

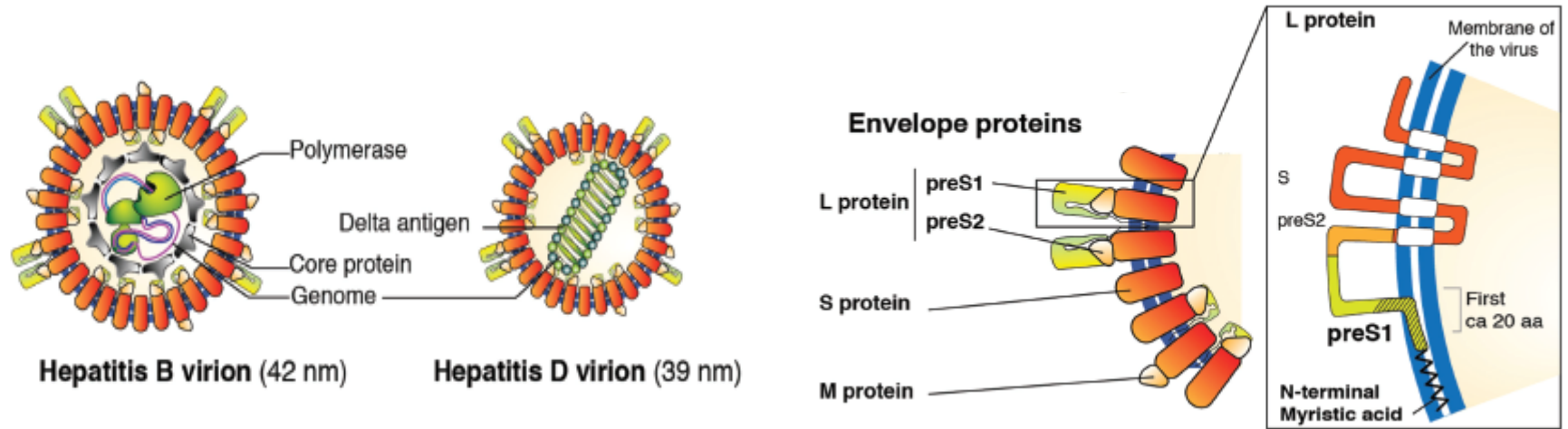


May Hepatitis D occur in Hepatitis B negative patients?

