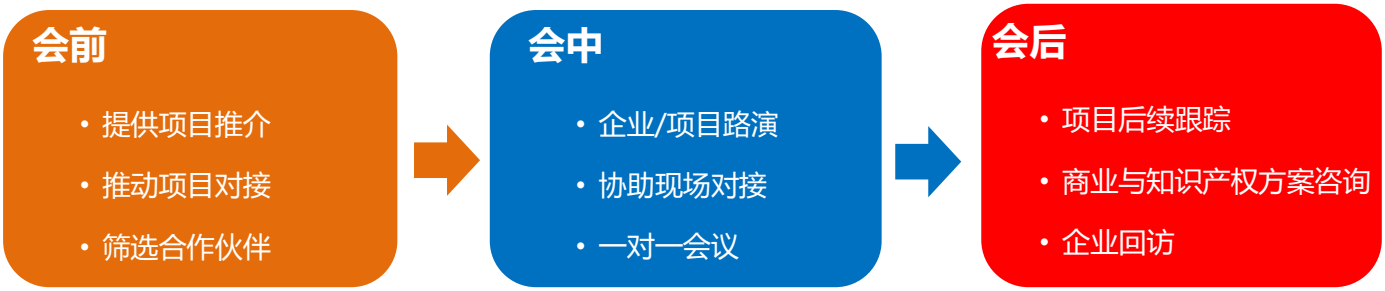
中新国际科技交流与创新大会

InnovFest Suzhou 2016

江苏省第二届新加坡科技项目推介会

中新科技企业交流合作大会

项目路演 | 国际合作 | 产业投资 | 平台对接



项目推介

一、生物医疗技术领域

1. 新加坡国立大学前沿科技技术推介（生物医疗等 8 项技术）

1.1 **Upconversion Fluorescent Nanoparticle and Applications 上转换荧光纳米材料及应用**
平台技术：可用于多种 POCT 检验；潜力巨大； 已获美国，新加坡专利

1.2 **A novel method to fabricate polymeric microneedles 一种新的方法来制造聚合物微针**
微针送药，微针美容

1.3 **A Novel Multi-focal Contact Lens to Slow Myopia Progression 一种新型减慢近视进展的多焦点隐形眼镜**
已获取中国专利

1.4 **Surface Coating with Controlled and Sustained Silver Release for Long-term Inhibition of Infection and Encrustation 具有可控持续释放银粒子的表面涂层从而抑制感染与结壳**
医疗仪器抗菌涂层 （导尿管等）

1.5 **Surface Modification of Silicone with Covalently Immobilized and Crosslinked Agarose to Inhibit Infection and Omental Wrapping 有抑制感染及大网膜包裹的效果的基于交联琼脂糖的硅胶外涂层技术**
腹膜透析管抗菌涂层

1.6 **A wearable device to prevent myopia in children by logging and motivating daytime**

outdoor activity 可以预防儿童近视的可穿戴设备,监视室外活动时间的智能表

智能手表及软件

1.7 **Versatile, flexible and biocompatible elastomeric microtubes 多功能，灵活，弹性的生物相容性微管-新型微流控技术平台的核心元件**

平台技术：超大潜力的新型微流控技术

1.8 **Highly Adaptable Size Separation of Bioparticles using Centrifugal Microfluidics 用在离心微流机上的生物粒子的尺寸分离技术**

与现有实验室常用离心机匹配的粒子分流器配件；简单易用；便宜

项目负责人：赵娜

2.基于医疗服务的管理平台 （Taggle Pte Ltd）

Taggle is Healthcare Driven Community Initiative to Extend reach of healthcare into the community for Wellness and Health maintenance, monitoring and preventive Intervention using game-based, fun and interactive approach.

The Taggle Platform;

（1）Extend reach of healthcare into the community for Wellness and Health maintenance, monitoring and preventive Intervention.

（2）Increase viability of healthcare solutions by providing a common platform and Extending reach of healthcare solutions to global community.

（3）Collect data for individual, community and national decision and policy making.

（4）Uses game-based approach to engage the community. Taggle will achieve it's vision by :

（5）Deploying consumer friendly frontends that can be used in homes and community centres.

（6）Providing a standard backend interface to distribute the games and game-sets, dashboard for health practitioners, collect data, integrate with HMIS.

（7）Reaching out to the international Medical, Academic and Research Community to productise and make their efforts commercially viable and available to the citizenry.

（8）Partnering with stakeholders with common vision and direction. It consist of several different components including:

2.1 Taggle Healthbox - Front end set top box containing the user interfaces, Kinect and other motion Sensors and software to manage interaction with users, connectivity and the backend servers.

2.2 Taggle Health Portal - Web-based portal together with the backend servers for managing communities, users, games, games sessions, subscriptions, database, analytics and connectivity with Taggle Healthboxes and other devices.

