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NTU researchers develop new approach in malaria vaccine research
- Aim to gain insights into role of malaria parasite proteins

Researchers from Nanyang Technological University (NTU)’s School of Biological Sciences (SBS) are now using a new approach in malaria vaccine research. This new approach involves focusing on identifying molecules in the malaria parasite that are potentially useful for vaccine, validating these candidate molecules and establishing functional details of these molecules. To achieve this, the researchers at NTU SBS use a multi-pronged approach, combining chemical genetics with cell biological approaches, biochemistry and structural biology.

The World Health Organisation considers malaria, along with tuberculosis and Aids, as the most important infectious diseases in the world. There are about 500-600 million malaria cases seen worldwide annually with about 2-3 million deaths resulting from this disease. There is currently no vaccine available. Hence the research and development into the disease and the quest for its vaccine remains critical for researchers worldwide.

NTU’s research into malaria is led by three principal investigators from SBS: Associate Professor Peter Preiser, Assistant Professor Zbynek Bozdech and Associate Professor Julien Lescar. Working together as a multi-disciplinary group, the 18-member team research into molecular mechanisms and structure of proteins related to the malaria parasite.
One of the discoveries which the team found was that contrary to common belief, the key to the malaria parasite attacking the red blood cells is not necessarily due to the presence of many different types of “ligand-receptor interactions”. Instead, the crux of the disease is in the quantity of “ligand-receptor interactions” between the parasite and the red blood cells. (Please refer to attached fact sheet for explanation on ligand-receptor interaction.)

Assoc Prof Preiser, Deputy Director, Bioscience Research Centre, NTU SBS, said: “It is very exciting that we are able to assemble this talented group of researchers to look into this new approach of developing malaria vaccines. We hope to gain insights into the role of parasite proteins to establish whether they are suitable for vaccine development. NTU SBS’s solid foundation in genomics, genetics and molecular structure research has already attracted much interest in the international community and with this project, we look forward to spur future research in malaria vaccines for the benefit of society.”

This research topic will be one of the many being presented at the China-NTU Symposium on Life Sciences held from 6-7 December 2005 in NTU. The Symposium will involve researchers from NTU SBS, Tsinghua University, Peking University and Shanghai Jiaotong University. It aims to foster closer interactions between top China universities and SBS, and is expected to lead to further research collaborations as well as student exchanges.

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About Nanyang Technological University

Nanyang Technological University (NTU) is an established tertiary institution with 12 Schools, including three new schools - the School of Humanities and Social Sciences, School of Art, Design and Media, and School of Physical and Mathematical Sciences.

NTU has a distinguished lineage with roots that go back to 1955. Today, we are a research-intensive university ranked among the top 50 in the world. Our strength in science and engineering is acknowledged globally. We have a business school with an MBA programme that is ranked among the top 100 in the world, an internationally-acclaimed National Institute of Education, one of the best communication and information schools in Asia, and a biological sciences school at the forefront of Singapore’s life sciences initiative. The Institute of Defence & Strategic Studies is a world authority on terrorism.

Our New Undergraduate Experience featuring a holistic education including residential living and international experience has received external endorsement for its comprehensive curriculum featuring a rich selection of minors.
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