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Supplemental Information

SARS-CoV-2 infects and replicates in photoreceptor and retinal ganglion cells of human retinal organoids

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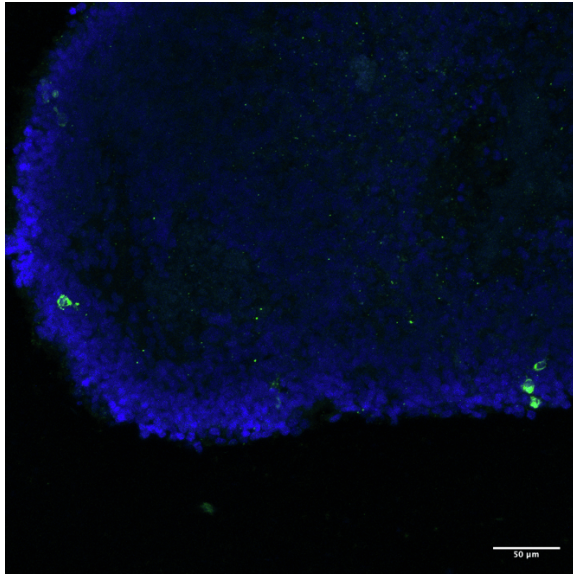
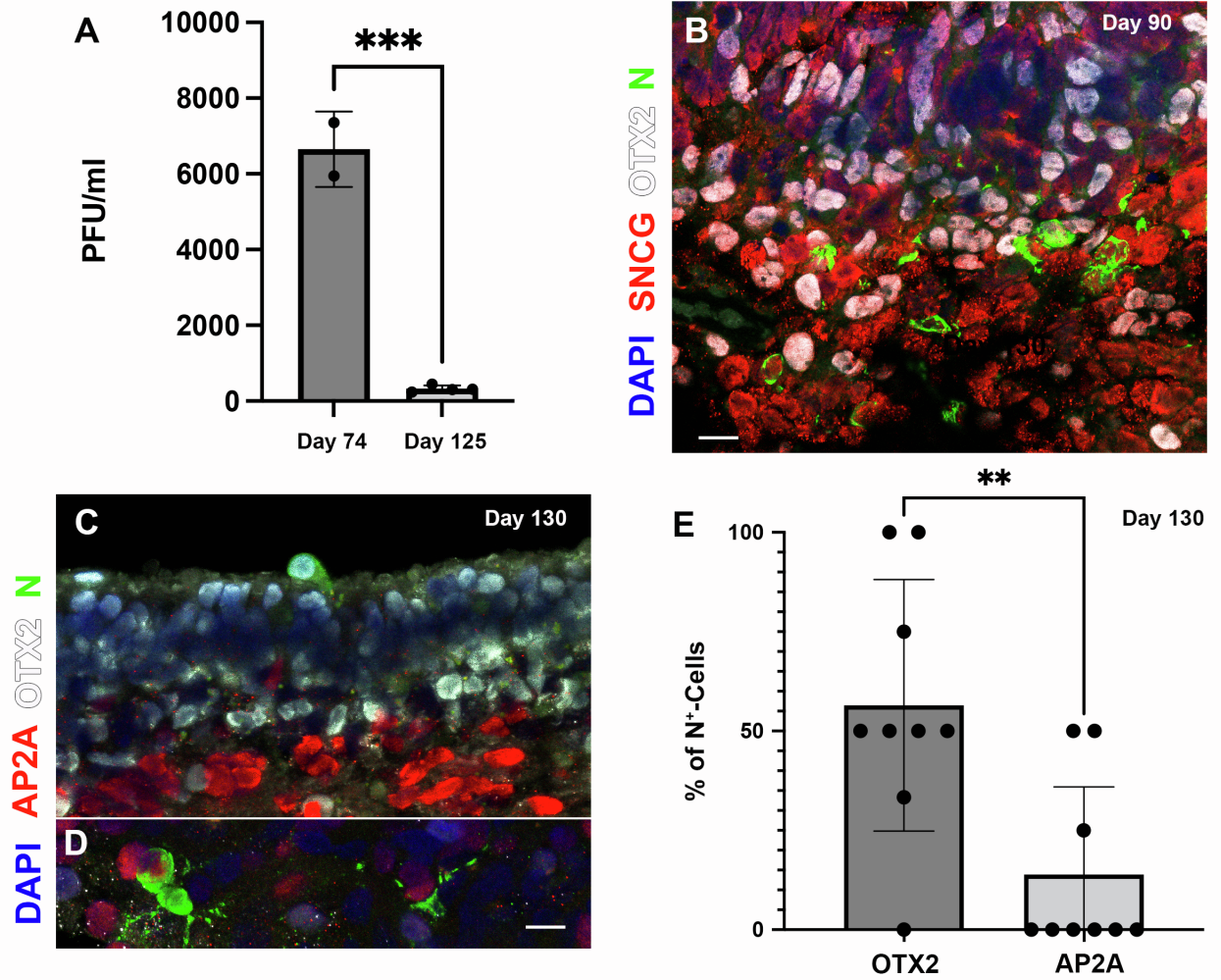


Figure S1: Supplementary information for figure 1

A retinal organoid derived from H9 embryonic stem cells stained with an anti-SARS-CoV-2 nucleocapsid (N) antibody (green). Scale bar = 50 μ M. (A). PCA analysis of the different infected on noninfected samples was performed using the rlog algorithm



