Supplementary Figures for

Tau AD fragment aggregates proliferate through autocatalytic secondary nucleation

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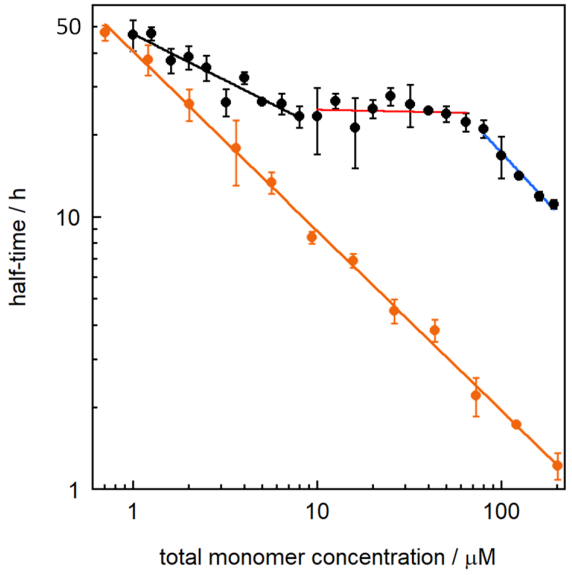


Figure S1. Concentration dependence of the half-time of aggregation for tau tau304-380_C322S. Experiments were carried out with 1 to 200 μM monomer in 20 mM sodium phosphate, pH 8.0, 0.02% NaN_3 with 2 μM X34 as a reporter of fibril formation. Half-time of aggregation ($t_{1/2}$) as a function of initial monomer concentration with logarithmic axes. A) Data (average and standard deviation over three repeats) for reactions starting from pure monomer are shown in black, and data for reactions starting from monomer supplemented with 0.1% seed in monomer units is shown in orange. The data obtained without seeds seem to fall into three regimes, and because of the saturation effects seen above 10 μM, data from the regime 1-8 μM was used in the kinetic analyses (Fig. 3). Data from the same or full range were used in kinetic analysis of the data for seeded samples.

