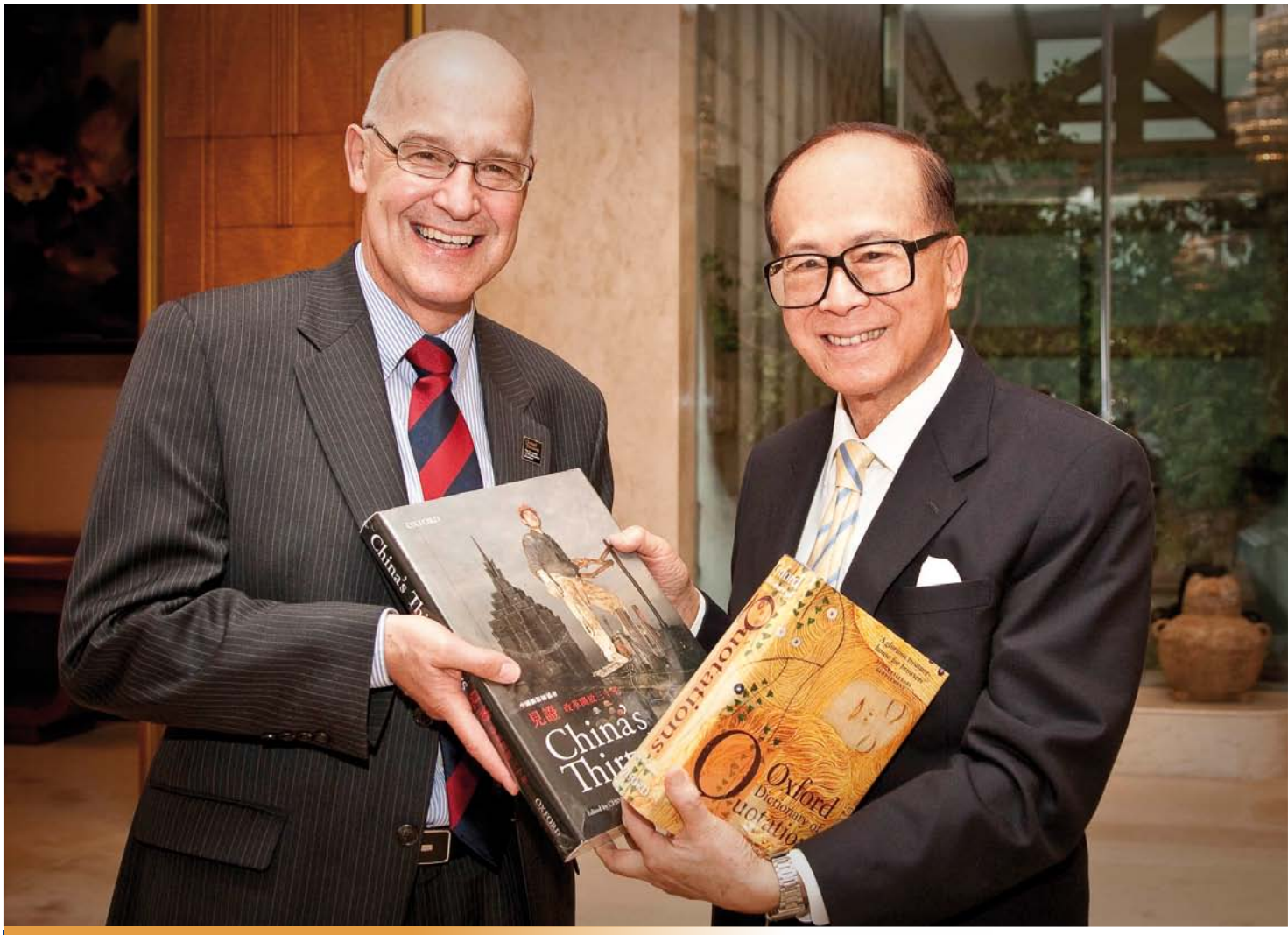

Fighting the good fight

The Li Ka Shing Foundation is helping medical experts in different countries to unite to build a global force fighting contagious disease

By Teri Fitsell

WE ALL ENJOY the benefits of globalisation – fresh fruit and vegetables from any part of the world at any time of the year, the latest Paris fashions on sale wherever you live, music and films that find international fame, and an Internet that lets us reach out to people all over the world. But not everything about globalisation is good. As the world has gone global, so have diseases. Around 30 million people fly abroad every year, meaning diseases can inadvertently be taken from one country to another at frightening speed.

The terrible impact of a global epidemic is difficult to imagine, though Hong Kongers got a small taste of what it might be like in 2003, when Severe Acute Respiratory Syndrome (SARS) hit the city and Hong Kong was gradually isolated from the rest of the world. People stopped coming here and Hong Kong's population hid behind surgical masks

“**New diseases emerge** all the time. Prompt action against them can only happen with **global collaboration** . . . and **our future** depends on it.” Sir Ka-shing Li

and closed doors. SARS killed 299 people in Hong Kong (774 globally) and though it was contained within four months it was a frightening taste of what could happen if a viral disease took hold.

On the positive side though, if diseases can go global, so can the fight against them. Set up in 1980, the Li Ka Shing Foundation (LKSF) has donated over HKD11.3 billion over the last 30 years and been strongly committed to promoting global cooperation in the field of medical research into viral diseases. At a time when the world lives in fear from “newer” afflictions such as bird flu and the afore-mentioned SARS and continues to be threatened by older infectious diseases, such as influenza, dengue fever, malaria, tuberculosis and HIV, improvement in the treatment of viral disease is vital.

