ABSTRACT

Project Code: BRG 4980008

Project Title:

THE SERINE PROTEASE, POLYNUCLEOTIDE-STIMULATED NTPase AND THE RNA HELICASE MULTIPLE ENZYMATIC FUNCTIONS OF NONSTRUCTURAL PROTEIN NS3 – MODEL BIOCHEMICAL TARGETS ESSENTIAL FOR REPLICATION AND MATURATION OF DENGUE AND JAPANESE ENCEPHALITIS VIRUS

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Project Period: October 01, 2006 until August 31, 2011

Summary:

The project detailed herein describes the ongoing work on the biochemical characterization of the NS3 proteases of human-pathogenic flaviviruses such as dengue and Japanese encephalitis virus. The project **a**) analyzes structure-activity relationships within the active site of the NS2B-NS3 protease by structure-guided mutagenesis, **b**) explores the predictive potential of proteochemometric models for the analysis of enzyme-ligand interaction by using the NS3 serine proteases as demonstration case for virtual inhibitor design, **c**) establishes methods for the purification and assay of the NS3 NTPase and RNA helicase activities and **d**) describes the purification and preliminary activity assay for the NS3 protease from Japanese encephalitis virus.

Keywords: dengue virus, NS2B-NS3, protease, NTPase, helicase, assay, ligand, proteochemometrics