

药明生物(2269 HK)： 立足生物药创新，引领全球CRDMO

——Wuxi Biologics Cayman: Based on Biopharmaceutical Innovation, Leading the Global CRDMO Industry

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海通医药团队自2012年发布行业第一篇CXO报告至今，发布了多篇行业和公司深度报告。过去我们见证了药明生物超群的执行力和行业蓬勃发展，已经成长为全球最具影响力生物药CRDMO之一。今年，**随着美国商务部UVL（未验证清单）体现的大国角力**、生物药市场全球产能快速投建是否需求饱和、CRDMO是否增速面临减速等问题，我们希望在这篇报告回答以下问题：

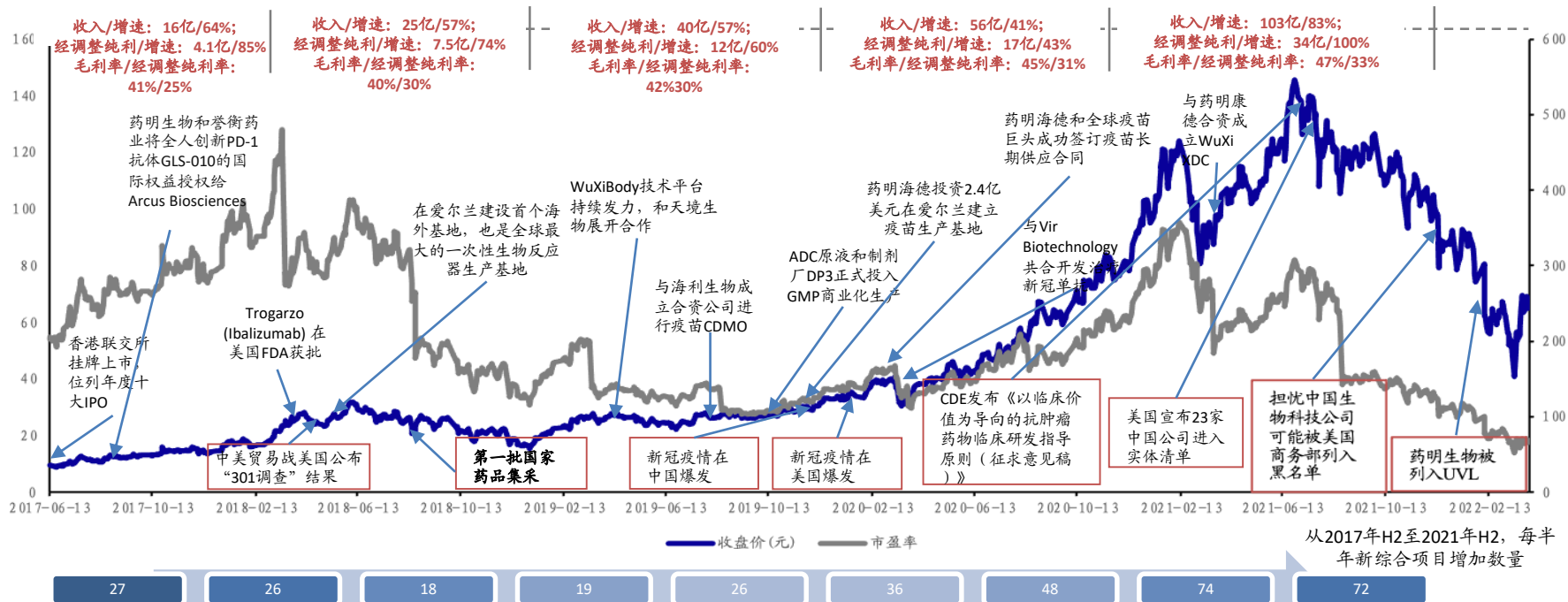
- 过去：全球CXO行业过去5年处去高景气，生物药CDMO为代表的Lonza、Samsung Biologics、药明生物等公司股价爆发，过去药明生物在创造4年17X股价表现的是原因什么？
- 行业：全球生物药CDMO行业空间产能比较？全球产能预计在3年后翻倍，届时是否会产能过剩导致价格竞争？
- 未来：药明生物业务需要什么样的驱动力，能够促进公司未来3年CAGR 40/30% 的增长（FY22-24）？如何从品种、板块、技术看公司增长的动力？
- 风险：在当前“去全球化”的浪潮中，药明生物的业务是否具有海外扩张的韧性和不可替代性？

本报告要解决的核心问题：药明生物的未来与过去

- 一、复盘：什么支撑药明生物4年17x涨幅，公司兑现了什么
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战略明晰，药明生物成长为全球生物制剂CDMO龙头

2017年上市至现在，药明生物复权前股价上涨近7倍，收入和经调整利润增长**6.4倍**和**8.4倍**，CAGR分别为**59%**和**70%**。公司技术拓展和产能建设是持续上涨的内生动力；综合项目增加数量可能是先行指标；医疗政策和外部环境（中美贸易、新冠疫情等）具有短期影响。



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公司兑现复盘：业绩、产能、订单持续皆超预期，商业化逐步兑现



药明生物业绩高增长持续兑现：2016-21年，药明生物业绩持续超预期，5年增长CAGR收入61%、利润53%，持续超或符合预期。产能、订单、项目、平台搭建兑现，2020年之前公司商业化订单低于预期，但2021年公司进入商业化订单爆发期。

| | 产能 | 订单 | 项目 | 平台执行力 | 研发平台 | 商业化 |
|------|---|--|---|---|---|--|
| 2017 | MFG2 30000L 2018产能利用率40%，2019达到80%以上；MFG3 2018.4投入运营；MFG4 2019投产；MFG5 DP2 DP3 2020投产；连续生产线2018年底投产 | | 和Arcus共同开发PD-1提交IND | 相比约18至24个月的行业标准，我们的Pre-IND研发周期仅耗时15至18个月，在特定情况下更是仅耗时9个月 | 2018年中建立ADC新产品线，2019年底投产 | |
| 2018 | 2019Q3 DP2、DP3投产 | Wuxibody 2019年目标增加10个项目，2020年目标增加20个项目 | 2021疫苗CDMO业务（2021年以后将有重要销售贡献） | wuxiup可以放大至GMP生产阶段 | Q4 Wuxibody第一个IND，Wuxiup第一个IND；Q3-Q4递交1-3个BLA | 2020具有销售分成的产品获得批准（2020年开始将有潜在的超过1亿美元的销售提成） |
| 2019 | 2021 7个自建工厂投入运营（预计峰值收入7亿美元）7个外部并购工厂投入运营（预计峰值收入5亿美元）爱尔兰原液工厂(MFG6 & MFG7)进展顺利,预期自2021年起逐步完工 马萨诸塞州新工厂预期2020 Q2 开建 | 2021每年新增80+个项目，持续扩大市场份额；新增50+综合项目 | 2020年预期1-2 WuXiBody项目递交IND申请； | 2020Q3 FDA上市批准前检查(PLI) | | 2020Q4 获得第2个商业化生产美国上市许可(BLA)（抗艾滋病毒单抗一个），首个中国项目获批上市(BLA),另一个中国项目递交上市申请(BLA),制剂工厂DP7完工；更多项目进入商业化生产阶段 |
| 2020 | 2021 7个自建工厂投入运营7个外部并购工厂投入运营；2021 预计4-8个项目进入商业化阶段，生产交付约1500公斤新冠中和抗体； | 2021年新冠疫苗预计将贡献2.6亿美元收入（DS+DP） | 2021引入5+个后期Win-the-Molecule项目，推动收入增长 | | 预计1-2 WuXiBody项目将于2021年获得IND批准，多个项目将进入临床后期，2021建成mRNA疫苗全产业链赋能平台 | |
| 备注 | 生产产能和利用率兑现，海外工厂尚未完成 | 综合项目数量增加大幅超预期（21年156 vs 80、2020年103 vs 50），Wuxibody增加超预期（29vs20） | Win-the-Molecule数量快速提升（7vs5），疫苗项目进度顺利21年收入超10亿人民币 | 从DNA到IND项目推进时间大幅缩短（18月 vs 6月） | ADC、WuxiBody、mRNA等技术平台按时搭建完成；项目进展略低于预期 | 项目商业化进展由于疫情等原因低于预期；2021年7个项目进入商业化，超预期。 |

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全球生物药市场3400亿，其中CDMO 150亿美金

全球生物药市场增速较快，生物药占比不断提高，21年市场规模3400亿美金。根据沙利文预测，2021-2025年全球生物药市场CAGR将达到12.2%，2025年生物药销售额将占到全球药品总销售额的31.5%。2026年，Biotech相关的技术项目将占到销售总额的37%。生物药品类中，抗体占50%，但CGT增速最快。从项目数口径上来看，生物药中抗体药占50%，CAGR 7%，疫苗约占14%，CAGR 3%，细胞治疗占比23%，CAGR 24.4%，基因治疗占比13%，CAGR 15.6%。

2021年全球生物药CDMO市场约为150亿美元，2025年有望达到250亿美元，2021年至2025 CAGR 13.6%。2021年收入口径计算，Lonza全球生物药CDMO排名第一，市占率18%，药明生物市占率为11%，排名第三。

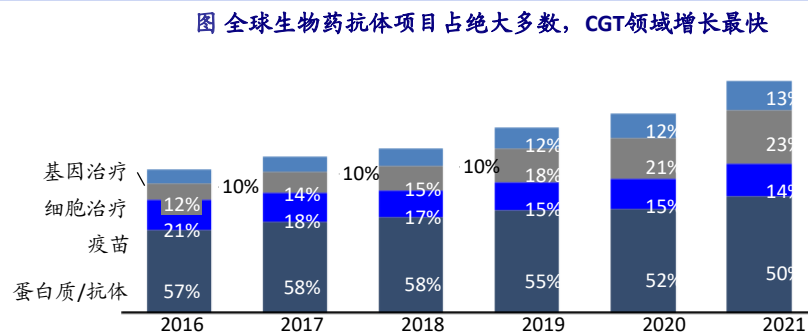
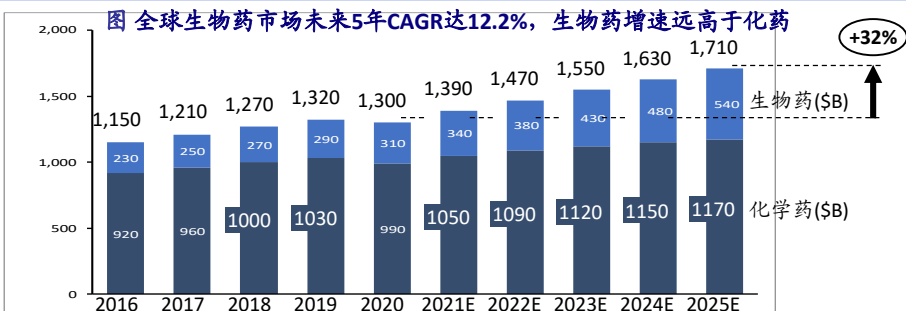


图 2022年全球生物药CDMO市场总额约为170亿美元

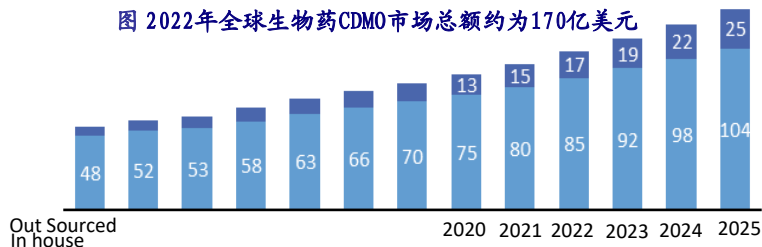
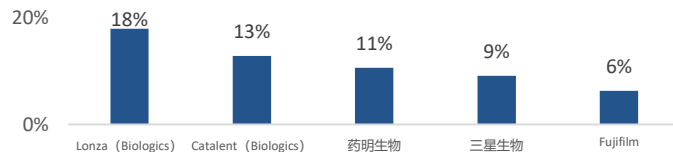


图 以2021年收入口径计算，药明生物市占率11%，排名第三



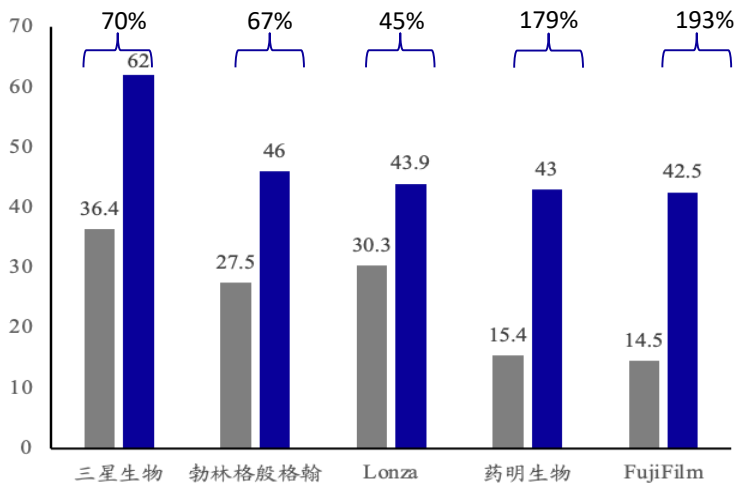
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2025年生物药CDMO产能扩张至330万升，药明生物占比13%

