

**Structural Analysis of Parvovirus B19 VP1 Unique Region using Cryo-Electron Microscopy**

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Parvovirus B19 (B19V) is the causative agent of *erythema infectiosum* or fifth disease in children. B19V capsid is composed of proteins – VP1, VP2 and VP3. The unique region of VP1 (VP1u) mediates the internalization of B19V, which is restricted to erythroid progenitor cells in the bone marrow. Previous *in vitro* studies have shown that the dimerization of VP1u results in increased host cell binding and rapid internalization. This suggests that multiple copies of VP1 in the capsid might be involved in a multivalent interaction with entry receptor. Though it has been shown that VP1 constitutes about 5% of the capsid, the distribution of VP1 in the capsid is unknown. In this study, we used cryo-electron microscopy reconstruction of B19V-Fab complex to analyse the structure of antibody bound B19V to investigate the site of VP1 incorporation to further understand the narrow tropism and entry process of B19V.