

External seminar - Finding (& fighting) the enemy within: how RIG-I and SAMHD1 detect and protect against viruses

Locations	S104 Cancer Sciences
Date(s)	Tuesday 10th December 2013 (13:00-14:00)
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Finding (& fighting) the enemy within: how RIG-I and SAMHD1 detect and protect against viruses

Dr Jan Rehwinkel
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Biography

Dr Jan Rehwinkel is a PI at the Weatherall Institute for Molecular Medicine. Having previously worked in the team of Caetano Reis e Sousa at the London Research Institute, he now leads his own research group investigating innate immune receptor sensing of nucleic acids, focussing on the molecular mechanisms involved, both during viral infection and inflammatory diseases. Nucleic acids can provide a molecular signature of virus infection, and innate immune receptors that recognise them include toll-like receptors, RIG-I-like receptors and cytosolic DNA receptors.

Previously he has defined how RNA can be recognized by a protein called RIG-I in cells infected with negative strand RNA viruses such as influenza A. His current efforts focus partly on mechanisms of RNA binding receptors, also how the expression and cellular localization of nucleic acid binding receptors is regulated. Secondly, he is investigating the molecular basis of genetic disorders characterized by chronic type I IFN production in the absence of virus infection. His work therefore relates to virus infection, inflammation, autoimmune diseases, and development of vaccine adjuvants. His research is funded by the MRC, and by a Wellcome Trust New Investigator Award. It promises to be an excellent seminar and all are welcome.

Publications

Rehwinkel J, Reis E Sousa C, Maelfait J, Bridgeman A, Rigby R, Hayward B, Bonthron DT, Liberatore RA, Bieniasz PD, Towers GJ, Moita LF, Crow YJ . 2013. SAMHD1-dependent retroviral control and escape in mice EMBO Journal, 32 (18), pp. 2454-2462.

Rehwinkel J. 2010. Exposing viruses: RNA patterns sensed by RIG-I-like receptors. J Clin Immunol, 30 (4), pp. 491-495.

Schulz O, Pichlmair A, Rehwinkel J, Rogers NC, Scheuner D, Kato H, Takeuchi O, Akira S, Kaufman RJ, Reis e Sousa C. 2010. Protein kinase R contributes to immunity against specific viruses by regulating interferon mRNA integrity. Cell Host Microbe, 7 (5), pp. 354-361.

Rehwinkel J, Tan CP, Goubau D, Schulz O, Pichlmair A, Bier K, Robb N, Vreede F, Barclay W, Fodor E, Reis e Sousa C. 2010. RIG-I detects viral genomic RNA during negative-strand RNA virus infection. Cell, 140 (3), pp. 397-408.

Rehwinkel J, Reis e Sousa C. 2010. RIGorous detection: exposing virus through RNA sensing. Science, 327 (5963), pp. 284-286.

Crow YJ, Rehwinkel J. 2009. Aicardi-Goutieres syndrome and related phenotypes: linking nucleic acid metabolism with autoimmunity. Hum Mol Genet, 18 (R2), pp. R130-R136.