



SUSTAINING MEMBER

THE CHINESE UNIVERSITY OF HONG KONG

The Inventor of Non-invasive Prenatal Testing: Professor Dennis Lo

As a pioneer in the field of non-invasive diagnostics, Professor Dennis Lo leads a multidisciplinary team to develop the next generation tools for the analysis of cell-free nucleic acids and to study the biology and pathological characteristics of cell-free fetal nucleic acids that have not been unraveled to date. His research covers an enormous scope with a wide-range of applications and impact in healthcare.

Since joining the Chinese University of Hong Kong (CUHK) in 1997, he has continued to pursue his innovative discovery on the presence of cell-free fetal DNA in maternal plasma. His discovery of detectable concentrations of fetal DNA in the plasma of the pregnant women and his revolutionary research in non-invasive prenatal diagnosis has far-reaching impact to the global medical and scientific community. He and his team have shown that this technology can accurately and non-invasively detect fetal chromosomal and genetic disorders. As a result, since 2011, prenatal diagnostic services based on this technology have been adopted in over 90 countries and have been used by millions of pregnant women globally each year.

Importantly, this technology has helped bring positive health care benefits to both developed and developing countries, reducing the physical risk and emotional stress associated with the traditional prenatal testing methods. This scientific achievement lays the foundation for developing non-invasive tests for cancer detection based on similar scientific principles. In 2017, Professor Lo's research team completed a 20,000-person study which demonstrated that plasma Epstein-Barr virus (EBV) DNA analysis is useful for screening early asymptomatic nasopharyngeal carcinoma, allowing patients to be identified at significantly earlier stages. He has also developed technologies based on genomewide analysis of genetic, epigenetic and other non-genetic markers for the screening and tissue localization of multiple types of cancer using a single blood test.

Professor Dennis Lo's scientific achievement lays the foundation for non-invasive prenatal diagnostic tests for chromosomal and genetic diseases used globally

In recognition of his work, Professor Lo has received numerous international honors and awards. He was elected as a Fellow of the Royal Society in 2011 and a Foreign Associate of the U.S. National Academy of Sciences in 2013. He also received the 2014 King Faisal International Prize for Medicine. In 2016, Professor Lo was selected as the winner of the inaugural Future Science Prize-Life Science Prize. In the same year, he was named as the 'Thomson Reuters Citation Laureate - Chemistry'. In addition, he was named the world's "Top 20 Translational Researchers" by the world-renowned and authoritative scientific journal Nature Biotechnology for four consecutive years (from 2016 to 2019). He was also the first Chinese recipient of the Fudan-Zhongzhi Science Award in 2019. He was also awarded the 2021 Breakthrough Prize in Life Sciences.

Currently, Professor Lo is the Associate Dean (Research) of the Faculty of Medicine at CUHK, Chairman of the Department of Chemical Pathology, and Director of the Li Ka Shing Institute of Health Sciences. Professor Dennis Lo is an inventor of over 90 U.S. granted patents. He is a scientific co-founder and scientific advisory board member of Grail Inc.



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Likewise, Professor Peiyong JIANG, a bioinformatician and colleague of Professor Lo, has been elected as a senior member of the National Academy of Inventors in recognition of his inventive work in producing technologies that have the potential to make a real impact on the welfare of society. He is the first scholar from a Hong Kong institution to receive this honor.

CUHK is ranked 75th on the Reuters Top 75 in Asia's Most Innovative Universities in 2019. While within Hong Kong, CUHK is ranked 1st among the local universities in Hong Kong for four consecutive years. In 2020 alone, CUHK has filed over 380 patents with 226 patents granted and 80 licenses were issued.