



Newsletter

NEWS

IRB Avian flu research fast-tracked by the Wellcome Trust.

Research fast-tracked for support by the Wellcome Trust is working with adults who have recovered from infection by the potentially lethal H5N1 strain of avian flu to develop antibodies that it is hoped could be used in the fight against H5N1 infection.

An international collaboration of scientists is working to harness a novel method of rapidly generating antibodies from human cells, which has been developed by Professor Antonio Lanzavecchia at the IRB. Antibodies are produced by the body's immune system to recognise and fight against infection.



Professor Antonio Lanzavecchia

The research team has been awarded £385,000 by the Wellcome Trust as part of an initiative to "fast-track" research into the human and avian influenza.

"By using the new technology on blood cells from Vietnamese adults who have recovered from H5N1 infections, we hope to take advantage of the highly selected, naturally acquired anti-viral immune response in these people," explains Dr Cameron Simmons, who is part of the

international collaboration and is based at the Oxford University Clinical Research Unit in Vietnam, one of the Wellcome Trust's Major Overseas Programmes.

"The Unit in Vietnam is well placed to carry out this research, already carrying out research into human and avian influenzas and with front-line access to patients," says Dr Simmons.

The international research team also includes Dr Kanta Subbarao of the National Institute of Allergy and Infectious Diseases (NIAID), National Institute of Health in Maryland, US, who is working on mouse models of the virus.

Dr. Subbarao and her NIAID colleagues aim to use the antibodies to H5N1 virus, developed from these patients, to neutralise strains of the H5N1 virus in the laboratory. These antibodies could be valuable tools to understand the mechanisms of H5N1 influenza infection and could conceivably have some clinical uses in prevention and treatment of disease.

H5N1 strains of the influenza virus have caused disease in millions of poultry animals across the globe, especially in the last three years. Occasionally, the H5N1 influenza virus has been transmitted to humans, often fatally. The virus still remains hard for people to catch, but scientists across the globe are working to develop a vaccine and treatments in case the virus mutates into a form easily transmitted among humans.

"If and when the H5N1 virus mutates and becomes more easily transmissible between humans, it is important that scientists are in as strong a position as possible to tackle a potential pandemic," says Mark Walport, Director of the Wellcome Trust.

"The Wellcome Trust already spends £450 million annually on improving human and animal health, but is making research into human and avian influenza a priority, ensuring that we are able to 'fast-track' high-quality research proposals."

For more Info: <http://www.wellcome.ac.uk/>

EVENTS

HRH Princess Chulabhorn of Thailand makes an official visit to the IRB.

The IRB was decked out with flowers and white linen for the arrival of Princess Chulabhorn of Thailand on the 2nd of June. The official visit was organized with the help of the Thai Royal Embassy in Bern. The purpose of the visit was to establish scientific and cultural links between the IRB and the Chulabhorn Research Institute in Bangkok, an institute headed by the Princess Chulabhorn who is a well respected research scientist.



Princess Chulabhorn of Thailand

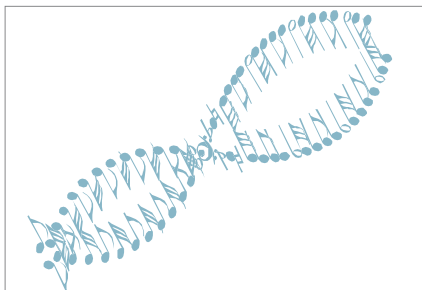
An introduction was made in which our President, Dr. Giorgio Nosedà, welcomed the more than 20 members of the royal and embassy staff in perfect Thai and then handed the proceedings over to Director Dr. Antonio Lanzavecchia for a scientific presentation of the IRB. Dr. Jeremy Luban, the most recent Group Leader to join the Institute, presented his work on HIV.