全球生物药产能保持扩张，药企扩张速度放缓：从21年520万升到25年预计750万升，CAGR为8%。药企产能约392万升扩至420万升，CAGR为2%。CDMO生物药产能扩张迅速，从168万升升至330万升，CAGR为18%，头部CDMO占比从22%升至32%。

药明生物产能快速爬升，份额从21年9%升至25年13%：根据2021年产能排名，前三位的龙头是：三星生物36.4万升、Lonza 30.3万升、勃林格殷格翰27.5万升，药明生物现有总产能15.4万升，排名第四。药明生物预计2024年扩增产能至43万升，增幅达179%，仅次于FujiFilm。药明生物产能将从全球生物药产能占比从3%提升至6%，在全球CDMO产能从9%提升至13%。

图 Top生物药CDMO产能扩建计划，药明生物产能扩大179%



资料来源：公司资料、CPhI Pharma Annual Report, HTI

图 全球生物药产能保持扩张

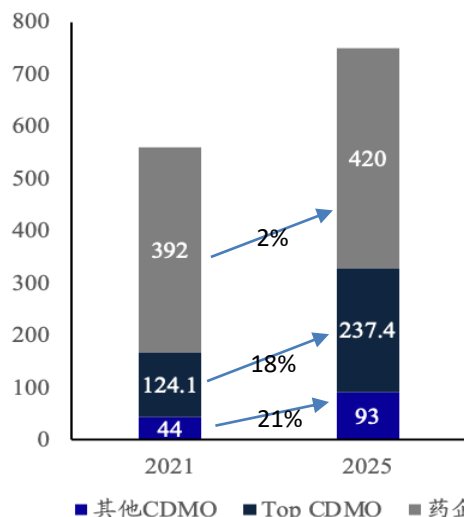


图 生物药CDMO产能扩建一次性和不锈钢均有

| 公司 | 扩产产能 | 扩产占地面积, 位置 | 投资额 | 预期投产时间 |
|----------|-------------------|---------------|---------------------|--------|
| 三星生物 | 256,000L | 23.8万平方米, 韩国 | 20亿美元 | 2022H2 |
| Lonza | 6*20000L 不锈钢 | 2.75万平方米, 瑞士 | 9.35亿美元 | 2024 |
| | 8*2000L 一次性 | 3000平方米, 美国 | 2.2亿美元 | 2023 |
| 勃林格殷格翰 | 185,000L | 4.8万平方米, 奥地利 | 8.09亿美元 (700M euro) | 2021 |
| 药明生物 | 306,000L, 一次性 | 爱尔兰、美国、德国、新加坡 | | 2024 |
| FujiFilm | 160,000L (最多64万L) | 美国 | 20亿美元 | 2025 |
| Catalent | 2*2000L 一次性 | 意大利 | 1亿美元 | 4/2023 |
| | 6*2000L 一次性 | 意大利 | | NA |

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2025年生物药是否产能过剩面临价格竞争？

我们认为：不会。原因如下：

•从全球供需角度看：2025年，大药企产能扩建放缓，外包率提升，CDMO产能利用率稳中有升，新建产能与需求匹配。2021年，生物制药需求270万升，产能560万升，其中CDMO 158万升，产能利用率48%。2025年，生物制药需求390万升，产能750万升，其中CDMO 317万升，产能利用率52%。头部企业产能扩张节奏平稳，增速2%，头部CDMO快速扩张，增速18%。我们认为，CDMO产能扩张主要根据全球生物药发展的订单需求，并无过多重复建设。

•从竞争格局看：全球头部CDMO玩家竞争格局稳定，有较高投入门槛，新进入者难以形成价格冲击。生物药CDMO由于生物药生产工艺稳定性需要技术积累和时间验证，因此MNC在选择合作伙伴过程中，更看重“交付质量、可靠度、速度”，而新的产能投建后，如果仅有价格优势，难以获取大客户信任和订单，更无法影响市场价格。

•从公司商业模式看：“跟随分子”有充足在手订单，产能规划合理。药明生物主要采取“Follow-the-molecule”策略，产能扩张主要依据在手临床中后期的项目推进速度及商业化。预计2025年，公司20个CMO项目，新增11个，3期临床项目138个，新增106个。3期临床+CMO项目数量增加385%，对比同期产能增长288%，我们认为届时不会因为产能过剩引起价格调整。

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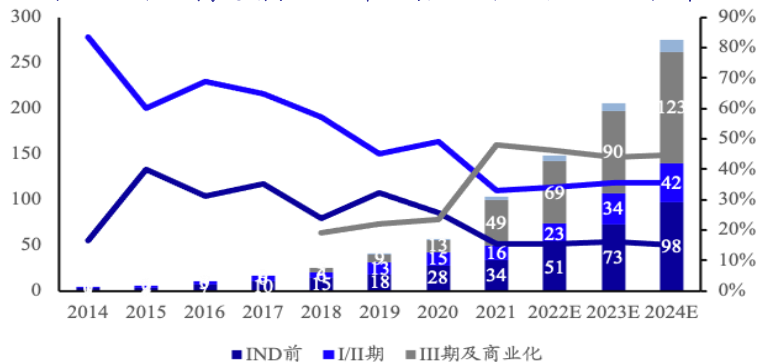
Follow-the-molecule策略：项目推进，催化业绩增长

“漏斗”效应，2014-18年早期项目高增长，2018-21年中后期项目收入发力：2014-21年，临床前项目从3亿增加至34亿，临床早期项目从1亿增加至16亿；2018年后临床晚期项目开始贡献收入从5增至49亿。

早期项目推进，新冠推动3期/CMO收入爆发增长，公司业绩进入加速期：2014-21年整体收入增速保持67%的CAGR，2014-18年，临床1/2期项目增速最快，为62%。2018-21年，临床3期+CMO项目增速最快，为117%。公司综合项目数量增速上也体现III期项目61%>商业化项目55%>I/II期项目39%>整体综合项目36%>临床前项目32%。如除去新冠，临床3期加上CMO项目增速为59%。

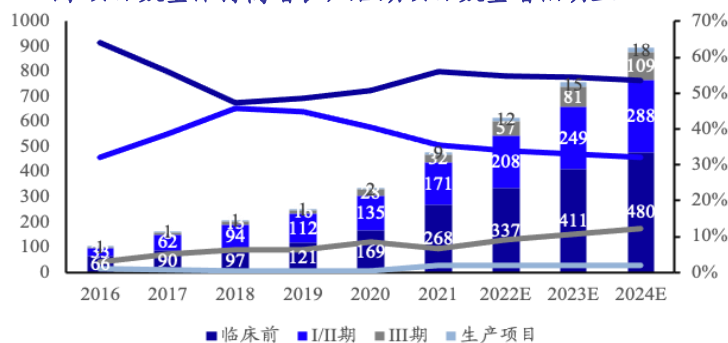
新冠项目减少，早期项目提速：22-24年公司项目数量上III期项目和商业化项目保持领先增长；考虑到新冠项目收入减少和资源释放、公司产能扩张和单价提升，收入端IND前项目（+42%）和早期项目增速（+38%）高于后期及商业化项目（+35%）。

图 IND后收入高速增长，21年后后期项目收入占比大幅提升



| | 2014-2021年 | 2021-2024E年 |
|------------------|------------|-------------|
| 整体收入 | 61% | 39% |
| IND前服务 | 43% | 42% |
| IND后(临床早期服务) | 62% | 38% |
| IND后(临床后期及商业化服务) | 117% | 35% |

图 项目数量保持高增长，后期项目数量增幅明显



| | 2016-2021年 | 2021-2024E年 |
|--------|------------|-------------|
| 所有综合项目 | 36% | 23% |
| 临床前 | 32% | 21% |
| I/II期 | 39% | 19% |
| III期 | 61% | 50% |
| 生产项目 | 55% | 25% |

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“Win-the-Molecule”战略：验证交付能力，获取成熟订单

从外部获取订单数量快速增加，多为中后期项目：2018-21年，共有40个处于不同研发阶段（临床I/II/III期）的项目从外部（药企和其他CDMO等）转入药明生物，其中3期临床项目共15个。考虑到更换CDMO的复杂性，我们认为“Win-the-Molecule”战略的成功是基于公司优异的技术实力、服务效率以及价格优势。

新冠项目助力，和MNC合作加深：公司在新冠疫情中项目执行力突出（新冠项目DNA到IND仅6个月），转入项目迅速增加，并且和跨国药企建立了良好的合作关系（Top20药企均有合作）。

业务能力兑现，市场份额增加：预计每年从外部win 5-10个中后期项目，助推公司商业化管线增长。

图 “Win-the-Molecule” 获取的临床阶段项目数

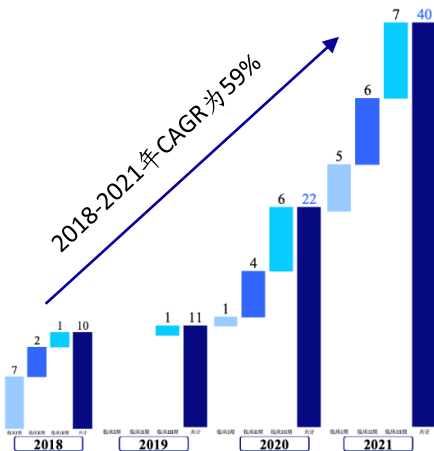


图 “Win-the-Molecule”项目加速增加

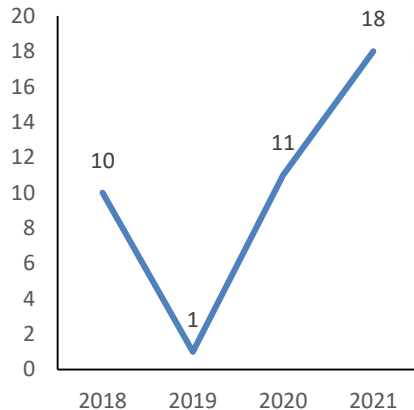
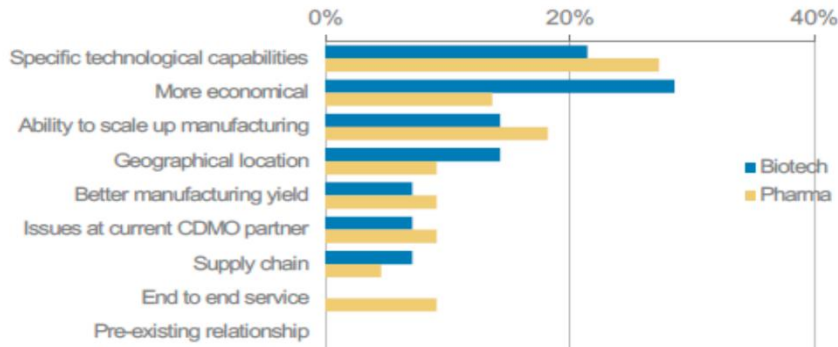


图 技术、效率和价格等因素或是药明生物的优势



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合作项目数量加速增长，First-in-Class项目占比约38%

项目数量加速增长，商业化项目仍待提升：2018-21年，合作项目总数增长CAGR三星生物69%>药明生物33%>Lonza 20%。三星生物的高增速源于临床项目低基数。药明生物在2018-21年项目加速增长，而Lonza和三星生物增速放缓。药明生物合作项目数量有望超过Lonza。

合作项目质量优化，First-in-Class项目占总项目数近38%：公司First-in-Class项目数量达到182，持续保持高速增长。First-in-Class项目高风险高收益，可优化公司项目管线。

未完成订单约136亿美元，领先三星生物：药明生物潜在未完成订单数量有望维持公司未来收入增长。

图 “Win-the-Molecule” 获取的临床阶段项目数

| | 2019 | 2020 | 2021 |
|----------|------|------|------|
| Catalant | 27% | 11% | 22% |
| 三星生物 | 169% | 54% | 17% |
| 药明生物 | 22% | 34% | 44% |

