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Research paper

Interlaced Size Exclusion Chromatography for faster Protein Analysis

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1 **Research Note**2 **Interlaced Size Exclusion Chromatography for faster Protein Analysis**3
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20 **Abstract**

21 In this research note, interlaced Size Exclusion Chromatography (SEC) is used to shorten the duration of protein
22 analysis. The applied method has a threefold higher sample throughput than comparable ones using conventional
23 SEC. Further important advantages are the identical area's precision and the preservation of protein stability. Two
24 different applications are presented where a short time interval of analysis is very important. One application is
25 the determination of aggregates of monoclonal antibodies (mAbs). A high number of antibody samples have to be
26 analyzed during the development process. The antibody sample was measured in a series of 60 injections within
27 only 5.5 hours instead of 16 hours. The second application is the two-dimensional (2 D) separation of protein
28 mixtures. The number of samples typically increases from the first to the second dimension. Thus, interlaced SEC
29 is a reasonable option for the second dimension. This work confirms the functionality of interlaced SEC and
30 widens the applicable range. Interlaced SEC can become a convenient option for method acceleration in the
31 future.

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33 **Keywords:** biopharmaceuticals, high-throughput, monoclonal antibodies, size-exclusion chromatography, 2 D
34 separation

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