

Supplementary Data

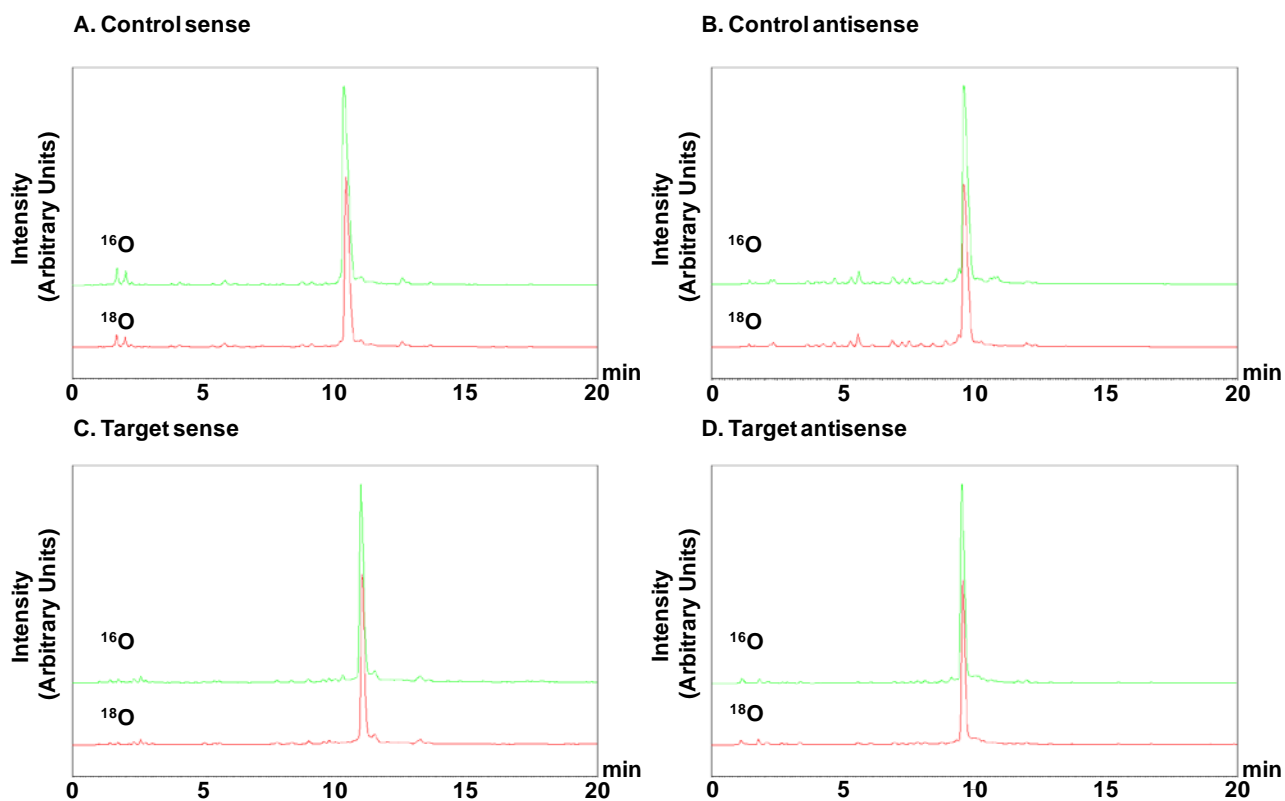
Synthesis of ^{18}O -labeled RNA for application to kinetic studies and imaging