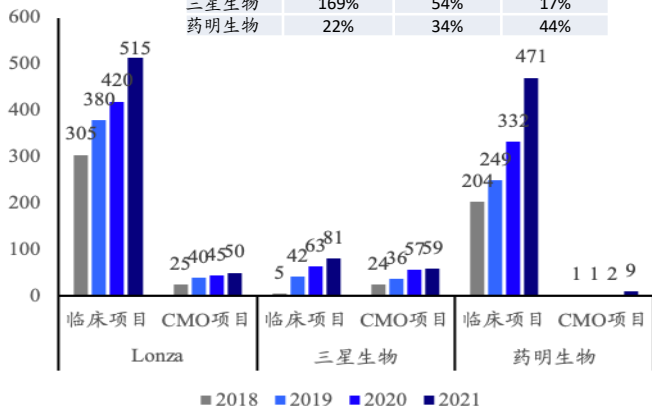


图 药明生物First-in-class项目数激增

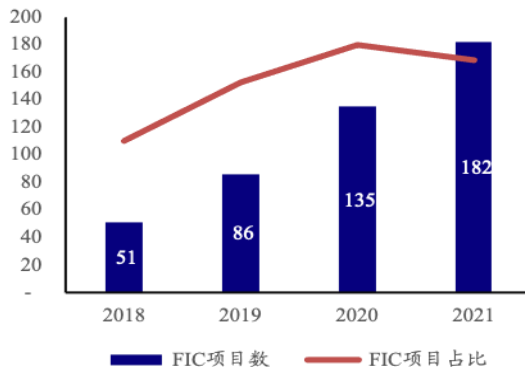
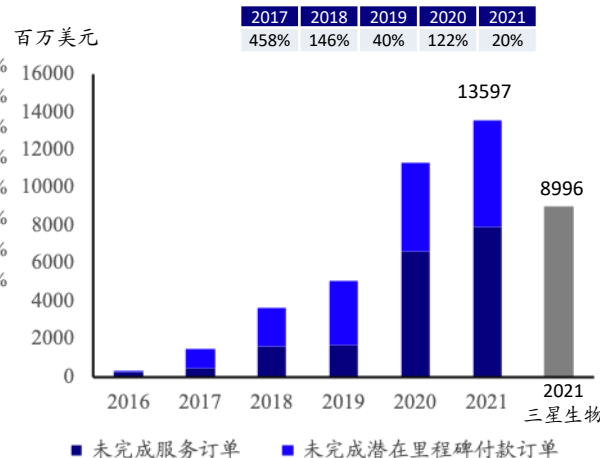


图 未完成潜在里程碑订单增长



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新技术和创新产品有望推动药物市场保持增长

生物药中“高级生物药”单抗高速发展，双抗、抗体偶联药（ADC）、mRNA疫苗等新技术有望提供增长动力。

- 截至2022年3月共14款ADC和5款药物进入商业化阶段，根据Nature预测，已上市的14款ADC药物有望在2026年销售额达164亿美元，而全球双抗药物市场有望在2027年达到37亿美元。截至2022年3月，全球共429个ADC药物和631个双抗药物进行开发。
- 药明生物于2018年相继推出双抗平台，并成立无锡药明偶联生物技术有限公司，专注于双抗药物研发与生物偶联药物的开发及生产。2021年3月30日与合全药业成立合资公司WuXi XDC，药明生物及合全药业分别拥有60%及40%。截至2021年底，药明生物ADC项目有60个项目，双抗项目72个，因此我们预计药明生物ADC项目全球占比约14%，双抗项目全球占比约11%。

图 全球ADC和双抗药物IND数量（2000-2018）

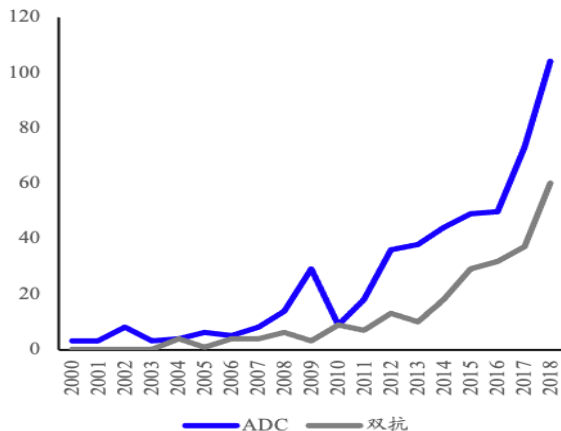
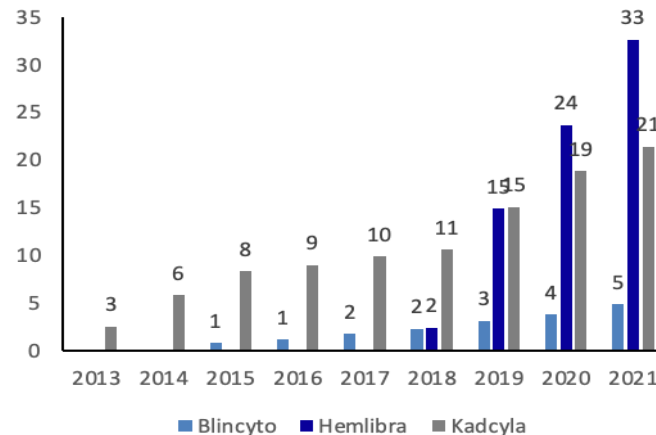


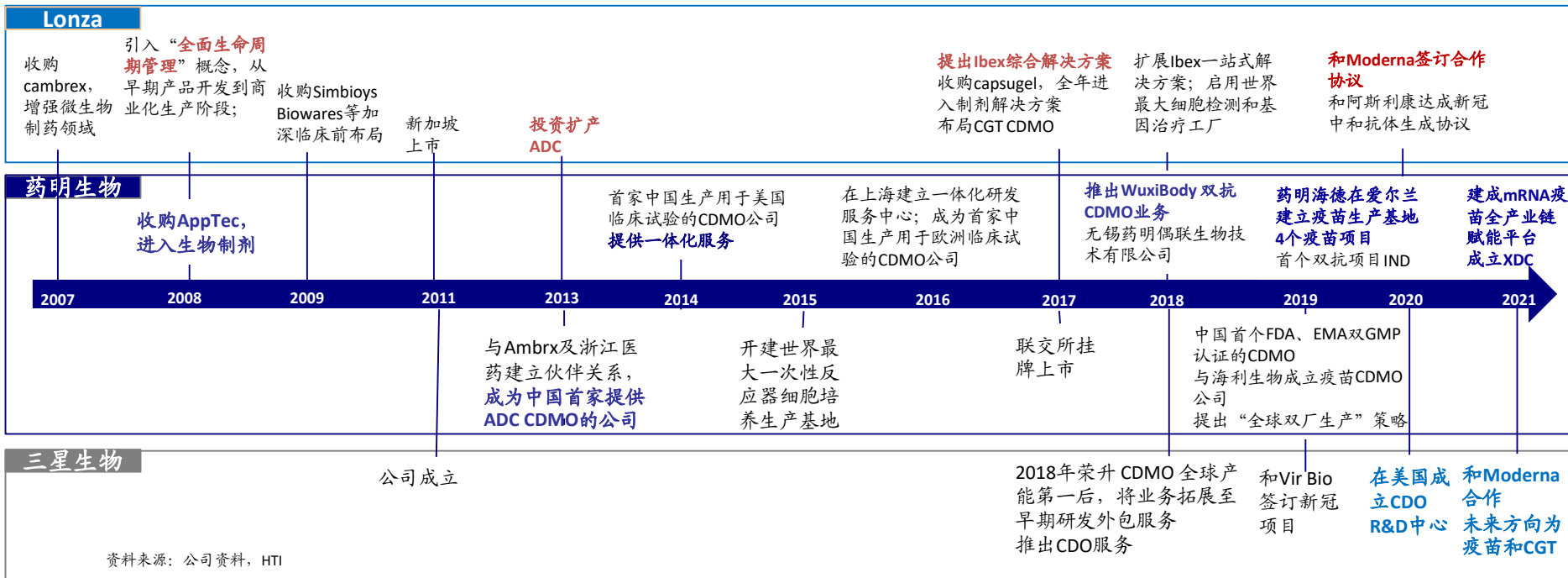
图 部分ADC、双抗药物销售数据（2015-2021）



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药明生物布局具有前瞻性，属于国际第一梯队

与国际龙头Lonza、三星生物对比，药明生物在一体化平台和技术平台（双抗、ADC以及mRNA等）布局处于国际第一梯队。



资料来源：公司资料，HTI

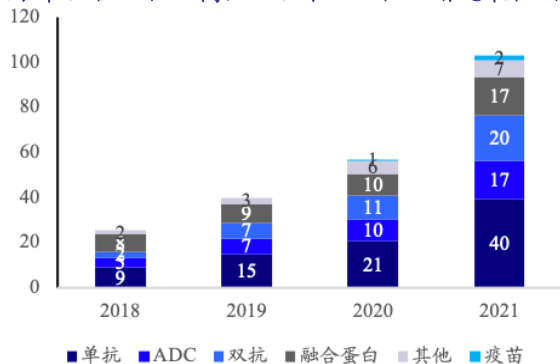
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ADC、双抗技术带动项目数量和收入快速增长

ADC、双抗抢先布局：药明生物ADC和双抗项目增长快，ADC项目数量占比从9%提升至13%，双抗项目从5%提升至15%。ADC和双抗双抗数量2018-2021年CAGR增长分为93%，47%，高于单抗23%。

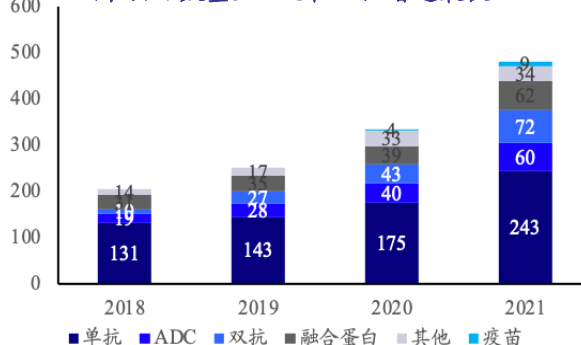
ADC、双抗收入增长CAGR 69%、142%，远高于单抗。我们根据CDMO项目订单价格高约在单抗价格1.5倍左右，假设ADC、双抗45-60mn，单抗30-35mn Rmb，从2018年到2020年，ADC项目收入从2.4亿增至6.7亿，双抗项目收入从1.2亿增至7.2亿。双抗和ADC收入增长CAGR分别为53%和101%。

图 单抗收入占比高，双抗和ADC收入增速最快（亿）



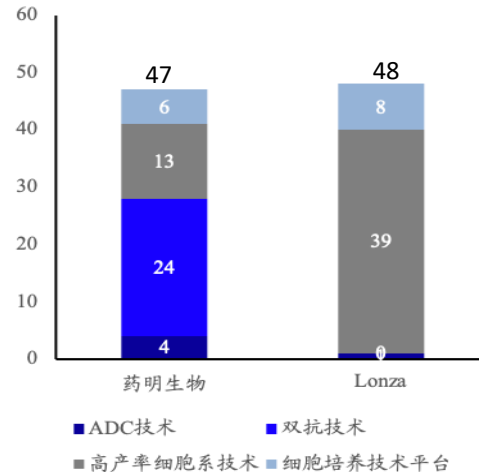
| 2018-2021年 CAGR | 单抗 | ADC |
|-----------------|------|------|
| | 64% | 53% |
| | 双抗 | 101% |
| | 融合蛋白 | 31% |
| | 其他 | 61% |

图 项目数量上ADC和双抗增速最快



| 2018-2021年 CAGR | 单抗 | ADC |
|-----------------|------|-----|
| | 23% | 47% |
| | 双抗 | 93% |
| | 融合蛋白 | 26% |
| | 其他 | 34% |

图 药明生物在各技术领域专利布局领先



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WuXiBody和药明生物XDC赋能合作伙伴

基于WuXiBody双抗和XDC技术平台，药明生物已与多家企业达成战略合作，赋能合作伙伴双抗设计与研发升级。

| 宣布时间 | 合作公司 | 合作项目 | 国家 |
|------------|------------------------|--|-----|
| 2021/6/10 | LegoChem Biosciences | LCB公司将通过药明联合的一体化服务推进其创新ADC药物研发进程。 | 韩国 |
| 2021/5/27 | OncoC4 | OncoC4、与药明生物扩大合作至双特异性抗体领域。根据协议，OncoC4获得授权使用WuXiBody®；技术平台发现和开发双抗药物；除首付款外，药明生物还将获得WuXiBody；平台双抗药物的开发和商业化付款，以及产品上市后的净销售提成。 | 美国 |
| 2021/2/1 | 德琪医药 | 药明生物与合全药业将为德琪医药ADC药物开发提供产品中间体的规模放大、工艺开发和GMP生产服务。 | 中国 |
| 2021/1/19 | Oxford BioTherapeutics | OBT借助药明生物的双特异性抗体技术平台WuXiBody，已筛选出靶向PD-L1/OX003的双特异性抗体，这也是OBT公司基于WuXiBody开发的第二个双抗。 | 英国 |
| 2021/3/8 | Exelixis | 在药明生物一体化技术平台的赋能下，Exelixis将获得多个针对肿瘤适应症的单克隆抗体独家权益，并能够针对该已验证的靶点研发单克隆抗体、抗体偶联药物（ADC）、双特异性抗体以及其他针对癌症适应症的生物药。 | 美国 |
| 2020/12/2 | Tubulis | 药明生物和合全药业将成为Tubulis的CDMO（合作研究开发生产）合作伙伴，提供ADC产品中间体的规模放大、工艺开发和GMP生产服务。 | 德国 |
| 2020/4/30 | Aravive | 药明生物授权Aravive使用WuXiBody™平台开发高亲和力双抗药物治疗癌症及纤维化疾病 | 美国 |
| 2020/1/9 | Almirall | 药明生物授权欧洲公司Almirall使用全球创新平台WuXiBody™开发多个皮肤病治疗双抗 | 西班牙 |
| 2019/10/16 | 新码生物 | 药明生物与新码生物达成商业化生产战略合作，以支持创新ADC药物ARX788的Ⅲ期临床研究及大规模商业化生产 | 中国 |
| 2019/4/16 | 天境生物 | 明生物与天境生物就五个临床和一个商业化项目达成长期战略生产合作，合作项目包括单克隆抗体、双特异性抗体和融合蛋白等 | 中国 |
| 2019/4/9 | NBE-Therapeutics | 药明生物与瑞士NBE公司建立ADC药物开发和生产全面合作 | 瑞士 |
| 2019/2/26 | ABL Bio Corporation | 双方针对多个全新双特异性抗体和一款肿瘤免疫项目开发达成新合作协议，进一步深化战略合作伙伴关系 | 韩国 |
| 2019/1/12 | 正大天晴 | 药明生物与正大天晴达成双特异性抗体开发合作 | 中国 |
| 2018/12/25 | 安科生物 | 药明生物与安科生物针对抗肿瘤双抗开发签署合作框架协议 | 中国 |
| 2018/12/11 | Oxford BioTherapeutics | 药明生物4.5亿美元授权英国OBT公司使用创新平台WuXiBody™开发5个双抗 | 英国 |
| 2018/12/10 | 腾盛博药 | 药明生物与腾盛博药针对全新双特异抗体免疫疗法达成独家研发合作 | 中国 |

