



TOSOH

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Tosoh Bioscience: What are your research topics?

Lin Dongqiang: My team and I are currently dedicated to develop and evaluate new separation media, to optimize separation processes in term of efficiency and cost, to develop separation equipment, and to simulate and design biological processes.

In recent publications^{1,2}, you emphasized the use of mixed-mode chromatography resins for the purification of albumin. Why?

Compared with other chromatographic separation modes, mixed-mode ligands combine

multiple interactions and carry a unique separation selectivity, which is an excellent complement to the commonly used ion-exchange and hydrophobic modes.

It can be used in intermediate or final polishing steps.

However, considering both the productivity and the process costs, mixed-mode chromatography exert its full advantages in the capture step of chromatographic processes. Capturing the target molecule on mixed-mode resins shows multiple advantages including no need to be desalted, high loading capacity, adequate resolution, and unique separation selectivity.

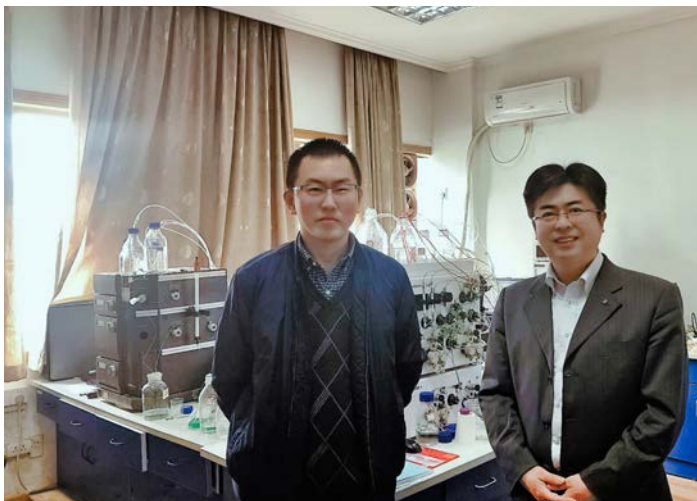
In two different peer-reviewed articles, you mentioned that TOYOPEARL MX-Trp-650M exhibits excellent performance for the separation of recombinant human serum albumin. Could you elaborate?

We optimized the purification process of recombinant human serum albumin (rHSA) using high-throughput screening. The volume of rHSA to be purified is enormous. To efficiently and economically purify HSA, mixed-mode chromatography has certain advantages. Therefore, we focused our work on the feasibility of mixed-mode separations. We evaluated different manu-

facturers and multiple mixed-mode separation media. TOYOPEARL MX-Trp-650M showed the best performances of all the evaluated media for all parameters: loading capacity, resolution and impurity removal, recovery rate, and direct liquid loading.

What are your plans for future research?

Tosoh Bioscience has introduced several further innovative media in the past few years - TOYOPEARL NH2-750F, Sulfate-650F, and Ca⁺⁺Pure-HA. I will definitely evaluate their performances in the near future.



Professor Lin Dongqiang (left) with Pan Mingxiang, Sales and Marketing Director at Tosoh Bioscience Shanghai (right)

¹ *Biochemical Engineering Journal*, 131 (2018) 47

² *Industrial & Engineering Chemistry Research*, 58 (2019) 3328