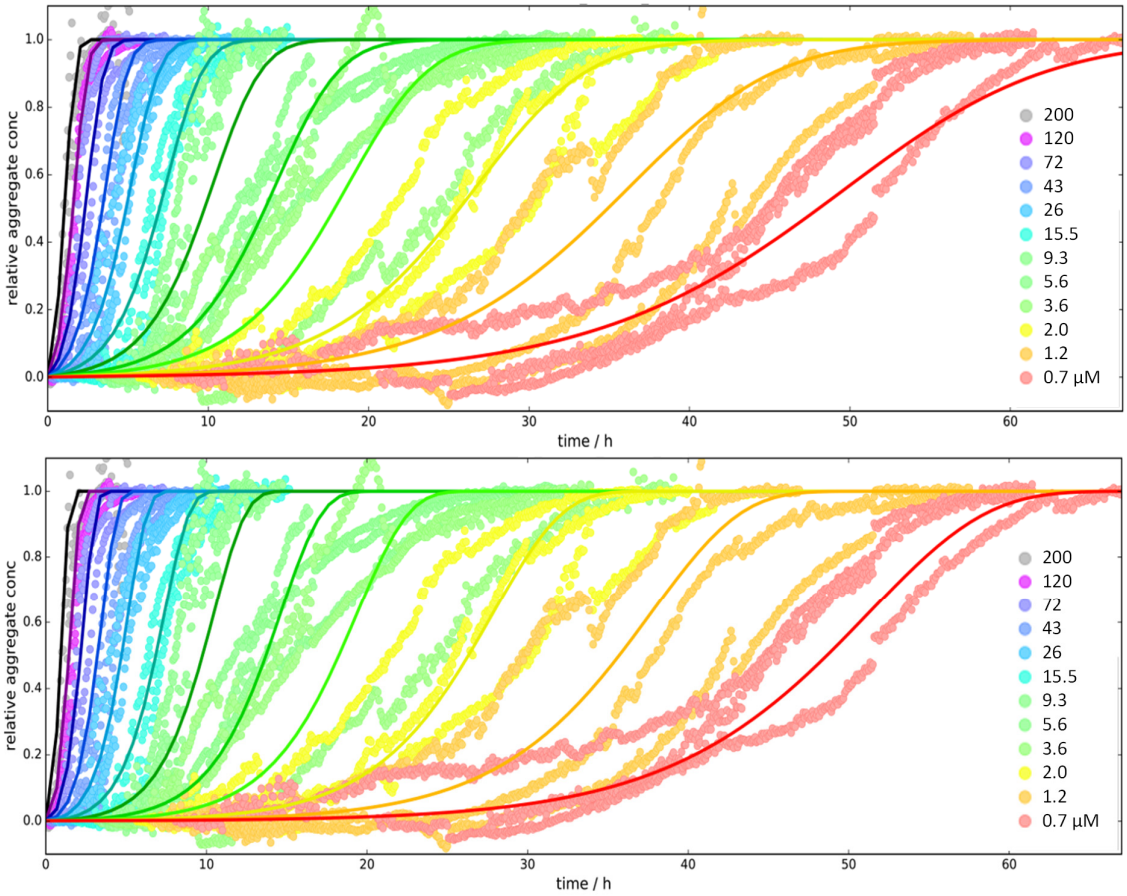
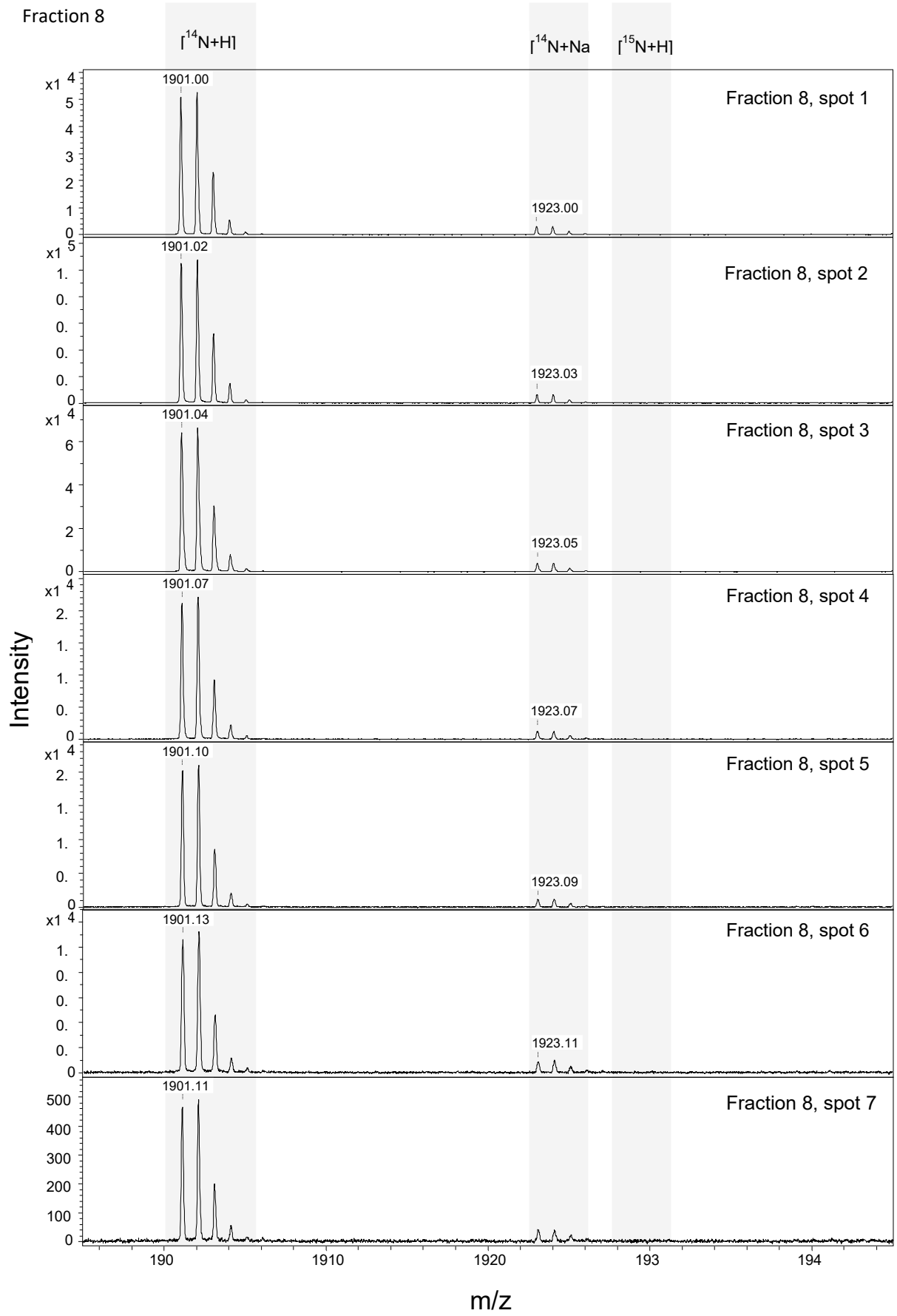
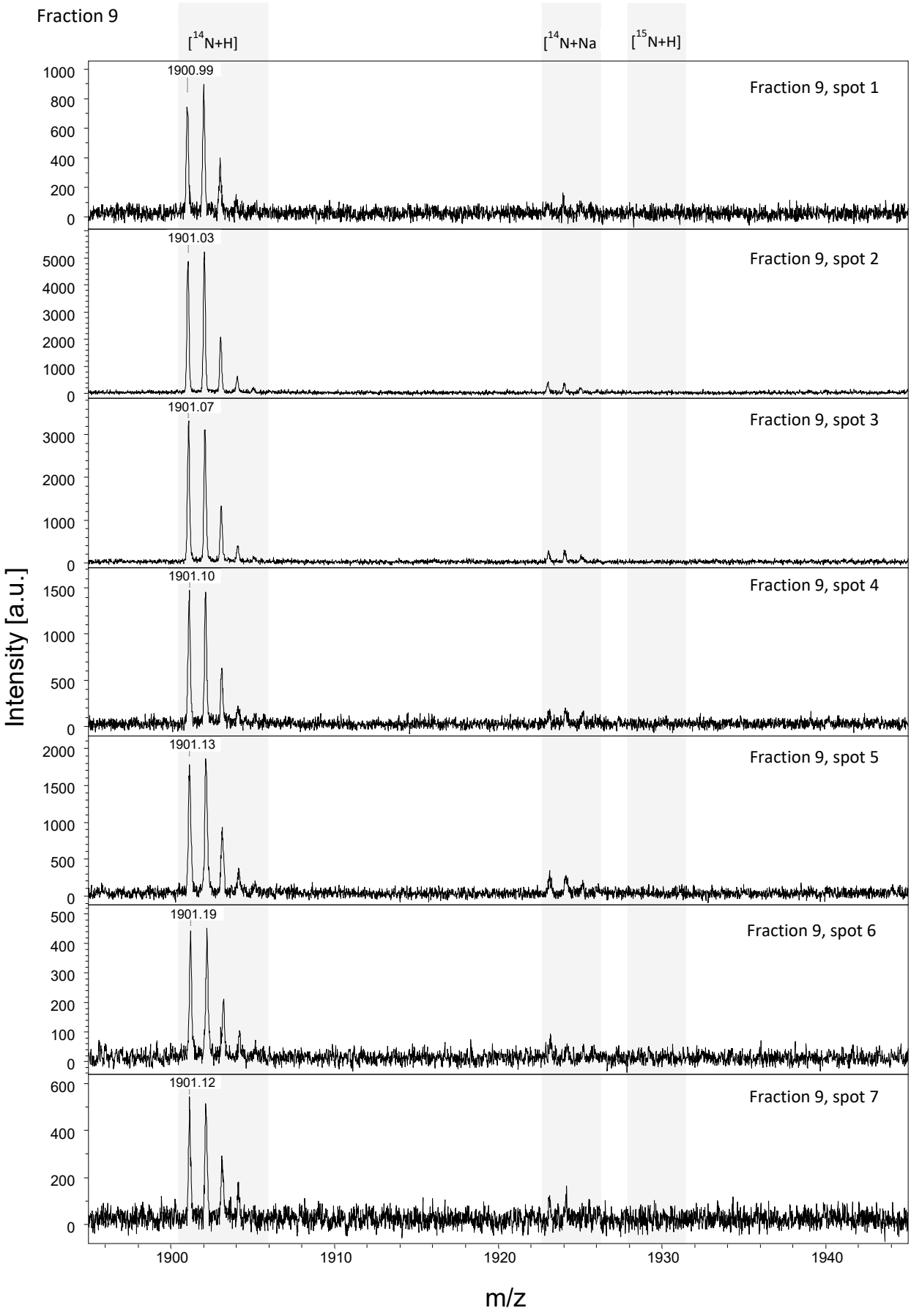


