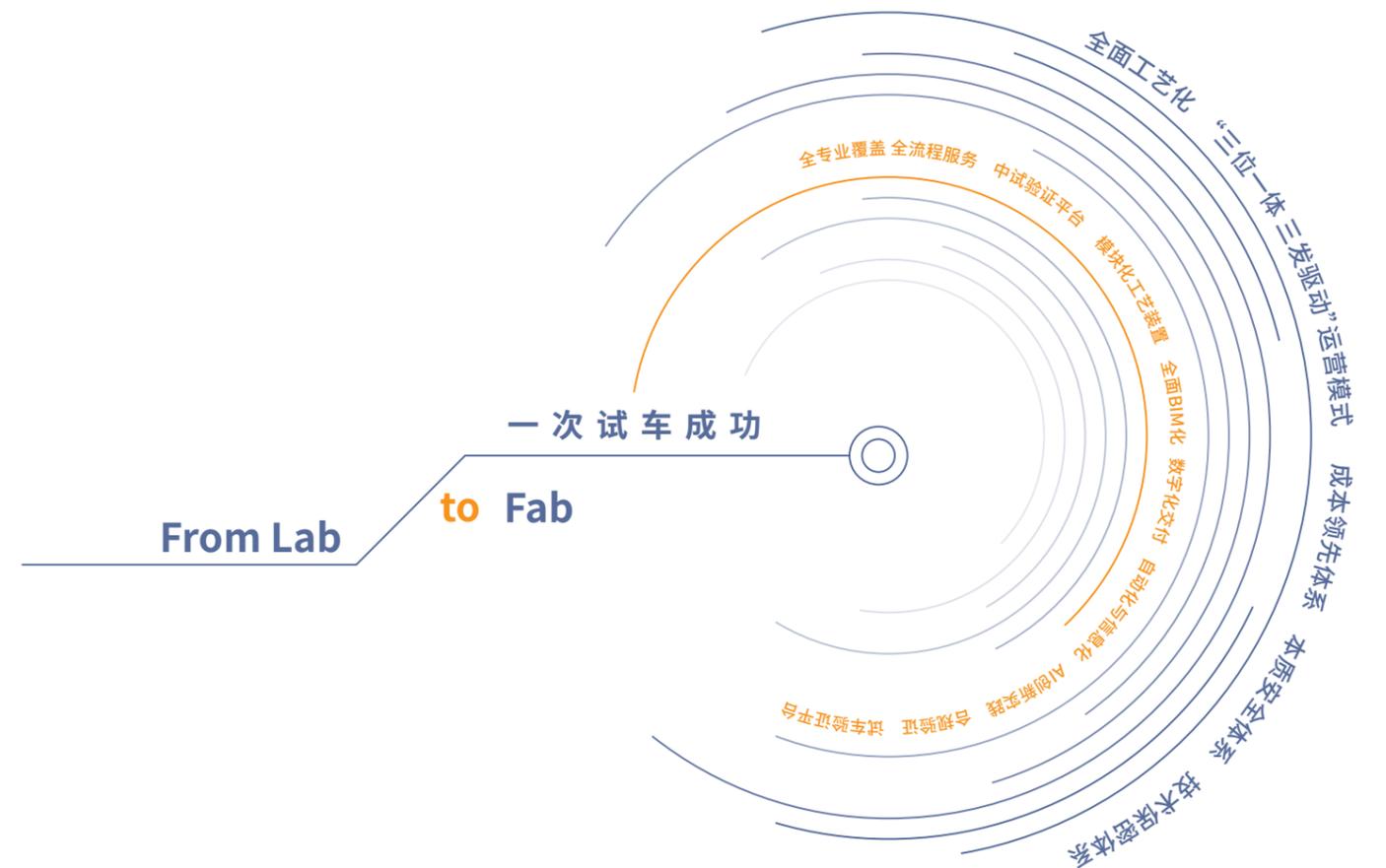


合成生物学产业化 全流程服务

FULL-PROCESS SERVICE FOR
INDUSTRIALIZATION OF SYNTHETIC BIOLOGY



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TIANS GROUP
BUILDING A, TIANSHAN SCIENCE AND TECHNOLOGY INDUSTRIAL
PARK, NO. 530, YUHUA EAST ROAD, SHIJIAZHUANG, HEBEI, CHINA

