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https://doi.org/10.1038/s41586-022-05185-z

Supplementary information

The mechanism of RNA capping by SARS-CoV-2

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Supplementary information

The Mechanism of RNA Capping by SARS-CoV-2

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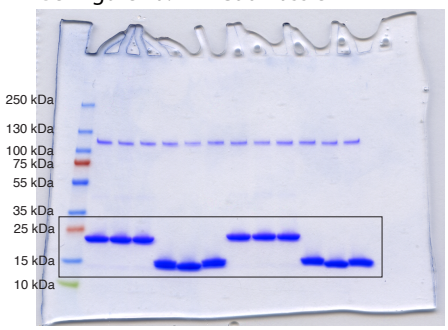
Supplementary Fig. 1, Uncropped gels

Gel Figure 1a. ATP Coomassie



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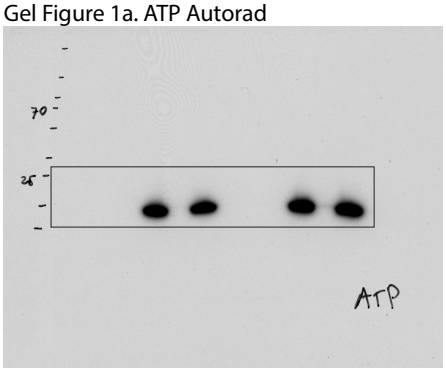

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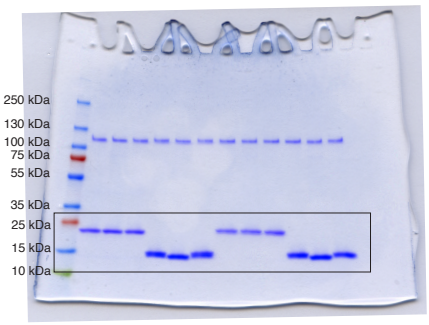

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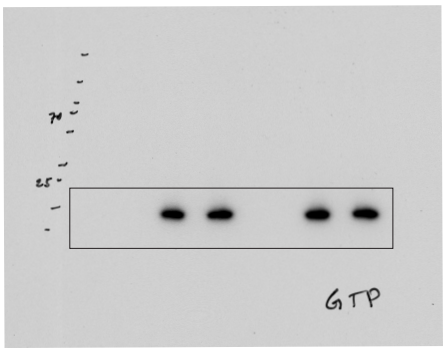

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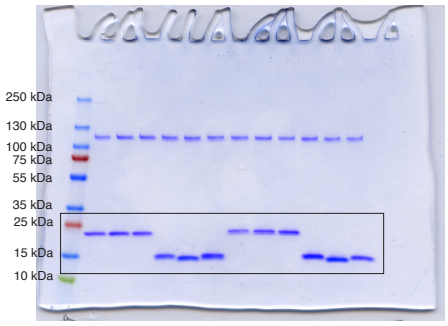

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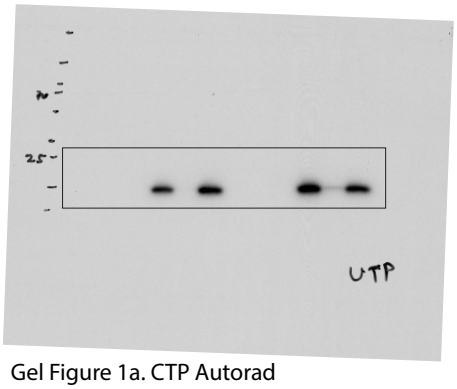

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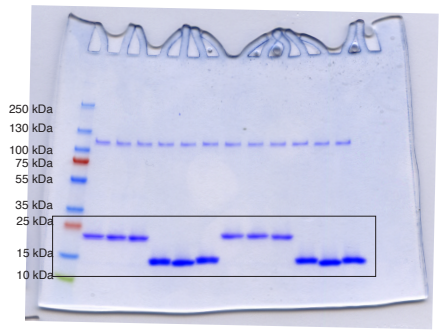

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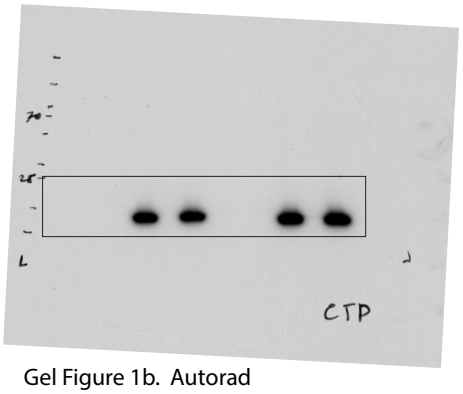

