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TTO NEWSLETTER

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Success Story

New microfluidic platform opens the door to better cancer diagnosis and treatments | Invented by Professor Alice Wong

Latest Patents Filings

Progress Updates

Technology Commercialisation



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SUCCESS STORY

New microfluidic platform opens the door to better cancer diagnosis and treatments



Professor Alice Sze Tsai WONG
Interim Director and Professor (School of Biological Sciences)
Associate Vice-President (Research)

As cancer cells spread from the primary tumour where they were first identified to other parts of the body, less than 0.1 percent succeed in implanting themselves in the tissue where they will end up doing the most damage. However, this process, known as metastasis, is a major factor in cancer deaths, contributing to about 90 percent of them. In particular, metastasis in the abdomen, or peritoneal metastasis, has a very poor survival rate. Early detection of metastasis is difficult because there are few valid biomarkers available and they are not sufficiently sensitive and specific. "For an established metastasis, current treatment is not effective and targeted treatment is lacking", says Professor Alice Wong, Director (Interim) & Professor of Research Division for

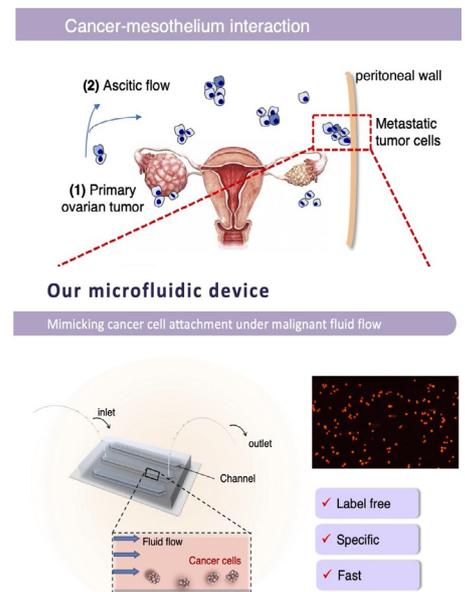
Molecular and Cell Biology, School of Biological Sciences, Faculty of Science.

She and her team have been studying new techniques and innovative technologies to understand the precise mechanism of cell adhesion dynamics, particularly in the area of ovarian cancer development and metastasis. From this work, they successfully engineered a new microfluidic platform, microfluidic platform for metastasis detection and drug discovery that can address the above-mentioned gaps. The platform works by mimicking the behaviour of tumours in the peritoneum in a flow-informed framework and capturing metastatic tumour cells for drug discovery and diagnosis. "We envision this will be a valuable tool for research and clinical use," said Professor Wong.

The platform has already achieved some important successes. It is specific, label-free, affordable and fast, allowing cancer cell attachment to be measured within minutes. The platform has already captured the cells of four different types of cancer: ovarian cancer—which was the inspiration for the research—as well as colorectal, gastric and prostate cancers. The team has also already identified two anti-metastatic drugs, which are currently in clinical trials.

The research team, led by Professor Wong and her team members Dr Shanshan LI, Dr Ka Man IP, Dr Kei Shuen Tang and Professor Ho Cheung Shum, won a silver medal for their invention at the Special Edition 2021 Inventions Geneva Evaluation Days, hosted by The

International Exhibition of Inventions of Geneva (IEIG), which is one of the most important global annual events devoted exclusively to inventions.



The TTO team was able to assist Professor Wong and her team with the patent application, support with their application to participate in the International Exhibition of Inventions of Geneva 2021, and showcasing the invention at Innocarnival 2021 as one of the excellent inventions from HKU.

IP01154 Prof YUEN Kwok Yung; Microbiology (USP filed on 27 Dec 2021)
Antiviral peptide with triple antiviral functions

IP01139 Dr SONG You-Qiang; School of Biomedical Sciences (CN application filed on 30 Dec 2021)
A novel Chinese medicine formula alleviated cognitive deficits and reduced amyloid plaques deposits in experimental Alzheimer's disease model

IP01167 Prof. CHEN Zhiwei; Microbiology (US provisional filed on 3 Jan 2022)
NEUTRALIZING ANTIBODIES AGAINST COVID-19 AND METHODS OF USE THEREOF

IP00852 Dr LAM Ka Wing Jenny; Pharmacology and Pharmacy (CN application filed on 5 Jan 2022)
PEGylated synthetic KL4 peptide, Compositions and Methods Thereof

IP00982 Prof. LING Ching-Chung; Physics (PCT filed on 6 Jan 2022)
Transparent and high-k thin film prepared by Pulsed Laser Deposition

IP00852 Dr LAM Ka Wing Jenny; Pharmacology and Pharmacy (US Reg filed on 6 Jan 2022)
PEGylated synthetic KL4 peptide, Compositions and Methods Thereof

IP01100 Prof. TSIA Kin Man, Kevin; EEE (US provisional filed on 7 Jan 2022)
Method and device for high-throughput single-stream particle focusing

