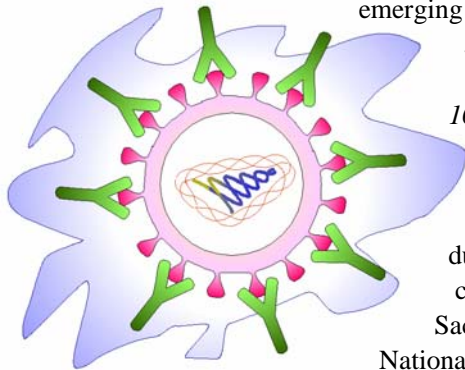


New method to generate human monoclonal antibodies for therapy against infectious agents

Sera prepared from immune donors containing neutralizing antibodies are widely used to confer immediate protection against microbial infections and toxins. However, neutralizing antibodies which target newly emerging diseases such as SARS, AIDS or Hepatitis C are difficult to find. In



July 2004 a research team led by Prof. Antonio Lanzavecchia, director of the IRB, described in *Nature Medicine* (*Nat. Med.* 2004; 10:871-875) a new method to produce human monoclonal antibodies

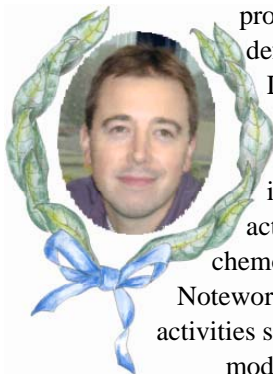
by highly efficient immortalization of human memory B lymphocytes, immune cells that represent a repository of all specificities against foreign structures that an individual acquires during lifetime. The group of Prof. Lanzavecchia and his collaborators from the University of Marburg (GER), the Ospedale Sacco in Milan (Italy), Chiron Vaccines in Siena (Italy) and the

National Institute of Allergy and Infectious Diseases (NIAID) in Bethesda

(USA) now isolated memory B cells from a patient who recovered from SARS. The memory B cells were immortalized with Epstein Barr Virus in the presence of short stretches of synthetic DNA which enhanced dramatically the efficiency of the procedure. From these immortalized memory B cells, 34 clones were isolated which produced antibodies that could neutralize the coronavirus which causes SARS. The importance of the findings is immediate, considering the life threatening infections caused by the virus.

Three students of the IRB successfully defended their PhD thesis

Dr. Vibor Petkovic graduated in biology at the University of Zagreb, Croatia. In 2001 he entered the PhD program of the IRB in the group of Dr. Basil Gerber. Earlier this year he successfully defended his thesis at the University of Bern under the co-supervision of Prof. Clemens Dahinden from the University of Bern. In his thesis he investigated the interplay of chemokines in the regulation leukocyte trafficking during inflammation.



Chemokines are small proteins produced by tissue cells and leukocytes. Their importance in inflammation and immune responses arises through their chemotactic activities towards different subsets of leukocytes. He describes novel activities of chemokines which act as endogenous chemokine antagonists: I-TAC and eotaxin-3.

Noteworthy, eotaxin-3 is the first human chemokine that features broadband antagonistic activities suggesting that, in contrast to the other members of this family, it may have a role as modulator rather than mediating inflammatory responses. His results were published in

J. Biol. Chem. (2004) 279: 23357-23363, *J. Leuk. Biol.* (2004) 76:701-708.

Dr. Samantha Paoletti graduated in biology at the University of Bologna. In 2001 she entered the PhD program of the IRB in the group of Dr. Mariagrazia Ugucioni. In May she successfully defended her thesis at the University of Fribourg under the co-supervision of Prof. Sandro Rusconi from the same university. The migration of leukocytes in immune surveillance and inflammation is largely determined by their response to chemokines. While the chemokine specificities and expression patterns of chemokine receptors are well defined, it is still a matter of debate how leukocytes integrate the messages provided by different chemokines that are concomitantly produced in physiological or pathological situations *in vivo*. In her thesis she describes a novel



regulatory mechanism of leukocyte trafficking, based on chemokine-induced synergism. This mechanism provides an amplification system in inflammatory conditions where a "chemokine-rich" tissue can render leukocytes more competent to respond to migratory cues. Her results were published in *J. Biol. Chem.* (2004) 279: 23357-23363, *Blood* (2003) 102:789-794

Dr. Klara Kristin Erikson graduated in molecular biology at the University of Stockholm and entered the PhD program of the IRB in 2001 in the group of Dr. Maurizio Molinari. In September 2001 she successfully defended her thesis with a public presentation entitled *Glycoprotein folding, quality control and degradation: studies in chaperone-depleted cells and in cells with defective regulation of the unfolded protein response* at the ETH in Zurich. Prof. Ari Helenius (ETH Zurich), Prof. Roberto Sitia (DiBiT, Milano) and Prof. Ulrike Kutay (ETH Zurich) were external referents of Klara's thesis. She investigated molecular aspects of protein folding in the living cells and in particular the intervention in the process of several cellular factors such as molecular chaperones and folding enzymes. Her work was published in *Mol. Cell* (2004) 13:125-135, *J. Biol. Chem.*, *in press*.



Dr. Markus Manz receives the Artur-Pappenheim-Price for Hematology

Dr. Markus Manz received the Artur-Pappenheim-Price 2004 from the German Society of Hematology and Oncology (DGHO) for his studies on the "Development of a Human Adaptive Immune System in Cord Blood Cell-Transplanted Mice" published in *Science* (2004; 304:104-107). For details see News Letter April 2004.