天俱时集团
中国·河北·石家庄市裕华东路530号天山科技工业园A座
400-082-6116

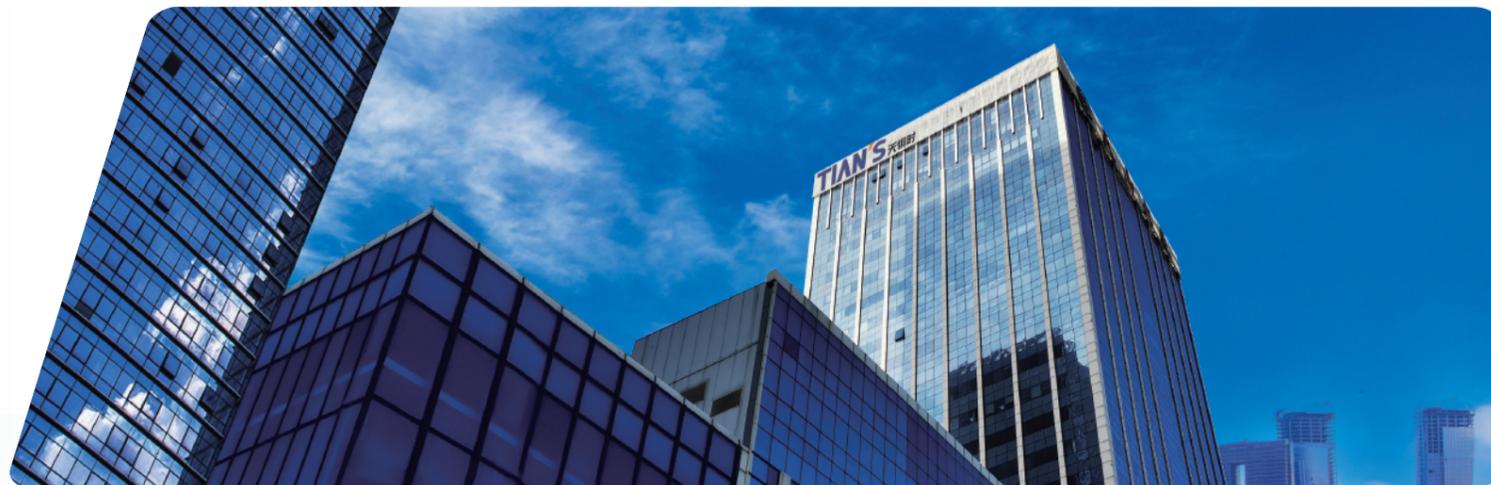
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TIAN'S 天俱时

01

合成生物学产业化 全流程服务

FULL-PROCESS SERVICE FOR INDUSTRIALIZATION OF SYNTHETIC BIOLOGY



天俱时集团 TIANS Group

天俱时集团是赋能新技术产业化的工程设计集团，以“天俱时模式”重新定义工程交付标准。我们以“Tech the Future”为品牌理念，提供集技术研发、工程咨询与设计、工程总承包、智能装备、自动化与信息化于一体的综合解决方案，精准助力客户实现从实验室到工厂 (From Lab to Fab) 的产业化飞跃。业务深度聚焦精细化工、含氟精细化学品、电子化学品、电子特气、合成生物、生物发酵、生物医药、化学制药、食品健康等前沿高科技领域。

TIANS Group is an **engineering design group empowering industrialization of new technologies**, redefining engineering delivery standards through its **"TIANS Model"**. With the brand philosophy of "Tech the Future", we provide integrated solutions encompassing technology R&D, engineering consulting & design, EPC contracting, intelligent equipment, automation and digitalization, precisely assisting clients in achieving industrial leaps From Lab to Fab. Our business focuses on cutting-edge high-tech sectors including fine chemicals, fluorine-containing fine chemicals, electronic chemicals, electronic specialty gases, synthetic biology, bio-fermentation, bio-pharmaceuticals, chemical pharmaceuticals, and food health.



