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## **Cyclosporin A combined with gentamicin suppressed human Wa rotavirus replication *in vitro* and *in vivo***

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Rotavirus infection is the most common cause of acute diarrheal diseases among infants and young children worldwide. This work investigated whether cyclosporin A (CsA) combined with gentamicin inhibits human Wa rotavirus replication in HT-29 cells and in neonate BALB/c mice model. CsA combined with Gentamicin after Wa rotavirus infection significantly suppressed virus replication/infection, which is evidenced by reduced rotavirus antigen, decreased expression of rotavirus RNA, protein and infectious viruses in intracellular and extracellular. The inhibition of Wa rotavirus replication/infection by CsA combined with gentamicin can restore the expression of IFN- $\beta$  in HT-29 cells. And CsA combined with gentamicin treatment of Wa rotavirus-infected HT-29 cells upregulated the expression of IFN regulatory factor-5, 7 and  $\beta$ -transducin repeat containing protein and inhibited the expression of suppressor of cytokine signaling-1, protein inhibitor of activated signal transducers and activators of transcription-1 and  $\gamma$ , the primary negative regulators of IFN signaling pathway. CsA combined with gentamicin treatment of Wa rotavirus-infected-neonate mice shortened the recovered time against Wa rotavirus infection and speeded up the elimination of rotavirus antigen. These findings indicate that further evaluation and characterization of the CsA combined with gentamicin on Wa rotavirus-infected diarrhea are warranted.

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