What's In This Issue

Success Story
• Momentus Robotics: Using Robotics Activators to Expand Potential of Magnetic Resonance

Event Highlights
• Ongoing TTO Techshow Online Exhibition
• HIEBS X HKUTTO Webinar

Latest Patents Filings

Progress Update

Technology Commercialisation

SUCCESS STORY
RATIONAL DESIGN OF VACCINE WITH SYNTHETIC BIOLOGY

EVENT HIGHLIGHTS
PHYSICAL EVENT: OPEN HOUSE - HOW TTO SUPPORT HKU RESEARCH COMMUNITY
WEBINAR: GENEVA 2021 Awardees' Sharing: From Heat to Electricity; From Laboratory to Start-up

LATEST PATENTS FILINGS
PROGRESS UPDATES
TECHNOLOGY COMMERCIALISATION
SUCCESS STORY

RATIONAL DESIGN OF VACCINE WITH SYNTHETIC BIOLOGY

Synthetic Biology Approaches for Vaccine Development

Traditional approaches to develop a vaccine against methicillin-resistant Staphylococcus aureus (MRSA) infection have so far failed, as no vaccine candidate has proven effective in clinical trials. Professor HUANG Jiandong, Chair Professor of Synthetic Biology and L&T Charitable Foundation Professor in Biomedical Sciences at the School of Biomedical Sciences, LKS Faculty of Medicine, and his team have developed a novel approach based on an established concept of live-attenuated bacteria combined with the latest developments in synthetic biology. The synthetic biology and antigen discovery platforms enable rational design and programming of bacteria into more safe and effective vaccines. These vaccines are initially targeted at fighting anti-microbial resistance (AMR), including resistant bacteria such as MRSA.

Technology Transfer

Professor HUANG’s team worked on deepening their research in the field of synthetic biology while at the same time focusing on technology transfer. Through the commercialisation process to mature into commercial product and services, The HKU TTO assisted Professor HUANG’s team by providing support with intellectual property protection and technology licencing. In 2020, a biotechnology start-up, Delonix Bioworks Ltd. (Delonix) was established in Shanghai, China. Delonix is a synthetic biology and vaccine technology-focused company founded by LIN Qiubin, a former PhD student of Professor HUANG. The company offers a further opportunity for commercialisation of Professor HUANG’s platforms to advance the field of next generation vaccines for AMR infections and develop innovative therapies for patients. “We are passionate about how synthetic biology could transform the way we develop medicines”, said Dr. Qiubin Lin, CEO of Delonix.

Awards & Recognition

This year, Delonix completed a $14 million Series Seed financing deal led by Boehringer Ingelheim Venture Fund (BIVF) and IDG Capital, with participation from ZhenFund and an undisclosed investor. The financing will be used to accelerate the building of synthetic biology vaccine platforms and advance pipelines of synthetic vaccines to clinical trials.

In 2020, Delonix won BI’s Innovation Prize for developing innovative vaccines with synthetic biology approaches. Boehringer Ingelheim first noticed Professor HUANG’s invention in 2017 following a referral from HKU TTO’s business development team.

© The University of Hong Kong. All rights reserved.
**Latest Patents Filings**

28 June 2021 - 27 July 2021

**Physical Event - HKU TTO Open House**

TTO held its first open house event in July to explain how TTO supports the HKU research community. TTO team members introduced basic technology transfer information and answered questions from participating HKU researchers on topics ranging from legal issues and business development to the procedures for patent application.

**Webinar - Geneva 2021 Awardees' Sharing**

TTO also held a webinar in July with the theme of “Geneva 2021 Awardees' Sharing”. Dr. Tony Feng, Associate Professor of Mechanical Engineering and gold medal winner at the Geneva awards, introduced his direct thermal charging cell technology and shared his experience of transferring research output into entrepreneurial opportunities.

**Progress Updates**

<table>
<thead>
<tr>
<th>Total Engagements and Handling Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>76</td>
</tr>
<tr>
<td>72</td>
</tr>
<tr>
<td>71</td>
</tr>
</tbody>
</table>

**Technology Commercialisation**

Top 3 revenue-booked IPs in June and July 2021

<table>
<thead>
<tr>
<th>Item</th>
<th>IP Type</th>
<th>PI</th>
<th>Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewage surveillance for COVID-19: testing methods, classification scheme, data interpretation and use</td>
<td>US Provisional Application No. 63/135,262</td>
<td>Prof. Tong ZHANG</td>
<td>Engineering</td>
</tr>
<tr>
<td>Vacuolin-1 as an Inhibitor of Autophagy and Endosomal Trafficking and the Use Thereof for Inhibiting Tumor Progression</td>
<td>US Patent No. 9,717,737 EP Patent No. EP 3017543 CN Application No. 20158009459.0</td>
<td>Dr. Jianbo YUE</td>
<td>Medicine</td>
</tr>
</tbody>
</table>

As of July 2021, the total number of engagements and cases handled by the three core teams – business development (BD), intellectual property management (IPM) and legal – was on par or higher than last year. The IP team handled a total of 77 tasks, up from 71 a year earlier, while the legal team completed 36 cases and the BD team held 76 engagements. The TTO teams have won wide acclaim from our research community for their excellent performance.

**Event Highlights**

**Item**

- Latest Patents Filings
- PROGRESS Updates
- Top 3 revenue-booked IPs in June and July 2021
- Technology Commercialisation
Transferring your new technologies into business opportunities

Policy stipulation

The latest policy stipulates that the net receipts arising from the exploitation of an invention are shared among the University, the relevant faculty/department and the inventor(s) in the ratio of 1/3 : 1/3 : 1/3. It aims to encourage the researchers at HKU not only to excel in academic performance but also to apply their technology for the benefits of mankind with an impressive reward.

How to apply:

4 phases for research projects

Phase 1: Initial project negotiation
1. PI will negotiate with their collaborator(s) and confirm a project proposal which includes the scope, budget and duration of the project.
2. PI will negotiate with their collaborator(s) and prepare a draft agreement (Agreement templates are available at the website of the Research Services (RS): http://www.rss.hku.hk/contracts/contractresearch/templates).

Phase 2: Endorsement from department/faculty
3. PI will submit the project proposal, the draft agreement, and the information form/grant application form to the department/faculty to seek an approval (The information form for research/consultancy agreements is available at: http://intraweb.hku.hk/local/rss/tto/researchor-consultancy-agreements-form.doc).
4. After obtaining the approval, PI will submit the project proposal, the draft agreement, and the information form/grant application form to the Research Service (RS).

Phase 3: Financial legal/IP review
5. The RS will distribute the project proposal and the draft agreement to the Finance and Enterprises Office (FEO) for financial review and to the Technology Transfer Office (TTO) for legal review.
6. If there is any financial/legal issue, the FEO/TTO will inform PI through the RS. PI will negotiate with their collaborator(s) on the financial/legal issue until it is settled.

Phase 4: Signature and document archiving
7. After consolidating the settled project proposal and the agreement, the RS will proceed to the signature process.
8. After duly performing the signature process, the RS will assign the RCGAS number(s) for opening the project account(s).