中国长三角（江苏）—新加坡产业创新合作计划
第四轮合作项目联合征集共同申请表

4th Call for Proposals for Joint R&D and Innovation Projects Between Singapore and Jiangsu Companies Joint Application Form

注：双方必须用中英文**共同**填写此表格。

The form shall be filled out in Chinese and English by both sides.

1.项目基本信息 Basic information	
1.1 项目名称 Project Title	基于 AI 与多组学的癌症精准预后系统的联合开发 Joint Development of an AI and Multi-Omics-Based Precision Prognostic System for Cancer
1.2 项目摘要（不超过 300 字） Project Abstract（≤300 words）	本项目旨在联合开发基于人工智能（AI）与多组学数据的癌症精准预后系统，解决临床预后中的关键难题。核心研究内容为：利用深度学习技术对数字化病理图像进行特征提取，并融合临床信息、分子病理等多组学信息，构建高精度预测模型。项目聚焦于胃癌和乳腺癌两大高发癌种，包括：1）基于胃癌病理图像预测微卫星不稳定性状态，为免疫治疗和预后提供指导；2）预测乳腺癌术后复发与转移风险，实现风险分层管理；3）预测乳腺癌新辅助治疗的疗效，解决仅部分患者获益、缺乏高效无创预测工具的临床瓶颈。通过推动病理学的数字化与智能化转型，最终目标是形成具有临床实用价值的精准预后工具，为患者的个体化治疗决策提供科学依据，提升癌症诊疗水平 This project aims to co-develop a precision cancer prognosis system based on artificial intelligence (AI) and multi-omics data to address critical challenges in clinical prognosis. The core research involves utilizing deep learning techniques to extract features from digitized pathological images and integrating multi-omics information, including clinical data and molecular pathology, to construct high-accuracy predictive models. The project focuses on two major high-incidence cancers: gastric cancer and breast cancer. Specific objectives include: 1) predicting microsatellite instability (MSI) status based on gastric cancer pathological images to guide immunotherapy and prognosis; 2) predicting the risk of postoperative recurrence and metastasis in breast cancer to enable risk-stratified management; and 3) predicting the efficacy of neoadjuvant therapy for breast cancer, addressing the clinical bottleneck that only a subset of patients benefits and the lack of efficient non-invasive predictive tools. By advancing the digital and intelligent transformation of pathology, the ultimate goal is to develop a clinically practical precision prognosis tool that provides a scientific basis for personalized treatment decisions and improves the level of cancer diagnosis and treatment.
1.3 项目所属技术领域	生物医药领域

Technical Field			the biomedical domain		
1.4	双方牵头申报企业及参与单位名称 All Cooperation Participants	国别 Country	项目中作用 Roles	投入时间（人月） Implementation Time（person month）	预算（美元） Budget（USD）
	元码基因科技(苏州)有限公司 Geneis (Suzhou) Co., Ltd.	中国 China	样本收集、模型构建、测试，医疗器械证申报、国内市场销售 Sample collection, model construction, testing, medical device certification application, domestic market sales.	37.2	225,000
	安可侠人有限公司 Oncoshot Pte Ltd	新加坡 Singapore	样本收集，共同进行模型构建、测试和产品申报，国外市场销售 Sample collection, model construction, testing, medical device certification application, domestic market sales.	36	225,000
	预算合计（美元） Total Budget （USD）				

1.5 项目开始时间 Start Time	2025.11	项目结束时间 Finish Time	2028.10

2. 项目概要
Project Outline

2.1 项目内容描述（项目意义、技术水平、合作基础、实施条件、合作目标等）

Project Description (describe significance, technical level, cooperation basis, implementation conditions, overall aim, etc.)

本项目旨在联合开发基于人工智能（AI）与多组学数据的癌症精准预后系统，解决临床预后中的关键难题。核心研究内容为：利用深度学习技术对数字化病理图像进行特征提取，并融合临床信息、分子病理等多组学信息，构建高精度预测模型。项目聚焦于胃癌和乳腺癌两大高发癌种，包括：1）基于胃癌病理图像预测微卫星不稳定性状态，为免疫治疗和预后提供指导；2）预测乳腺癌术后复发与转移风险，实现风险分层管理；3）预测乳腺癌新辅助治疗的疗效，解决仅部分患者获益、缺乏高效无创预测工具的临床瓶颈

