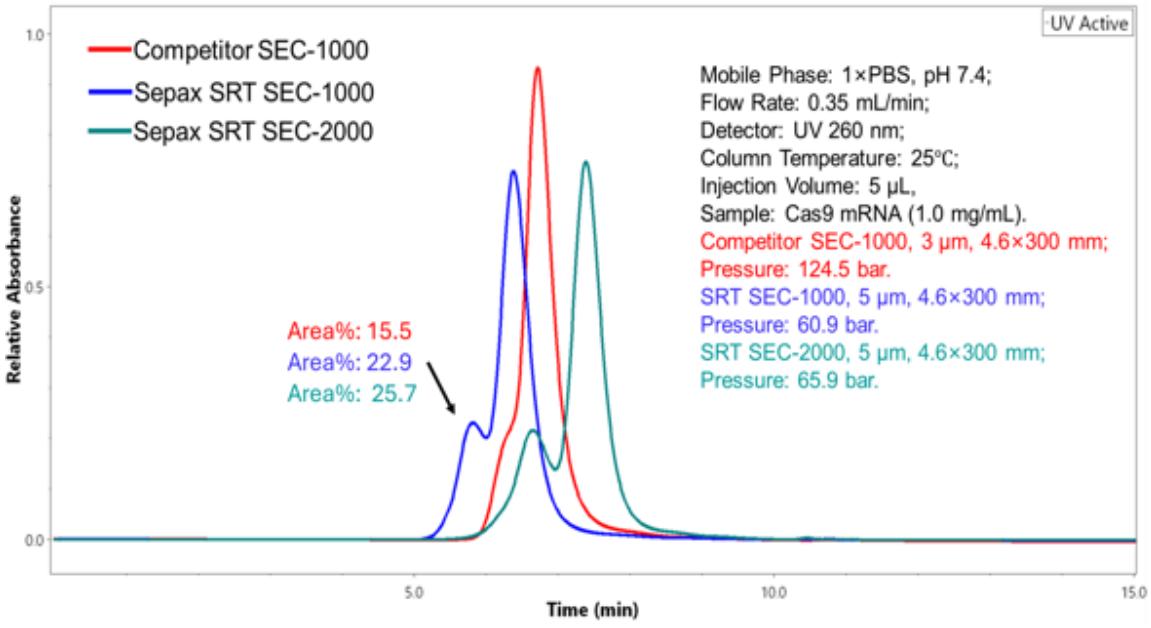
Cas9 mRNA and FLuc mRNA Aggregates Analysis on SEC-HPLC

The recent developments in mRNA vaccines call for a robust, accurate and reliable analytical quantification for critical quality attributes of mRNA. Size Exclusion Chromatography (SEC) is one of the most used methods which can quickly quantify mRNA and its aggregates and fragments. In this study, we present SEC HPLC data to analyze the effect of pore size, surface chemistry, type of buffer system, salt concentration on the aggregate separation of two types of commercially available mRNAs by three different SEC Columns:

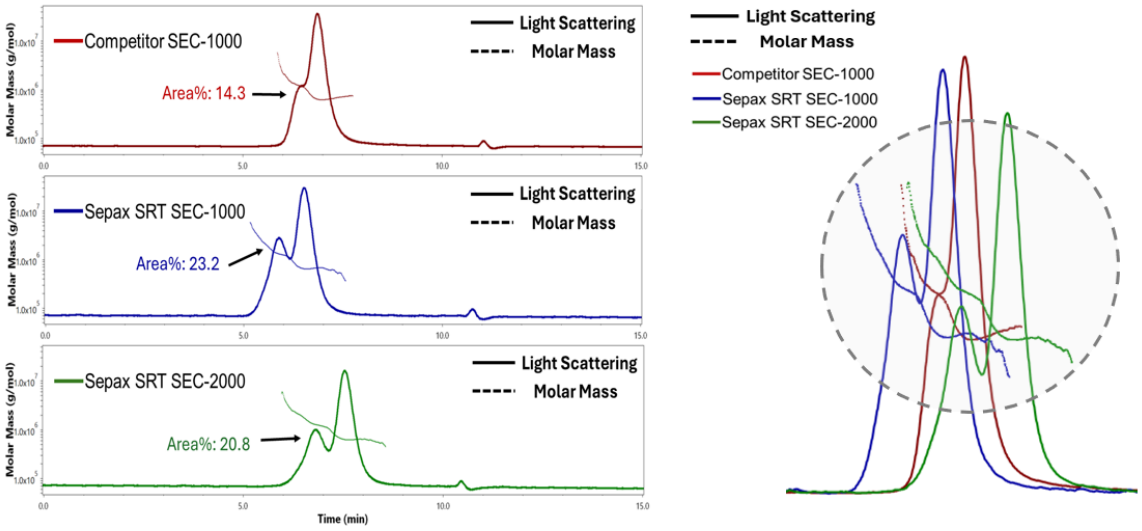
Cas9 mRNA (4522 nucleotides) and FLuc mRNA (1922 nucleotides) were being evaluated for monomer and aggregates separation on SEC method by using two different buffer systems. Sepax SRT 5 µm, 1000 Å and 2000 Å SEC columns outperform Competitor W 3 µm 1000 Å SEC column on both mRNA types under both buffer systems with higher resolution.

Smaller particle size does not always equal to higher resolution; factors such as pore size distribution and selectivity of surface chemistry may also play important roles in the overall performance. Buffer system and ionic strength can affect the folding of the mRNA specie, and its interaction with the resin separation. Sepax SRT SEC unique surface chemistry provides universal buffer compatibility.

Cas9 mRNA (4522nt) SEC Overlay - PBS Buffer



FLuc mRNA (1922nt) SEC Overlay - Tris Buffer



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Whether you're analyzing samples or carving pumpkins, we wish everyone a safe and science-filled Halloween.

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LITERATURE REFERENCES

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