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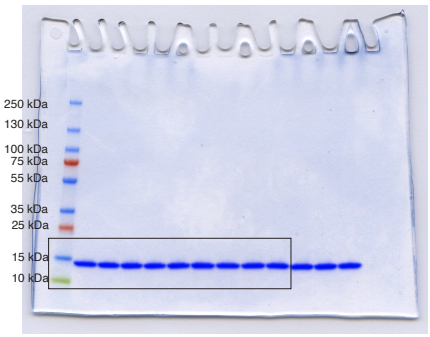

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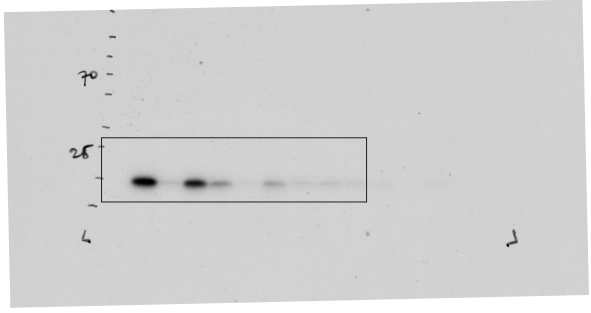

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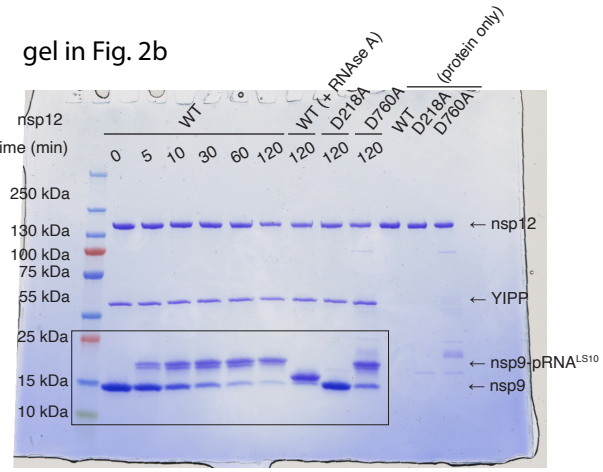

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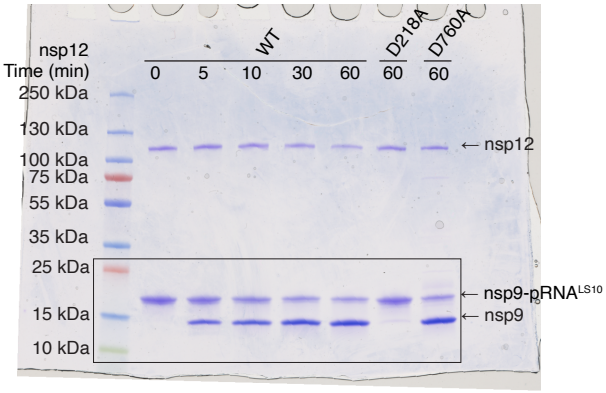

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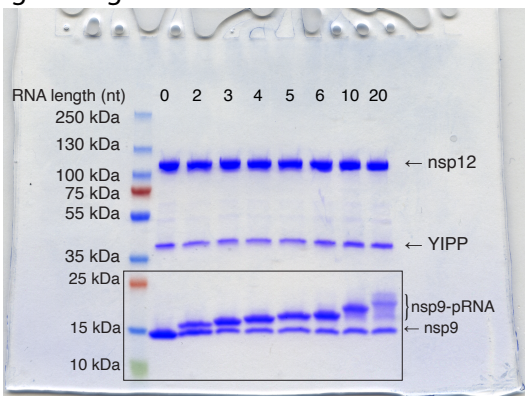

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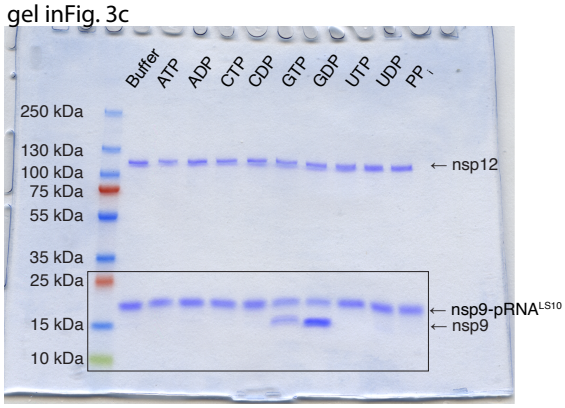