Unorthodox transmission modes of HDV

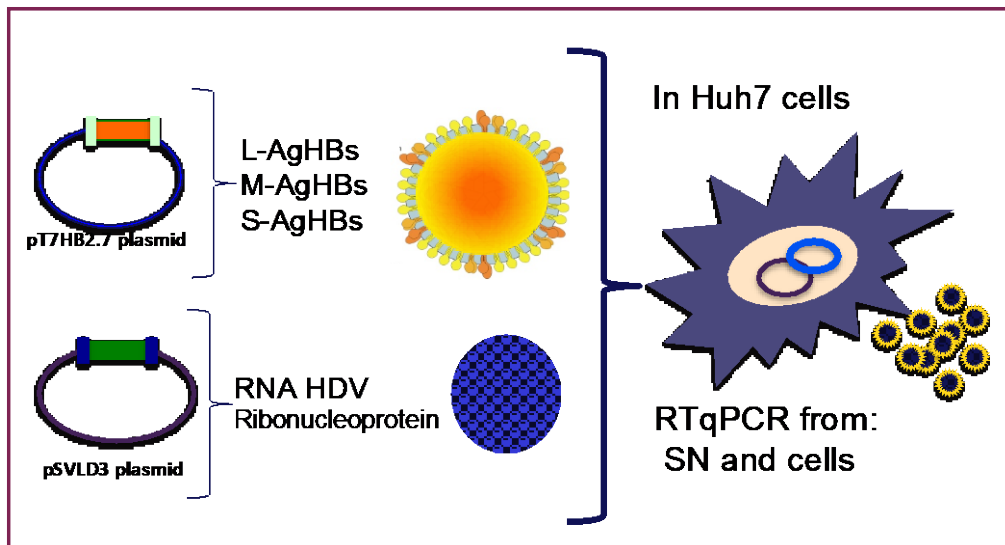
NATALIA FREITAS

HDV virion and its envelope

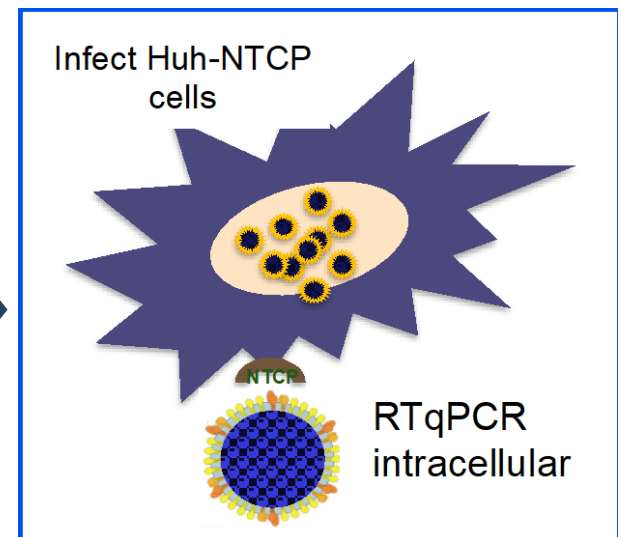


