Think different with RNA therapy: can antisense oligonucleotides be used to inhibit replication and transcription of SARS-CoV-2?

Eric Barrey, Veronica Burzio, Sophie Dhorne-Pollet, Jean-François Eléouët, Bernard Delmas

Supplementary Materials

Barrey et al. 2020

Figure S1:

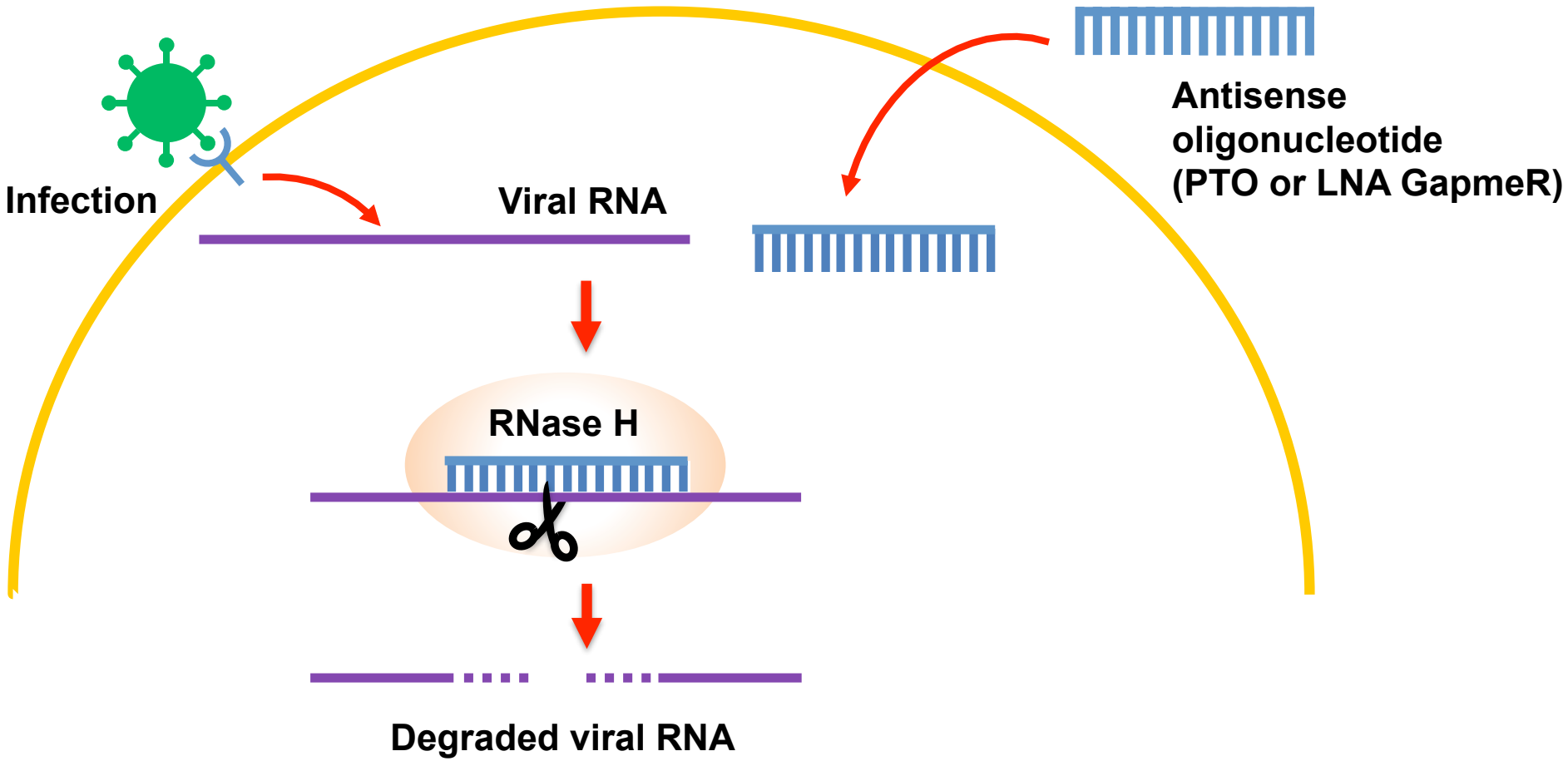
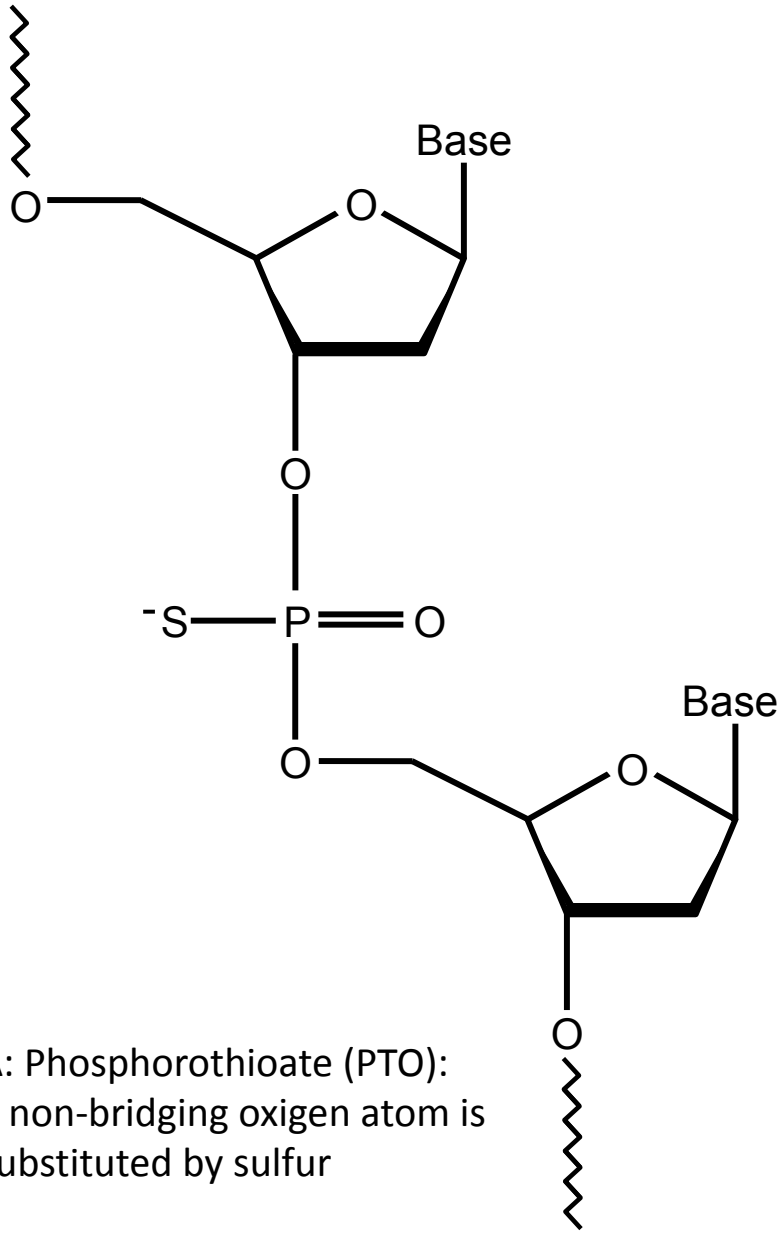
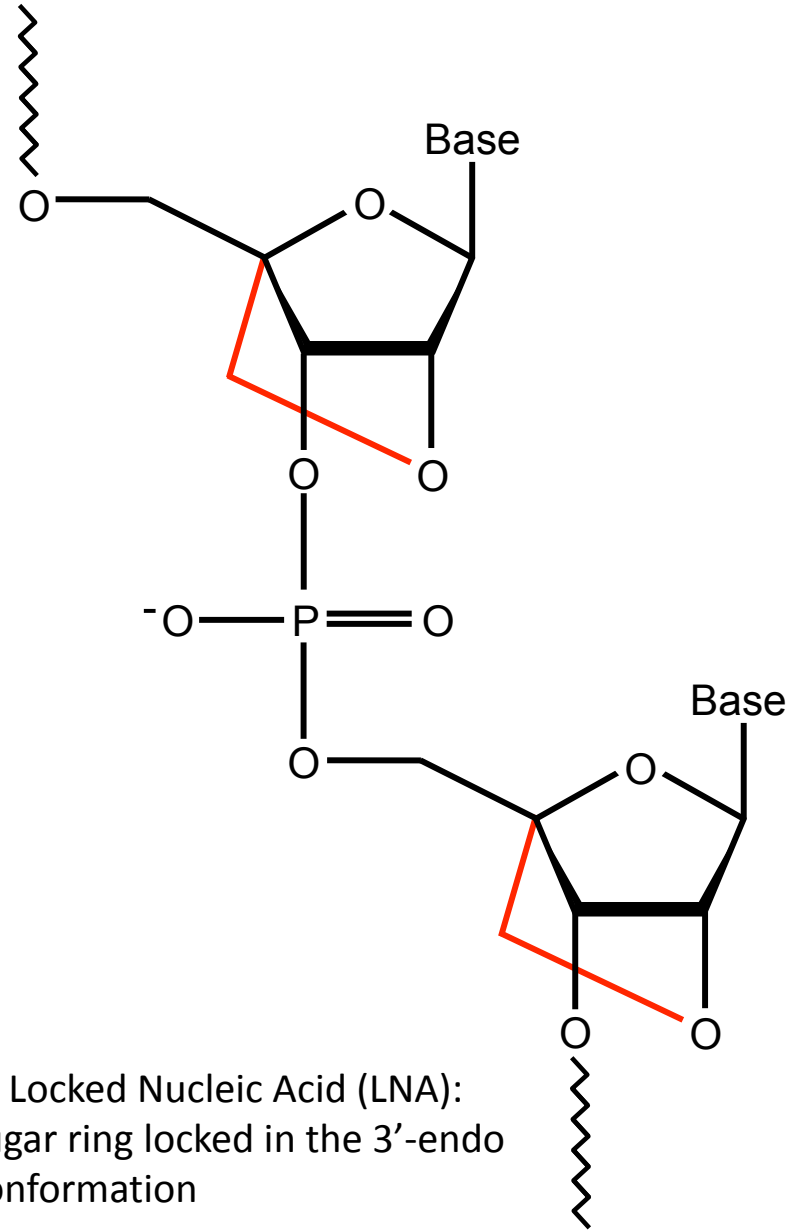