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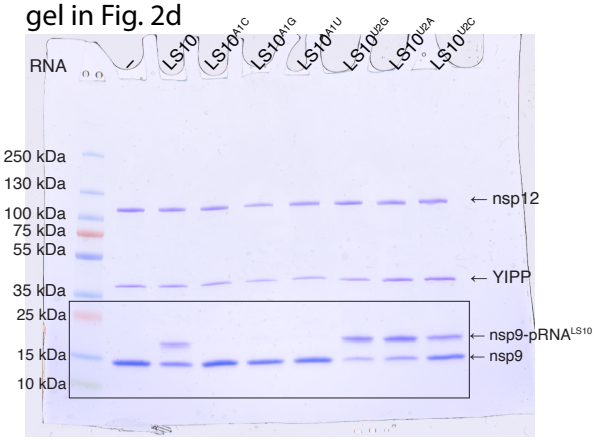

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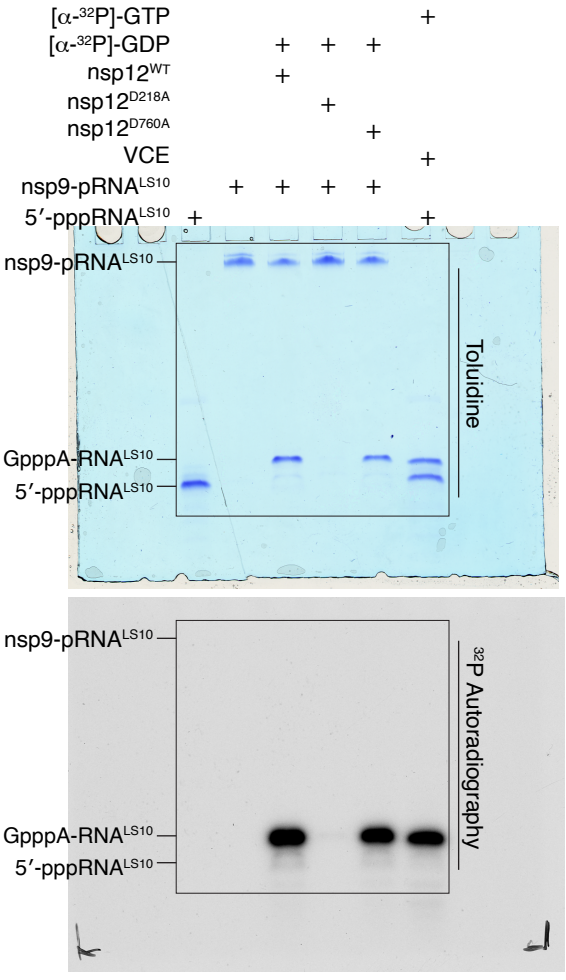

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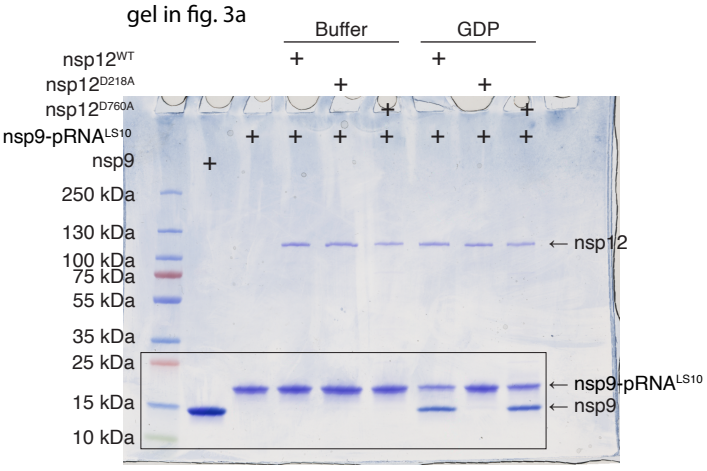