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全球双厂：产能快速增加，多地同时布局

药明生物于2018年推出“全球双厂战略”：在中国、爱尔兰、新加坡、美国四国积极布局全球供应链网络，一方面随着公司项目从前期研发过渡到后期阶段，产能需求增加，另一方面有望避免地缘政治风险。

药明生物通过自建产能和收购方式进行产能扩建：通过快速提升资本开支。药明生物计划增产31万升，约为三大龙头扩产总和的一半。药明生物计划扩产30.6万升，全球排名第一，预计增产后产能与Lonza、勃林格殷格翰相当。

图 药明生物产能23-24加速全球布局

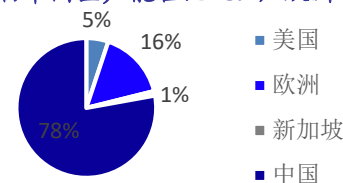
| Global capacity | | 2020A | 2021E | 2022E | 2023E | 2024E | 2025E |
|-----------------|------|--------------|-------|-------|-------|-------|-------|
| Total | | 54 | 149 | 251 | 324 | 425 | 431 |
| China | | 54.2 | 133.5 | 181.5 | 239.5 | 335.5 | 335.0 |
| of total | | 100% | 90% | 72% | 74% | 79% | 78% |
| | 石家庄 | MFG 8 | | | 48 | 48 | 48 |
| | 成都 | MFG 12 | | | 48 | 48 | 48 |
| | 无锡 | MFG 1/2/4/5 | 47.5 | 107.5 | 107.5 | 107.5 | 203.5 |
| | 上海 | MFG 3 | 6.7 | 6.7 | 6.7 | 16.7 | 16.7 |
| | 杭州 | MGF 13/14/20 | | 12.3 | 12.3 | 12.3 | 12.3 |
| | 苏州 | | | 7 | 7 | 7 | 7 |
| ROW | | | 15 | 69 | 84 | 89.5 | 95.5 |
| of total | | | 10% | 28% | 26% | 21% | 22% |
| US | | | | | 15 | 16 | 22 |
| | 麻省 | MFG11 | | | 15 | 16 | 16 |
| | 宾州 | Lab | | | | | |
| | 新泽西 | DP12 | | | | | 6 |
| Ireland | 敦多克 | MFG6/7 | | | 54 | 54 | 54 |
| German | | | 15 | 15 | 15 | 15 | 15 |
| | 勒沃库森 | DP7 | | | | | 0 |
| | 伍珀塔尔 | MFG19 | | 15 | 15 | 15 | 15 |
| Singapore | | | | | | 4.5 | 4.5 |

资料来源：公司资料，HTI

图 全球双厂战略逐步完成，扩大客户群，降低风险



2024年药明生物中国区产能占比78%，欧洲16%



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规划产能可支撑巨大利润空间，海内利润率外敏感性分析

规划产能可支撑20-25亿美金利润空间：2024年规划产能43万升，假设按产能释放前三年30%-60%-100%估算，预计2026年达到，其中以流加、商业化产能为主。参考Keytruda和行业专家意见，我们按照每2000L一年约可运行20批，测算每2000L满产支持近10亿美金年销售额。按10%收入、40%毛利率计算，若2026年43万升满产可支持27亿美元毛利/年，按25-30%净利率算约17-20亿美元净利润/年。考虑进灌流技术优势可有更高预期。

海外产能投入后，综合利润率仍可达28-29%：预计2026年满产后，毛利率达30%-40%，净利率20-25%，由于占比为22%，假设国内净利率保持30%，则国内和海外产能都投入并且满产后，综合净利率仍维持28-29%。

表 单位产能产值增加与预测收入相符

| mn, Rmb | 2020A | 2021A | 2022E | 2023E | 2024E | 2025E | 2026E |
|---------|-------|-------|--------|--------|--------|--------|--------|
| 产能 (千升) | 54 | 154 | 262 | 325 | 430 | 430 | 430 |
| 单位产值 | 104 | 67 | 55 | 60 | 66 | 80 | 100 |
| 产值 | | | 14,410 | 19,500 | 28,380 | 34,400 | 43,000 |
| 模型预测 | | | 14,829 | 20,465 | 27,700 | 34,769 | 43,199 |

表 综合利润率

| | 2021A | 2022E | 2023E | 2024E | 2025E |
|--------|--------------|--------------|--------------|--------------|--------------|
| 中国产能占比 | 90% | 72% | 74% | 79% | 78% |
| 中国利润率 | 30% | 30% | 30% | 30% | 30% |
| 海外产能占比 | 10% | 28% | 26% | 21% | 22% |
| 海外利润率 | 5% | 10% | 15% | 20% | 25% |
| 综合利润率 | 27.5% | 24.5% | 26.1% | 27.9% | 28.9% |

资料来源：公司公告，HTI

表 产能建设时间表

| Site# | 原流产能 | 投产时间 | 位置 | 用途 |
|-------|------------------------|------|------------|--------|
| MFG1 | 7,500L流加/灌流 | 2012 | 无锡 | 商业化 |
| MFG2 | 28,000L流加/2,000L灌流 | 2017 | 无锡 | 商业化 |
| MFG3 | 5,200L流加/1,500L灌流 | 2018 | 上海 | 临床/商业化 |
| MFG4 | 10,000L流加/高密度流加 | 2019 | 无锡 | 临床/商业化 |
| MFG5 | 60,000L流加 | 2021 | 无锡 | 商业化 |
| MFG6 | 6,000L(6 × 1,000L)灌流 | 2022 | 爱尔兰 | 商业化 |
| MFG7 | 48,000L流加 | 2022 | 爱尔兰 | 商业化 |
| MFG8 | 48,000L流加 | 2022 | 石家庄 | 商业化 |
| MFG9 | 96,000L流加 | 2024 | 无锡 | 临床/商业化 |
| MFG10 | 4,000L流加/500L灌流 | 2023 | 新加坡 | 临床/商业化 |
| MFG11 | 16,000L流加 | 2024 | 佐纳科, 马塞诸塞州 | 临床/商业化 |
| MFG12 | 48,000L(12 × 4,000L)流加 | 2023 | 成都 | 临床/商业化 |
| MFG13 | 2,000L(2 × 1,000L)病毒制备 | 2021 | 杭州 | 临床/商业化 |
| MFG14 | 2,300L(300L/2,000L)微生物 | 2021 | 杭州 | 临床/商业化 |
| MFG17 | 10,000L流加 | 2023 | 上海 | 临床 |
| MFG18 | 6,000L流加 | 2021 | 克兰伯恩, 新泽西州 | 临床 |
| MFG19 | 12,000L流加/3,000L灌流 | 2021 | 伍珀塔尔, 德国 | 商业化 |
| MFG20 | 8,000L(4 × 2,000L)流加 | 2021 | 杭州 | 商业化 |
| MFG21 | 7,000L流加 | 2021 | 苏州 | 临床 |

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资本开支与折旧摊销对公司利润影响有限，产能释放与收入增长匹配



资本开支峰值已过，预计公司2022年现金流转正：公司累计资本开支达185亿，预计22-24年资本开支达140亿。2022年，我们预计自由现金流转正，正常的经营现金流可以覆盖22-24年均40-50亿资本开支。

22年折旧摊销开始加速，对利润率波动有限：我们预计22-25年，考虑产能逐步投放和折旧，假设折旧率6%/8%/10%/10%，折旧11亿/18亿/25亿/27亿，占收入8%/9%/9%/8%，与18-21年平均7%基本一致，因此对利润率影响较小，仅为1-2%。

公司产能利用率提升与收入匹配：药明生物历史单位产能高于三星生物，但低于Lonza，历史产值区间为70-170mn/万升。假设药明生物对应产值80-120mn/万升，即可得到对应收入，可见产能扩增可以支撑公司收入增长。

图 单位产能对应收入

| 单位产能收入 (百万USD/万升) | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|-------------------|-------|-------|-------|-------|-------|-------|
| Lonza | 167.8 | 206.4 | 225.1 | 170.9 | 183.1 | 191.8 |
| Samsung Biologics | 13.1 | 10.4 | 12.0 | 15.7 | 26.1 | 35.1 |
| 药明生物 | 316.5 | 74.0 | 96.6 | 122.6 | 166.5 | 106.9 |

图 单位产值对应收入60-100usd可满足增长需求

| 假设单位产能收入 (百万USD/万升) | 20.0 | 40.0 | 60.0 | 80.0 | 100.0 | 120.0 | 140.0 | 160.0 |
|--------------------------------|------|------|------|------|-------|-------|-------|-------|
| 药明生物对应收入 (百万USD) | 860 | 1720 | 2580 | 3440 | 4300 | 5160 | 6020 | 6880 |
| 假设24年达到43万升，对应收入2020-2024年CAGR | -2% | 16% | 29% | 38% | 46% | 53% | 59% | 64% |

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本报告要解决的核心问题：药明生物的去与未来

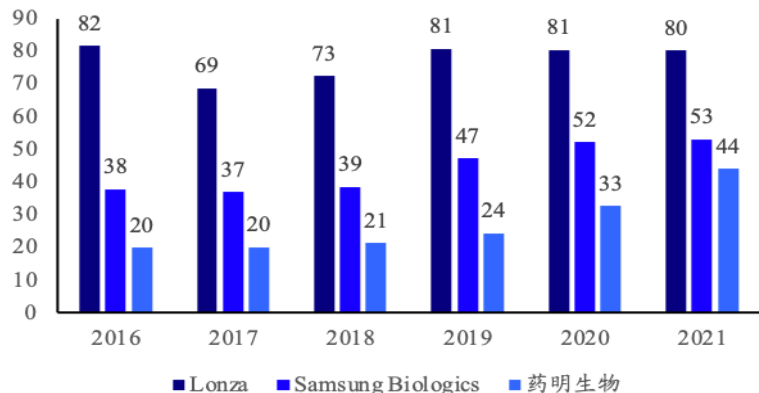
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工程师红利：人力成本低，人均创收提升空间大

员工人数快速增加，人力成本低于同类企业：人均薪酬从2016年15万升至2021年44万，但同比Lonza仅为55%，三星生物的83%，具备非常明显的中国工程师红利。我们认为该成本优势未来5年仍会保持。

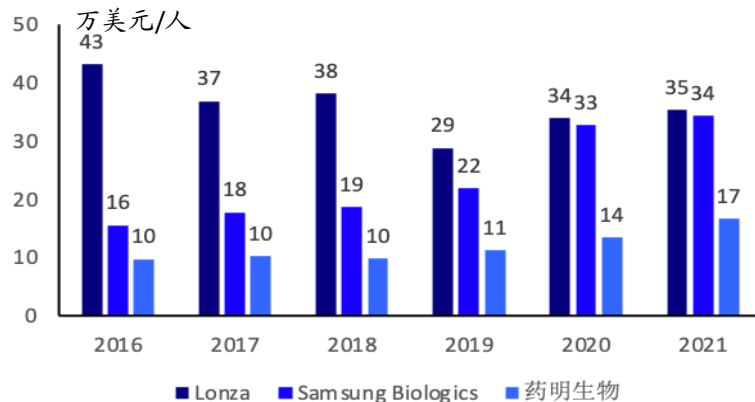
人均创收和创利快速提升，仍有提升空间：2021年药明生物人均创收为17万美元/人，远低于Lonza（35万美元/人）和三星生物（34万美元/人）。人均创利上，药明生物为4.95万美元/人，低于Lonza（5.72万美元/人）和三星生物（12.63万美元/人）。规模化生产CMO订单后，有望提高人均收入水平。

