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TEAM UNCOVERS DENGUE FEVER VIRUS' MOLECULAR SECRETS

Researchers in Portugal and Brazil Present Today
New Details on Widespread Mosquito-Borne Virus

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EMBARGOED FOR RELEASE until 1:45 p.m. on Tuesday, March 8, 2011.

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WASHINGTON, D.C. (March 8 2011) -- Researchers at the Instituto de Medicina Molecular in Lisbon, Portugal and the Universidade Federal do Rio de Janeiro (UFRJ), Rio de Janeiro, Brazil, are making major strides toward understanding the life cycle of flaviviruses, which include some of the most virulent human pathogens: yellow fever virus, Dengue virus, and the West Nile Virus, among others.

Today, at the 55th Annual Meeting of the Biophysical Society in Baltimore, MD, members of the team will report on studies using dengue virus as a model to elucidate the molecular details of the flavivirus life cycle -- work that may lead to new ways to fight Dengue virus infections, for which there are still no treatments and no effective preventative vaccines.

Dengue virus is one of the major causes of viral hemorrhagic fever worldwide, says Ivo Martins, a postdoctoral researcher in the group. About 40 percent of the world's population live in areas where this virus is transmitted. The World Health Organization estimates that 50-100 million people worldwide are infected with Dengue each year, and some 22,000 people die rom the virus -- mostly children.

Dengue virus is transmitted by the *Aedesaegypti* and *Aedesalbopictus* mosquitoes, which are now found throughout the world, including in temperate regions such as the United States and France, where, in 2010, there were several cases of locally transmitted Dengue -- a disease that has been virtually unknown in these countries before.

“The burden that dengue infection (and other flaviviruses) poses on the economy and health systems of affected countries is considerable,” says Martins. "Finding a dengue treatment, besides the obvious human health benefits, would thus benefit the economy in those countries immensely."

In Baltimore, Martins will discuss the group's use of biophysical techniques (nuclear magnetic resonance) combined with bioinformatics tools (genome sequence analysis) to elucidate the molecular details of interactions the Dengue virus capsid protein must make in order for it to replicate. In particular, the virus capsid protein must interact with intracellular lipid droplets in order for viral replication to be successful.

The presentation, "CHARACTERIZATION OF THE INTERACTION OF THE DENGUE VIRUS CAPSID PROTEIN WITH LIPID DROPLETS" by Ivo C. Martins et al is at 1:45 p.m. on Tuesday, March 8, 2011 in Hall C of the Baltimore Convention Center. ABSTRACT: http://tinyurl.com/688en3a

NOTE TO EDITORS: An image is available to accompany this story.

IMAGE CAPTION: Figure 1. Studying the dengue virus capsid protein. Gathering several biophysical techniques allows us to have a complete picture of the role of Dengue virus capsid protein (DVCP) in viral RNA encapsidation and assembly in the context of its interaction with lipid membranes.

IMAGE CREDIT: Reporters may freely reproduce this image so long as they include the following credit: Image courtesy of Ivo C. Martins/Institute of Molecular Medicine (IMM), Lisbon, Portugal.

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