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OTHER PROGRAM AFFILIATIONS



Cancer



Development and Stem Cells

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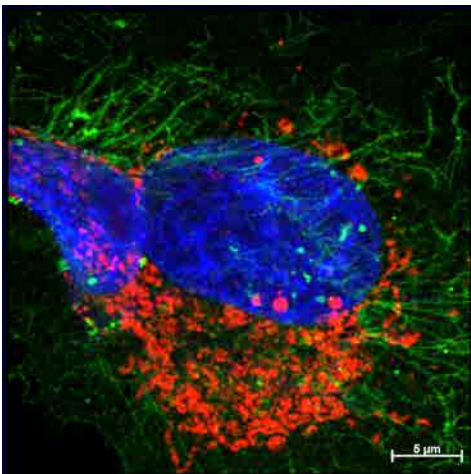
WEB med.monash.edu/biochem/nuclear-signalling-page-jans.html

Nuclear transport is central to processes such as signal transduction, oncogenesis and differentiation, where changes in transcription within the nucleus are effected by transcription factors which access the nucleus through the cellular nuclear transport system. This is also critical in viral infection, where viruses hijack host transport mechanisms to effect nuclear targeting of critical viral proteins, as well as to prevent the host anti-viral response.

Our work focusses on cancer and viruses of medical significance such as Dengue, to define the role of nuclear transport in disease, and how this can be exploited for therapeutic intervention through novel antiviral/anti-cancer agents.

Research Projects

1. Host-Virus Interactions in Lethal Infection; Therapeutic Targets
2. Antiviral Agents against Lethal Viruses
3. Nuclear Transport in Cancer; Therapeutic Strategies
4. Nuclear Transport in Stress; Survival and Death



Cell gone viral: Infection by respiratory virus (green) perturbs cell morphology, including mitochondria (red). Blue is DAPI (cell nucleus).

Selected significant publications:

1. Lieu KG, Eun-Hee Shim E-H, Wang J, Lokareddy RK, Tao T, Cingolani G, Zambetti GP, **Jans DA**. 2014. An Importin β -binding-like Domain Within the p53-induced Factor EI24 Confers a Novel Ability to Inhibit Nuclear Import. *J. Cell Biol.* 205, 301-312.
2. Fraser JE, Watanabe S, Wang C, Chan KK, Maher B, Lopez-Denman A, Hick C, Wagstaff KM, Sexton P, Mackenzie JM, Vasudevan SG, **Jans DA**. 2014. A nuclear transport inhibitor that modulates the unfolded protein response and provides in vivo protection against lethal Dengue virus infection. *J. Infect. Dis.* 210, 1780-1791.
3. Roth DM, Moseley GW, Glover D, Pouton CW and **Jans DA**. 2007. A microtubule-facilitated nuclear import pathway for cancer regulatory proteins. *Traffic* 8, 673-686.
4. Poon IKH, Oro C, Dias MM, Jingpu Z and **Jans DA**. 2005. Apoptin nuclear accumulation is modulated by a Crm1-recognised nuclear export signal that is active in normal but not tumor cells. *Cancer Res* 65, 7059-7064 (PRIORITY REPORT).
5. Harley VR, Layfield S, Mitchell C, Forwood JK, John AJ, Briggs LJ, McDowall S, **Jans DA**. 2003. Defective importin-recognition and nuclear import of the sex-determining factor SRY are associated with XY sex reversing mutations. *Proc. Natl. Acad. Sci. USA* 100, 7045-7050.