基础：目前，中方元码基因已针对结直肠癌患者开发基于病理图像及临床信息的 MSI 状态预测模型，软件系统已获中国食品药品检定研究院认定，并和多家医院合作开展临床试验中。针对胃癌和乳腺癌的研究，已和医科院肿瘤医院、中日友好医院建立合作，收集上百例患者信息，在做模型开发。

合作目标：通过推动病理学的数字化与智能化转型，最终目标是形成具有临床实用价值的精准预后工具，为患者的个体化治疗决策提供科学依据，提升癌症诊疗水平。

This project aims to collaboratively develop a precision cancer prognosis system based on artificial intelligence (AI) and

multi-omics data to address critical challenges in clinical prognosis. The core research involves leveraging deep learning techniques to extract features from digitized pathological images and integrating multi-omics information such as clinical data and molecular pathology to construct high-accuracy predictive models. The project focuses on two major high-incidence cancers: gastric cancer and breast cancer. Key components include: 1) predicting microsatellite instability (MSI) status based on gastric cancer pathological images to guide immunotherapy and prognosis assessment; 2) predicting the risk of postoperative recurrence and metastasis in breast cancer to enable risk-stratified management; and 3) predicting the efficacy of neoadjuvant therapy for breast cancer, addressing the clinical bottleneck that only a subset of patients benefits and the lack of efficient non-invasive predictive tools.

Foundation: The Chinese partner, Umagic Gene, has already developed an MSI status prediction model for colorectal cancer patients based on pathological images and clinical information. The software system has been certified by the National Institutes for Food and Drug Control of China and is currently undergoing clinical trials in collaboration with multiple hospitals. For gastric and breast cancer research, partnerships have been established with the Cancer Hospital of the Chinese Academy of Medical Sciences and China-Japan Friendship Hospital, with hundreds of patient cases collected and model development underway.

Collaborative Goal: By advancing the digital and intelligent transformation of pathology, the ultimate objective is to create a clinically practical precision prognosis tool that provides a scientific basis for personalized treatment decisions and enhances the overall standard of cancer diagnosis and treatment.

2.2 技术先进性及创新性（工艺路线、技术参数等，可附图）

Advancements and Innovativeness of the Technology (process route, technical parameters, drawings and figures can be added)

1）构建“多组学数据处理 → AI 模型整合预测→ 多中心临床验证 → 系统开发”的闭环研究模式，将临床实践、前沿人工智能与分子病理有机结合，形成兼具科学深度与临床可行性的完整方法论；

2）在算法融合上创新：基于多模态数据融合与元学习策略，处理不同模态间复杂的非线性与时空关联特征，提升模型的泛化能力和预测稳定性；

3）产品化导向创新：最终构建可视化、个体化分层决策平台，将技术成果转化为临床可用工具，实现个体化治疗方案的直接应用。

1）Establish a closed-loop research framework encompassing "multi-omics data processing → AI-integrated predictive modeling → multi-center clinical validation → system development." This approach organically integrates clinical practice, cutting-edge artificial intelligence, and molecular pathology to form a comprehensive methodology with both scientific depth and clinical feasibility.

2）Innovation in algorithmic integration: Leveraging multi-modal data fusion and meta-learning strategies to handle complex nonlinear and spatio-temporal correlation features across different data modalities, thereby enhancing the model's generalization capability and predictive stability.

3）Product-oriented innovation: Ultimately construct a visual, individualized stratified decision-making platform to translate technological achievements into clinically applicable tools, enabling direct application in personalized treatment planning.

2.3 市场前景和商业化计划（生产规模、目标产品、市场渠道等）

Market Prospect and Industrialization Plan (production scale, target product, market channel, etc.)

市场前景：随着精准医疗、人工智能及多组学技术的发展，癌症患者预后预测和疗效评估市场需求持续增长，项目成果在国内外市场具有广泛应用前景；中方在中国市场具有临床资源和政策支持优势，新加坡 Oncoshot 在国际市

场和多中心临床验证方面优势明显，联合推广可覆盖亚太及全球市场。

商业化计划：

产品落地：将开发的癌症精准预后系统（胃癌病理图像 MSI 分析软件、乳腺癌复发转移预测软件）部署于一至两家三甲医院和癌症专科医院试用，支持临床决策辅助和患者个体化管理；申请医疗器械注册二类证，并进行市场推广。

B2B 模式：向已合作的医院、医疗仪器公司及制药公司提供系统服务，并随着患者检测情况对技术进行持续迭代升级优化；

国际推广：利用 Oncoshot 的国际合作网络进行亚太及全球市场推广，形成中外联合研发与商业化运营闭环。

Market Prospects:

With the advancement of precision medicine, artificial intelligence, and multi-omics technologies, the demand for cancer prognosis prediction and treatment efficacy evaluation continues to grow globally. The outcomes of this project hold broad application potential in both domestic and international markets. The Chinese partner possesses advantages in clinical resources and policy support within the Chinese market, while Singapore-based Oncoshot has significant strengths in international outreach and multi-center clinical validation. Together, they can jointly promote the product across the Asia-Pacific region and global markets.

