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Fakulteta *za kemijo*
in kemijsko tehnologijo

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VABILO NA PREDAVANJE V OKVIRU DOKTORSKEGA ŠTUDIJA KEMIJSKE ZNANOSTI / INVITATION TO THE LECTURE WITHIN DOCTORAL PROGRAMME IN CHEMICAL SCIENCES

Prof. Jade Forwood

Gulbali Institute
Charles Sturt University
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z naslovom / title:

Unravelling Viral Strategies for Innate Immune Evasion through Nucleocytoplasmic Transport

v sredo, 27. 3. 2024 ob 15. uri /
on Wednesday, 27. 3. 2024 at 15.00
v predavalnici 1 v 1. nadstropju Fakultete za kemijo in kemijsko tehnologijo, Večna pot 113 **/ in lecture room 1,** 1st floor at the Faculty of Chemistry and Chemical Technology, Večna pot 113

Vljudno vabljeni! / Kindly invited!

Abstract:
The presentation will cover two areas of research.

The emergence of the MERS coronavirus (MERS-CoV) has inspired investigations into its innate immune evasion strategies. One such mechanism involves the ORF4b protein's interaction with nuclear import adapter IMPα3, inhibiting NF-ϰB-dependent innate immunity. The presentation will describe high-resolution structures of ORF4b bound to distinct IMPα family members, revealing unconventional binding mechanisms. Mutations within the nuclear localization signal (NLS) region transform the binding mechanism, underlining its significance for nuclear import, IMPα engagement, and innate immune pathway suppression. The study extends to closely related coronaviruses like HKU5, and describes how small ORF4b mutations can alter IMPα interactions.

The presentation will also cover how Hendra and Nipah virus W proteins specifically target isoforms of importin α. Despite a conserved nuclear localization signal (NLS) recognition region, varying importin α isoforms interact uniquely with cargoes. The talk will describe the structural underpinnings of W proteins' nuclear import specificity in Hendra and Nipah viruses. Structural analysis of cargo-bound importin α1 and α3 reveals an expansive interface and greater binding affinity for importin α3. This specificity stems from distinctive positioning of regions within the isoforms, validated through chimeric and mutant importin α constructs and cargo-free isoform structures.

Together, these investigations deepen our comprehension of viral manipulation of nucleocytoplasmic transport for immune evasion and shed light on the nuanced interactions governing cargo-specific import.