全流程服务 Comprehensive Lifecycle Service



02

合成生物学产业化 全专业能力

FULL PROFESSIONAL CAPABILITIES IN
THE INDUSTRIALIZATION OF SYN BIO



工艺技术服务
Process Technology
Services



工程咨询与设计
Engineering Consulting
& Design



工程施工与试生产
Engineering Construction
& Commissioning



自动化与信息化
Automation & Informa-
tization



智能装备
Intelligent Equipment

工艺技术服务 / Process Technology Services

工艺包的定制与开发
Process Package Customization
& Development

全流程工艺优化
Full-Process Process
Optimization



关键设备
精准选型
Precision
Selection of
Key Equipment

产品选型和园区选址
Product Selection & Site
Selection for Industrial Parks

工艺技术培训
Process Technology
Training



全面工艺化的人才体系
Process-Oriented Talent
System

天俱时拥有10余位科学家, 60余位行业咨询与规划专家, 400余位工艺技术、工程设计及生产管理专家。以深厚的技术积淀和对工艺本质的深刻理解, 为客户提供技术成熟、品质稳定、成本可控、安全高效的全方位工艺解决方案。

TIANS with a team of 10+ scientists, 60+ industry consulting and planning experts, and 400+ professionals in process technology, engineering design, and production management. Leveraging profound technical expertise and a deep understanding of process fundamentals, we deliver comprehensive process solutions that are technically mature, quality-stable, cost-controllable, safe, and efficient.



中试平台
Pilot Platform

天俱时拥有生物发酵、连续流等十余类专业中试线, 基于50余个项目实战数据, 构建起覆盖“工艺、设备、成本、可靠性、安全、人才”六大维度的工程验证闭环体系, 助力项目上市时间平均缩短6-12个月, 显著提升产业化成功率。

TIANS with 10+ categories of specialized pilot lines, including biological fermentation and continuous flow. Based on practical data from 50+ projects, we have built an engineering verification closed-loop system covering six dimensions: "Process, Equipment, Cost, Reliability, Safety, and Talent". This system helps shorten the time-to-market by an average of 6-12 months and significantly improves the success rate of industrialization.

工程咨询与设计 Engineering Consulting & Design

项目咨询服务
Project Consulting Services

- 产品策划及市场分析 Product Planning & Market Analysis
- 项目可行性分析 Project Feasibility Analysis
- 投资概算 Investment Budgeting

项目设计服务
Project Design Services

- 概念设计 CD Conceptual Design (CD)
- 基础设计 BD Basic Design (BD)
- 初步设计 PD Preliminary Design (PD)
- 详细设计 DD Detailed Design (DD)
- BIM设计 BIM Design
- 全过程数字化管理 Full-Process Digital Management

1 无菌保证理念

Aseptic Assurance Philosophy

将“零染菌”作为核心目标融入整体方案,通过体系化的设计规范与关键技术控制,从源头构建无菌生产的坚固防线。

- 工艺专家引领,以“一次试车成功”目标导向。
- 执行高标无菌管道规范,首创二维码追溯系统。
- 专业配置,优化核心程序,实现精准控制。
- 严控关键风险,通过验证与培训落实全过程无菌操作。

Embed the core goal of "Zero Contamination" into the overall solution, building a solid aseptic production defense from the source through systematic design specifications and critical technical controls.

- Guided by process experts, we are goal-oriented towards "One-time Successful Trial Run".
- We implement high-standard sterile piping specifications and pioneer a QR code traceability system.
- With professional configuration, we optimize core processes to achieve precision control.
- We strictly manage critical risks and ensure aseptic operation throughout the entire process through validation and training.

2 用工艺智慧优化全生命周期成本

Optimizing Lifecycle Costs with Process Intelligence

推行全生命周期成本管控,在可行性研究阶段即开展多方案技术与经济比选,锁定最优投资路径。

通过厂区集约化布局、工艺流程再造、智能化升级与设备精准选型等,从源头固化成本、提升效率。

Implement full lifecycle cost control, conducting technical and economic comparisons of multiple solutions during the feasibility study stage to lock in the optimal investment path. During the design phase, solidify costs and improve efficiency from the source through intensive plant layout, process re-engineering, intelligent upgrades, and precise equipment selection.

20%–30%

物料流转距离缩短

reduction in material handling distance

25%–40%

用工成本减少

reduction in labor costs

15%–20%

运行能耗降低

reduction in operational energy consumption

3 柔性化多功能发酵平台设计

Flexible Multi-Functional Fermentation Platform Design

通过模块化设计、高度集成的自动化与数字化控制体系,实现跨产品、多工艺的快速切换与高效适配。

Through modular design and a highly integrated automation and digital control system, we enable rapid switching and efficient adaptation across products and processes.

