

Supplementary Information

Rapid Nipah virus entry into the central nervous system of Syrian hamsters via the olfactory route

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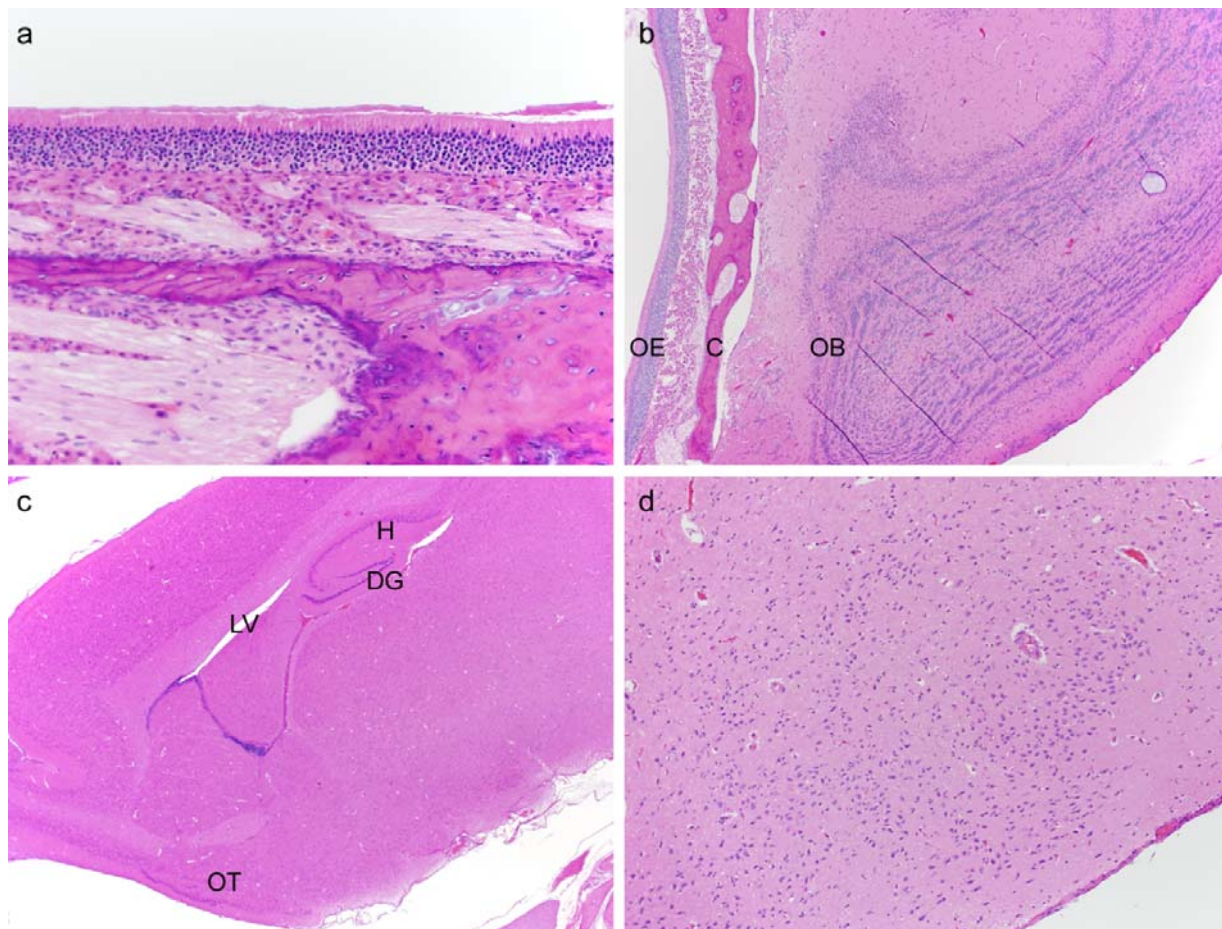


Figure S1. H&E staining of uninfected Syrian hamster control tissues. a) Olfactory epithelium of the nasal turbinates. b) Olfactory epithelium (OE), cribriform plate (C) and olfactory bulb (OB). c) CNS including area of the olfactory tubercle (OT), lateral ventricle (LV), dentate gyrus (DG) and hippocampus (H). d) Close-up of the area of the olfactory tubercle.

Table S1. Histopathology score in hamsters inoculated intranasally with Nipah virus, strain Malaysia.

	Histopathology score																									
	2 dpi				4 dpi				6 dpi				8 dpi				10 dpi			12 dpi			terminal			
Respiratory epithelium ¹	0	0	3	3	4	4	3	3	2	3	2	3	2	3	2	4	4	2	3	1	1	0	3	0	0	1
Olfactory epithelium ¹	2	2	0	2	3	0	4	0	4	4	4	4	0	5	4	5	4	2	4	1	0	0	0	4	4	3
Submucosal glands ¹	0	0	0	0	0	2	3	0	3	3	3	3	0	4	3	3	3	0	3	0	0	0	0	3	3	0
Olfactory bulb	0	0	0	0	0	0	0	0	2	2	2	1	0	1	3	3	3	3	2	3	3	4	3	3	2	3
CNS ²	0	0	0	0	0	0	0	0	2	2	2	1	2	3	1	3	3	3	2	3	3	4	2	2	3	3
Lungs	0	0	0	3	3	3	3	0	3	4	4	2	2	4	5 ³	1	3	4	0	0	4	3	4	4	4	0

Hamsters were inoculated intranasally with 10^5 TCID₅₀ and sampled at the days post inoculation indicated; four hamsters per dose per time point were sampled except for the 10 and 12 dpi group, when only 3 animals remained; each column represents one animal.

Score: 0: no lesion; 1: minimal change; 2: mild change; 3: moderate change; 4: marked change; 5: severe change

¹ Tissues of the nasal turbinates

² Histology score in the CNS excluding the olfactory bulb

³ Vasculitis present

Table S2. Immunohistochemistry score in hamsters inoculated intranasally with Nipah virus, strain Malaysia.

	Immunohistochemistry score																												
	2 dpi				4 dpi				6 dpi				8 dpi				10 dpi				12 dpi				terminal				
Respiratory epithelium ¹	0	0	0	0	0	1	2	1	0	0	0	2	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Olfactory epithelium ¹	1	2	1	0	1	1	4	1	2	2	2	0	0	0	1	3	0	1	2	0	0	1	0	0	0	0	0	0	0
Submucosal glands ¹	0	0	0	0	2	1	1	2	1	1	1	1	0	1	1	1	0	0	1	0	0	0	0	0	0	0	1	0	0
Olfactory bulb	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4	2	4	-	0	-	0	3	4	-	0	3	-	0	3
CNS ²	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	2	0	-	0	0	2	2	1	1	0	0	-	0	0
Lungs	0	0	1	2	2	2	2	0	-	-	-	-	0	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-

Hamsters were inoculated intranasally with 10⁵ TCID₅₀ and sampled at the days post inoculation indicated; four hamsters per dose per time point were sampled except for the 10 and 12 dpi group, when only 3 animals remained; each column represents one animal.

Score: 0: no immunopositivity; 1: 1 to 25% of tissue immunopositive; 2: 26 to 50% of tissue immunopositive; 3: 51 to 75% of tissue immunopositive; 4: 76 to 100% of tissue immunopositive; -: not examined

¹ Tissues of the nasal turbinates

² Histology score in the CNS excluding the olfactory bulb