Structure of rotavirus particle: Interaction of the inner capsid protein VP6 with the core polypeptide VP3

Sandino,

Fernandez,

Pizarro,

Vasquez,

Spencer,

The structural relationship between VP6 (inner capsid polypeptide) and the viral core was studied using chemical cross-linking with dithiobis(succinimidyl propionate). Crosslinked single shelled and reconstituted rotavirus particles, suggest the existence of a complex organization of VP6 molecules in the inner capsid and a direct interaction with the core polypeptide VP3. The inhibition of the recovery of RNA polymerase activity associated with the reconstitution of the single shelled particle in the presence of anti-VP6 monoclonal antibodies indicates that a VP6 domain between amino acids 56 and 58 seems to be important in viral transcription. A VP6 gene temperature-sensitive mutant (ts G) carrying a mutation affecting assembly of single shelled particles was used in reconstitution experiments. The mutant was able to recover RNA polymerase activity at restrictive temperature. Wild type cores or VP6 were able to reconstitute the particle with both the mutant cores and VP6. These result