY21E	FY22E
Sales mix (%)					
Outsourcing service	69.6	82.2	81.1	82.5	83.8
Prebiotics and medical service	28.9	16.9	18.0	16.8	15.6
Others	1.4	0.9	0.9	0.7	0.6
Total	100	100	100	100	100
Profit & loss ratios (%)					
Gross margin	43	38	38	36	36
EBITDA margin	28	24	25	26	25
Pre-tax margin	18	11	14	16	16
Net margin	16	10	12	14	14
Effective tax rate	10	6	12	12	12
Balance sheet ratios					
Current ratio (x)	2.1	1.0	0.9	1.1	1.3
Trade receivables turnover days	72	103	103	103	103
Trade payables turnover days	32	36	36	36	36
Net debt to total equity ratio (%)	34	39	36	35	31
Returns (%)					
ROE	7	6	8	10	12
ROA	5	4	5	7	8
Per share value					
EPS (RMB)	0.35	0.28	0.39	0.57	0.77
DPS (RMB)	0.08	0.00	0.00	0.00	0.00
BVP (RMB)	4.75	4.59	4.98	5.55	6.32

Source: Company data, CMBIS estimates

Risks

Slower-than-expected organic earnings growth.

The growing demand for CRO and CMO/CDMO in China and worldwide may slow down due to unexpected factors, such as pandemics like COVID-19.

Failure to retain the Company's existing customers or expand its customer base.

The Company's existing customers may not continue to generate significant revenues once its engagements with them are concluded and the Company's relationships with them may not present further business opportunities.

Reduction in R&D budgets by pharmaceutical and biotechnology companies may result in a reduction or discontinued outsourcing services.

Fluctuations in the R&D budgets of pharmaceutical and biotechnology industry participants could significantly affect the demand for outsourcing services. R&D budgets fluctuate due to pharmaceutical and biotechnology industry downturns, consolidation of pharmaceutical and biotechnology companies, general economic conditions, and changes in available resources, spending priorities and institutional budgetary policies. In addition, affected by COVID-19 in 2020, some R&D plans might be paused by pharms and biotech companies.

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