

Zn-induced interactions between SARS-CoV-2 orf7a and BST2/tetherin

Friday, 21 May 2021 19:00 (20 minutes)

In this talk I will present a first X-ray Absorption Spectroscopy study of the interactions of Zn with human BST2/tetherin and SARS-CoV-2 orf7a proteins as well as with some of their complexes. The analysis of the XANES region of the measured spectra shows that Zn can bind to BST2, as well as to orf7a and that BST2-orf7a complexes get formed. These structural information confirm the conjecture, recently published by some of the present Author, according to which the accessory orf7a (and possibly also orf8) viral protein is (are) capable of interfering with the BST2 antiviral activity. Our tentative explanation for this interesting conjectured behaviour is that when BST2 gets in contact with Zn, bound to the orf7a Cys15 ligand, it has the ability of displacing the metal owing to the creation of a new disulfide bridge across the two proteins. The formation of this BST2-orf7a complex may prevent BST2 to adopt the proper functional conformation thus impairing its antiviral activity.

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