图 药明生物具有员工成本优势



Lonza: Wages and Salaries、operating expenses defined benefit pension plans、other social security contributions、other personnel expenses
 Samsung Biologics: Employee Benefits
 药明生物: 员工成本+以股份为基础的薪酬

图 药明生物人均创收（营业收入）低于Lonza和三星生物



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交付效率优势: DNA到IND时间最短至6个月, 远优于行业平均水平

药明生物DNA到IND时间持续下降, 交付能力业内最强:

- 药明生物: 平均10-12个月, 从此前的15个月缩短3-5个月, 最快项目仅为6个月; 紧急医疗需求情况下, DNA到IND时间2.5个月, DNA到BLA时间15个月。
- Lonza: 一般项目时间15-18个月, Ibex一体化时间12个月
- 迈百瑞: 13个月
- 金斯瑞: 12个月
- 行业平均: 18-24个月

表 药明生物从DNA到IND研发效率提升 (月)

| 药明生物 | | | | | Lonza Ibex | 迈百瑞 | 金斯瑞 | 行业平均 |
|------|------|------|------|-------|------------|-----|-----|-------|
| 2016 | 2017 | 2018 | 2019 | 2020 | | | | |
| 21 | 18 | 15 | 12 | 10-12 | 12 | 13 | 12 | 18-24 |

资料来源: 公司公告, HTI

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全球客户迅速拓展，客户粘性高

在大分子领域，药明生物客户总量和新增或都处于行业领先定位。2021年470家全球合作伙伴，其中包括全球前20大药企以及中国前50大药企中大部分。2021年2月三星生物披露客户数量在70位，2021年Lonza CDMO业务客户750，新增170位客户，包括大分子和小分子。

客户粘性大，前20大客户和药明生物合作均超过4个以上项目，平均每个客户和药明生物合作接近2个。

新冠期间超过10位客户的选择反映公司口碑。赋能20个Covid-19中和抗体项目，其中6个项目进入到临床阶段，3个项目进入到商业化阶段（包括阿斯利康和GSK等大型药企），2020年赢得Covid-19中和抗体全球外包IND项目80%+市场份额。

图 全球客户迅速增加，覆盖全球前20大客户

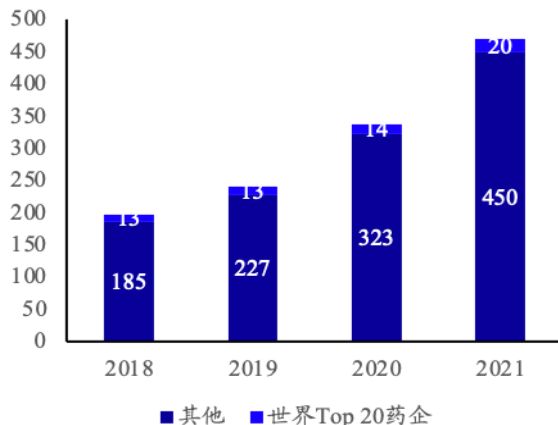


图 每个客户平均合作项目数增长

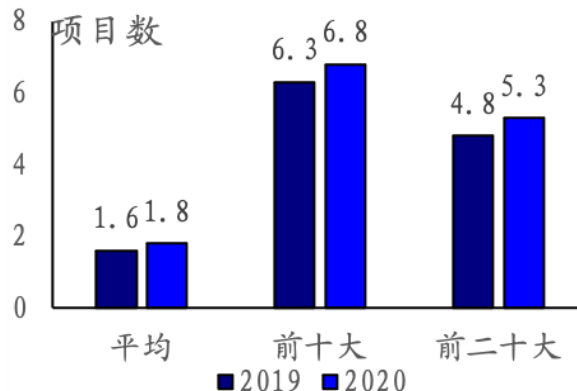
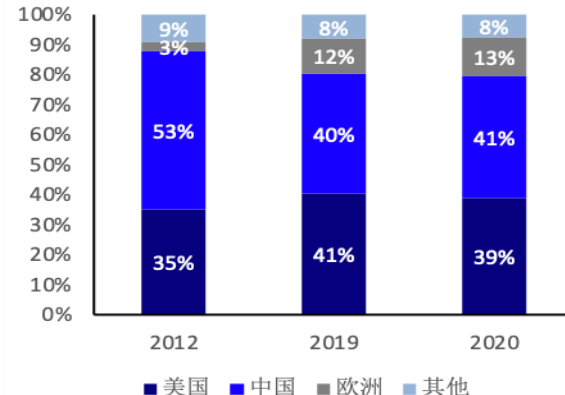


图 全球客户分布



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商业模式优势：跟随策略下可预期未来市场份额继续提高

假设：

1. 临床前订单增长为主，未来临床产能的扩大、技术平台的增强及双抗、ADC、疫苗等前沿技术平台带来更多引流
2. win-the-molecule 下赢得的订单每年仅保守予个位数估计
3. 各阶段项目引流效率按历史水平进行估算
4. 临床后期及商业化更具粘性，终止的数量减少

结果：

在临床前项目高速增长的基础上，自2021年开始，临床后期及商业化订单可预见较前更为高速的持续增长，一体化模式得到验证。

资料来源：公司公告，HTI

| Year | 2019A | 2020A | 2021A | 2022E | 2023E | 2024E | 2025E | 2026E |
|----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Drug discovery | 20 | 20 | 30 | 30 | 30 | 30 | 30 | 30 |
| No. of integrated projects | 250 | 334 | 480 | 614 | 756 | 895 | 1032 | 1167 |
| YoY | 26% | 31% | 44% | 26% | 22% | 18% | 15% | 13% |
| Pre- IND Services | 121 | 169 | 268 | 337 | 411 | 480 | 546 | 610 |
| Post- IND Services (Early Phase) | 112 | 135 | 171 | 208 | 250 | 292 | 332 | 370 |
| | 85 | 103 | 119 | 121 | 145 | 170 | 193 | 215 |
| | 27 | 32 | 52 | 88 | 105 | 123 | 139 | 155 |
| Post- IND Services (Late Phase) | 16 | 28 | 32 | 57 | 80 | 105 | 135 | 159 |
| CMO | 1 | 2 | 9 | 12 | 15 | 17 | 20 | 28 |
| Total | 270 | 354 | 510 | 644 | 786 | 925 | 1062 | 1197 |
| Changes on Project | | | | | | | | |
| 项目数量变化 | 45 | 84 | 146 | 134 | 142 | 139 | 137 | 135 |
| Pre- IND Services | 24 | 48 | 99 | 69 | 74 | 69 | 66 | 65 |
| | 58 | 92 | 130 | 120 | 130 | 130 | 130 | 130 |
| | -21 | -36 | -27 | -48 | -52 | -56 | -59 | -59 |
| | -13 | -8 | -4 | -3 | -4 | -5 | -6 | -7 |
| Post- IND Services (Phase I&II) | 18 | 23 | 36 | 37 | 41 | 43 | 40 | 38 |
| | 0 | 5 | 19 | 15 | 15 | 15 | 15 | 15 |
| | 21 | 36 | 27 | 48 | 52 | 56 | 59 | 59 |
| | -2 | -7 | -6 | -21 | -20 | -21 | -26 | -26 |
| | -1 | -11 | -4 | -5 | -6 | -7 | -8 | -9 |
| Post- IND Services (Phase III) | 3 | 12 | 4 | 25 | 24 | 25 | 29 | 24 |
| | 1 | 6 | 6 | 7 | 7 | 7 | 7 | 7 |
| | 2 | 7 | 6 | 21 | 20 | 21 | 26 | 26 |
| | 0 | -1 | -6 | -2 | -2 | -2 | -3 | -8 |
| | 0 | 0 | -2 | -1 | -1 | -1 | -1 | -1 |
| CMO | 0 | 1 | 7 | 3 | 3 | 2 | 3 | 8 |
| | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| | 0 | 1 | 6 | 2 | 2 | 2 | 3 | 8 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 65 | 104 | 176 | 164 | 172 | 169 | 167 | 165 |

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疫苗市场保持增长，疫苗CDMO业务方兴未艾

全球疫苗市场快速增长至591亿美元、新冠疫情加速疫苗产业CDMO：从销售收入来看，全球疫苗市场从2015年的401亿美元增长到2020年的591亿美元，预计2030年将达到**1115亿美元**（不包括COVID-19疫苗）。这一增长主要是由创新疫苗的普及、发达国家和发展中国家不断增长的医疗保健支出以及疫苗接种意识的增长所推动。2021年，COVID-19疫苗的全球市场规模预计将达到约1000亿美元。

图 全球疫苗市场保持增长

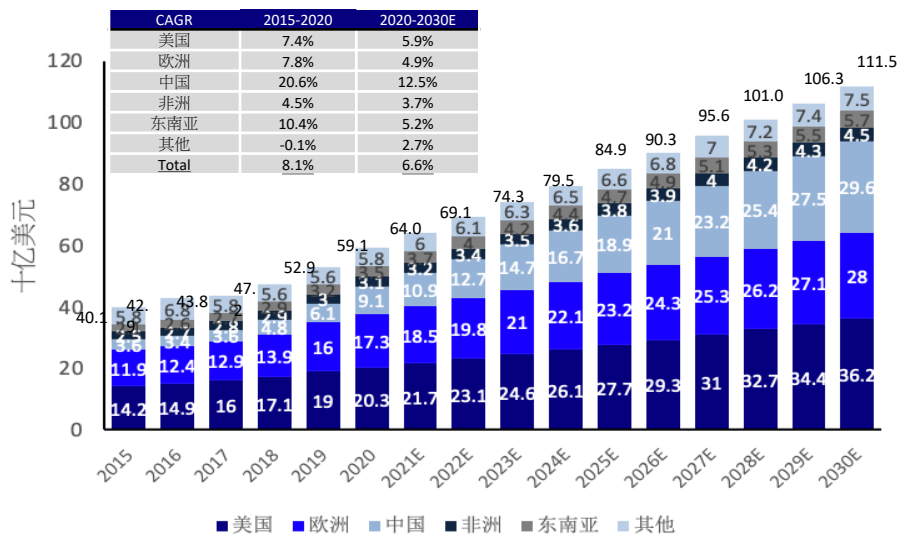
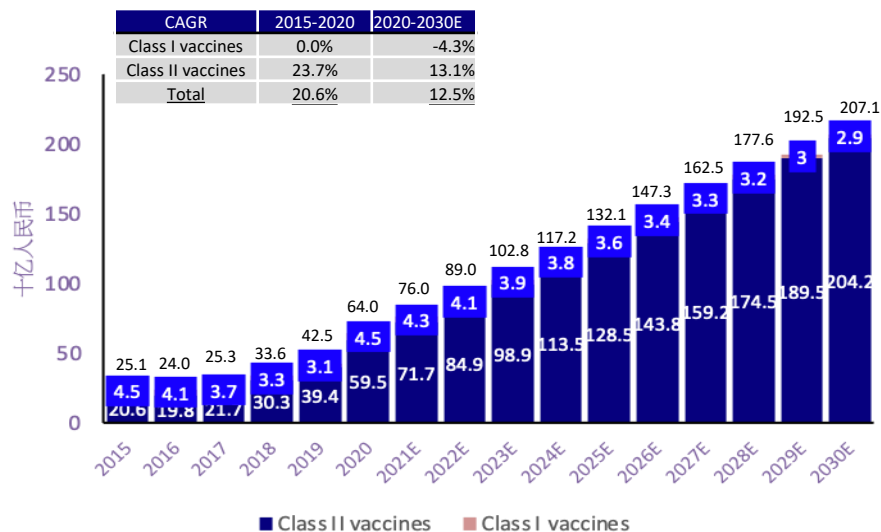


图 中国疫苗二类苗市场增速快



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新冠疫情开启疫苗CDMO新时代

| 研发公司 | 生产公司 | 合作内容/相关信息 |
|-------------|----------------------------|---|
| 辉瑞-BioNTech | 赛诺菲 | 赛诺菲2021年夏天Frankfurt工厂将生产1.25亿剂给欧洲 |
| | 赛诺菲 | 赛诺菲将使用其位于法国马西艾图尔的工厂协助强生进行疫苗的生产，该工厂的生产力可以达到每月生产约1200万剂疫苗。 |
| 强生 | Emergent BioSolutions | EBS将在五年内为强生提供大规模原料药生产服务，头两年的价值约为4.8亿美元。 |
| | Catalent | Catalent在印第安纳州布卢明顿运营的一家大型工厂为强生生产新冠疫苗 |
| Moderna | 赛诺菲 | 从今年9月开始支持Moderna 2亿剂新冠疫苗的开发。 |
| | Lonza | 在荷兰的Geleen工厂建立一条新的生产线，每年将格额外供应3亿剂Moderna(50 µg)最新的增强型新冠疫苗。 |
| | Catalent | Moderna与Catalent合作提供灌装/精加工服务。 |
| | 赛默飞世尔科技 | 赛默飞公司在北卡罗来纳州格林维尔的商业生产基地将用于无菌灌装、贴标和包装。 |
| 阿斯利康 | Baxter BioPharma Solutions | Moderna与Baxter BioPharma Solutions 合作提供灌装/精加工服务。 |
| | SK、百特、印度血清研究所 | 印度血清研究所正在筹措资金，以期5月底以前把阿斯利康疫苗月均产量从目前至多7000万剂提升至超过1亿剂。 |
| Novax | SK、印度血清研究所 | SK Bioscience公司今年已与Novavax签订了生产4000万剂疫苗的合同，生产可能会在6月开始，到9月将有多达2000万剂交付韩国使用。 |
| CureVac | Wacker | 瓦克将在2021年上半年在阿姆斯特丹生产基地按照药品生产质量管理规范（GMP）生产CVnCoV的信使核糖核酸（mRNA）活性成分。生产启动、技术转移以及试运行的准备工作现已开始进行。瓦克阿姆斯特丹生产基地预计每年将生产1亿多盒CureVac疫苗。 |
| 腺病毒疫苗 | 药明生物 | 代工新冠疫苗 |