Reverse genetics system for HDV production in vitro and infectivity assays

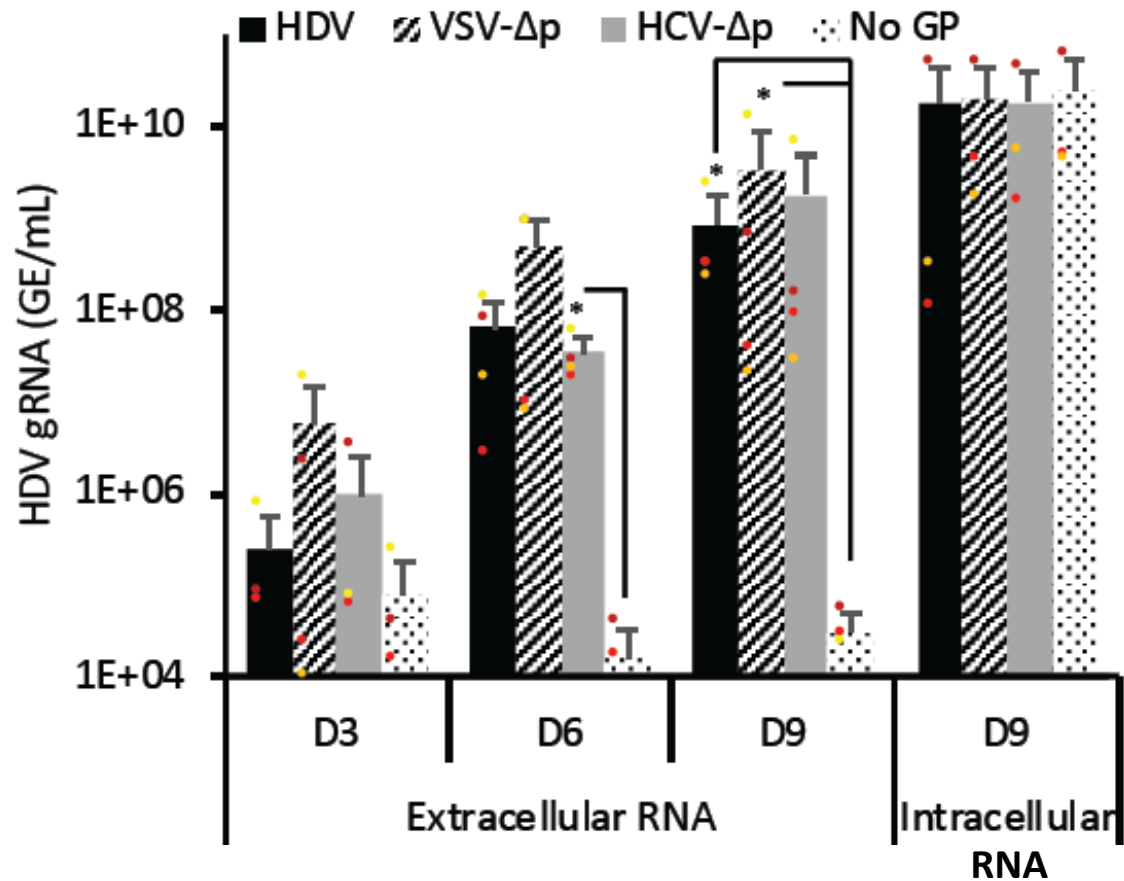
PRODUCTION ASSAY



INFECTION ASSAY

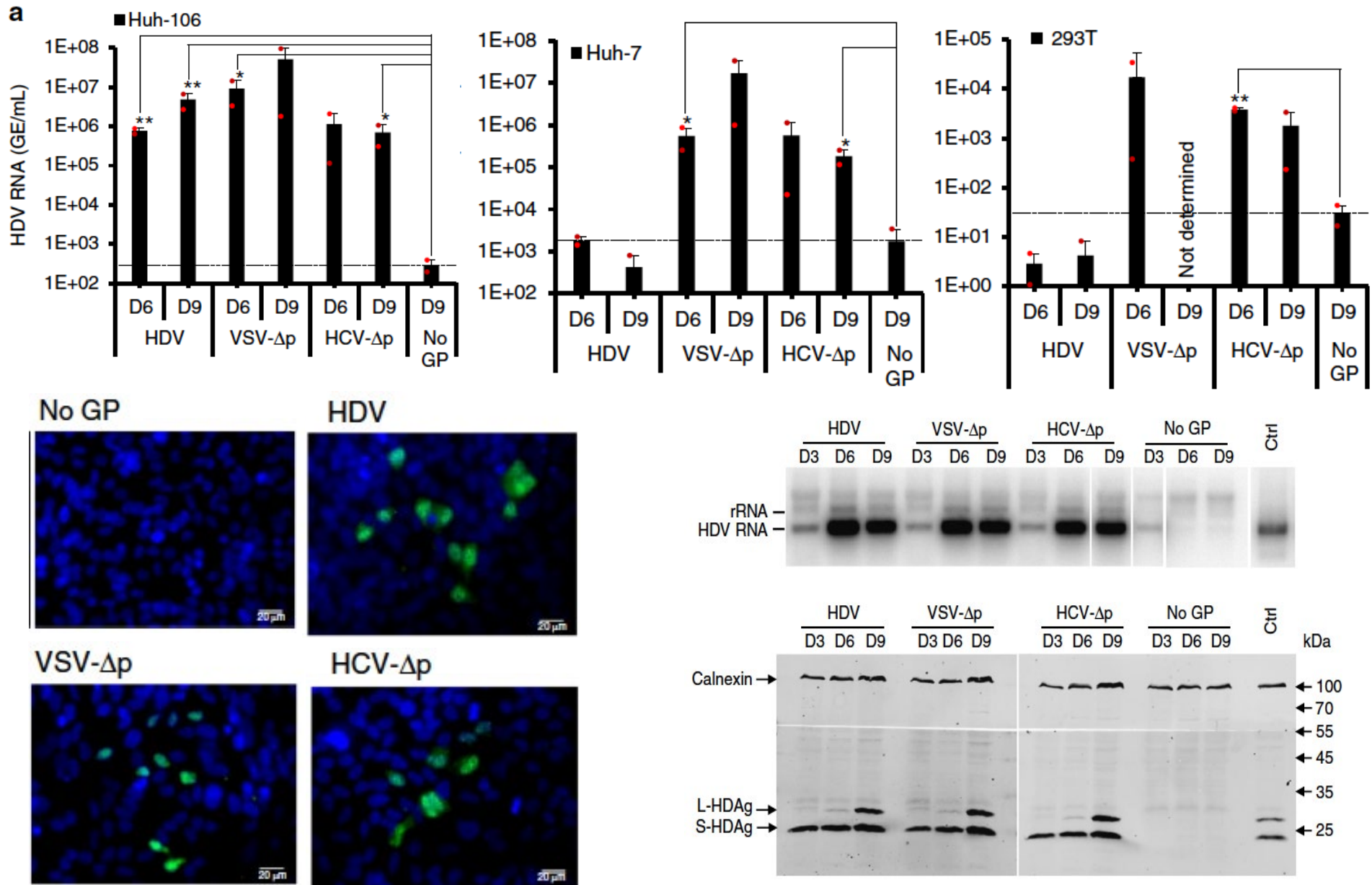