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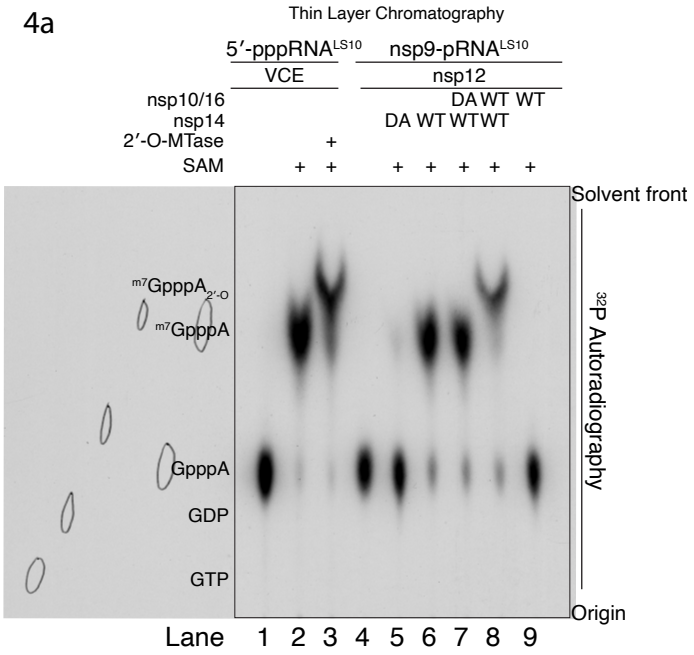

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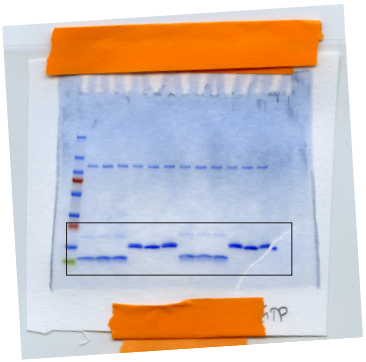

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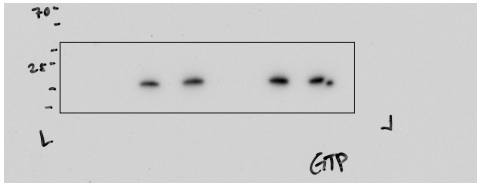

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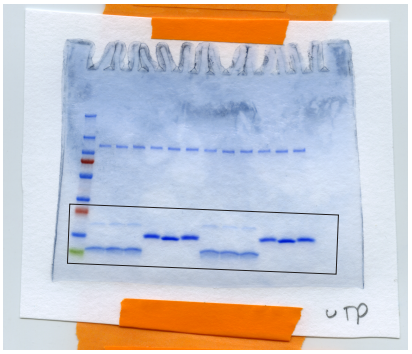

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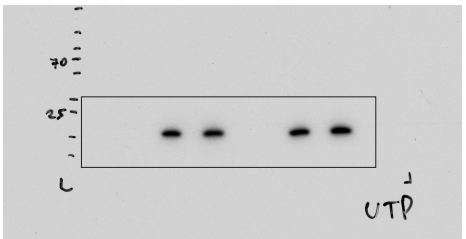

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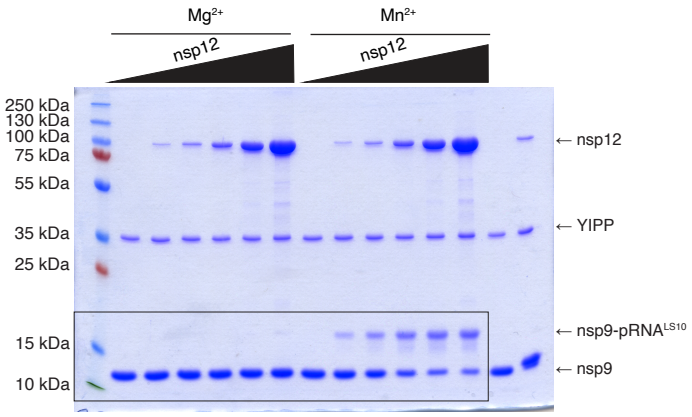

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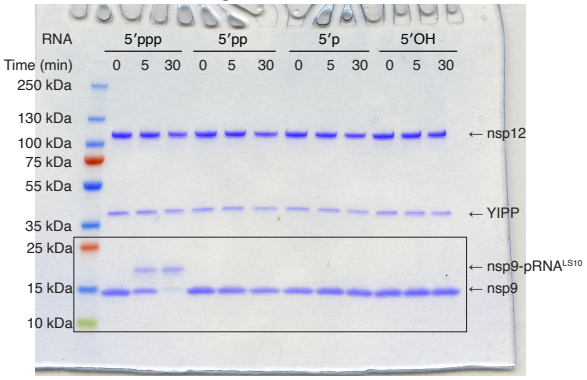