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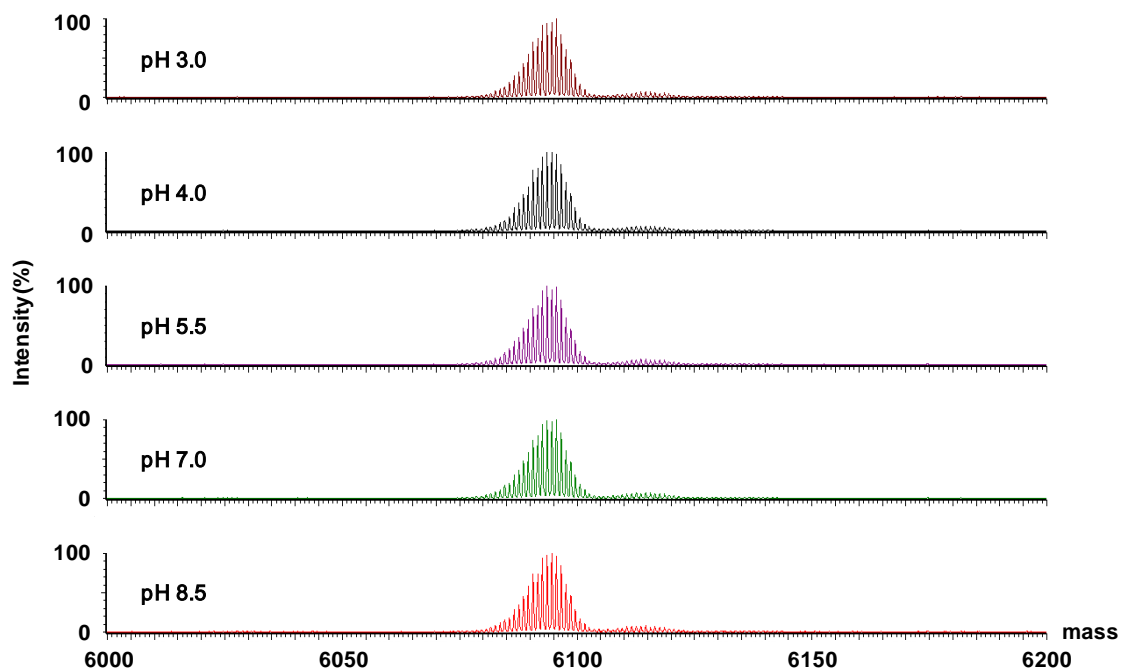
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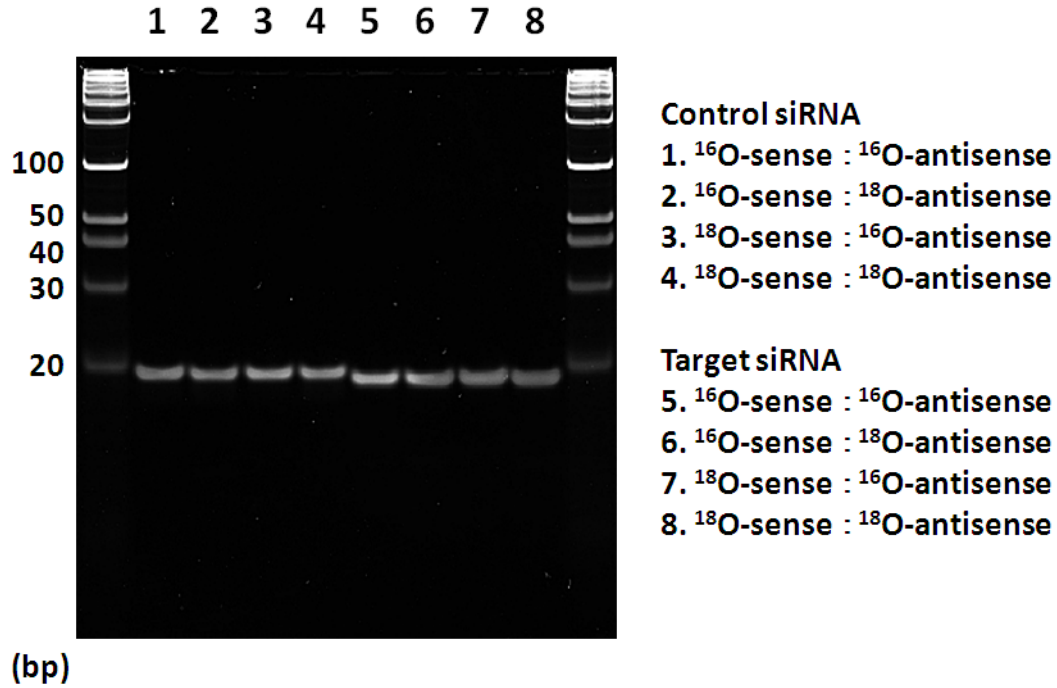
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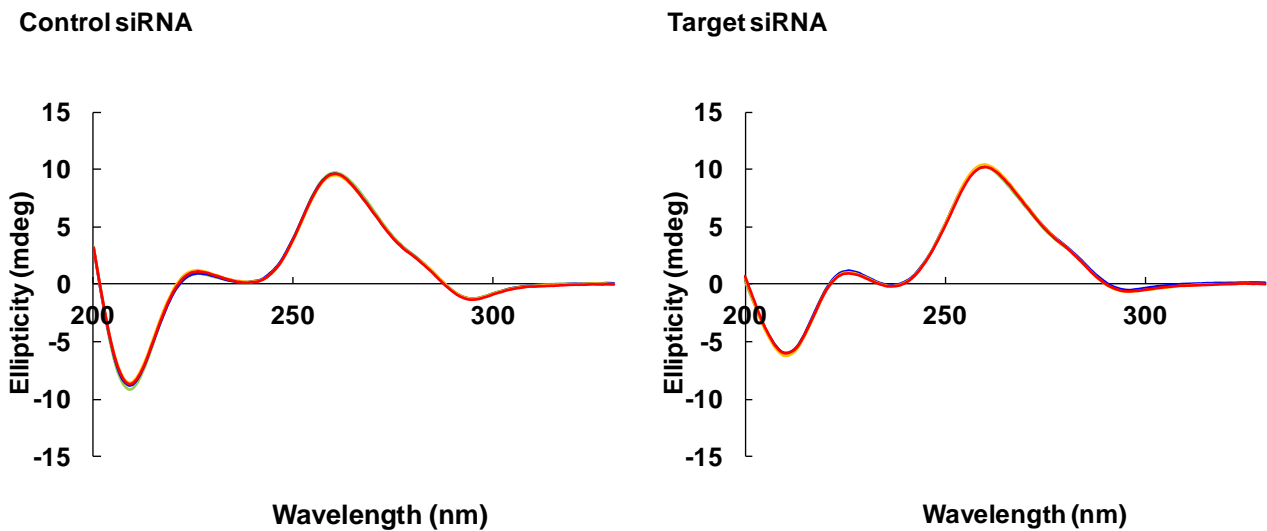
Supplementary Figure S1. HPLC chromatograms of control and target siRNA. Green chromatograms, ^{16}O -RNA; red chromatograms, ^{18}O -labeled RNA.