工程施工与试生产 Engineering Construction & Commissioning

涵盖建筑、设备、管道、结构、电气仪表、防腐绝热、弱电工程等全专业施工覆盖

Full-professional construction coverage, including architecture, equipment, piping, structure, electrical and instrumentation, anti-corrosion and insulation, and weak current engineering

设备选型及优化配置

Equipment selection and optimized configuration

空培验证

Air Cultivation Validation

全专业二次优化设计

Full-professional secondary optimization design

试生产

Trial production

100+

百余个项目一次试车成功

Over 100 Projects with One-time Successful Trial Run

天俱时汇聚50余位具备深厚工艺与生产实践经验的专家,将专业经验深度嵌入工艺优化、设计、采购、施工及试车全生命周期。通过前置化风险识别与标准化流程管控,大幅缩短试车周期,确保“一次试车成功”,助推项目快速投产达产。

TIANS with over 50 experts with profound process and production experience, integrating professional expertise throughout the entire lifecycle of process optimization, design, procurement, construction, and commissioning. Through proactive risk identification and standardized process control, we significantly shorten the commissioning period, ensure "One-time Successful Trial Run", and accelerate project production and capacity achievement.

“0”

零染菌施工方案

Zero Contamination Construction Solution

通过精确复核管道与阀门内径、内窥镜焊缝检查与记录、焊口质量追溯扫码及首创二维码数字化管控,全程保障洁净施工环境,杜绝染菌风险。

Through precise verification of pipe and valve internal diameters, endoscopic weld inspection and recording, weld quality traceability coding, and our pioneering QR code digital management, we guarantee a clean construction environment throughout the process and eliminate contamination risks.

自动化与信息化 Automation & Informatization



**数字化工厂
咨询、规划、设计**
Digital factory consulting, planning, and design



**生物发酵全流程
自动化控制**
Full-process automation control for biological fermentation



**分离纯化过程
自动化控制**
Automation control for separation and purification processes



**轻量化
MES系统**
Lightweight MES system



**发酵工厂数字化
管理平台**
Digital management platform for fermentation plants



**能源管理
与节能控制**
Energy management and energy-saving control

生物发酵工厂自动化与信息化整体规划



智能装备 Intelligent Equipment



智能瞬时连消机 Intelligent Instantaneous Sterilizing Equipment

- 天俱时智能瞬时连消系统全国销量第一^{*}, 并荣获“国内领先水平”权威认证。
- 无菌率99.99%, 蒸汽节约70%, 平均10个月回收成本。
- 广泛应用于新材料、生物制药、食品饮料等行业的液体物料灭菌及活性物质的灭活。

99.99%
无菌率
Sterility Rate

70%
蒸汽节约
Steam Savings

10
平均10个月回收成本
Average Payback Period of 10 Months

- TIAN'S Intelligent Instantaneous Sterilization System with No.1 sales volume in China, certified as "Domestically Leading Level".
- 99.9% sterility rate, 70% steam savings, and average payback period of 10 months.
- Widely applied in liquid material sterilization and active substance inactivation across new materials, bio-pharmaceuticals, food and beverage industries.



^{*}数据来源: 弗若斯特沙利文, 统计时间: 2024年。

03

合成生物学产业化
技术实力

SCIENTIFIC AND TECHNOLOGICAL TALENTS

王京
Wang Jing

国内知名化工医药技术专家
天俱时集团首席科学家
正高级工程师
注册化工工程师
国家科学技术奖评审专家
天俱时科技委员会名誉主席

Domestic Famous Expert in Chemical Pharmaceutical Technology
Chief Scientist of TIANS
Professor of Engineering
Registered Chemical Engineer
National Science and Technology Award Evaluation Expert
Honorary Chairman of TIANS Science and Technology Committee

吴少华
Wesley Wu

国内知名工程设计专家
天俱时集团首席设计师
正高级工程师
注册咨询/化工/动力工程师
中国勘察设计协会专家
中国医药工程设计协会专家委员会专家
天俱时科技委员会副主席

Domestic Famous Expert in Engineering Design Expert
Chief Designer of TIANS
Professor of Engineering
Registered Consulting/Chemical/Power Engineer
Expert Of China Survey and Design Association
Expert Committee of China Medical Engineering Design Association
Subchairman of TIANS Science and Technology Committee