This year alone LKSF has made two major donations to help international efforts to fight disease. In mid-May LKSF made an additional donation of GBP5 million to expand the University of Oxford’s global health research initiatives, especially in Mainland China. This followed a donation in April of CAD28 million to the University of Alberta, Canada, to further its efforts to treat and cure virus-based diseases and to help establish the Li Ka Shing Institute of Virology.

Expert researchers at the University of Alberta are led by Dr Lorne Tyrrell, known internationally for discovering how to block the hepatitis B virus from replicating in human liver cells. His discovery resulted in the development of lamivudine, the first oral hepatitis B antiviral medication. Now, thanks to the LKSF funding, Dr Tyrell and his team, who are currently dispersed among 10 departments, can come together under one roof – the state-of-the-art Institute – and can unify under one mission: through leadership in scientific excellence and international collaboration, the Li Ka Shing Institute of Virology will discover new methods to prevent, treat and cure virus related diseases and translate these discoveries to provide improved patient care around the world.

It was the largest single donation in the history of the University of Alberta and garnered a further CAD52.5 million in related new Alberta Government funding, demonstrating the power of public/private partnerships to spur innovations. CAD25 million will be used to establish the Li Ka Shing Institute of Virology and CAD3 million will create the Sino-Canadian Exchange Program, which includes a joint doctoral programme between the Faculty of Medicine and Dentistry and the Shantou University Medical College. The donation also gives the university the funds to attract new talent to its research facilities, and to expand its established research into influenza A, a field in

Opposite: **Professor Andrew Hamilton thanks Sir Ka-shing Li for his generous donation of GBP5 million to the University’s Global Health Programme;** *below:* **the Global Health Programme brings together Scholars from Shantou University and Oxford University.**

The new Li Ka Shing Centre for Health Research Innovation at the University of Alberta.

which it has made major advances in recent years. In recognition of the LKSF's historic gift, one of the newest buildings in the university's growing health area will be named the Li Ka Shing Centre for Health Research Innovation. The building, with a gross floor area of 28,000 square metres, and home to the Alberta Diabetes Institute, is designed as a flexible space that supports current and future research and teaching needs.

Indira Samarasekera, President and Vice-Chancellor of the university said, "Our researchers have been at the forefront of virology research for decades, including Dr Lorne Tyrrell and his work developing a treatment for hepatitis B. The Li Ka Shing Institute of Virology will provide a state-of-the-art home to some of the world's very best researchers in virus-based diseases and will help place the university in its rightful place among top centres of such work."

The University of Alberta will be able to connect to international health science research networks, including the Li Ka Shing Foundation - Oxford Global Health Programme at the University of Oxford, which the LKSF helped to set up with an initial GBP2 million donation in 2007.

This year's GBP5 million donation to Oxford will add to that and help build on the important work already achieved by the Programme, which has already established new collaborations between researchers in Asia and Oxford, scholarships for Asian students to study for Master of Science in Global Health Sciences, and teaching programmes in infectious disease at Shantou University in Guangdong, Mainland China.

The Global Health Programme is led by Oxford University's Professor Jeremy Farrar, a world expert on infectious diseases. Professor Farrar welcomed the LKSF's latest donation, saying, "The University of Oxford has been delighted to work closely with the Li Ka Shing Foundation to develop our joint programme in global health. But there is plenty more that needs to be done, and this new and very generous donation will allow the creation of a true network of excellence in education and research that links research groups from Mainland China and across Asia to Oxford and the UK."

The money will be used specifically to fund

a series of partnerships, teaching and research projects that will see Shantou University become a full partner in Oxford University's Asia Research Network along with centres in Vietnam and Thailand. Asia is a hotspot both for infectious diseases and drug resistance – that is, a build-up of resistance to drugs by existing diseases.

Many of us think of diseases like malaria as largely a thing of the past, whereas in fact malaria still kills more than a million people worldwide per year. A few years ago researchers thought they had found a cure in the traditional Chinese herb qinghaosu, internationally known as artemisinin, which Professor Farrar himself refers to as "this miracle drug". Artemisinin has become the most effective anti-malarial drug in the world.

However, recently scientists working under the Li Ka Shing Foundation - University of Oxford Global Health Programme discovered that in Cambodia malarial parasites are evolving to resist the drug. Now the Programme is engaged in new battles: first to prevent artemisinin-resistant malaria parasites from spreading beyond Cambodia, and second, to reduce the parasite's resistance within Cambodia.

This particular battle is about to be joined by the academics and medical students of Shantou University, who will work with Professor Farrar's team to study how exactly artemisinin has been used over its 2,000-year history and extrapolate facts relevant to the ongoing fight against malaria.

To mark the handover of the Li Ka Shing Foundation's second donation to the Global Health Programme, Professor Andrew Hamilton, Vice-Chancellor of the University of Oxford, came to Hong Kong in May. Asked what the Global Health Programme has achieved so far, he explained that it has pioneered potential vaccines for tuberculosis, malaria and HIV, which are currently in clinical trials. He was particularly proud of a research project into swine flu and a programme to find more effective ways to treat children living in remote areas of the Mainland.

In conclusion, Professor Hamilton said, "Sir Ka-shing Li has demonstrated a huge commitment to improving health worldwide, and we hope this new funding for research and teaching will lead to improvements in combating many infectious diseases, from emerging infectious diseases, influenza, malaria and dengue to tuberculosis and HIV."

Beneficiaries of the research *(clockwise, from left)***: children in rural area of the Mainland; medical scientists working in a biosafety lab in Cambodia; and a child receiving treatment in Afghanistan.**