Infection
Viral RNA
Antisense
oligonucleotide
(PTO or LNA GapmeR)
RNase H
Degraded viral RNA

Figure S2:



A: Phosphorothioate (PTO):
a non-bridging oxigen atom is substituted by sulfur



B: Locked Nucleic Acid (LNA):
sugar ring locked in the 3’-endo conformation

Figure S3: Comparison of relative positions of the antisense LNA GapmeRs obtained on two different SARS-Cov-2 sequences NC_045512.2 (or MN908947, top) and MN988668 (bottom). The candidates are scored from 1 (best) to 10 on each sequence.

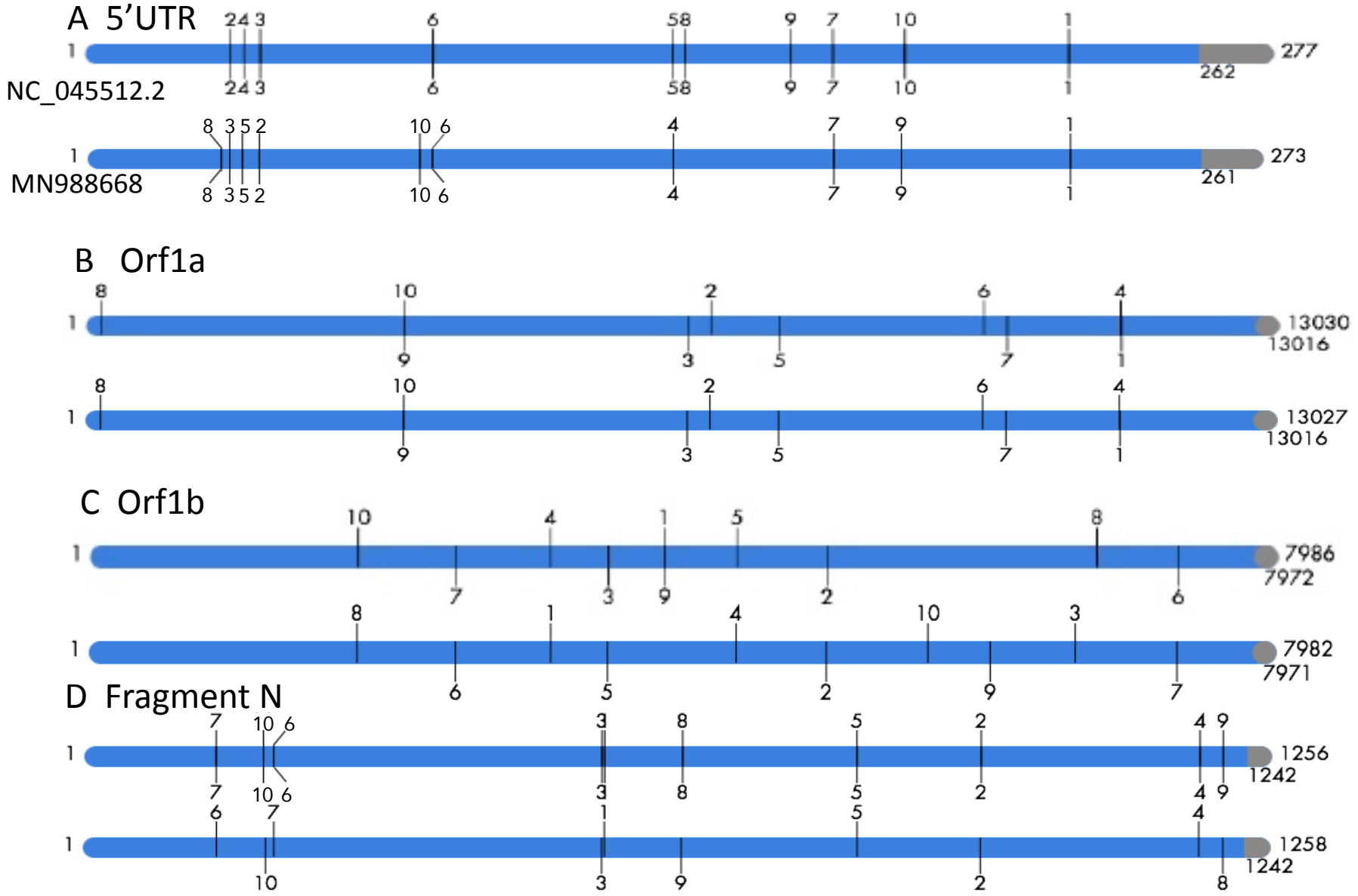


Table S1

ASO #	Sequence	Melt. temp.	Self annealing	Self annealing alignment	Self end-annealing	GC content (%)	Secondary structure score	Secondary structure
ASO1 *	CAAACAACACCATCC	48.15	4	CAAACAACACCATCC | | CCTACCACAACAAAC	0	46.67	2	number of base pairs = 1, sequence = CAAACAACACCATCC, bracket notation = ::::::::(:::):: , score = 2
ASO2 *	ACAACACCATCAACT	47.91	8	ACAACACCATCAACT | | | | TCAACTACCACAACA	2	40.00	4	number of base pairs = 2, sequence = ACAACACCATCAACT, bracket notation = :::(:(:::)::::) , score = 4