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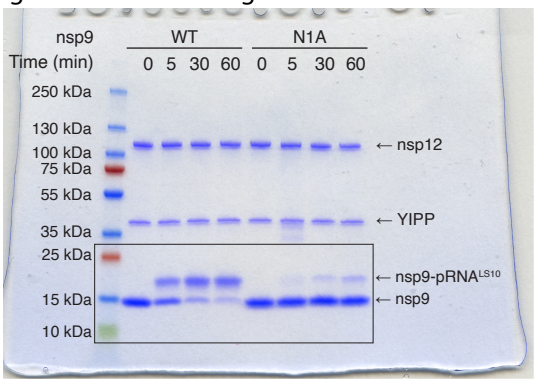

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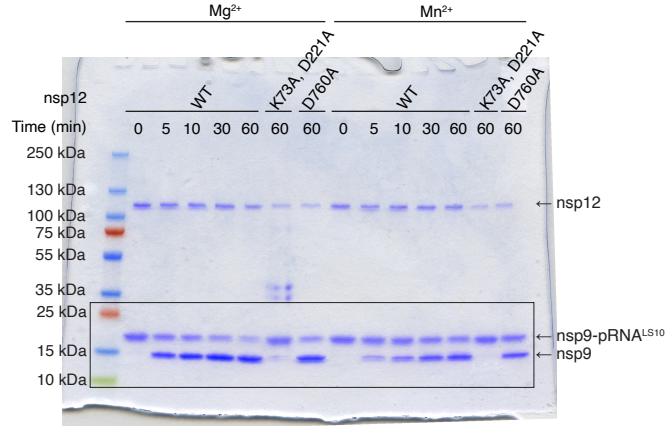

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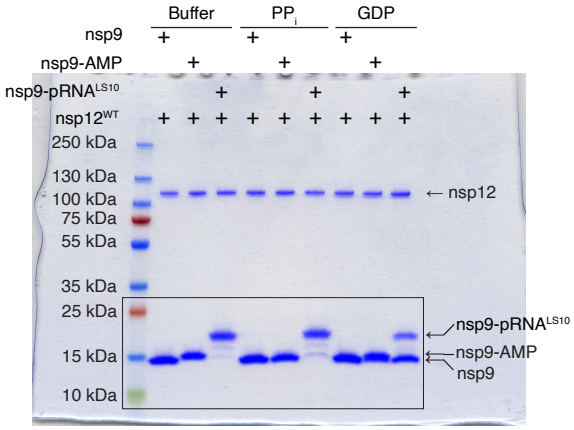

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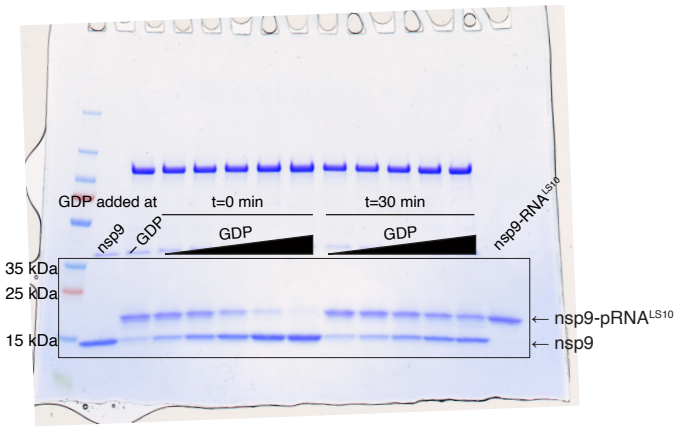

