

HITS

Helmholtz Immunotherapy Seminars



Prof. Frank Kirchhoff
Universitätsklinikum Ulm

“Disarming the cell – how pandemic HIV conquered the world”

March 7th, 2012, 3:15 p.m.
ATV, Seminar Room, INF 242

Frank Kirchhoff is one of the world's leading AIDS researchers. Over the past two decades he has made a decisive contribution to improve the understanding of how AIDS has developed and how the HI virus evolves. His research has very successfully concentrated on one of the most important protein components of the HI virus, the Nef protein, which has a wide variety of very different effects: in primates it reduces the pathogenesis of the HI virus. In humans, however, its immunomodulating effect is lost, so that the virus can multiply very fast and is highly pathogenic. Other significant discoveries Kirchhoff has made include a peptide in human blood that is made up of 20 amino acid residues and which inhibits growth of the virus, and a protein in semen that forms tiny fibres that capture HI virus particles, guiding it into cells and increasing the risk of infection. These findings could help to explain the high rate of HIV infection through sexual intercourse and pointing the way to new approaches to prevent transmission. Through his work, he has raised German AIDS research to a high international esteem. Kirchhoff studied biology in Göttingen and wrote his doctorate about a new HI virus-2 clone at the German Primate Centre. He worked as a postdoctoral researcher at Harvard Medical School in Boston, Massachusetts, where he first studied the HIV Nef protein, which remained the main focus of his future work after he returned to Germany in 1994, first working as a research assistant, then as a lecturer (Privatdozent) and, finally, as a professor at the University of Erlangen-Nürnberg, before accepting an appointment in Ulm in 2001. In 2009 he received the Leibnitz Preis.

Selected publications

Heigle A, Schindler M, Gnanadurai CW, Leonard JA, Collins KL, Kirchhoff F. Down-Modulation of CD8 $\alpha\beta$ Is a Fundamental Activity of Primate Lentiviral Nef Proteins. *J Virol.* 2012 Jan;86(1):36-48. Epub 2011 Oct 19. PubMed PMID: 22013062.

Kirchhoff F. Immune evasion and counteraction of restriction factors by HIV-1 and other primate lentiviruses. *Cell Host Microbe.* 2010 Jul 22;8(1):55-67. Review. PubMed PMID: 20638642.

Arhel NJ, Kirchhoff F. Implications of Nef: host cell interactions in viral persistence and progression to AIDS. *Curr Top Microbiol Immunol.* 2009;339:147-75. Review. PubMed PMID: 20012528.

Helmholtz Alliance on Immunotherapy

The Helmholtz Alliance on Immunotherapy of Cancer was established in 2008. It is a centrally funded initiative of the Helmholtz Association aiming at translating basic research immunology findings into innovative strategies for immunodiagnosis and immunotherapy of cancer. The coordinating center is the German Cancer Research Center (DKFZ) and the scientific coordinator is Prof. Peter H. Krammer.