Commercialization Plan:

Product Implementation: Deploy the developed precision cancer prognosis system—including gastric cancer MSI analysis software based on pathological images and breast cancer recurrence/metastasis prediction software—in tertiary hospitals and specialized cancer centers for trial use. The system will support clinical decision-making and personalized patient management. Applications will be submitted for Class III Medical Device Registration, followed by targeted market promotion.

B2B Model: Provide systematic services to partner hospitals, medical equipment companies, and pharmaceutical corporations. Continuously iterate and optimize the technology based on real-world patient testing data and clinical feedback.

Global Expansion: Leverage Oncoshot's international collaboration network to drive promotion throughout the Asia-Pacific region and worldwide, forming a closed loop of Sino-foreign joint R&D and commercial operation.

2.4 双方合作开展的工作（如：双方合作互补的优势等）

Cooperation Content of Both Sides (for example: complementary advantages of the cooperation)

1）合作进行样本收集：元码基因负责国内患者样本的收集，Oncoshot 公司负责国外患者样本的收集；

2）合作进行产品开发：元码在医学图像处理和建模方面具有成熟的技术和经验，Oncoshot 公司在自然语言处理方面经验丰富，擅长患者临床信息整理；

3）合作开拓全球市场：元码基因的肿瘤检测业务已覆盖全国，已与医科院肿瘤医院、中日友好医院等大型三甲医院建立深度合作，主要负责中国市场销售；Oncoshot 公司业务覆盖新加坡、印度、日本、澳大利亚等国家和地区，已与 40 余家医院开展合作，主要负责开拓海外市场方面。

1）Collaborative Sample Collection: Umagic Gene will be responsible for collecting patient samples within China, while Oncoshot will handle the collection of international patient samples.

2）Collaborative Product Development: Umagic brings mature technology and extensive experience in medical image processing and modeling, whereas Oncoshot possesses strong expertise in natural language processing and excels in organizing and structuring patient clinical information.

3）Joint Global Market Expansion: Umagic Gene's cancer testing services already cover all of China and have established deep collaborations with major tertiary hospitals such as the Cancer Hospital of the Chinese Academy of Medical Sciences and China-Japan Friendship Hospital. Umagic will primarily lead sales efforts in the Chinese market. Oncoshot's operations

span Singapore, India, Japan, Australia, and other countries and regions, with partnerships already established with over 40 hospitals. Oncoshot will mainly focus on expanding the overseas market.

2.5 项目预期成果（技术、产品、专利、市场销售等）
Estimated Achievements (technology, product, patents, marketing, etc.)

1）模型测试结果符合临床需求，形成 2 项产品，申报 2 个医疗器械注册证
2）申请专利 2 项，软件著作权 5 项，发表 5 篇 SCI 论文
3）培养跨国产学研合作人才 5–8 人
4）在国内和新加坡等东南亚市场开展销售工作，预计新增销售额 3000 万

1)The model test results meet clinical requirements, resulting in two products and applications for two medical device registration certificates.
2)Apply for two patents and five software copyrights, and publish five SCI papers.
3)Train 5–8 cross-border industry-academia-research collaboration talents.
4)Conduct sales activities in domestic and Southeast Asian markets such as Singapore, with an expected additional revenue of 30 million RMB.

2.6 知识产权归属安排（请另附双方已签署的合作意向书/协议）
Ownership of Intellectual Property (please attach the signed MOU/LOI/agreement)

双方各自独立开发的技术或产品，其知识产权归各自所有。联合开发的技术或产品的知识产权归属为双方共同持有，按贡献大小排序。未经双方书面同意，任何一方不得单独转让或许可第三方使用。
Intellectual property rights of technologies or products independently developed by either party shall belong to the respective developer. For jointly developed technologies or products, the ownership of intellectual property rights shall be jointly held by both parties and ranked according to the size of each party's contribution. Without the written consent of both parties, neither party shall individually transfer or license them to any third party.