2.3 Wearables and Apps - Wearables for collection and monitoring of user data together with Apps created to interface with users and transmission of data to the Taggle health boxes and Taggle Health Portal.

目标市场：Healthcare

项目负责人: Lee Seng Beo

3.新国大生物工程系项目推介(6 项)

3.1 Line scan focal modulation microscopy 线扫描焦点调制显微镜

本项目的主要目标是开发一种线扫描焦点调制显微镜（LSFMM），它可以广泛应用于各种

生物医学研究和疾病诊断。焦点调制显微镜（FMM）是一种活体生物组织成像的新方法。 初步实验已经证明 FMM 的穿透深度大于 600 微米， 比常规共焦焦显微镜（小于 200 微米）有显著改进。然而，目前的 FMM 实现是基于点到点扫描。与大多数共焦显微镜类似，最大帧速率一般是几赫兹。而这样一个速度在很多实际应用中不能满足要求。比如在视网膜感光细胞和其他神经组织的成像实验中往往需要毫秒级的时间分辨率。

线扫描焦点调制显微镜已经过数年的初步研发。已经实验证实可以达到每秒 500 幅以上的帧速率。光切片的性能和空间分辨率远优于线扫瞄共聚焦显微镜。本项目将在此基础上进行产品定型和优化，为规模化生产和销售打下坚实的基础。

目标市场：Optical instrumentation, optoelectronics, biomedical instrumentation.

产业化前景：Prototype systems have been built and verified. More engineering design is needed to meet industrial standards. Look for collaborators in relevant industrial, especially those with strong R/D and marketing teams.

项目负责人：Chen Nanguang

3.2 空间人类多能干细胞发育缺陷结构建模和毒性筛选

There is currently an unmet need for human developmental models to identify and understand how teratogenic chemicals and drugs potentiate the risk of human birth defects. Currently, teratogens are identified by testing with animals or animal embryos and cells, which do not always accurately predict human developmental susceptibility. Here, we propose the use of micropatterned human pluripotent stem cells (hPSCs) to spatially control stem cell differentiation and morphogenesis, resulting in the formation of ordered mesoendoderm (ME) and neuroepithelium (NE) structures. We demonstrate that the micropatterned ME structures together with statistical morphologic measurements could accurately distinguish between teratogens from non-teratogens. In addition, we directed the formation of organized NE structures in the micropatterned hPSCs to demonstrate the utility of our approach in modeling neural tube defects (NTDs), a common class of human birth defects. Spatially organized hPSC structures potentially offer a human-specific platform to screen and model human developmental defects.

目标市场：Pharmaceutical companies; federal safety regulatory organizations

产业化前景：Seeking collaborators to validate prediction of models.

项目负责人：Toh Yi-Chin

3.3 康复及辅助机器人

我们正在研发一系列用于中风病人步行功能康复的机器人。我们的机器人采用新一代驱动传感和控制技术。我们也将研发用于上肢和手功能康复的机器人。机器人将大大提高治疗功效降并低人力成本。

我们正在研发一系列用于医院病人和物料搬运的机器人。这些机器人可以人工操作也可以自动运作，将大量降并低人力成本。

目标市场：医疗和物流业

产业化前景：我们的机器人已经有了完整的样机并进入临床试验阶段。

项目负责人：Yu Haoyong

3.4 可编码的上转换纳米荧光标记材料

可编码的上转换纳米荧光标记材料。基于上转换材料独特的光学性能，对于此类材料的研

究和应用正逐渐热化，有较大的市场需求。目前除了 Sigma 有部分单色荧光上转换纳米材料在销售，基本上没有其它公司有此类产品。此材料可用于生物标记、荧光成像、计算机存储、光显示、快速灵敏检测和国防等领域。

目标市场：In-vitro diagnostics, Fluorescent tags, Medical imaging, Environmental testing etc.

产业化前景: The technology developed (fluorescent upconversion nanoparticles) is very novel, mature and ready for industrialization and it has been well covered by international patents. The platform technology is ready to be incorporated into products like point-of-care testing devices and diagnostic assays. We are seeking collaborators from a complementary industry, who can incorporate our technology into their product range.

产品关键技术已解决，达到产业化要求。已制定标准化程序，可以实现量产。

项目负责人: Prof. Zhang Yong

3.5 柔性机械手套手机器人协助治

需要进行手部复健的病患有很多种，如中风，创伤性脑损伤，肌肉萎缩和手外伤等等。我们研发的软质机器手套能增加患者手部关节的活动度以及改善手部的神经肌肉控制。此外，我们预计这个机器手套能协助物理治疗师，让患者能自行做机器辅助复健运动，从而改善人力短缺的问题，并且能让患者在更短的时间内康复。软质机器是一个新概念。要旨就是采用软质材料制作机器人。因为我们使用的是软质材料，所以研发的机器手套会更轻巧和便宜，而且能达到更安全的人与机器之间的互动。

ROCESO Technologies' proprietary technology is a sof material-based roboti actuator. Leveraging this technology, we have designed our fist product EsoGlove which is a sof roboti glove that can provide assistance on hand movements during patints' rehabilitatin and daily living actiitis.