Figure S2. Seeded aggregation kinetics of tau304-380_C322S. Freshly isolated monomer was supplemented at time zero with 0.1% pre-formed seeds. Normalized data at monomer concentrations ranging from 1-200 µM and the initial seed concentration is in each case 0.1% of the monomer concentration. (**A)** Best fit allowing for secondary nucleation and elongation. (**B)** Best fit allowing for fragmentation and elongation.


Fraction 8
[14N+H]
[14N+Na
[15N+H]
Fraction 8, spot 1
1901.00
1923.00
Fraction 8, spot 2
1901.02
1923.03
Fraction 8, spot 3
1901.04
1923.05
Fraction 8, spot 4
1901.07
1923.07
Fraction 8, spot 5
1901.10
1923.09
Fraction 8, spot 6
1901.13
1923.11
Fraction 8, spot 7
1901.11
Intensity
m/z
190
1910
1920
193
194


Fraction 9
[14N+H]
[14N+Na
[15N+H]
1900.99
Fraction 9, spot 1
1901.03
Fraction 9, spot 2
1901.07
Fraction 9, spot 3
1901.10
Fraction 9, spot 4
1901.13
Fraction 9, spot 5
1901.19
Fraction 9, spot 6
1901.12
Fraction 9, spot 7
Intensity [a.u.]
m/z
1900
1910
1920
1930
1940

