Reoviridae Cheat Sheet

by [deleted] via cheatography.com/140849/cs/30028/

Basic Information

▲ Linear double-stranded RNA genome and non-enveloped

Sub-families

sedoreovirinae

spinareovirinae

size and genome

60 to 85 nm

dsRNA

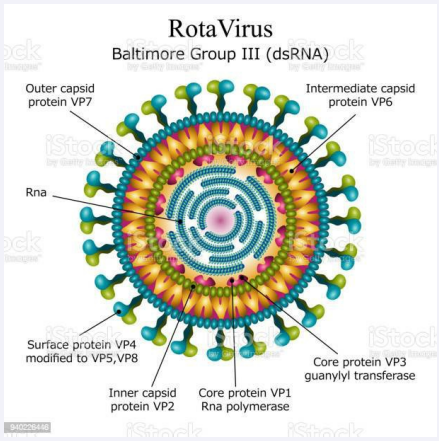
11 segments

size of genome - 10 - 27 kb

Protein

6 structural proteins	VP1	RdRp
	VP2	Core protein
	VP3	Guanylyltran-sferase
	VP4	spike protein - cleaves VP5 and VP8
	VP6	Intermediate capsid
	VP7	neutralization of Ag
6 Non-struc-tural protein	NSP1	Interferon antagonist
	NSP2	NTPase - viroplasms with NSP5
	NSP3	Translation enhancer
	NSP4	Viroporins
	NSP5	Viroplasms with NSP2
	NSP6	Interacts with NSP5

Diagram



Replication

▲ Efficient replication requires cleavage of the outer capsid spike protein VP4, which allows the structurally flexible spike protein, VP4, to undergo conformational changes to interact with a series of cellular receptors.

▲ The virus is internalized by receptor-mediated endocytosis. The low calcium of the endosome releases outer capsid VP7 trimers, resulting in a conformational change in the VP4 spike protein that releases the transcriptionally active double-layered particles into the cytoplasm.

▲ Viral messenger RNAs (mRNAs) are used to translate proteins and as templates for RNA genome replication and packaging into newly made double-layered particles (DLPs) that occurs in specialized structures called viroplasms that co-localize and require components of lipid droplets for formation.

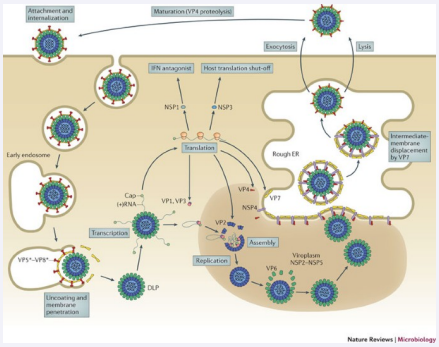
▲ Triple-layered particle (TLP) assembly is completed by a unique process involving binding of newly made DLPs to NSP4 that serves as an intracellular receptor, followed by particles budding into the endoplasmic reticulum

Replication (cont)

During this process, transient enveloped particles are seen, the outer capsid proteins VP4 and VP7 are assembled, and the transient envelope is lost.

▲ The viral glycoproteins do not traffic to the Golgi. In polarized epithelial cells, particles are released both by viral lysis and by a nonclassical vesicular transport mechanism.

Replication Cycle



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Page 1 of 1.