3. 项目牵头申报单位（1）- 江苏企业
Lead Applicant-Jiangsu Enterprise

3.1 江苏企业资料
Enterprise Background

3.1.1 企业基本信息
Basic Information of the Enterprise

全称 Full Name	元码基因科技（苏州）有限公司 Geneis (Suzhou) Co., Ltd.		
总公司 Parent Enterprise	元码基因科技（北京）股份有限公司 Geneis (Beijing) Co., Ltd.		
公司类型 Enterprise Type	中小企业(SMEs) ☑ 大企业(large enterprise) ☐ 其他(others) ☐		
企业地址 Enterprise Address	苏州工业园区桑田街 218 号生物产业园 2 号楼 402 单元 Unit 402, Building 2, Bioindustrial Park, No. 218	邮编 Postal Code	215000 215000

	Sangtian Street, Suzhou Industrial Park
网站 Website	www.geneis.cn www.geneis.cn

3.1.2 项目联系人和项目负责人信息

Basic Information of the Project Contact and leader

项目联系人姓名 Name of the Project Contact	史晓丽 Shi Xiaoli	职务 Position	科研部副总监 Deputy Director of Research Department
手机 Mobile	18810024281 18810024281	传真 Fax	无 None
电子邮件 Email Address	Shixl@geneis.cn		

中方项目负责人简历

Curriculum Vitae of the Project Leader

简历

1999-9	2003-7	河北大学	本科生
2005-9	2010-7	中国科学院北京基因组研究所	研究生
2007-6	2010-8	深圳华大基因研究院	技术平台副主管、大项目负责人
2010-8	2012-8	华大基因	华北片区第一负责人、研究员 、大项目负责
2012-8	2015-5	清华大学医学院	基因组测序平台主管
2015-5	至今	元码基因科技（北京）股份有限公司	创始人、董事长

Tian Geng

Sep 1999 - Jul 2003

Hebei University

Undergraduate Student

Sep 2005 - Jul 2010

Beijing Institute of Genomics, Chinese Academy of Sciences

Graduate Student

Jun 2007 - Aug 2010

Shenzhen Huada Gene Research Institute

Associate Technical Platform Supervisor & Major Project Lead

Aug 2010 - Aug 2012

BGI (Huada Gene)

First Regional Head of North China, Researcher, Major Project Lead

Aug 2012 - May 2015

School of Medicine, Tsinghua University

Genome Sequencing Platform Supervisor

May 2015 - Present

Umagic Gene Technology (Beijing) Co., Ltd.

	Founder & Chairman

3.1.3 企业概况 General Situation of Enterprise			
成立时间 Time of Incorporation	2017 年 03 月 01 日 March 1, 2017	企业发展所处阶段（研发、已有产品、准备上市、上市） Development Phase (R&D, existed product, ready to be listed, be listed)	已有产品 existed product
现有员工数 Number of Employees	10	研发人员数 Number of R&D Staff	6
主营业务 Main Business	肿瘤基因诊断相关的医疗器械的研发、生产、销售		
专利、知识产权 Patents, Intellectual Property	公司拥有知识产权数共 38 件，其中国内发明专利：11 件（已授权 7 件）；实用新型：2 件；外观：2 件，软件著作权：23 项。 The company owns a total of 38 intellectual property rights, including 11 domestic invention patents (7 have been authorized); utility models: 2; appearance: 2, software copyright: 23.		
主要产品和市场 Main Product and Market	主要产品： 1、人 EGFR/KRAS/BRAF/PIK3CA/ALK/ROS1 基因突变检测试剂盒（可逆末端终止测序法）（三类医疗器械、国械注准 20213400525） 2、人 EGFR/KRAS/BRAF/PIK3CA/ALK/ROS1 基因突变分析软件（三类医疗器械、国械注准 20243211191） 试剂盒与配套软件搭配使用，符合了国家对 NGS 肿瘤临床检测应用的规范化、合规性要求，帮助医生根据肺癌患者携带的生物标志物以及临床状况制定最佳治疗方案，最大程度发现潜在可用的靶向药物及提高抗癌药物的治疗效率。 *Main products:* *1. Human EGFR/KRAS/BRAF/PIK3CA/ALK/ROS1 gene mutation detection kit (reversible terminal termination sequencing method) (Class III medical devices and national machinery and equipment 20213400525)* *2. Human EGFR/KRAS/BRAF/PIK3CA/ALK/ROS1 gene mutation analysis software (Class III medical devices and national equipment approval 20243211191)* *The kit is used in conjunction with supporting software, which meets the national standardization and compliance requirements for the application of NGS tumor clinical testing, helps doctors to formulate the best treatment plan based on the biomarkers and clinical conditions carried by lung cancer patients, discover potentially available targeted drugs to the greatest extent and improve the treatment efficiency of anti-cancer drugs.*		
最近 3 年销售额（人民币） Sales Revenue in the last 3 Years (RMB)	2024 (RMB) 8680030.96 8680030.96	2023 (RMB) 1834784.96 1834784.96	2022(RMB) 12547223.13 12547223.13