ASO3 *	TGGGTGGTTTATGTG	48.57	4	TGGGTGGTTTATGTG | | GTGTATTTGGTGGGT	0	46.67	2	number of base pairs = 1, sequence = TGGGTGGTTTATGTG, bracket notation = ::::(:::::)::: , score = 2
ASO4 *	TTGGGTTTGTTCTGG	49.28	6	TTGGGTTTGTTCTGG | | GGTCTTGTTTGGGTT	3	46.67	3	number of base pairs = 1, sequence = TTGGGTTTGTTCTGG, bracket notation = ::::(::::::)::: , score = 3
ASO5	AAAACACGCACAGAA	49.88	6	AAAACACGCACAGAA | | AAGACACGCACAAAA	0	40.00	3	number of base pairs = 1, sequence = AAAACACGCACAGAA, bracket notation = ::::::::(:::):: , score = 3
ASO6	AGGAACGAGAAGAGG	50.01	6	AGGAACGAGAAGAGG | | GGAGAAGAGCAAGGA	3	53.33	3	number of base pairs = 1, sequence = AGGAACGAGAAGAGG, bracket notation = :(:::)::::::::: , score = 3
ASO7	CCTTCTTCTTCATCCT	47.96	4	CCTTCTTCTTCATCCT | | TCCTACTTCTTCTTCC	2	43.75	2	number of base pairs = 1, sequence = CCTTCTTCTTCATCCT, bracket notation = ::::::::::(:::) , score = 2
ASO8	GTTGGTTGGTTTGTT	47.68	0	GTTGGTTGGTTTGTT TTGTTTGGTTGGTTG	0	40.00	0	number of base pairs = 0, sequence = GTTGGTTGGTTTGTT, bracket notation = ::::::::::::::: , score = -1
ASO9	ACAGAACACACACAC	49.54	6	ACAGAACACACACAC | | CACACACACAAGACA	3	46.67	3	number of base pairs = 1, sequence = ACAGAACACACACAC, bracket notation = :::(::::)::::::: , score = 3