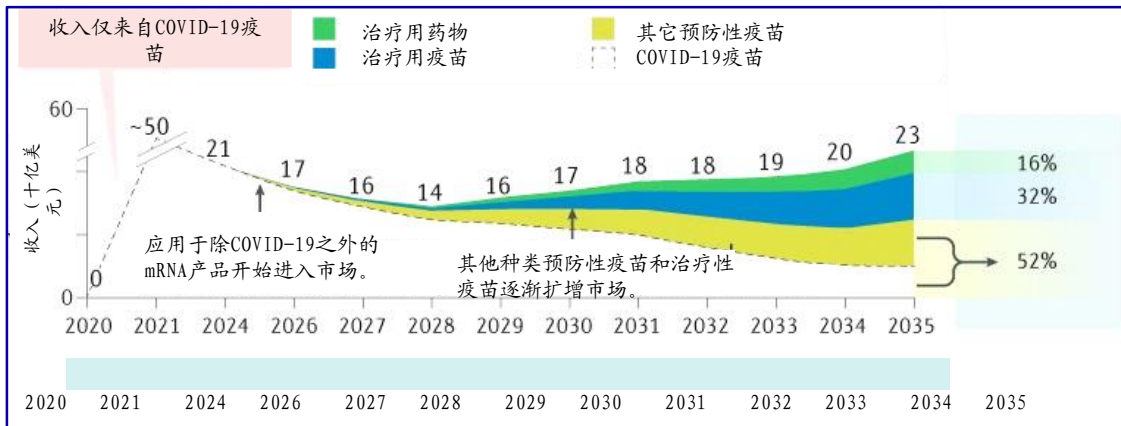
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mRNA领域从0到1，2035年mRNA领域市场规模或达230亿美元

新冠mRNA疫苗市场快速成熟，2021年三巨头收入将超过500亿美元。2023年至2025年，由于对COVID-19疫苗的需求减少以及缺乏其他类型的mRNA技术路径的产品上市，预计mRNA市场会出现缓慢下降；在此期间，mRNA新冠疫苗更广泛的全球使用和加强针可支持约200亿美元的年销售额。目前三巨头（moderna、biontech/pfizer）已经委托多家公司供应mRNA疫苗。

mRNA市场前景可期，2035年将达到230亿美元：目前正在开发的基于mRNA技术路径的药物根据其潜在的作用机制可分为三个主要应用：预防性疫苗、治疗用疫苗和治疗用药物。2021年3月，全球在研mRNA疫苗已达125个。随着其他预防性疫苗和治疗性药物的进入，预计市场将从2028年开始增长，2035年将达到230亿美元。药明生物目前有2款mRNA疫苗订单，一款新冠、一款非新冠。

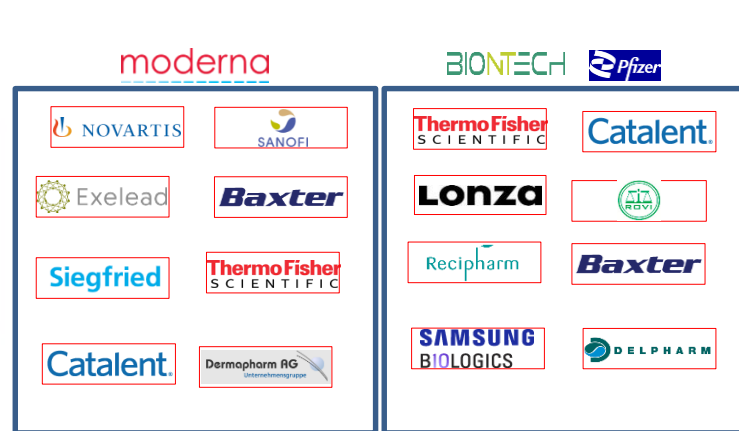
图：mRNA技术的市场规模预测



COVID-19 mRNA 疫苗收入占比预测

100% 100% 100% 97% 91% 86% 74% 63% 55% 44% 32% 25% 22%

图 全球主要CDMO均已参与到mRNA领域



备注：收入预测均为风险调整后收入

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药明生物获取新冠疫苗订单，提供mRNA一站式服务

通过全资子公司 Wuxi vaccines 持股药明海德，疫苗订单加速：公司2019年开始布局进入疫苗CDMO。主要服务于海外疫苗生产需求。目前与海利生物科技公司联合成立药明海德，wuxi biologics占比70%。目前已经与疫苗龙头公司签订为期20年商业化订单，订单金额达30亿美金。截至2021年12月31日，药明海德已签订9个疫苗合同，其中包括3个新冠疫苗项目。

打造端到端mRNA技术平台、获取2个mRNA订单：药明生物构建了4条30L到2000L的质粒生产线，基于微流控技术的LNP生产平台，完善的质检平台以及1亿人份的mRNA疫苗大规模生产平台。截止2021年底，药明生物已有2个mRNA项目，包括非新冠疫苗项目和新冠疫苗项目。我们认为mRNA技术平台潜力巨大，众多药企均加入到mRNA技术的研发当中，药明生物在mRNA领域布局完善，有望成为公司在核酸药物领域的支点。

疫苗未来收入与产能：疫苗生产对产能占用极少，产出及利润率高，预计未来每年带来收入超过三亿美金。

图 药明生物提供mRNA生产全流程服务



药明生物非新冠疫苗收入

| 疫苗板块项目 | 2022E | 2023E | 2024E | 2025E | 2026E | 2027E | 2028E | 2029E | 2030E | 2031E |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 收入 (mn, USD) | 21 | 47 | 73 | 155 | 253 | 254 | 298 | 332 | 356 | 370 |
| YoY% | | 124% | 54% | 113% | 63% | 0% | 17% | 12% | 7% | 4% |

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- 八、**边际变化与估值**

药明生物业绩预测及核心假设

核心假设:

- 1.FY22-24年我们预计新冠项目收入23.5/8.2/5.5亿，其中中和抗体收入12.7/5.4/3.8亿。
- 2.FY22-24年，临床前收入为50.5/73.1/97.6亿，YoY 49%/45%/34%，22-23年为核心驱动力，其中ASP为15/17/19 mn，价格增长CAGR 15%，综合项目数量337/411/480，数量增长CAGR 21%。
- 3.FY22-24年，临床1-2期收入为22.9/33.6/41.8亿，YoY 43%/46%/25%，为22-23年驱动力，其中ASP为11/14/15mn，价格增长CAGR 16%，综合项目数量208/249/288，数量增长CAGR 19%。
- 4.FY22-24年，临床3期+CMO 入为68.6/90.5/122.6，YoY39%/32%/36%，其中**临床3期39.6/65.1/92.6亿，YoY77%/64%/42%**，其中ASP为70/80/90 mn，价格增长CAGR 9%，综合项目数量57/81/109，**数量增长CAGR 49%**。CMO收入29.0/25.4/30.5，YoY 15%/-12%/18%，主要为新冠项目及预备单贡献收入。
- 5.新商业化订单：22年2* Tigit, 1*DR5, 1*疫苗, 1*其他；23年 1*FcRn, 1*Cancer ADC, 3*其他；24年 1*FcRn, 1*CD47, 1*Tigit, 1*庞贝孤儿药, 1*CD73, 1*疫苗

结果:

在临床前项目高速增长的基础上，自2021年开始，临床前及临床3期及订单数量为**核心驱动力**

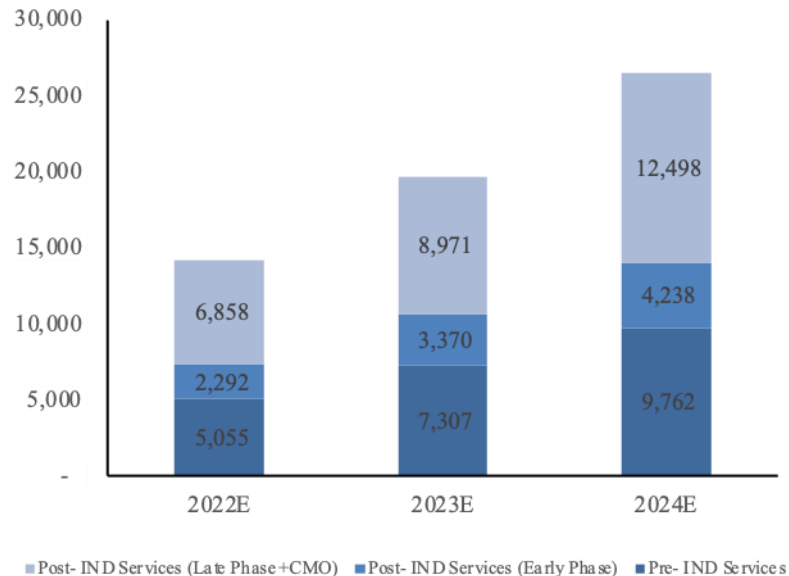
| | 2016-2021年 | 2021-2024E年 |
|--------|------------|-------------|
| 所有综合项目 | 36% | 23% |
| 临床前 | 32% | 21% |
| I/II期 | 39% | 19% |
| III期 | 61% | 50% |
| 生产项目 | 55% | 25% |

For full disclosure of risks, valuation methodologies and target price formation on all HTI rated stocks, please refer to the latest full report on our website at equities.htisec.com

药明生物模型预测

| Currency (RMB, mn) | 2022E | 2023E | 2024E |
|---|---------------|---------------|---------------|
| Total Revenue | 14,829 | 20,465 | 27,700 |
| YoY | 44% | 38% | 35% |
| Covid Revenue | 2,300 | 800 | 577 |
| YoY | -23% | -65% | -28% |
| % of total | 16% | 4% | 2% |
| Ex- Covid Revenue | 12,529 | 19,665 | 27,123 |
| YoY | 72% | 57% | 38% |
| | 84% | 96% | 98% |
| Business Breakdown (Rm,mn) | | | |
| Pre- IND Services | 5,055 | 7,307 | 9,762 |
| YoY | 49% | 45% | 34% |
| % of total | 34% | 36% | 35% |
| Post- IND Services (Early Phase) | 2,292 | 3,370 | 4,238 |
| YoY | 43% | 47% | 26% |
| % of total | 15% | 16% | 15% |
| Post- IND Services (Late Phase +CMO) | 6,858 | 8,971 | 12,498 |
| YoY | 39% | 31% | 39% |
| % of total | 46% | 44% | 45% |