HDV assembly with VSV and HCV glycoproteins

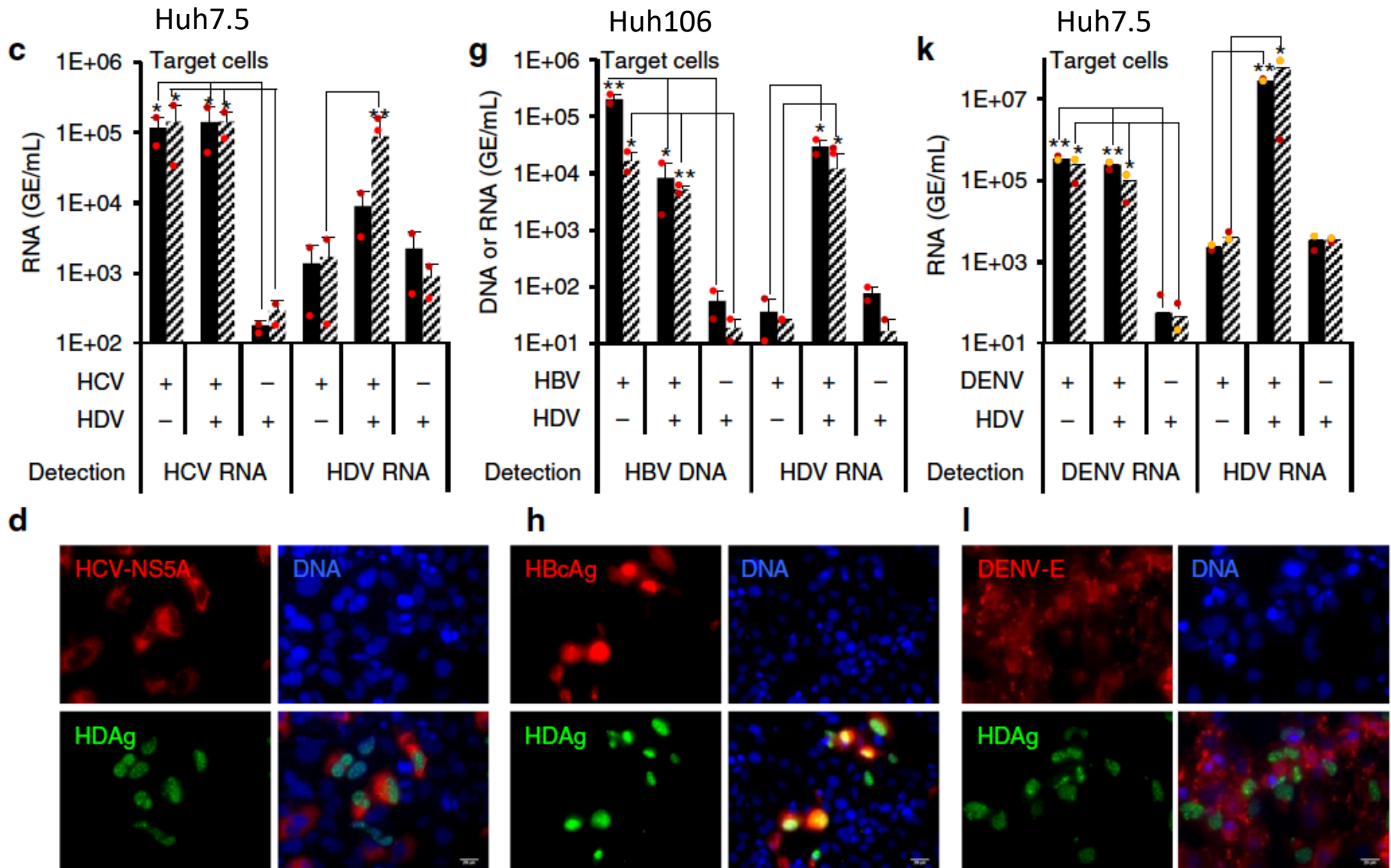


- Also true for LCMV, HMPV, DENV and WNV glycoproteins