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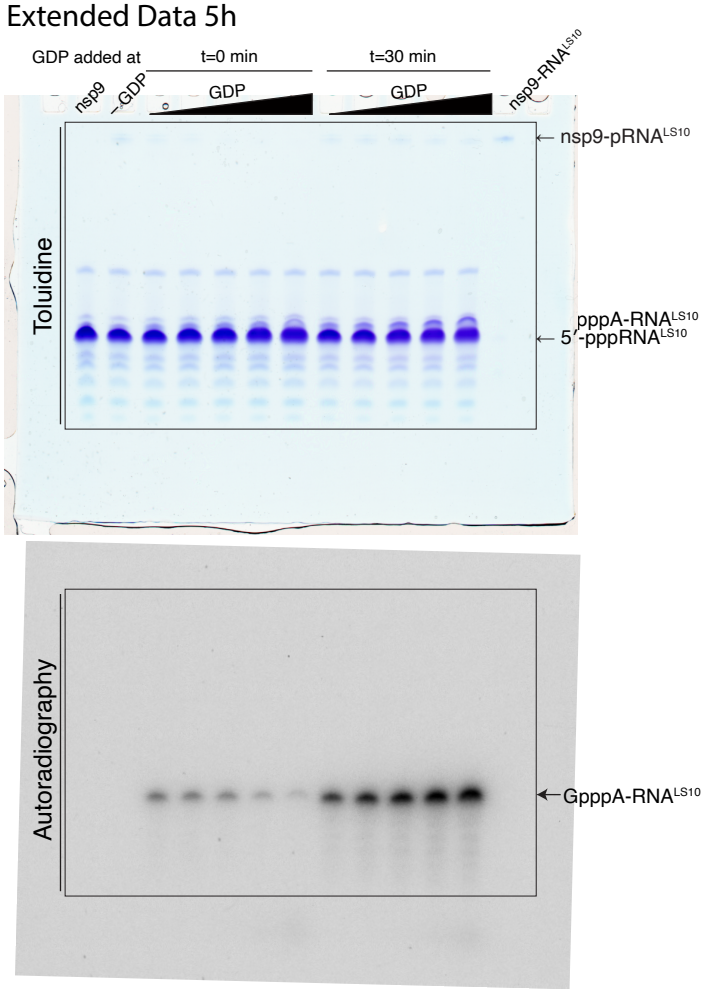

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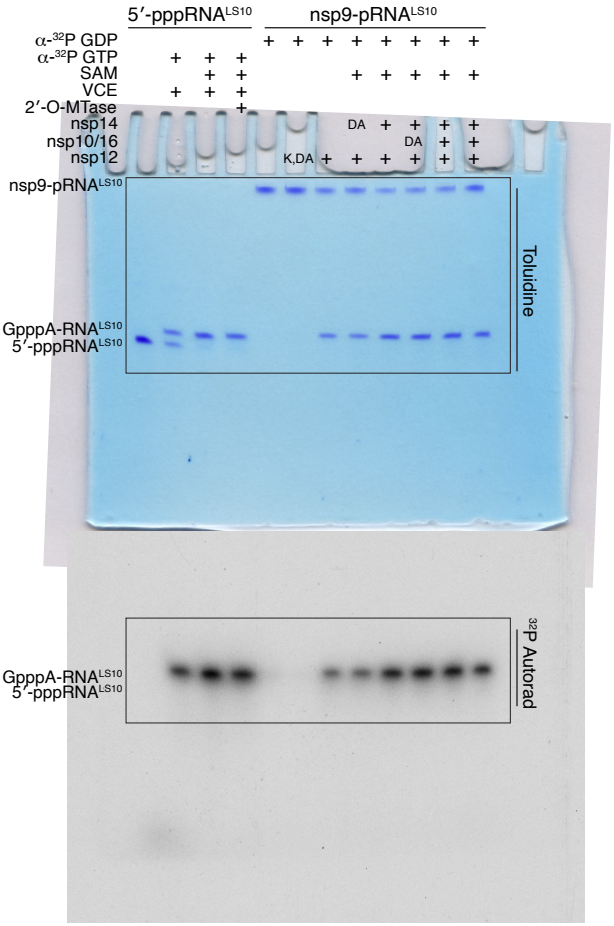
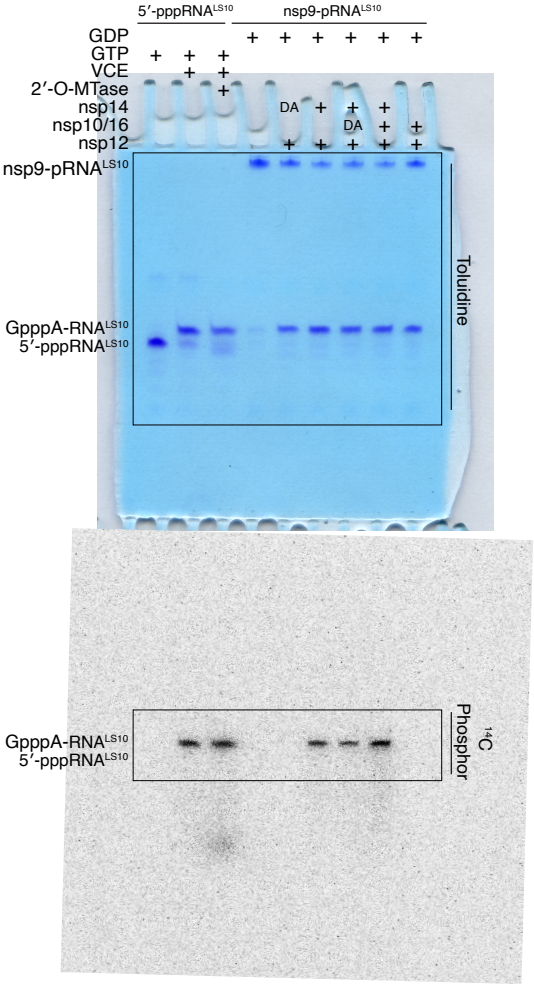
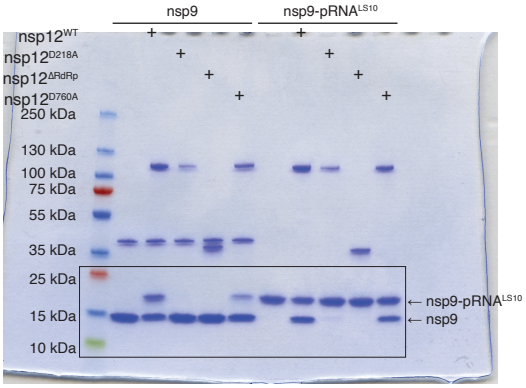