资料来源: HTI



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药明生物估值讨论

PE: 药明生物之前稳定PEG2-3x, PE 100X-200X; 经过CXO板块整体调整后, 高点目前PE FY22-23 45x/33x, 历史估值看, 在次年1X PEG属于合理区间。

| 股票代码 | 股票简称 | Q1利润增速 | 收入 (亿元) | | | | 利润 (亿元) | | | | 市值(rmb 20220407) | 估值指标 | 21E | 22E | 23E | PEG |
|---|------|---------|---------|-------|-------|-------|---------|-------|------|-------|---------------------|------|-----|-----|-----|-----|
| | | | 20A | 21E | 22E | 23E | 20A | 21E | 22E | 23E | | | | | | |
| 药明康德、康龙化成、药明生物、方达医药均为经调整利润口径, 泰格为扣非归母口径 | | | | | | | | | | | | | | | | |
| H股 | | | | | | | | | | | | | | | | |
| 1521.HK | 方达控股 | NA | 9.8 | 11.1 | 15.3 | 19.4 | 1.3 | 1.9 | 2.88 | 4.12 | 42 | PE | 22 | 15 | 10 | 0.3 |
| | | | | 13% | 38% | 27% | | 46% | 52% | 43% | | | | | | |
| 2269.HK | 药明生物 | NA | 56.1 | 102.9 | 149.2 | 205.9 | 17.1 | 33.16 | 46.6 | 63.8 | 2113 | PE | 64 | 45 | 33 | 1.1 |
| | | | | 83% | 45% | 38% | | 94% | 41% | 37% | | | | | | |
| 1548.HK | 金斯瑞 | NA | 25 | 32.6 | 45.2 | 76.2 | -10.5 | -31.9 | -3.5 | 11 | 379 | PS | 12 | 8 | 5 | |
| | | | | 30% | 39% | 69% | | 204% | -89% | -414% | | | | | | |
| 2359.HK | 药明康德 | 65%+/- | 165.35 | 229 | 382.4 | 458.9 | 35.65 | 51.3 | 85.7 | 102.8 | 2751 | PE | 54 | 32 | 27 | 0.5 |
| | | | | 38% | 67% | 20% | | 44% | 67% | 20% | | | | | | |
| 6127.HK | 昭衍新药 | 40%+/- | 10.76 | 15.2 | 21.2 | 28.7 | 3.16 | 5.5 | 7.7 | 10.4 | 193 | PE | 35 | 25 | 19 | 0.6 |
| | | | | 41% | 39% | 35% | | 74% | 40% | 35% | | | | | | |
| 3759.HK | 康龙化成 | 35-40% | 51.34 | 74.4 | 100.5 | 135.7 | 10.64 | 14.6 | 20.4 | 26.5 | 609 | PE | 42 | 30 | 23 | 0.8 |
| | | | | 45% | 35% | 35% | | 37% | 40% | 30% | | | | | | |
| 6821.HK | 凯莱英 | 150%+/- | 31.5 | 45.1 | 114.9 | 118.4 | 7.22 | 10 | 25.4 | 26.2 | 520 | PE | 52 | 20 | 20 | 0.1 |
| | | | | 43% | 155% | 3% | | 39% | 154% | 3% | | | | | | |
| 3347.HK | 泰格医药 | 55%+/- | 31.92 | 52.1 | 73 | 94.9 | 7.08 | 12.3 | 17.2 | 22.4 | 634 | PE | 44 | 32 | 24 | 0.8 |

资料来源: HTI

For full disclosure of risks, valuation methodologies and target price formation on all HTI rated stocks, please refer to the latest full report on our website at equities.htisec.com

PE: 海外头部生物药CDMO公司PEG普遍在2-4X, 显著高于当前国内CXO公司估值。

| 股票代码 | 股票简称 | 收入 (亿) | | | | 润 (亿USD) | | | | 市值亿USD 20220412 | 估值指标 | 21E | 22E | 23E | PEG |
|------------------|------------|--------|-------|-------|-------|----------|------|------|------|--------------------|------|-----|-----|-----|------|
| | | 20A | 21E | 22E | 23E | 20A | 21E | 22E | 23E | | | | | | |
| CDMO | | | | | | | | | | | | | | | |
| LONN SW EQUITY | Lonza | 48.07 | 59.17 | 65.87 | 73.76 | 9.3 | 10.3 | 12.2 | 14.6 | 622 | PE | 60 | 51 | 43 | 2.8 |
| | | | 23% | 11% | 12% | | 11% | 18% | 20% | | | | | | |
| 207940 KS Equity | Samsung | 9.89 | 13.7 | 15.31 | 18.26 | 2.1 | 3.4 | 4.3 | 5.7 | 502 | PE | 146 | 117 | 88 | 4.7 |
| | | | 39% | 12% | 19% | | 67% | 25% | 33% | | | | | | |
| DIVI IN Equity | Divis Lab | 7.47 | 9.24 | 11.46 | 12.55 | 1.9 | 2.7 | 3.5 | 3.7 | 131 | PE | 49 | 37 | 35 | 1.2 |
| | | | 24% | 24% | 10% | | 41% | 31% | 6% | | | | | | |
| CTLT US Equity | Catalent | 30.94 | 39.98 | 48.04 | 52.47 | 1.9 | 5.9 | 6.8 | 8 | 229 | PE | 39 | 34 | 29 | 2.1 |
| | | | 29% | 20% | 9% | | 213% | 16% | 18% | | | | | | |
| LAURUS IN Equity | Laurus Lab | 3.89 | 6.36 | 6.44 | 8.02 | 0.4 | 1.3 | 1.1 | 1.5 | 27 | PE | 20 | 25 | 18 | -1.4 |
| | | | 63% | 1% | 25% | | 269% | -17% | 36% | | | | | | |
| SFZN SW Equity | SFZN | 9.01 | 12.06 | 13 | 13.77 | 0.7 | 1.1 | 1.4 | 1.5 | 41 | PE | 39 | 29 | 27 | 0.9 |
| | | | 34% | 8% | 6% | | 62% | 33% | 7% | | | | | | |

资料来源: HTI

For full disclosure of risks, valuation methodologies and target price formation on all HTI rated stocks, please refer to the latest full report on our website at equities.htisec.com

终局：敏感性分析显示核心在于估值中枢，业绩稳健快速增长。

| | | | |
|----------------|--------|----------|------|
| 美元, 亿 | 2025 | | 2030 |
| 生物药市场 | 5400 | 疫苗市场 | 1115 |
| 外包率 | 30-40% | 外包率 | 15% |
| 全球生物药CDMO (收入) | 280 | 疫苗CDMO | 167 |
| 药明生物市占率 | 20% | 药明生物市占率 | 15% |
| 药明生物收入 | 56 | 药明生物收入 | 25 |
| 净利率 | 30% | 净利率 | 30% |
| 净利润 | 16.8 | 净利润 | 8 |
| PE | 30 | PE | 20 |
| 市值 (USD) | 504 | 市值 (USD) | 151 |
| 汇率 | 6.4 | 汇率 | 6.4 |
| 市值 (RMB) | 3226 | 市值 (RMB) | 963 |
| | | | |
| WACC | 8% | | 8% |
| N | 4 | | 8 |
| | | | |
| 市值 (RMB) | 2371 | | 520 |
| | | | 2891 |

资料来源: HTI

For full disclosure of risks, valuation methodologies and target price formation on all HTI rated stocks, please refer to the latest full report on our website at equities.htisec.com

Appendix 1

| RMB mn | FY20A | FY21E | FY22E | FY23E | FY24E | FY25E | FY26E | FY27E | FY28E | FY29E | FY30E | FY31E |
|-----------------------------------|---------|---------|---------|-----------------|---------|---------|---------|---------|---------|---------|---------|----------|
| (fraction of year to next FY end) | | | | | | | | | | | | |
| Sales | 5,612 | 10,290 | 14,829 | 20,465 | 27,700 | 34,769 | 43,199 | 49,255 | 55,498 | 61,534 | 67,566 | 73,599 |
| ... Growth | -80% | 795% | 55% | 46% | 48% | 34% | 27% | 26% | 18% | 16% | 15% | 0% |
| Gross Profit | 2,533 | 4,829 | 6,747 | 9,618 | 13,019 | 16,341 | 20,303 | 23,150 | 26,084 | 28,921 | 31,756 | 34,592 |
| ... GP Margin | 45% | 47% | 46% | 47% | 47% | 47% | 47% | 47% | 47% | 47% | 47% | 47% |
| SG&A | (910) | (1,502) | (2,137) | (2,949) | (3,992) | (5,011) | (6,226) | (7,099) | (7,999) | (8,869) | (9,738) | (10,607) |
| ... SG&A Margin | 16% | 15% | 14% | 14% | 14% | 14% | 14% | 14% | 14% | 14% | 14% | 14% |
| Depreciation & Amortisation | 459 | 703 | 1143 | 1833 | 2563 | 2662 | 2650 | 2585 | 2527 | 2474 | 2427 | 2384 |
| EBIT | 1982 | 3959 | 4960 | 7019 | 9377 | 11680 | 14427 | 16401 | 18435 | 20402 | 22367 | 24332 |
| Add: Amortisation | - | - | - | - | - | - | - | - | - | - | 1 | 2 |
| EBITA | 1982 | 3959 | 4960 | 7019 | 9377 | 11680 | 14427 | 16401 | 18435 | 20402 | 22368 | 24334 |
| ... Margin | 35% | 38% | 33% | 34% | 34% | 34% | 33% | 33% | 33% | 33% | 33% | 33% |
| ... Growth | 92% | 65% | 67% | 91% | 31% | 45% | 35% | 20% | 19% | 11% | 10% | 9% |
| Add: Depreciation | 459 | 703 | 1,143 | 1,833 | 2,563 | 2,662 | 2,650 | 2,585 | 2,527 | 2,474 | 2,427 | 2,384 |
| EBITDA | 2,441 | 4,662 | 6,103 | 8,852 | 11,939 | 14,342 | 17,078 | 18,986 | 20,962 | 22,876 | 24,795 | 26,718 |
| ... Margin | 43% | 45% | 41% | 43% | 43% | 41% | 40% | 39% | 38% | 37% | 37% | 36% |
| Less: Tax | (273) | (485) | (602) | (852) | (1,138) | (1,417) | (1,751) | (1,990) | (2,237) | (2,476) | (2,714) | (2,953) |
| Less: Minority Interests | - | - | - | - | - | - | - | - | - | - | 1 | 2 |
| Less: Increase of Working Capital | (445) | 40 | 880 | (894) | (1,011) | (988) | (1,178) | (847) | (873) | (844) | (843) | (843) |
| Less: Capex | (6,025) | (6,500) | (5,000) | (5,000) | (4,000) | (3,000) | (2,000) | (2,000) | (2,000) | (2,000) | (2,000) | (2,000) |
| ... Capex:Depreciation | 13.1x | 9.2x | 4.4x | 2.7x | 1.6x | 1.1x | 0.8x | 0.8x | 0.8x | 0.8x | 0.8x | 0.8x |
| Less: Acquisitions | | | | | | | | | | | | |
| Free Cash Flow | -4,302 | -2,283 | 1,382 | 2,106 | 5,790 | 8,936 | 12,149 | 14,150 | 15,853 | 17,557 | 19,238 | 20,924 |
| ... FCF Growth | -47% | -161% | 52% | 175% | 54% | 36% | 16% | 12% | 11% | 10% | 9% | 9% |
| PV of FCF | -4,794 | -2,340 | 1,303 | 1,827 | 4,621 | 6,560 | 8,204 | 8,790 | 9,059 | 9,230 | 9,304 | 9,309 |
| WACC | | | | | | | | | | | | |
| Risk Free Rate | 3.0% | | | | | | | | | | | |
| Market Risk Premium | 9.0% | | | | | | | | | | | |
| Equity Beta | 0.82 | | | | | | | | | | | |
| Cost of Equity | 10.4% | | | | | | | | | | | |
| Cost of Debt (Pre-tax) | 6.0% | | | | | | | | | | | |
| Cost of Debt (After tax) | 4.8% | | | | | | | | | | | |
| Target Debt weight | 30.0% | | | | | | | | | | | |
| Target Equity weight | 70.0% | | | | | | | | | | | |
| Tax Rate | 20.0% | | | | | | | | | | | 1.12 |
| WACC | 8.7% | | | Terminal Growth | 5.0% | | | | | | | \$103.56 |

盈利预测及估值建议: 我们预计公司 22-23 年收入分别为 148.29 亿 (此前预测为 149.24 亿人民币) 和 204.65 亿 (此前为 205.95), 主要由临床后期及 CMO 管线及新冠订单驱动。考虑全球 CXO 仍高景气阶段, 龙头公司均在加速布局产能, 我们看好公司通过 “follow/win the molecule” 策略及广泛技术平台布局, 抢占生物药 CDMO 全球市场, 保持高速增长。根据 DCF 模型, 假设 wacc 值为 8.70%, 永续增长率为 5.0%, 我们给予公司目标价 103.56 港币, 对应 22-23 年 PE 为 76 倍和 56 倍 (此前目标价为 106.50 港币), 并维持 “优于大市” 评级。