陈平博士
Dr.Champion Chen

国内知名绿色制造与产业化技术专家
天俱时集团首席技术官
正高级工程师
国家环境保护制药废水污染控制工程技术中心委员会委员
天俱时科技委员会副主席

Domestic Famous Expert in green Manufacturing and Industrialization Technology
Chief Technology Officer of TIANS
Professor of Engineering
Member of The Committee of National Engineering and Technology Center for Environmental Protection and Pharmaceutical Waste Water Pollution Control
Subchairman of TIANS Science and Technology Committee

马忠青
Early Ma

国内知名工艺技术与工程化专家
天俱时集团首席工程师
正高级工程师
注册设备工程师
天俱时科技委员会委员

Domestic Famous Expert in Process in Technology and Engineering
Chief Technology Officer of Chemical and Pharmaceutical of TIANS
Professor of Engineering
Registered Equipment Engineer
TIANS Science and Technology Committee Member

田林升
Tian Linsheng

国内知名发酵染菌控制技术专家
高级工程师
天俱时科技委员会委员

Domestic Famous Expert in Controlling Fermentation & Contamination Technology
Senior Engineer
TIANS Science and Technology Committee Member

张振昌
Zhang Zhenchang

国内知名医药健康咨询与规划专家
高级工程师
中国生物发酵产业协会常务理事
天俱时科技委员会委员

Domestic Famous Expert in Pharmaceutical and Health Consultation and Planning
Senior Engineer
Executive Director of China Biotech Fermentation Industry Association
TIANS Science and Technology Committee Member

温同礼
Wen Tongli

国内知名发酵工艺技术专家
正高级工程师
中国化工学会生物化工专业委员会委员
国务院特殊津贴专家
天俱时科技委员会委员

Domestic Famous Expert in Fermentation Process Technology
Professor of Engineering
Member of the Biochemical Engineering Professional Committee of the Chinese Chemical Society
State Council Special Allowance Expert
TIANS Science and Technology Committee Member

杨利国
Sunny Yang

国内知名合成生物工艺设计专家
高级工程师
注册化工、咨询工程师

Domestic Famous Expert in Synthetic Biology Process Design
Senior Engineer
Registered Chemical and Consulting Engineer

刘国清
Liu Guoqing

国内知名合成生物项目建设管理专家
高级工程师
天俱时科技委员会委员

Domestic Famous Expert in Synthetic Biology Project Construction Management
Senior Engineer
TIANS Science and Technology Committee Member

岳宗礼
Milo Yue

国内知名自动化与信息化技术专家
高级工程师
制药智能制造产业联盟创始副会长
中国医药设备工程协会专家委员会委员
天俱时科技委员会委员

Domestic Famous Expert in Automation and Informatization technology
Senior Engineer
Founding Vice President of Pharmaceutical Intelligent Manufacturing Industry Alliance
Member of the Expert Committee of China Medical Equipment Engineering Association
TIANS Science and Technology Committee Member

曹云峰
Cao Yunfeng

国内知名生物发酵工艺技术专家
高级工程师
天俱时科技委员会委员

Domestic Famous Expert in Biological Fermentation Process Technology
Senior Engineer
TIANS Science and Technology Committee Member

潘厚昌
Pan Houchang

国内知名生物发酵工艺设计专家
研究员级高级工程师
注册化工工程师
中国工程咨询协会专家库专家
河北省工程勘察设计行业专家库专家

Domestic Famous Expert in Biological Fermentation Process Design
Researcher-level Senior Engineer
Registered Chemical Engineer
Expert of the Expert Database of China Engineering Consulting Association
Expert of the Expert Database of Hebei Provincial Engineering Survey and Design Industry

楼岳军
Lou Yuejun

国内知名生物发酵工艺技术专家
天俱时科技委员会委员

Domestic Famous Expert in Biological Fermentation Process Technology
TIANS Science and Technology Committee Member

资质与荣誉 Qualification and Honour

咨询与设计资质 Consulting and Design Qualification

- 化工石化医药行业工程设计甲级
Class A for engineering design in chemical, petrochemical and pharmaceutical industry
- 建筑行业工程设计建筑工程甲级
Class A for engineering design in construction industry (construction engineering)
- 工程咨询单位甲级资信
Class A for engineering consulting company
- 环境工程设计专项水污染防治工程甲级
Class A for environmental engineering design in special water pollution prevention and control project
- 环境工程(固体废物处理处置工程、大气污染防治工程)专项乙级
Class B for special environmental engineering (solid waste treatment and disposal engineering, air pollution prevention and treatment)
- 特种设备固定式压力容器设计
Design of fixed pressure vessel for special equipment
- 特种设备压力管道设计(GC1、GC2、GCD)
Pressure Pipeline Design (GC1, GC2, GCD) for Special Equipment
-

