

2nd International Conference on **HIV/AIDS, STDs, & STIs**

October 27-29, 2014 Embassy Suites Las Vegas, USA



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Deciphering the mechanism by which productively HIV infected CD4 T cells die

Recent advances have delineated how HIV infected T cells die following infection, but before progeny virion production. Since elimination of the HIV reservoir through reactivation strategies will require killing of cells which produce virus, we have focused on pathways of death in cells which produce HIV, i.e. productively infected cells. HIV protease, which is active in the cytosolic compartment, cleaves Procaspase 8 to produce a novel cleavage fragment called Casp8p41. Casp8p41 in turn translocates to the mitochondrion to activate apoptosis pathways that are dependent on Bcl2 family members, leading to mitochondrial outer membrane permeabilization (MOMP). This new understanding has significant implications for attempts to cure HIV infection that rely upon HIV reactivation from latently infected cells.

Biography

Andrew D Badley, MD, was born in Sydney, Nova Scotia, Canada. He earned his BS degree in 1985 and MD degree in 1990, both from Dalhousie University in Halifax, Nova Scotia. After completing residency training in internal medicine at Mayo Clinic in Rochester, Minn., in 1994, he completed further training at Mayo Clinic as a clinician investigator trainee in the Division of Infectious Diseases in 1997. During his training, he received the Dr. J. Geraci Award for Excellence in Infectious Diseases from Mayo Clinic in June 1997, as well as the Young Investigator Award from the Interscience Conference on Antimicrobial Agents and Chemotherapy and American Society for Microbiology (ICAAC/ASM) in September 1997. He joined the staff of Ottawa Hospital in Ottawa, Ontario, Canada, in 1997 as an assistant professor in the Division of Infectious Diseases and in 2002 was promoted to an associate professor. In 2002, he returned to Mayo Clinic in Rochester as a consultant in the Division of Infectious Diseases and brought with him his successful research program. At Mayo Clinic, he is currently a professor of medicine and consultant in the Division of Infectious Diseases; associate director of the Research Resources component of the Center for Translational Science Activities; and team leader for infectious disease research on the Research Development Council, an internal Mayo committee.

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