IP00852 Dr LAM Ka Wing Jenny; Pharmacology and Pharmacy (EP application filed on 6 Jan 2022)
PEGylated synthetic KL4 peptide, Compositions and Methods Thereof

IP00860 Prof CHAN Tak Mao Daniel; Medicine (US regular filed on 7 Jan 2022)
Compositions and Methods for Clearing Tissue

IP00988 Prof. CHAN Pui Barbara; ME (PCT filed on 10 Jan 2022)
A novel biomaterial with high Glycosaminoglycan/Hydroxyproline ratio, methods and applications for tissue engineering

IP01147 Prof WANG Liqiu; ME (US provisional filed on 11 Jan 2022)
Matter-repellent slippery coatings and manufacture thereof

IP01126 Dr. KIM Jitae; ME (US regular filed on 11 Jan 2022)
Printing of three-dimensional perovskite nanopixels for ultra-high-resolution color displays and multi-level anticounterfeiting

IP01053 Prof. ZHANG Tong; Civil Engineering (HK short term filed on 17 Jan 2022)
A compact sampling device for sewage surveillance

IP00896 Prof WANG Liqiu; ME (US regular filed on 18 Jan 2021)
Loss-Free Liquids Manipulation Platform

IP01150 Prof WANG Liqiu; ME (US provisional filed on 19 Jan 2022)
Durable water and oil repellent plastics

IP01081 Prof. CHE Chi-Ming; chemistry (US provisional filed on 17 Jan 2022)
Iron-Catalyzed Highly Enantioselective cis-Dihydroxylation of Quinones with Aqueous H₂O₂

IP01167 Prof. CHEN Zhiwei; Microbiology (US provisional 2 filed on 21 Jan 2022)
NEUTRALIZING ANTIBODIES AGAINST COVID-19 AND METHODS OF USE THEREOF

IP01108 Dr LAM Ka Wing; Pharmacy and Pharmacology (US provisional filed on 21 Jan 2022)
Dual targeting powder formulation for nasal and lung deposition through single intranasal administration

IP00994 Dr. KWOK Ka Wai; ME (PCT

filed on 21 Jan 2022)
Surgical Instrument with Flexible Steerable Segment

IP00994 Dr. KWOK Ka Wai; ME (TW application filed on 21 Jan 2022)
Surgical Instrument with Flexible Steerable Segment

IP01161 Dr. KOK Kin Hang; Microbiology (US provisional filed on 19 Jan 2022)
Heterologous influenza protection elicited by an intradermal influenza vaccine comprising a rationally designed single-round infectious virus

IP01004 Dr. WANG Hai Ming; Dentistry (PCT filed on 20 Jan 2022)
A novel antibacterial and mineralizing agent P-113-DPS coated on tooth surfaces for prevention of dental caries

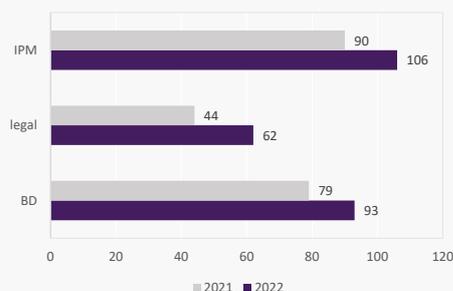
PROGRESS UPDATE

In January, the total number of ongoing BD cases rose to 93, up from 79 in the same month last year. The busiest segment was Technology commercialization and industry engagement, where case numbers increased to 74, compared to 63 a year earlier.

The Legal Team completed 62 cases in January, a substantial increase on the 44 completed during the same month last year. Collaboration agreements comprised the bulk of the team's work, with 36 cases agreements completed in January, up from 9 a year earlier. The team also opened 60 new cases in January.

The IPM team handled a total of 106 cases of various types in January, up from 90 in January 2021.

Total Engagements and Handling Cases



TECHNOLOGY COMMERCIALISATION

List of technologies Licensed in Jan 2022

Item	IP Type	PI	Faculty
A Method and Reagents to Chemically Label and Modify Peptides and Proteins	CN Patent No. ZL201510236410.0 US Patent No. 9,752,137	Prof. Xuechen Li	Science

Top 3 revenue-booked IPs in Jan 2022

Item	IP Type	PI	Faculty
Fintech Project	Contract Research/Consultancy	Prof S M Yiu	Engineering
Analysis of Insurance products	Contract Research/Consultancy	Dr Eddy Lam	Social Sciences
Monitoring of air flow in city	Contract Research/Consultancy	Prof. Honglin Chen	Medicine

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 their 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)

ABOUT US

About HKUTTO

The Technology Transfer Office (TTO) is committed to maximising the impact of research through technology transfer at both the institutional and industrial levels. TTO works closely with researchers at HKU to commercialise their inventions through professional consultation on business development, legal advice and assistance, as well as patent application filings. Your inventions will not benefit society unless they are mass produced.

About Versitech

Versitech Limited is the commercial arm of HKU. Versitech negotiates, executes and manages commercial business contracts and agreements on behalf of the University.

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