*Scale Bar: B, C, D = 10 μ m,

Figure S2: Supplementary information for figures 2 and 3

Retinal organoids infected with SARS-CoV-2 on day 90 (**B**) or day 130 (**C**) were stained with antibodies against SARS-CoV-2 nucleocapsid (N, green) and the retinal ganglion marker SNCG (white) (**B**), the photoreceptor and bipolar marker OTX2 (white) (**C**), the amacrine and horizontal marker AP2 α (red) (**C**). The percentage of cells co-stained with OTX2 or AP2A at day 130 was compared (**D**) AP2A⁺ cells appeared only in a few of the organoids. N = 8 organoids taken from two different wells**: P-value = 0.0044. Error bars represent standard deviation.

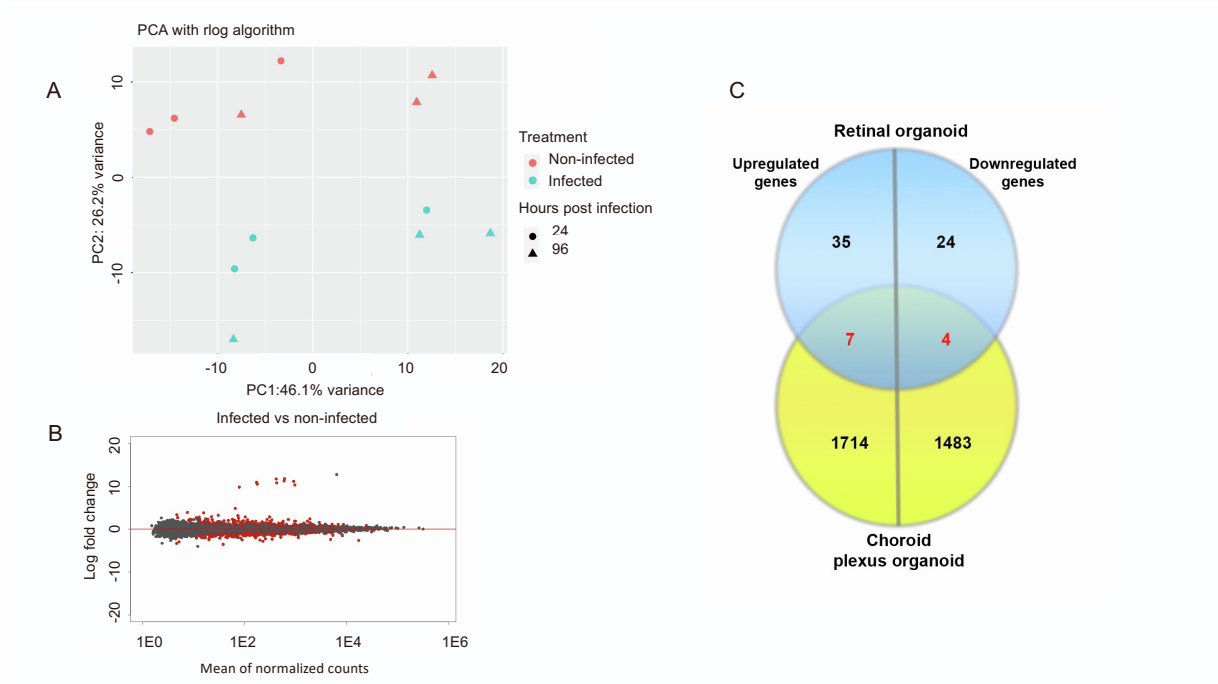


Figure S3: Supplementary information for figure 4

(A) MA plot representing the mean expression levels and the fold change of the different genes between the infected samples and the noninfected samples. Significantly differentially expressed genes (adjusted P-value ≤ 0.05) are colored red (B). Venn diagram comparing the differentially expressed genes found in retinal organoids 96 hours post-infection and the differentially expressed genes found in choroid plexus organoids after 72 hours. Only 7 genes are mutually upregulated and 4 genes are mutually downregulated (C).

Antibody	Source	Cat. num	Dilution
ACE 2	Abcam	ab1348	1:500
AP2A	Abcam	ab220065	1:200
CHX10 (VSX2)	Milipore	ab9014	1:500
CRALBP	Abcam	Ab15051	1:500
HUC/D	Invitrogen	A21271	1:100
Rabbit IgG polyclonal isotype control	Abcam	Ab37415	1:500
IL33	Abcam	Ab118503	1:200
L/M Opsin	Milipore	AB5405	1:500
OTX2	R&D systems	AF1979	1:500
PAX6	Biologend	901301	1:500
RHODOPSIN	Millipore	MAB5316	1:500
SARS-CoV/SARS- CoV-2 nucleocapsid	Sino biological	40143-MM05	1:200
SNCG	Abcam	Ab55424	1:500

Table S1 – primary antibodies used for the study

Target	Forward	Reverse
GAPD H	TGATGACATCAAGAAGGTGGT G	ACCCTGTTGCTGTAGCCAAT
SARS- CoV-2	CGCATAACAGTCTTRCAGGCT	GTGTGATGTTGAWATGACAT

Table S2 – Primers used for the study