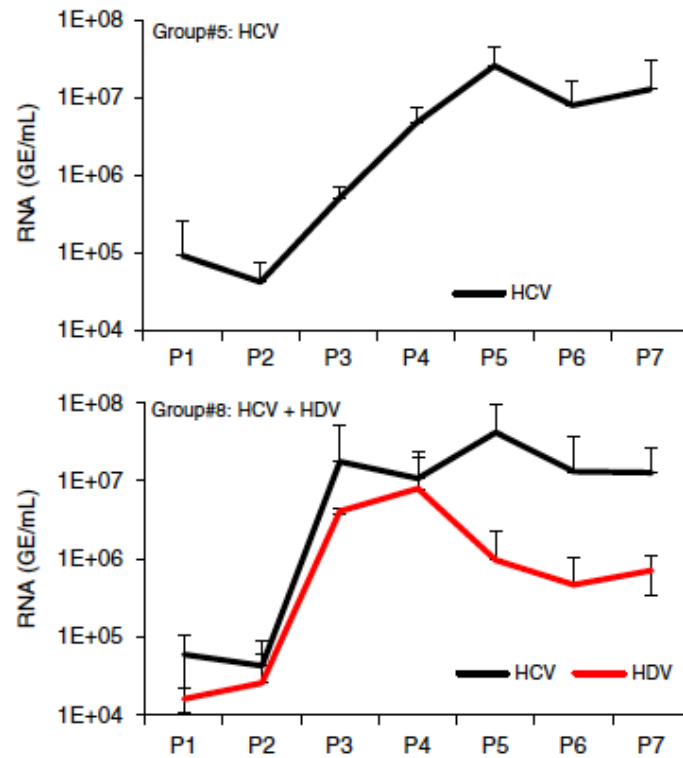
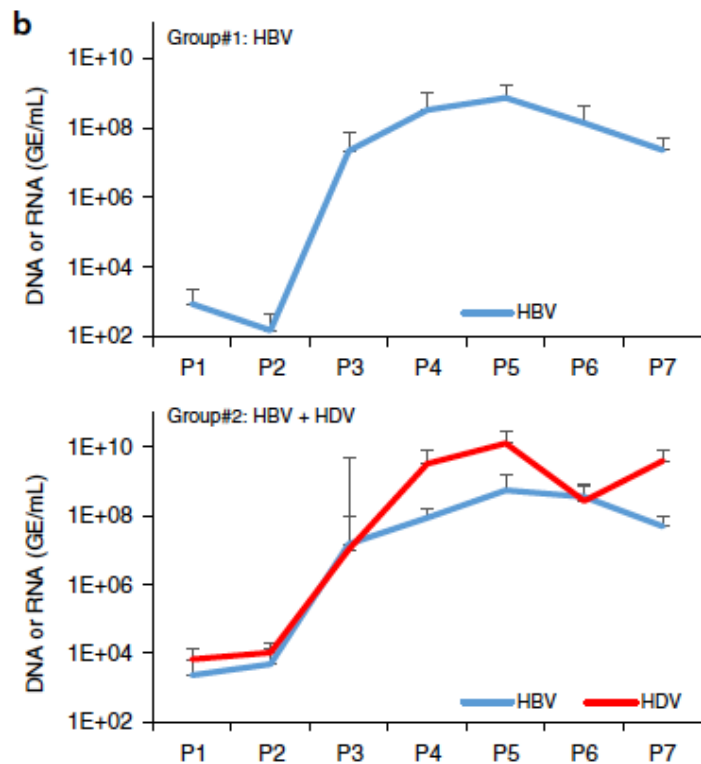
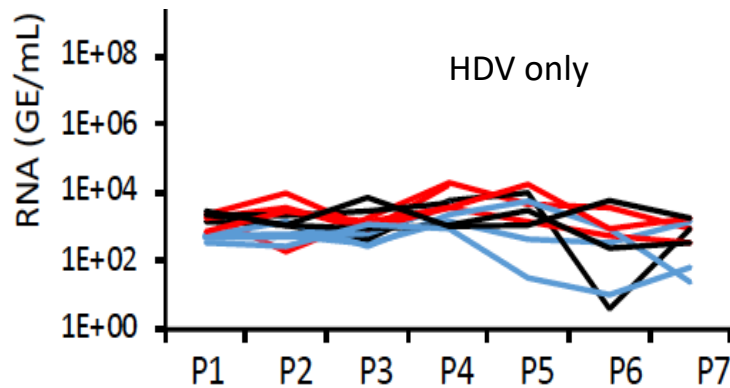
HDV assembled with VSVg and HCV E1E2 GPs is infectious