After a quick tour around the facilities a small reception was held in the lobby, where the Princess exchanged gifts with the IRB and the Mayor of Bellinzona, while Carlo Uboldi played the piano. As fast as they arrived they were gone. Hopefully the relationship between our institutes will foster a lively exchange, not just of scientists and students, samples and reagents, but maybe even administrative staff such as your editor! In fact I hear they have a swimming pool at their institute. For more info: <http://www.cri.or.th/cri/>

■ To the tune of science; the first of a series?

Musica e Molecole – Jazz 19 June

In collaboration with the Foundation Science et Cité, with the support of the Horten Foundation and UBS Bellinzona, and in conjunction with the visit to the institute of the Horten Foundation Council, IRB will be holding an evening of music and science Monday, 19 of June.



Logo of the event

The idea of the event is to invite supporters and neighbours into the institute, to share some science and some music with them, and to raise a glass together.

Our hope is that this and similar events will reduce the distance that can sometimes be felt between the general public and science, a task which is especially important to the IRB because of its remote location.

Why Music? The affinity between music and science can better be described by musicians and scientists than by your editor, who is neither, but the first time I entered the IRB I was convinced of a clear connection between the two. For me the students and scientists of the IRB (and perhaps other institutes) follow a similar calling to musicians, a dedication to translating the natural world, and to sharing with others their privileged access to the phenomena that they study.



Pianist Carlo Uboldi

While the unusual atrium of palazzo Fabrizia seems to lend itself to acoustical music, the challenge will be getting the guests to go upstairs and look down on the musicians.



Hall of the Institute

If the preliminary data look good, we will continue the experiment in September with music by Stockhausen, and then again in the spring with classical.

World Cup underlines the international character of the IRB.

Flags were proudly draped over the atrium railings the other day to mark the beginning of the Soccer World Cup. From a quick count of flags there must be at least 12 nationalities in the IRB.

■ IRB STUDENTS

PhDs awarded to IRB students Simona Infantino and Elena Palmesino.

Bringing the total of PhDs awarded for studies at the IRB to 15, the work of Simona and Elena was supervised by Marcus Thelen. The PhD program continues to attract a great deal of interest and is a vital part of the institute.



Elena Palmesino and Simona Infantino

RDC1, an orphan receptor with similarities to chemokine receptors.

Simona Infantino and Marcus Thelen.

The orphan receptor RDC1 may function as a chemokine receptor. We have characterized its expression pattern in leukocytes, in particular on B cells.

So far, we have tested most of the known human chemokines as potential ligands, but could not identify a specific agonist.

Receptor internalization on primary and transfected cells was measured as agonist induced response. Recent results obtained in collaboration with our partners in Paris suggest that CXCL12 binds RDC1 and induces its internalization in T cells. However, results from our laboratory indicate that primary B cells do not respond to CXCL12, but to a yet unknown agonist. We assume that the physiological relevant ligand could be an unknown molecule. To this end supernatants derived from different cell culture systems, mimicking the environment where RDC1 positive cells reside, are tested for potential activity on RDC1 and will be fractionated using standard biochemical techniques. Once a ligand has been identified we will study its expression pattern and physiological significance.

CXCR4 associated proteins and their role in cell specific receptor function.

Elena Palmesino and Marcus Thelen.

Understanding chemokine receptor-mediated signaling in different cellular environments is the main focus of the project. Ample evidence from our laboratory and by others indicate that coupling of a given G-protein coupled receptor to downstream signaling cascades must be regulated in close proximity to the receptor and may vary between cell types.

As a model we investigate the signaling properties of the chemokine receptor CXCR4 which regulates trafficking of leukocytes and tissue cells and is involved in tumor metastasis. The receptor also mediates cell survival and is important in organogenesis. However, CXCR4-stimulated intracellular signaling depends on the cell system. To characterize receptor-associated proteins, that determine the fate of CXCR4-mediated cell activation, we developed a solubilization protocol that does not affect the structural integrity of CXCR4, and in which solubilized CXCR4 retains its ability to bind CXCL12. Current investigations should lead to the identification of receptor associated proteins in different cellular systems. Analysis of the expression patterns of the proteins will provide clues on their function in the regulation of CXCR4 activity.



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