Supplementary Figure S2. LC-ESI-Q-ToF mass spectra of ^{18}O -labeled uridine 20mer RNA after incubation at 37°C for 28 days at various pH values.



Supplementary Figure S3. Polyacrylamide gel electrophoresis of control and target siRNA. RNA was analyzed on a 15% gel stained with ethidium bromide. siRNA Ladder Marker (Takara Bio) was used as a size marker for double-stranded RNA.



Supplementary Figure S4. CD spectra of 10 μM control (left panel) and target (right panel) siRNA in 50 mM phosphate buffer, pH 7.5, at 25 $^{\circ}\text{C}$. The sense/antisense strand combinations are shown as follows: green spectra, $^{16}\text{O}/^{16}\text{O}$ -siRNA; blue spectra, $^{16}\text{O}/^{18}\text{O}$ -siRNA; yellow spectra, $^{18}\text{O}/^{16}\text{O}$ -siRNA; red spectra, $^{18}\text{O}/^{18}\text{O}$ -siRNA.

Supplementary Table S1. T_m values (°C) of control and target siRNA.

	control siRNA	Target siRNA
^{16}O-sense : ^{16}O-antisense	67.69	67.16
^{16}O-sense : ^{18}O-antisense	67.52	67.25
^{18}O-sense : ^{16}O-antisense	67.20	66.66
^{18}O-sense : ^{18}O-antisense	67.10	66.66