NMR STRUCTURE OF VPR, THE HIV-1 REGULATORY PROTEIN: STRUCTURAL STUDIES OF ITS COMPLEXES

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Abstract:

The human immunodeficiency virus type 1 (HIV-1) genome encodes a highly conserved regulatory gene product, Vpr (96 residues, 14 kDa), which is incorporated into virions. In the infected cells, Vpr, expressed late in the virus cycle, is believed to function in the early phases of HIV-1 replication, such as nuclear migration of pre-integration complex, transcription of the proviral genome, viral multiplication by blocking cells in G2 phase and regulation of apoptosis phenomenon. Vpr has a critical role in long term AIDS disease by inducing infection in non-dividing cells such as monocytes and macrophages.

To gain insight into the structure–function relationships of Vpr, the (1–96)Vpr protein was synthesized by automated solid phase synthesis, purified by reversed-phase HPLC and its 3D structure was analyzed in the presence of CD3CN and in pure water at low pH and refined by restrained simulated annealing. The structure of the protein is characterized by three well-defined alpha-helices folded around a hydrophobic core and surrounded by flexible N- and C-terminal domains.

Vpr is a good target for new drug discovery and its structure is of first interest for the study of its interaction with different partners as nucleic acids, ANT and p6.

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Time: 10.00am to 11.00am
Venue: PAP Conference Room (Hilbert Space) #02-02

Hosted by Asst Prof Phan Anh Tuan