施工资质 Construction Qualification

- 机电工程施工总承包壹级
General contracting Level I for mechanical and electrical engineering construction
- 电子与智能化工程专业承包壹级
Professional contracting Level I for electronic and intelligent engineering
- 防水防腐保温工程专业承包壹级
Professional contracting Level I for waterproof and anti-corrosion insulation engineering
- 建筑工程施工总承包贰级
General contracting Level II for construction engineering
- 市政公用工程施工总承包贰级
General contracting Level II for municipal public works construction
- 环保工程专业承包贰级
Professional contracting Level II for environmental engineering
- 钢结构工程专业承包贰级
Professional contracting Level II for steel structure engineering
- 建筑装修装饰工程专业承包贰级
Professional contracting Level II for building furnishing and decoration engineering
- 消防设施工程专业承包贰级
Professional contracting Level II for fire fighting facilities engineering
- 电力工程施工总承包叁级
General contracting Level III for power engineering construction
- 输变电工程专业承包叁级
Professional contracting Level III for power transmission and transformation engineering
- 特种设备压力管道安装GC2级
Special equipment pressure pipe installation GC2
-

荣誉 Honour

- 国家级专精特新小巨人企业
National "Little Giant" SRDI Enterprise
- 国家高新技术企业
National High-Tech Enterprise
- 中国工程总承包营业额榜单前百强
National TOP 100 of EPC Turnover
- 国家知识产权优势企业
National Advanced Intellectual Property Enterprise
- 中国产学研合作示范基地
National Demonstration Enterprise for Industry-University-Research Cooperation and Innovation
- 中国医药设备工程协会(CPAPE)合成生物及生物制造专业委员会发起单位
Initiating Unit of the Synthetic Biology and Bio-Manufacturing Professional Committee of ChinaPharmaceutical Association of Plant Engineering(CPAPE)
-

知识产权 Intellectual Property

236 项 知识产权 Intellectual Property



179 项 授权专利 Licensed Patent

57 项 软件著作权/著作权 Software Copyright/Copyright



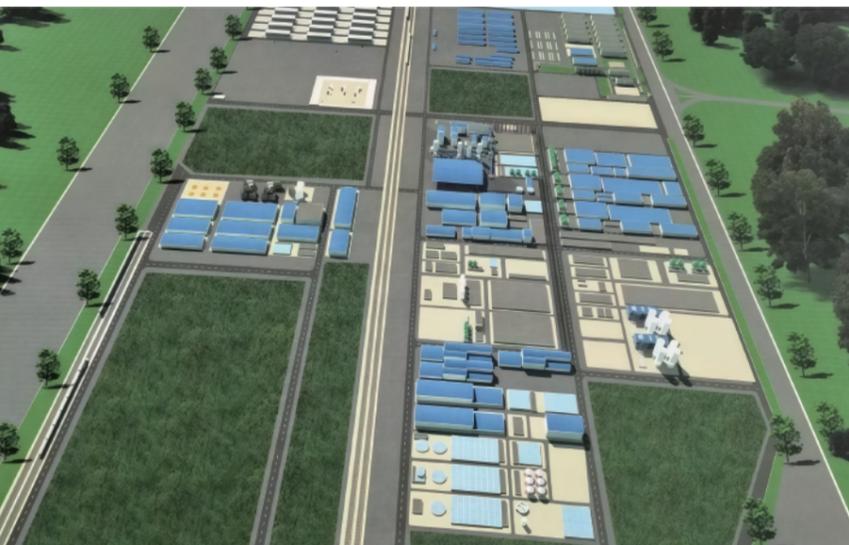
04

合成生物 典型案例

PROJECT REFERENCE

华恒生物科技有限公司(巴彦淖尔、秦皇岛、安徽)
氨基酸项目工程

Amino Acid Project of Huaheng Biological Technology Co.,
Ltd. (Bayannur, Qinhuangdao, Anhui Sites)



卓丰集团晟泰生物哈萨克斯坦
生物产业园项目
Shengtai Bio Kazakhstan Bio-Industrial Park
Project of Fufeng Group



科伦集团·伊犁川宁生物技术有限公司
万吨抗生素中间体项目
The antibiotic intermediate project of Kelun Group ·Yili Chuanning Biotechnology
Co.,Ltd.

