Poster Presentation

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Structure and quaternary arrangement of the multifunctional birnavirus protein VP3

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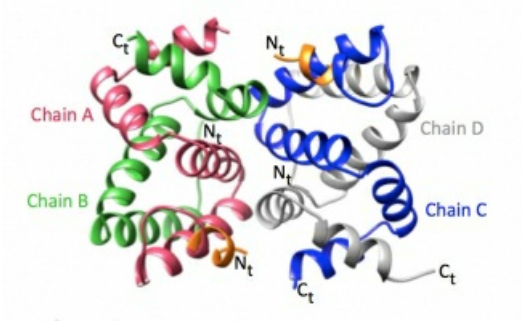
Birnaviridae family groups naked icosahedral viruses with bisegmented dsRNA genomes and T=13 icosahedral capsids. The Birnavirus segment A encodes a polyprotein, wich is cotranslationally cleaved to generate the capsid polypeptide preVP2 (67 kDa), the viral protease VP4 (27 kDa) and the multifunctional protein VP3 (34 kDa). Segment B encodes the RdRP VP1 (112 kDa). The multitasking protein VP3, plays an essential function in the life cycle of birnaviruses, VP3 acting as a scaffolding protein during capsid morphogenesis and, interacting with the capsid protein VP2, with the RdRP VP1, the dsRNA genome and inhibiting gene silencing. From this crucial protein, there is only one crystal structure available, in space group P41212 corresponding to the central VP3 domains of Infectious Bursal Disease Virus [1].
Here we report two crystal structures of the amino terminal region of IBDV VP3 (residues 2-67) in space group P21 and P3221 diffracting at 1.4 Å and 1.5Å resolution and solved by Ab initio methods and that of the central core in P212121 space group at 3.2 Å resolution, showing a VP3 hexameric arrangement in the asymmetric unit. Altogether the structures reveal a supramolecular organization of VP3 compatible with its role as scaffold during capsid assembly.
[1] Casañas, A. et al. (2007). Structure, 16, 29-37.



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