In vitro transmission of HDV by co-infection with HCV and DENV



In vivo co-infection of HDV and HCV



HDV presence in a cohort of HCV-RNA positive patients

160 HCV RNA positive sera from Venezuela
aged 12-85 years (mean 48.5 ± 16.8 years)
HCV genotypes: 50% G1, 43% G2, 6.4% G3, 0.7% G6

2/160 anti-HDV positive (1.25%)

1/2 HDV RNA positive by nested RT-PCR

ID	Age	Sex	HCV genotype	HBsAg ¹	Anti-HBc ¹	HBV DNA ² (qPCR and ddPCR)	Anti-HDV Diasorin OD/Cutoff ³	Anti-HDV LIAISON ^{®4}	HDV RNA ⁵	HDV genotype	Risk factor
3712	52	F	2	-	-	-	0.404	1.96 AU/ml	+	1	unknown
3724	61	F	1a	-	-	-	0.158	7.38 AU/ml	-	-	unknown

Conclusions

- In vitro, envelope GPs from several viruses (vesiculovirus, flavivirus and hepacivirus) can package HDV RNPs – assembly and egress of infectious HDV
- HCV can propagate HDV infection in the liver of co-infected humanized mice for several months
- HDV immunological markers were found in 2 patients (1 positive for HDV RNA) with HCV but negative for HBV
- Discovery of HDV-like agents in a broad host range (several taxonomic hosts) in the absence of hepadnaviruses



ARTICLE

<https://doi.org/10.1038/s41467-019-10117-z>

OPEN

Enveloped viruses distinct from HBV induce dissemination of hepatitis D virus in vivo

Jimena Pérez-Vargas¹, Fouzia Amirache¹, Bertrand Boson¹, Chloé Mialon¹, Natalia Freitas¹, Camille Sureau², Floriane Fusil¹ & François-Loïc Cosset¹



Review

HDV-Like Viruses

Jimena Pérez-Vargas¹, Rémi Pereira de Oliveira¹, Stéphanie Jacquet², Dominique Pontier², François-Loïc Cosset^{1,*} and Natalia Freitas¹

HEPATOLOGY

HEPATOLOGY, VOL. 73, NO. 2, 2021



Preliminary Evidence for Hepatitis Delta Virus Exposure in Patients Who Are Apparently Not Infected With Hepatitis B Virus

Isabelle Chemin¹, Flor H. Pujol^{2*}, Caroline Scholtès^{1,3}, Carmen L. Loureiro², Fouzia Amirache⁴, Massimo Leviero^{1,5}, Fabien Zoulim^{1,5}, Jimena Pérez-Vargas¹, and François-Loïc Cosset¹