Extended Data Fig. 6b



Gel Extended Data Fig. 8b



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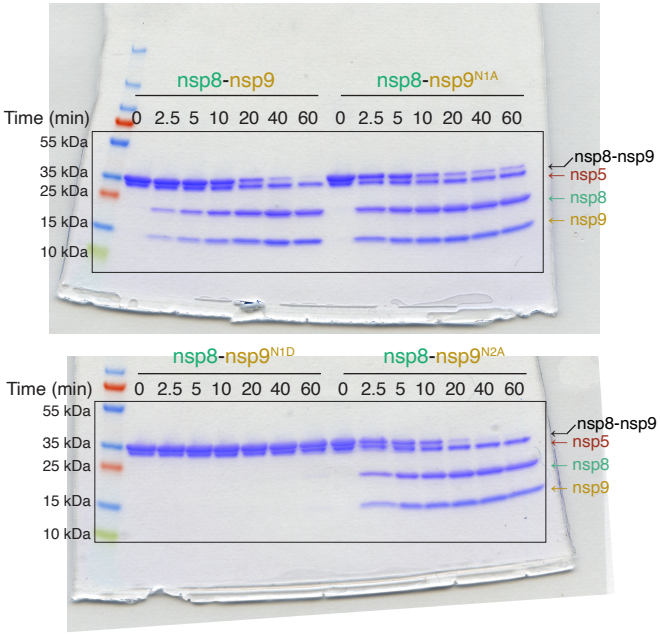

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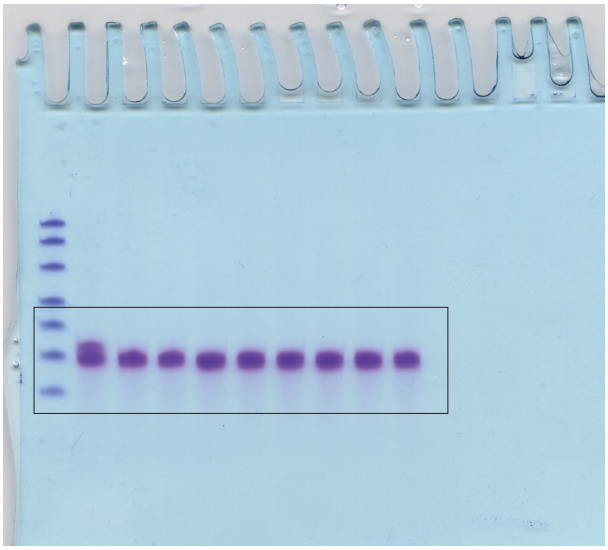