可克达拉金海生物科技有限公司
60万吨玉米深加工项目
600,000-ton Corn Deep Processing Project of Kekeda-
la Jinhai Biotechnology Co., Ltd.



山西锦波生物医药股份有限公司
III型人源胶原蛋白工业化项目
Type III Human Collagen Industrialization
Project of Shanxi Jinbo Biomedical Co., Ltd.





**内蒙古溢多利生物科技有限公司
年产2万吨生物酶制剂技术创新与成果转化项目**
Inner Mongolia Yiduoli Biotechnology Co., Ltd. Annual production of 20000 tons of biological enzyme formulation technology innovation and achievement transformation project



**聚维元创(连云港)生物科技有限公司
新建5万吨年秸秆基生物合成产业化项目**
Juwei Yuanchuang (Lianyungang) Biotechnology Co., Ltd. is constructing a 50000 ton/year straw based biosynthesis industrialization project

**齐鲁制药(内蒙古)有限公司呼伦贝尔分公司
绿色生物农兽药项目**

Green biological agricultural and veterinary medicine poverty alleviation industrial project of Qilu Pharmaceutical (Inner Mongolia) Co.,Ltd.



山东晟利新材料科技有限公司长链二元酸项目
Long-chain Dicarboxylic Acid Project by Shandong Shengli New Materials Technology Co., Ltd.



**亨通(内蒙古)生物科技有限公司
小品种氨基酸产业基地项目**
Specialty Amino Acids Industrial Base of Hengtong (Inner Mongolia) Biotechnology Co., Ltd.



**联邦制药(内蒙古)有限公司
抗生素中间体项目第一至五期工程**
Antibiotic intermediate phase I to V project of United Laboratories (Inner Mongolia) Co., Ltd.

伊犁疆宁生物技术有限公司
绿色循环经济产业园项目
Green Circular Economy Industrial Park Project of
Yili Jiangning Biotechnology Co., Ltd.



赤峰制药股份有限公司
红山基地合成原料药整体规划及二期项目
Hongshan base overall planning and phase II project of
Chifeng Mengguang Biotechnology Co., Ltd.



黑龙江伊恒生物科技有限公司
年产万吨级关键技术新型酶制剂项目
Key-Technology Novel Enzyme Preparation Project
(10,000 T/Y Capacity) of Heilongjiang Yiheng
Biotechnology Co., Ltd.



新疆沂泓生物新材料科技有限公司
50万吨年农副产品深加工及综合利用项目一期工程
500000 tons of agricultural and sideline products deep
processing and comprehensive utilization project of Xinjiang
Yilihong Biological New Material Technology Co., Ltd.



内蒙古中牧生物药业有限公司
大环内酯类创新驱动产业链提升示范项目
Demonstration project of macrolide innovation-driven
industrial chain improvement of Inner Mongolia Zhongmu
Bio-pharmaceutical Co., Ltd.



山东鲁抗医药股份有限公司
循环人用合成原料药技术升级项目
Recycled human synthetic API technology upgrading
project of Shandong Lukang Pharmaceutical Co., Ltd.



南京同凯兆业生物技术有限责任公司
核苷酸项目

Nucleotide Project of Nanjing Tongkai Zhaoye
Biotechnology Co., Ltd.



凯赛生物材料有限公司(金乡, 乌苏, 太原)
新材料项目

New Materials Project of Cathay Biomaterials (Jinxiang,
Usu,taiyuan) Co., Ltd.



沈阳博泰生物制药有限公司
生物制药及医药中间体项目

Bio-pharmaceutical and pharmaceutical intermedi-
ates project of Shenyang Botai Biopharmaceutical
Co.,Ltd.



味丹国际(越南)股份有限公司氨基酸项目

Amino Acid Project of Vedan International (Vietnam) Co., Ltd.



安琪酶制剂(宜昌)有限公司酶制剂项目

Enzyme Preparation Project of Angel Enzyme
(Yichang) Co., Ltd.



天润和生物工程有限公司巨石527项目

Boulder 527 Project of Tianrunhe Biotechnology Co., Ltd.

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合作伙伴

CLIENTS

超越客户预期
EXCEED CLIENT EXPECTATIONS