Role of the inner protein capsid on in vitro human rotavirus transcription

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The inner protein shell of human rotavirus consists of a single polypeptide called VP6 which was removed from the single-shelled virus by treatment with CaCl2, leaving the viral core. The core thus obtained was unable to transcribe. However, the addition of a supernatant containing VP6 in the absence of Ca2+ restored the transcriptional activity. VP6 obtained from different electropherotypes and serotypes was able to restore transcriptional activity to homologous and heterologous cores. Viral cores obtained after incubation with purified VP6 had electron microscopic characteristics, polypeptide compositions, and transcription products similar to those of the single-shelled virus. The results suggested the successful in vitro reconstitution of the single-shelled virus.