其他说明 Other Description	/ /

3.2 江苏企业在项目中承担的工作、对项目的贡献及预期成效

Specified Assignments, ContributionandEstimatedOutcomesof Jiangsu Enterprise in this Project

承担工作：收集患者样本，样本信息预处理，研发产品及在国内测试，进行医疗器械证的申报及负责国内市场销售。

预期成效：完成癌症精准预后系统开发，共同申请专利 2 项，软件著作权 5 项，发表 5 篇 SCI 论文，申报 2 个医疗器械注册证。

Main Tasks:

Collect patient samples, perform sample information preprocessing, develop products and conduct domestic testing, complete the application for medical device registration certificates, and oversee domestic market sales.

Expected Outcomes:

Complete the development of a precision cancer prognosis system; jointly apply for 2 patents and 5 software copyrights; publish 5 SCI papers; submit applications for 2 medical device registration certificates.

3.3 项目工作计划和时间表

Project Implementation Scheme and Timetable

2025.11-2026.12：队列建设与样本采集：建立多中心协作机制，统一样本采集、储存及临床信息的 SOP；完成 ≥ 800 例患者纳入。 建立结构化数据库，整合临床资料、病理数据等信息。

2027.1-2027.12：完成病理学等特征提取，进行跨模态特征融合与模型构建，进行模型验证和测试。

2028.1-2028.12：在≥3 家医院独立队列中进行模型外部验证，采用盲法测试，确保模型的稳定性和推广价值。临床可视化工具开发，医疗器械证注册申请及文章写作发表与专利软著申请

Nov 2025 - Dec 2026: Cohort Establishment and Sample Collection

Establish a multicenter collaboration mechanism and standardize SOPs for sample collection, storage, and clinical information. Enroll ≥800 patients. Develop a structured database integrating clinical records, pathological data, and other relevant information.

Jan 2027 - Dec 2027: Feature Extraction and Model Development

Complete pathological and other feature extraction, perform cross-modal feature fusion and model construction, and conduct model validation and testing.

Jan 2028 - Dec 2028: External Validation and Clinical Translation

Perform external validation of the model in independent cohorts from ≥3 hospitals using blinded testing to ensure robustness and generalizability. Develop clinical visualization tools, apply for medical device registration, and prepare publications and patent/software copyright applications.

3.4 项目预算和经费来源（企业自筹、投融资、申请资助等）

Project Budget and Financial Sources (private sources, investment and financing, application for funding, etc.)

企业自筹 160 万，申请江苏省资助 80 万

The enterprise will self-raise 1.6 million RMB and apply for 800,000 RMB in funding from Jiangsu Province

4. 项目牵头申报单位（2）-新加坡企业

Lead Applicant-Singapore Enterprise

4.1 新加坡企业资料
Enterprise Background

4.1.1 企业基本信息
Basic Information of the Enterprise

企业全名 FullName	Oncoshot Pte Ltd, 安可侠		
总公司 Parent Enterprise	None 无		
企业类型 Enterprise Type	中小企业(SMEs) ☑ 大企业(large enterprise) ☐ 其他(others) ☐		
企业地址 Enterprise Address	67 Ayer Rajah Crescent #02-10/17 Singapore 新加坡阿逸拉惹弯月路 67 号，02 -10 室，邮编 139950	邮编 Postal code	139950
网站 Website	www.oncoshot.com		

4.1.2 项目联系人和项目负责人信息
Basic Information of the Main Point of Contact

（项目联系人）姓 Last Name of the Project Contact	Sivaraj	名 First Name	Huren
职务 Position	CEO	电子邮件 Email Address	huren@oncoshot.com
手机 Mobile	+65 9712 0054	传真 Fax	NIL