Key Features

(1) Lightweight, <150g

(2) Highly flxible elastomeric materialused in the glove design which provides comfort to the patint.

(3) Best in portability to move around.

(4) Motin programmable

(5) Multile degrees of freedom.

Hand Movement exercise

Cloud based softare system will provide 100% flxibility to design hand/figer movement path and save them for recurrence.

Single step-in movements to test patints pain threshold points.Real-tie update of the status in the movement and feedback mechanism.

Benefis to the patint Extreme comfortability.

With EsoGlove being 100% portable,that gives the patint to move around without a hassle.

Softare system contiuously learns from the feedback of the patints figer movements and present data to Doctor/physiotherapist for study and improve subsequent therapies.

产业化前景： We have in the midst of manufacturing a commercial-grade EsoGlove, which should be ready for market in the next 6-12 months. We are currently conducting a clinical trial at National University Hospital with our functional lab prototype version. We are looking for potential investors and distributors to help bring the product to the Chinese market.

项目负责人: Yeow Chen Hua, Raye

3.6 周围神经病变的高通量药物筛选平台/SINAPSE

近年来，虽然业界对新药的筛选与探索硕果累累，但对于典型的外周神经系统疾病，如由化疗药物或糖尿病等原因引发的神经病变，尚无任何有效的治疗手段。其中，缺乏精准有效的体外模型是进行这项研究的最大障碍。本项目首次使用自主研发的高通量隔断微流体平台（High Throughput Compartmentalized Microfluidic Platform, HTCMP）作为体外模型，并将其作为研究神经病变的有效工具。在之前的研究中，我们成功在此 HTCMP 平台上建立了由顺铂（Cisplatin）和奥沙利铂（Oxaliplatin）两种化疗药物诱导的周围神经病变（Chemotherapy-induced peripheral neuropathy, CIPN）体外模型。实验证明，这种新型 HTCMP 平台可以将细胞体和轴突分离，从而将候选药物有选择性的加到神经元的细胞体或者轴突上。此 CIPN 模型既可以单独验证候选药物对细胞体和轴突的保护效果，又能对药物作用的具体位点的进行隔离研究。总之，HTCMP 平台具有经济，高效，非侵入性等特点，且易于规模化生产，可以开发成为针对外周神经系统疾病的药物筛选与探索的有效工具。

项目负责人: In Hong Yang

4. 毛细管电泳和激光诱导荧光方法检测内毒素

内毒素是革兰氏阴性细菌细胞裂解后释放到环境中的一种毒素，能够引发动物的强烈免疫反应，严重时可致死。本技术使用毛细管电泳和激光诱导荧光方法代替传统的 LAL 检测，并使用固相萃取提高灵敏度和减少干扰物质影响，已成功应用于多种细菌产生内毒素的检测。相较传统方法，本技术快捷、准确、花费较少。

目标市场：生物制药，食品分析

产业化前景：Component and/or breadboard validation in relevant environment.

项目负责人: Feng Huatao, Su Min, Li Fong Yau

5. 周围神经病变的高通量药物筛选平台/SINAPSE (新加坡神经技术研究院)

近年来，虽然业界对新药的筛选与探索硕果累累，但对于典型的外周神经系统疾病，如由化疗药物或糖尿病等原因引发的神经病变，尚无任何有效的治疗手段。其中，缺乏精准有效的体外模型是进行这项研究的最大障碍。本项目首次使用自主研发的高通量隔断微流体平台（High Throughput Compartmentalized Microfluidic Platform, HTCMP）作为体外模型，并将其作为研究神经病变的有效工具。在之前的研究中，我们成功在此 HTCMP 平台上建立了由顺铂（Cisplatin）和奥沙利铂（Oxaliplatin）两种化疗药物诱导的周围神经病变（Chemotherapy-induced peripheral neuropathy, CIPN）体外模型。实验证明，这种新型 HTCMP 平台可以将细胞体和轴突分离，从而将候选药物有选择性的加到神经元的细胞体或者轴突上。此 CIPN 模型既可以单独验证候选药物对细胞体和轴突的保护效果，又能对药物作用的具体位点的进行隔离研究。总之，HTCMP 平台具有经济，高效，非侵入性等特点，且易于规模化生产，可以开发成为针对外周神经系统疾病的药物筛选与探索的有效工具。

目标市场：Pharmaceutical Company, Microfluidic Company

产业化前景：Our high throughput drug screening platform is ready for the market. We are looking for a company to develop a prototype together.

项目负责人: In Hong Yang