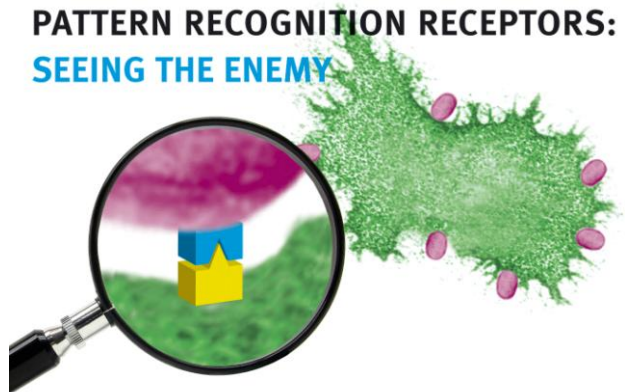


NCMLS Symposium 2009

New Frontiers in Pattern Recognition Receptors

NCMLS 'New Frontiers' grows from strength to strength

How do cells in our immune system recognise dangerous invaders and hazardous cells, such as cancer cells? Answers to this and similar questions are evolving rapidly. A large contributor worldwide to the field of immunology is the NCMLS, Nijmegen Centre for Molecular Life Sciences of the UMC St Radboud. The NCMLS institute organised an important scientific congress on this very topic, for which the absolute world top immunology experts came to Nijmegen.



Beginning in 2007, the Nijmegen Centre for Molecular Life Sciences (NCMLS) institute has organised a yearly international 'New Frontiers' symposium. The theme of each symposium differs by covering a specific topic within one of thematic areas of NCMLS. This year's symposium, entitled, Pattern Recognition Receptors: seeing the enemy, was held on the 5th and 6th of November 2009 and attracted a record number of visitors to the institute from across Europe, Asia and America. In total more than 400 people attended both days of the symposium clearly demonstrating its growing success.

The symposium was officially opened by Prof. Frans Corstens, Vice-Dean RUNMC who welcomed the speakers, guests of honour and registrants. A large panel of internationally renowned scientists that contributed significantly to the understanding of Pattern Recognition Receptors function were invited to present their latest research findings and hypotheses. Prof. Frans Corstens gave special thanks to Professor Shizuo Akira from the Osaka University, Japan who agreed to give one of the key-note lectures despite being awarded the day before with a prestigious Japanese Government Prize for Culture. Together with the two other keynote speakers, Jules Hoffmann and Michael Karin, and indeed all the other top-international speakers, a top two-day program ensured a setting for interesting presentations and discussions on innovative diagnostics and treatments for immunological diseases and disorders.

The first session concerning Toll-Like Receptors (TLR) biology was opened by Jules Hoffmann, from Institut de Biologie Moléculaire et Cellulaire, Strasbourg, who gave the first key-note lecture about innate immunity with particular attention to drosophila fruit-fly host defense. Greg Barton (University of California) discussed recognition of viruses by TLR's whilst Tom van der Poll (University of Amsterdam)



lectured on recognition of bacteria by TLR's during sepsis. Gosse Adema from the Tumour Immunology Department of NCMLS discussed ongoing in vivo work relating to TLR agonists and the current progress towards the development of immunotherapy of cancer patients. The session was drawn to a close by Bart Lambrecht (University of Gent) who discussed TLR signaling in relation to lung dendritic cell function and allergic reactions (e.g. dust-mite).

The second session explored the roles of cytosolic RNA and DNA sensors. Speakers included Veit Hornung (University of Bonn), Marco Colonna (University of Washington), Tilmann Bürckstümmer (Center for Molecular Medicine, Austria) followed by the second keynote address by Michael Karin (UCSD School of Medicine) who discussed the biochemistry of innate immunity in the context of novel

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therapies.

After a symposium dinner for all participants at Chalet Brakkestein the first day was brought to a close. The second day of the symposium focused on lectins, NOD-like receptors and the inflammasome. The first session was opened by Carl Figdor (NCMLS) followed by Kurt Drickamer (Imperial College London), Yvette van Kooyk (VU University Medical Centre) and Mihai Netea (NCMLS) who each discussed the biochemical functions of lectins in disease. The final session focused on the role of IL1beta in autoinflammatory disease (Charles Dinarello, University of Colorado), pattern recognition pathways in malaria (Doug Golenbock, University of Massachusetts), NLR family receptors in host defense (Thirumala-Devi Kanneganti, St. Jude Children's Research Hospital) and the evolution of adaptive immunity in jawed and jawless vertebrates (Max Cooper, Emory University School of Medicine).

The closing key-note lecture was given by Shizuo Akira (Osaka University) who reviewed pattern recognition by TLR's and cytoplasmic receptors and presented data from a recently identified gene known to be induced in response to TLR stimulation but whose function is still unclear.

The New Frontiers symposia are home to the yearly awarding of the Hans Bloemendal Medal. Prof. Hans Bloemendal has made significant contributions to the fields of biochemistry and molecular biology throughout his illustrious career and as a prominent scientist at the forefront of research on lens proteins. The professionally sculptured solid bronze medal serves to honour Prof. Bloemendal eminent status and those that are awarded this prize. Previous awardees include Nobel laureates Aaron Ciechanover and Peter Agre.

This year's prize was awarded to Prof. Shizuo Akira in recognition of his groundbreaking research and contributions to the field of immunology. During the 1990's he was one of the pioneers in elucidating the roles of Toll-like receptors (TLRs) in the recognition of specific structures of microorganisms and their roles in human diseases. Subsequently, he made seminal contributions to our understanding of viral



recognition by identifying several of the RIG-I-like helicase receptors and their important functions in antiviral responses. In the words of Carl Figdor, Director NCMLS, "Our field is enormously indebted to you, as you have provided the entire scientific community with most of the experimental mouse models for studying the role of these molecules in immune responses." The award was presented by Prof. Bloemendal himself...in Japanese!

Plans are well underway for the fourth 'New Frontiers' symposium on Bioenergetics. This symposium will focus on the biochemistry of energy metabolism with a focus on general biochemistry, inborn errors of metabolism, aging and cancer. The symposium will be held on the 16th & 17th November 2010. Keynote speakers include Nobel laureate John Walker, MRC Mitochondrial Biology Unit, UK, Brian Kennedy, University of Washington, USA and Doug Wallace, University of California, USA. Further information will be posted on NCMLS website (www.ncmls.eu).