新方项目负责人简历
Curriculum Vitae of the Project Leader

2002	2003	莱佛士书院 普通教育高级证书（'A'水准）	
2004	2009	新加坡国立大学 医学学士、外科学学士（MBBS），医学	
2013		英国皇家内科医师学会 英国皇家内科医师资格（MRCP UK）/ 内科学硕士（M Med. 内科）	
2010-11	2012-9	新加坡武装部队医疗部	医务官
2012-9	2015-6	新加坡保健服务集团	住院医师
2015-5	2021-7	新加坡国家癌症中心	肿瘤内科医师
2021-7	2024-11		特聘顾问医师
2018-11	至今	安可侠人有限公司	首席执行官兼联合创始人

2002	2003	Raffles Institution GSCE 'A' Levels	
2004	2009	National University of Singapore Bachelor of Medicine, Bachelor of Surgery (MBBS), Medicine	
2013		Royal College of Physicians (UK) MRCP (UK) / M.Med (Internal Medicine)	
2010-11	2012-9	SAF Medical Corp	Medical Officer
2012-9	2015-6	Singhealth	Resident
2015-5	2021-7	National Cancer Centre Singapore	Medical Oncologist
2021-7	2024-11		Visiting Consultant
2018-11	至今	Oncoshot Pte Ltd	CEO and Co-founder

4.1.3 企业概况
General Situation of Enterprise

成立时间 Time of Incorporation	19 November 2018 2018 年 11 月 19 日	企业发展所处阶段（研发、已有产品、准备上市、上市） Development Phase (R&D, existed product, ready to be listed, be listed)	已有产品 existing product
现有员工数 Number of Employees	18	研发人员数 Number of R&D staff	3
主营业务 Main Business	Oncoshot is transforming cancer data management and clinical trials with a unique, first-in class platform. For hospitals and healthcare systems, we provide a federated infrastructure-as-a-code product and AI tools to securely extract and structure de-identified patient data to power clinical trials real-world evidence (RWE) studies. Oncoshot 正在通过独特的、首创的平台重塑癌症数据管理和临床试验。对于医院和医疗系统，我们提供基于代码的联邦式基础设施产品和人工智能工具，能够安全地提取和结构化人标识化的患者数据，用于推动临床试验和真实世界证据（RWE）研究。		
专利、知识产权 Patents, Intellectual Property	**癌症诊断与临床试验匹配算法：5 项** （自动映射方法、评估模型、匹配算法、升级后的机器学习模型、试验映射工具） **平台基础设施与架构：8 项** （多集群联邦式基础设施、安全手册、数据安全合规、产品设计规范、患者档案导入流程、技术栈图、联邦数据基础设施、可扩展档案导入 API）		

用户管理与访问控制：3 项

（基于角色的访问策略、双因素认证、用户活动追踪）

用户界面/用户体验与原型：3 项

（Oncoshot 原型、界面参考、研究匹配/入组视图）

试验站点功能：17 项

（资格检查、仪表板、患者档案导入、统计功能、患者/试验管理、聊天、数据导出、数据质量、潜在机会试验等）

赞助方功能：9 项

（资格检查、赞助方仪表板、研究洞察、纳入/排除条件配置、参考数据集、数据导出、研究全景洞察等）

数据处理与自动化服务：7 项

（clinicaltrials.gov 自动导入、用于试验/研究/档案重构的 LLM 服务、自动化数据映射、肿瘤学网络、基础设施即代码、软件生命周期自动化、客户成功工具）

Cancer diagnosis and trial matching algorithms: 5

(auto-mapping methods, evaluation models, matching algorithms, upgraded ML model, trial mapping tools)

Platform infrastructure and architecture: 8

(multi-cluster federated infrastructure, security manual, data security compliance, product design specification, profile import pipeline, tech stack diagram, federated data infrastructure, scalable profile import API)

User management and access control: 3

(role-based access policies, 2FA authentication, user activity tracking)

UI/UX and prototypes: 3

(Oncoshot prototype, UI references, study matching/enrolling views)

Trial site functionalities: 17

(eligibility checks, dashboards, profile imports, statistics, patient/trial management, chats, exports, data quality, opportunity trials, etc.)

Sponsor functionalities: 9

(eligibility checks, sponsor dashboards, study insights, criteria configuration, reference datasets, exports, landscape insights, etc.)