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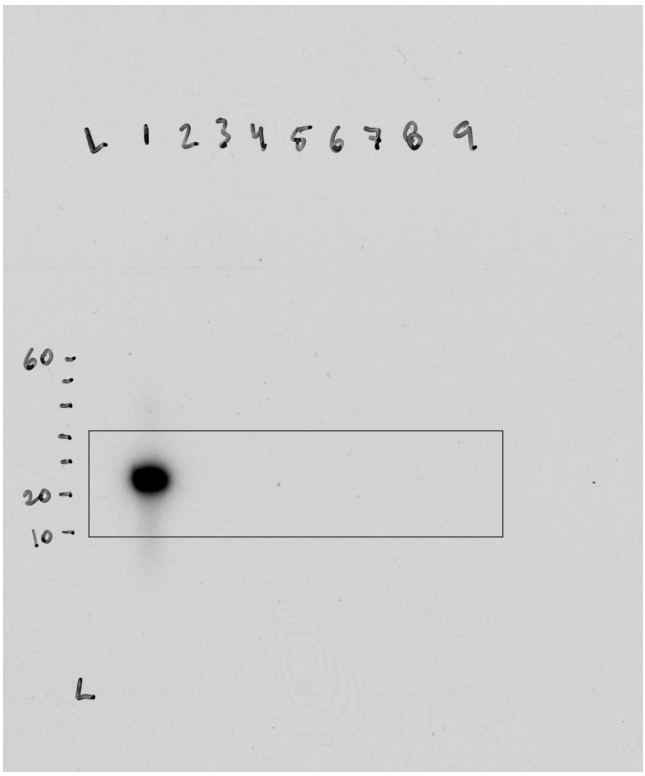

Supplementary Table 1. RNAs used in this study

RNA	Sequence
5′-pppRNA$^{A19C\ 26}$	[ppp]ACCCCCCCCCCCCCCCCCCC
5′-pppRNA^{LS10}	[ppp]AUUAAAGGUU
5′-pppRNA^{LS2}	[ppp]AU
5′-pppRNA^{LS3}	[ppp]AUU
5′-pppRNA^{LS4}	[ppp]AUUA
5′-pppRNA^{LS5}	[ppp]AUUAA
5′-pppRNA^{LS6}	[ppp]AUUAAG
5′-pppRNA^{LS20}	[ppp]AUUAAAGGUUUAUACCUUCC
5′-pppRNA^{LS10_A1C}	[ppp]CUUAAAGGUU
5′-pppRNA^{LS10_A1G}	[ppp]GUUAAAGGUU
5′-pppRNA^{LS10_A1U}	[ppp]UUUAAAGGUU
5′-pppRNA^{LS10_U2G}	[ppp]AGUAAAGGUU
5′-pppRNA^{LS10_U2A}	[ppp]AAUAAAGGUU
5′-pppRNA^{LS10_U2C}	[ppp]ACUAAAGGUU

Supplementary Table 2. Data collection and refinement statistics

Magnification	81,000
Voltage (kV)	300
Electron exposure (e^{-}Å^{-2})	54
Defocus range (μm)	-1.0 to -2.5
Pixel size (Å)	1.09
Symmetry imposed	C1
Initial particle images (no.)	4,196,806
Final particle images (no.)	39,985
Map resolution (Å)	3.2
FSC threshold	0.143
Refinement	
Initial model used (PDB code)	-
Model resolution (Å)	3.5
FSC threshold	0.5
Map sharpening *B* factor (Å^{-2})	-37
Nonhydrogen atoms	9,215
Protein residues	1150
Ligands	4
B factors (Å^{-2})	
Protein	67.4
Ligands	75.9
R.m.s. deviations	
Bond lengths (Å)	0.002
Bond angles (°)	0.453
MolProbity score	1.50
Clashscore	3.12
Poor rotamers (%)	0
Favored (%)	94.1
Allowed (%)	5.9
Disallowed (%)	0

Supplementary Table 3. Oligonucleotides used in the SARS-CoV-2 infection experiments

Oligo	Sequence	Use
PacI Forward	GGTTGAAGCAGTTAATTAAAGTTACACTTGTG	Fragment 1 and 3
1NtoA Reverse	GCAACAGGACTAAGCTCATTAGCCTGTAATTTGACAGC	Fragment 1
1NtoD Reverse	GCAACAGGACTAAGCTCATTGTCCTGTAATTTGACAGC	Fragment 1
2NtoA Reverse	GCAACAGGACTAAGCTCAGCATTCTGTAATTTGACAGC	Fragment 1
73KtoA Reverse	GAGAAAGTGTGTCTCGCAACTACAAAGTAAG	Fragment 1
MluI Reverse	CCTAAGTTGGCGTATACGCGTAATATATCTGGG	Fragment 2 and 3
1NtoA Forward	GCTGTCAAATTACAGGCTAATGAGCTTAGTCCTGTTGC	Fragment 2
1NtoD Forward	GCTGTCAAATTACAGGACAATGAGCTTAGTCCTGTTGC	Fragment 2
2NtoA Forward	GCTGTCAAATTACAGAATGCTGAGCTTAGTCCTGTTGC	Fragment 2
73KtoA Forward	CTTACTTTGTAGTTGCGAGACACACTTTCTC	Fragment 2