

Max Planck Society strengthens research in infectious diseases

HIV researchers lead two new Max Planck research groups in South Africa

The Max Planck Society has established research groups in Africa for the first time. Alex Sigal and Peter Thumbi'u have been appointed to head the two groups of the Max Planck Institute for Infection Biology. The groups of the two HIV researchers are funded for five to a maximum of nine years, and will conduct basic research in HIV and tuberculosis. The groups will profit from their proximity to the infection centres. "Tuberculosis and HIV are vital questions in southern Africa. If we want to cure these diseases, we also have to conduct research directly in the countries where the greatest number of people are afflicted. The insights gained in the laboratory and clinic can thereby go hand in hand with great success – from the hospital bed to the lab bench and back again, so to speak," emphasises Peter Gruss, President of the Max Planck Society.

The two research groups will be located in the newly founded KwaZulu Natal Research Institute for Tuberculosis and HIV in Durban, South Africa. The Institute is a joint project of the University of KwaZulu-Natal and the Howard Hughes Medical Institute in the US and is dedicated exclusively to research on HIV and tuberculosis, based on the fact that the two infectious diseases have entered into a sinister pact in South Africa. Due to their weakened immune systems, many HIV patients have also become infected with tuberculosis. Physicians are therefore searching for new treatment channels in various on-site clinical studies.

By contrast, very little basic research has taken place in South Africa up to now. The Max Planck Society is leading the way here and supporting efforts in basic research. "The challenges of HIV and tuberculosis can only be overcome by dovetailing clinical studies with basic research. Our research in Germany will also benefit directly from these working groups. So it is a genuine win-win situation," says Stefan Kaufmann, head of the Department of Immunology at the Max Planck Institute for Infection Biology in Berlin.

In his research, Alex Sigal focuses primarily on the question of how cancer or HIV is able to circumvent treatment with medications through a sort of retreat zone. Working at the Weizmann Institute of Science in Israel and at the California Institute of Technology, the scientist has developed computer models of disease reservoirs and compared them with living cells. As a result, he discovered that the transmission of viruses between cells reduces the effectiveness of HIV medications. As a next step, Sigal would like to transfer his results to new classes of HIV medications known as protease inhibitors and antibodies. Moreover, it is hoped that the analysis of lymph tissue will demonstrate how HI viruses in the lymph nodes are transferred from one cell to the next. These results could also improve the effectiveness of treatments for diseases like tuberculosis or malaria. In future, he especially wants to investigate how tuberculosis pathogens become resistant to medication by falling into a kind of hibernation – dormancy, as it is known.

Peter Thumbi Ndung'u has to date conducted research at the University of KwaZulu-Natal. He is particularly interested in the factors which influence the transmission of HI viruses. Born in Kenya, he would like to find out which factors make certain individuals especially receptive to the viruses, and what permits the viruses to

become resistant to medication. In addition, he is investigating how the various parts of the immune system fight against the pathogens. With his new research group, he wants to investigate the immune defences of HIV-infected tuberculosis patients.

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