Data processing and automation services: 7

(automated clinicaltrials.gov import, LLM services for trial/study/profile restructuring, automated data mapping, oncology networks, infrastructure-as-code, software lifecycle automation, customer success tools)

主要产品和市场 Main Product and Market	肿瘤数据平台面向医院/癌症登记处 —— 新加坡、印度、澳大利亚、欧盟 肿瘤临床试验/登记/真实世界证据（RWE）数据服务面向制药公司 —— 亚太地区/欧盟 Oncology Data Platform to hospitals/cancer registries – Singapore, India, Australia, EU Oncology Clinical trials/registries/RWE data services to Pharma – APAC/EU		
最近 3 年销售额（新币） Sales Revenue in the last 3 Years (SGD)	2024 (SGD) 1,400,000	2023(SGD) 95,325.03	2022 (SGD) 86,000.00
其他说明 Other Description	/ /		

4.2 新方企业在项目中承担的工作、对项目的贡献及预期成效

Specified Assignments, Contribution and Estimated Outcomesof Singapore Enterprise in this Project

SPECFICIED ASSIGNMENTS

1. **Modification of platform to handle Chinese data and unique requirements.**

• Establish connection / pipeline between Geneis's de-identified gene-clinical database and Oncoshot's Federated AI system: data transfer protocols, data schema harmonization, tagging, mapping.

• Ensure data quality: carry out cleaning, standardization (clinical terminologies, coding standards), missing value handling, ensure consistency, normalization.

• Build analytic frameworks & AI/RWE tools: model pipelines for predictive modelling (e.g. prognosis, response to therapy), subgroup analyses, survival / outcome modelling.

• Compliance, privacy, ethical & regulatory oversight: ensure all work complies with Chinese laws on data security, human genetic resource regulation, ethics committees; develop SOPs, anonymization/de-identification standards; obtain necessary approvals.

2. **Construct data collaboration partnerships across 1-2 Singapore public and private cancer hospitals to validate Geneis' AI model**

3. **Provide Federated Learning technology to train Geneis AI Model without moving overseas and Chinese data**
4. **Promotion and Sales in the Singapore and Southeast Asian Markets**

CONTRIBUTION

1. Provide the federated AI platform and infrastructure: a secure, privacy preserving AI model that can operate without moving raw data.
   - Technical expertise in RWE methodology, bioinformatics, genomics, clinical AI modelling.
   - Data engineering: schema design, harmonization, mapping, interoperability.
   - Analytics and Interpretation: model development, validation, visualization.
   - Regulatory, ethical, data governance advice drawing on international best practices.
   - Project management: coordinating between Geneis and overseas hospitals to ensure AI model development timelines are met

2. Project Management
   Secure cross border complex and sensitive data collaboration with Oncoshot's partner network

Estimated outcomes:

1. Development of Federated Learning capability on top of Oncoshot base platform to train Geneis AI model for MSI Prediction in cancer as an initial use case
2. Deployment of Oncoshot Federated AI system enhanced and localised to Chinese healthcare and life science system requirements to serve as an entry point for Oncoshot platform into Chinese market
3. Provide a viable model to leverage the learnings from the China-Singapore federated learning partnership to scale up and validate Geneis AI models across Oncoshot's other ecosystems in Japan, India, EU and US as desired

具体任务

1. 平台改造以处理中国数据及独特需求
- 建立 Geneis 去标识化基因-临床数据库与 Oncoshot 联邦式 AI 系统之间的连接/数据管道：数据传输协议、数据模式统一、标签与映射。
- 确保数据质量：开展数据清洗、标准化（临床术语、编码标准）、缺失值处理，确保一致性与可重现性。
- 构建分析框架与 AI/RWE 工具：预测建模管道（如预后、治疗反应）、亚组分析、生存/结局建模。
- 合规、隐私、伦理与监管监督：确保所有工作符合中国数据安全、人类遗传资源管理及伦理委员会要求；制定 SOP、匿名化/去标识化标准；取得必要审批。
2. 在新加坡 1-2 家公立和私立肿瘤医院建立数据协作伙伴关系，以验证 Geneis 的 AI 模型
3. 提供联邦学习技术，使 Geneis AI 模型可在不转移中国数据出境的前提下进行训练
4. 在新加坡和东南亚市场推广销售