Appendix 2

| Income Statement | | | | | Balance Sheet | | | | | Cash Flow Statement | | | | | Ratio Analysis | | | | |
|---------------------------------------|-------|--------|--------|--------|-------------------------------------|--------|--------|--------|--------|---|---------|---------|---------|---------|------------------------------------|--------|--------|--------|--------|
| (RMB mn except otherwise indicated) | | | | | (RMB mn except otherwise indicated) | | | | | (RMB mn except otherwise indicated) | | | | | | | | | |
| | 2020A | 2021A | 2022E | 2023A | | 2020A | 2021A | 2022E | 2023A | | 2020A | 2021A | 2022E | 2023A | | 2020A | 2021A | 2022E | 2023A |
| Revenue (net of business tax) | 5,612 | 10,290 | 14,829 | 20,465 | Assets | | | | | Operating activities | | | | | Valuation | | | | |
| YoY growth | 40.9% | 83.3% | 44.1% | 38.0% | Cash and cash equivalents | 7,096 | 9,003 | 15,186 | 17,491 | Profit before taxes | 1,939 | 3,920 | 4,948 | 7,008 | P/E (x) | 103.4 | 65.6 | 46.7 | 34.2 |
| COGS | 3,079 | 5,461 | 8,082 | 10,846 | Pledged deposits | | | | | Depreciation and amortization | 459 | 703 | 1,143 | 1,833 | P/B (X) | 8.6 | 5.5 | 4.8 | 4.1 |
| Gross profit | 2,533 | 4,829 | 6,747 | 9,618 | Bill and trade receivables | 3,242 | 4,857 | 5,836 | 8,054 | Net profit/loss on asset sales | | | | | EV/EBITDA (X) | -1.7 | -1.3 | -2.1 | -1.7 |
| YoY growth | 52.7% | 90.6% | 39.7% | 42.5% | Inventories | 1,084 | 1,687 | 886 | 1,189 | Increase/decrease in working capital | 445 | (40) | (880) | 894 | Dividend yield(%) | 0.0 | 0.0 | 0.0 | 0.0 |
| Gross profit margin | 45.1% | 46.9% | 45.5% | 47.0% | Other receivables | - | - | 100 | 100 | Other operating cash flow items | (1,070) | (366) | 7,896 | (1,147) | FCF yield (%) | 4.6 | 3.2 | 3.9 | 2.1 |
| | | | | | Other current assets | 2,782 | 3,981 | - | - | Net CF flow from operating activities | 1,773 | 4,218 | 13,107 | 8,588 | Profitability | | | | |
| SG&A expenses | 910 | 1,502 | 2,137 | 2,949 | Total current assets | 14,204 | 19,529 | 22,008 | 26,834 | Investing activities | | | | | Gross margin (%) | 45% | 47% | 46% | 47% |
| R&D expenses | - | - | - | - | Net PP&E (including AUC) | 11,996 | 18,065 | 20,661 | 23,828 | Capital expenditure | (6,025) | (6,500) | (5,000) | (5,000) | EBIT margin (%) | 35% | 38% | 33% | 34% |
| Other operating income/loss | - | - | - | - | Net intangibles | 392 | 601 | 601 | 601 | Acquisition/divestiture | | | | | Net margin -adj (%) | 31% | 32% | 31% | 31% |
| EBITDA | 2,441 | 4,862 | 6,103 | 8,852 | Equity investments | | | | | Proceeds from disposal of assets | | | | | SG&A/revenue (%) | -16% | -15% | -14% | -14% |
| YoY growth | 67.3% | 91.0% | 30.9% | 45.0% | Investments in securities or other | | | | | Other investment cash flow items | | | | | ROE (%) | 8% | 10% | 13% | 15% |
| EBITDA margin | 43.5% | 45.3% | 41.2% | 43.3% | Total investments | | | | | Net CF flow from investing activities | (7,216) | (7,783) | (6,283) | (6,283) | ROA (%) | 6% | 8% | 9% | 11% |
| Depreciation | 459 | 703 | 1,143 | 1,833 | LT deferred tax assets | 80 | 221 | 221 | 221 | Financing | | | | | Liquidity & Leverage | | | | |
| Amortization | | | | | LT trade and bills receivables | | | | | Dividends paid | - | - | - | - | Current Ratio (X) | 316% | 237% | 236% | 245% |
| EBIT | 1,982 | 3,959 | 4,960 | 7,019 | Other long term assets | 109 | 135 | 135 | 135 | Share repurchase/issue | | | | | Quick Ratio (X) | 292% | 216% | 227% | 234% |
| YoY growth | 72.4% | 99.8% | 25.3% | 41.5% | Total assets | 28,964 | 44,032 | 49,106 | 57,099 | Increase/decrease in debt/notes payable | | | | | Net debt/equity (%) | -2191% | -2054% | -3642% | -3639% |
| EBIT margin | 35.3% | 38.5% | 33.4% | 34.3% | Liabilities | | | | | Change in minority interests | | | | | Total debt/equity (%) | 1259% | 736% | 469% | 400% |
| Interest income | 43 | 39 | 10 | 10 | Accounts payable | 2,729 | 3,698 | 4,755 | 6,382 | Other financing cash flow items | 1,210 | 158 | (641) | - | Total liabilities/total assets (%) | 2784% | 2572% | 2391% | 2342% |
| Interest expense | 43 | 39 | 12 | 11 | Short-term debt | 752 | 1,734 | 1,734 | 1,734 | Net CF flow from financing activities | 1,210 | 158 | (641) | - | EBIT interest coverage ration (x) | 4638% | 10102% | 40621% | 66157% |
| Profit/loss from associates | | | | | Other current liabilities | 1,018 | 2,824 | 2,824 | 2,824 | Efficiency | | | | | Inventory days | 87.9 | 92.6 | 58.1 | 34.9 |
| Profit/loss from acquisition/disposal | | | | | Total current liabilities | 4,498 | 8,256 | 9,313 | 10,940 | A/R days | 161.9 | 143.6 | 131.6 | 123.9 | A/P days | 172.7 | 214.8 | 190.9 | 187.4 |
| Other non-operating income/loss | | | | | Long-term debt | 1,838 | 641 | - | - | | | | | | | | | | |
| Pretax income | 1,939 | 3,920 | 4,948 | 7,008 | LT trade and bills payable | | | | | Total cash flow | (4,234) | (3,408) | 6,183 | 2,305 | | | | | |
| YoY growth | 71.6% | 102.2% | 26.2% | 41.6% | Deferred tax liabilities | 181 | 124 | 124 | 124 | | | | | | | | | | |
| PBT margin | 34.6% | 38.1% | 33.4% | 34.2% | Other LT liabilities | 1,547 | 2,306 | 2,306 | 2,306 | | | | | | | | | | |
| Income tax | 273 | 485 | 602 | 852 | Total non-current liabilities | 3,566 | 3,071 | 2,430 | 2,430 | | | | | | | | | | |
| Effective tax rate | 14.1% | 12.4% | 12.2% | 12.2% | Total liabilities | 8,064 | 11,326 | 11,743 | 13,370 | | | | | | | | | | |
| Minority interest (I/S item) | 4 | 120 | - | - | Common shareholders' equity | | | | | | | | | | | | | | |
| Net income, pre-exceptionals | 1,662 | 3,315 | 4,346 | 6,157 | Reserves | 20,564 | 32,278 | 36,935 | 43,301 | | | | | | | | | | |
| YoY growth | 63.5% | 99.4% | 31.1% | 41.7% | Common shareholders' equity | 20,564 | 32,279 | 36,935 | 43,302 | | | | | | | | | | |
| Net margin | 29.6% | 32.2% | 29.3% | 30.1% | Minority interests | 335 | 428 | 428 | 428 | | | | | | | | | | |
| Post-exceptional items - gain/(loss) | | | | | Total liabilities and equity | 28,964 | 44,033 | 49,106 | 57,099 | | | | | | | | | | |
| Net income, post-exceptionals | 1,712 | 3,316 | 4,656 | 6,367 | | | | | | | | | | | | | | | |
| YoY growth | 41.8% | 93.7% | 40.4% | 36.7% | | | | | | | | | | | | | | | |
| Net margin | 30.5% | 32.2% | 31.4% | 31.1% | | | | | | | | | | | | | | | |

Source: Company Data, HTI estimates

Appendix 3

Since the Haitong Health Care team released the industry's first CXO report in 2012, it has released a number of industry and company in-depth reports. In the past, we have witnessed WuXi Biologics' superior execution and industrial boom, and have grown into one of the most influential biopharmaceutical CRDMOs in the world. This year, with the U.S. Department of Commerce's UVL (unverified list) reflecting a tug-of-war, whether the global production capacity in the biopharmaceutical market is fully in demand, and whether the growth rate of CRDMO is facing a slowdown, we hope to answer the following questions in this report:

Past: The global CXO industry has been booming in the past five years. The stock prices of Lonza, Samsung Biologics, WuXi Biologics and other companies represented by biopharmaceutical CDMO have exploded. What are the reasons that WuXi Biologics has created 17X stock price performance in the past 4 years?

Industry: Comparison of space capacity of global biopharmaceutical CDMO industry? Global production capacity is expected to double in 3 years. Will there be excess production capacity and price competition?

Future: What kind of drivers does WuXi Biologics need to drive the company's CAGR 40/30% growth over the next 3 years (FY22-24)? How to look at the driving force of the company's growth from the perspective of varieties, sectors, and technologies?

Risk: In the current wave of "de-globalization", is WuXi Biologics' business resilient and irreplaceable for overseas expansion?

重要信息披露

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弱于大市，未来12-18个月内预期相对基准指数跌幅在10%以上，基准定义如下

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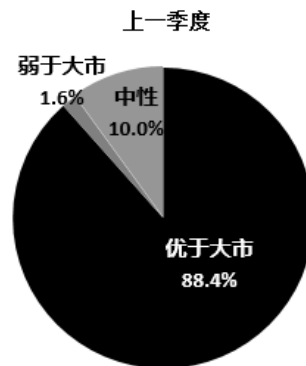
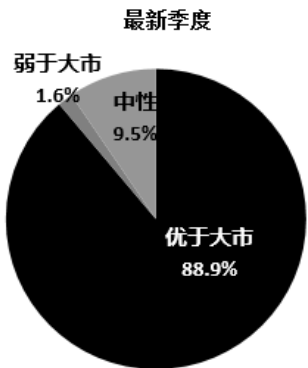
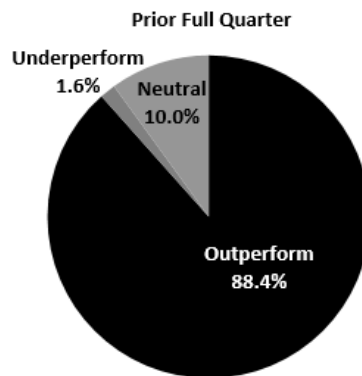
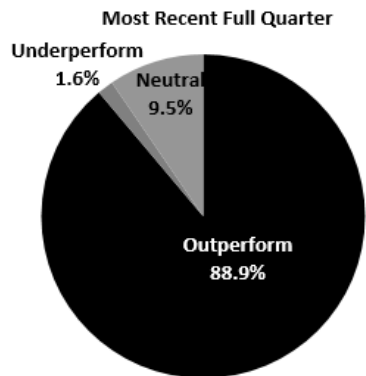
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评级分布 Rating Distribution



截至2022年3月31日海通国际股票研究评级分布

| | 优于大市 | 中性 (持有) | 弱于大市 |
|-------------|-------|------------|------|
| 海通国际股票研究覆盖率 | 88.9% | 9.5% | 1.6% |
| 投资银行客户* | 6.8% | 5.8% | 0.0% |

*在每个评级类别里投资银行客户所占的百分比。

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卖出，未来12-18个月内预期相对基准指数跌幅在10%以上，基准定义如下

各地股票基准指数：日本 – TOPIX, 韩国 – KOSPI, 台湾 – TAIEX, 印度 – Nifty100; 其他所有中国概念股 – MSCI China.

Haitong International Equity Research Ratings Distribution, as of Mar 31, 2022

| | Outperform | Neutral (hold) | Underperform |
|------------------------------|------------|-------------------|--------------|
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*Percentage of investment banking clients in each rating category.

BUY, Neutral, and SELL in the above distribution correspond to our current ratings of Outperform, Neutral, and Underperform.

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For purposes only of FINRA/NYSE ratings distribution rules, our Neutral rating falls into a hold rating category.

SELL: The stock's total return over the next 12-18 months is expected to be below the return of its relevant broad market benchmark, as indicated below.

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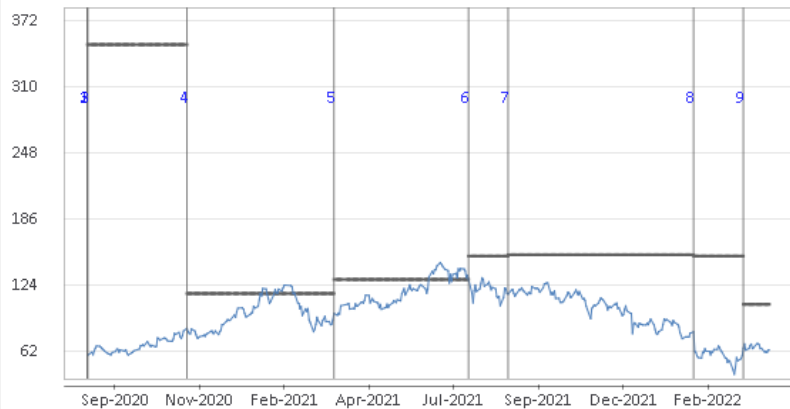
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Wuxi Biologics Cayman - 2269 HK



1. 20 Aug 2019 OUTPERFORM at 249.0 target 286.35.
 2. 17 Oct 2019 OUTPERFORM at 246.45000000000002 target 286.35.
 3. 29 Mar 2020 OUTPERFORM at 300.0 target 349.89.
 4. 28 Mar 2021 OUTPERFORM at 98.0 target 129.8.
 5. 23 Jul 2021 OUTPERFORM at 131.8 target 151.68.
 6. 27 Aug 2021 OUTPERFORM at 121.7 target 152.96.
 7. 7 Feb 2022 OUTPERFORM at 116.0 target 151.69.
 8. 23 Mar 2022 OUTPERFORM at 65.3 target 106.5.
- 3-for-1 split implemented on 16 Nov 2020

Source: Company data Bloomberg, HTI estimates