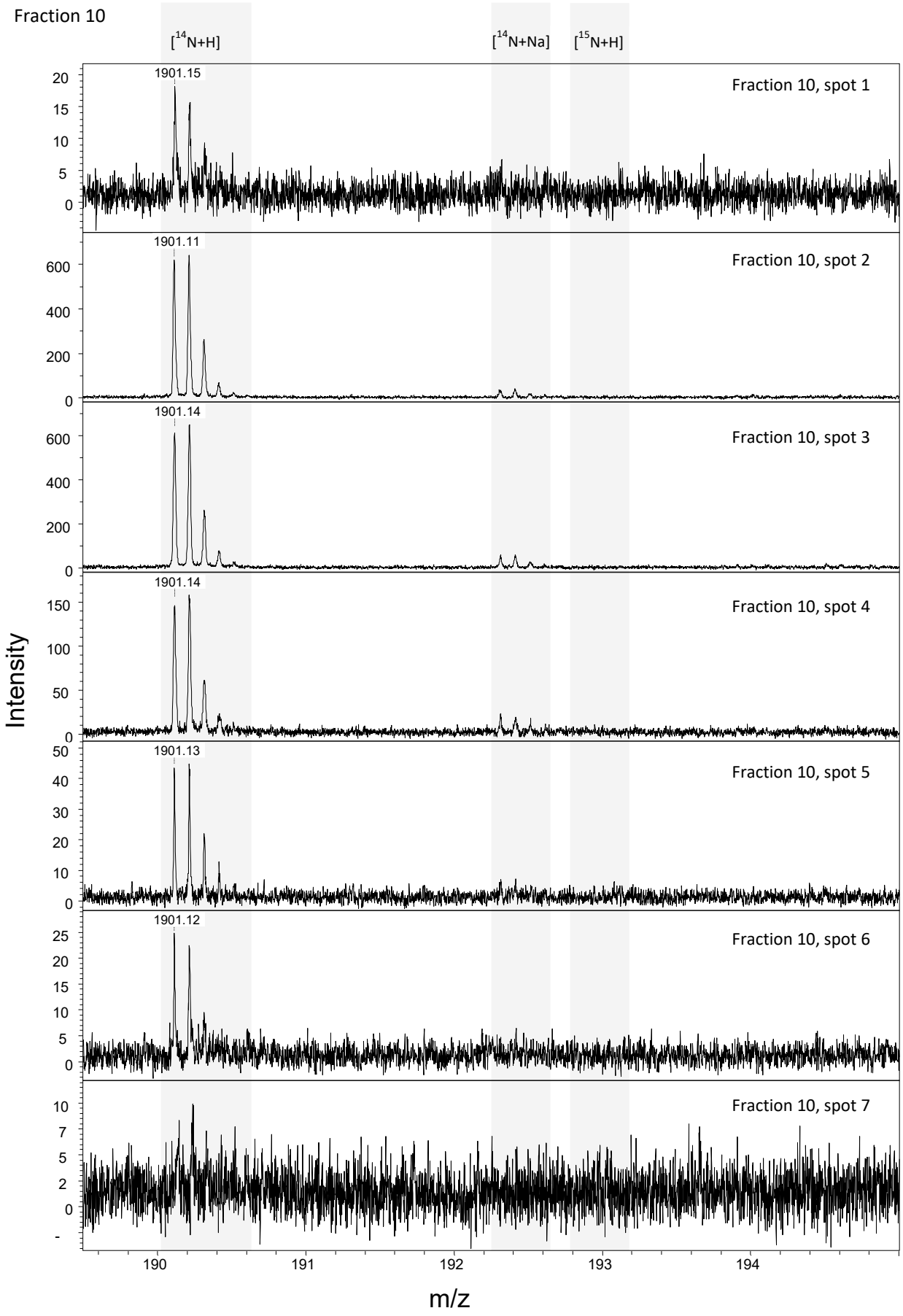

Fraction 10
[14N+H]
[14N+Na]
[15N+H]
1901.15
Fraction 10, spot 1
1901.11
Fraction 10, spot 2
1901.14
Fraction 10, spot 3
1901.14
Fraction 10, spot 4
1901.13
Fraction 10, spot 5
1901.12
Fraction 10, spot 6
Fraction 10, spot 7
Intensity
m/z
190
191
192
193
194

Figure S3. LC-MALDI-TOF-TOF spectra of all spots for oligomer fractions eluting between 8 and 9 ml (fraction 8), between 9 and 0 mL (fraction 9) and between 10 and 11 mL (fraction 10).