贡献

1. 提供联邦式 AI 平台和基础设施：一个安全、隐私保护的 AI 模型，可在无需移动原始数据的情况下[illegible]。
- 在 RWE 方法学、生物信息学、基因组学、临床 AI 建模方面的技术专长；
- 数据工程：模式设计、统一、映射、互操作性；
- 分析与解释：模型开发、验证、可视化；
- 法规、伦理与数据治理咨询，借鉴国际最佳实践；
- 项目管理：协调 Geneis 与海外医院，确保 AI 模型开发时间表得到遵守。
2. 项目管理
   保障跨境复杂和敏感数据协作的安全性，依托 Oncoshot 的合作伙伴网络。

预期成果

1. 在 Oncoshot 基础平台之上开发联邦学习功能，用于训练 Geneis AI 模型，首个应用场景为胃癌的 MSI 预测；
2. 部署增强并本地化至中国医疗与生命科学体系需求的 Oncoshot 联邦式 AI 系统，作为 Oncoshot 平台进入中国市场的切入点；
3. 提供一个可行模型，以利用中-新联邦学习合作的经验，按需在日本、印度、欧盟及美国等 Oncoshot 其他生态体系中推广和验证 Geneis 的 AI 模型。

4.3 项目工作计划和时间表

Project Implementation Scheme and Timetable

2025 年 11 月 - 2026 年 12 月：平台开发与部署

- 开发并部署基于 AI/大语言模型（LLM）的肿瘤数据整合及联邦学习（Federated Learning）框架，用于在国内医院验证 Geneis 胃癌 MSI AI 模型。
- 连接 Geneis 与新加坡的一家公立及一家私立医院合作伙伴，并完成协议签署
- 完成 Oncoshot 平台在中国市场的本地化及联邦学习技术部署。

2027 年 1 月 - 2027 年 12 月：AI 模型验证扩展

- Oncoshot 将在更广泛的医院网络中扩展 AI 模型验证，包括印度、日本、欧盟及美国（在 Geneis 商业意愿范围内）。
- 支持 Geneis 在当地市场的商业化，并在长期内在同一医院网络中部署 AI。

2028 年 1 月 - 2028 年 12 月：平台商业化上线及进一步扩展

- 在 Geneis 协助下扩展至更多合作医院，联合推出商业化产品，数据库患者数据量在中国超过 100,000 例

Nov 2025 - Dec 2026: Develop and deploy platform onto domestic hospital

Develop and deploy AI/LLM-based oncology data integration and Federated Learning framework to validate Geneis Colorectcal Cancer MSI AI model to domestic hospital.

Connect Geneis with 1 public and private hospital partner in Singapore. Sign off on agreements.

Complete Oncoshot platform localisation for Chinese market and deployment of Federated Learning technology

Jan 2027 - Dec 2027: Expansion of AI model validation

OS to expand AI model validation across a wider network of Oncoshot hospitals including India, Japan, EU and US (where commercially desired by Geneis)

Support Geneis with commercialisation into local markets and deployment of AI within the same hospital networks in the longer terms

Jan 2028 - Dec 2028: Launch of platform commercially, further expansion

OS to expand to more partner hospitals with Geneis help, launch joint products commercially, and the database patient data exceeds 100,000 cases within China

4.4 项目预算和经费来源（企业自筹、投融资、申请资助等）

Project Budget and FinancialSources (private sources, investment and financing, application for funding, etc.)

企业自筹 160 万，申请资助 80 万

The enterprise will self-raise 1.6 million RMB and apply for 800,000 RMB in funding from Government.

DECLARATION:

The participants signing this form intend to co-operate within the project as described in this form with the aim of realizing the technical developments as set forth under the "Project Outline" section. In addition, the participants have or intend to put in place, a formal collaboration agreement.

声明：本表签字双方将就此表中所描述的项目开展合作，目的是实现第二点"项目概要"中提到的技术开发合作内容。另外，合作双方已签订或将要签订正式的合作协议。

签名(signature)

日期(Date)

新加坡牵头申报企业 Lead Applicant on the Singapore side

正楷姓名(Print Name) Dr Huren Sivaraj

职务(Position) CEO and Co-founder

企业名称(Name of Enterprise) Oncoshot Pte Ltd. (私人有限公司

签名(signature)

日期(Date)

江苏牵头申报企业 Lead Applicant on the Jiangsu side

正楷姓名(Print Name)

职务(Position)

企业名称(Name of Enterprise) 昂科图科技(苏州)有限公司 Oncoshot (Suzhou) Co., Ltd

合同专用章