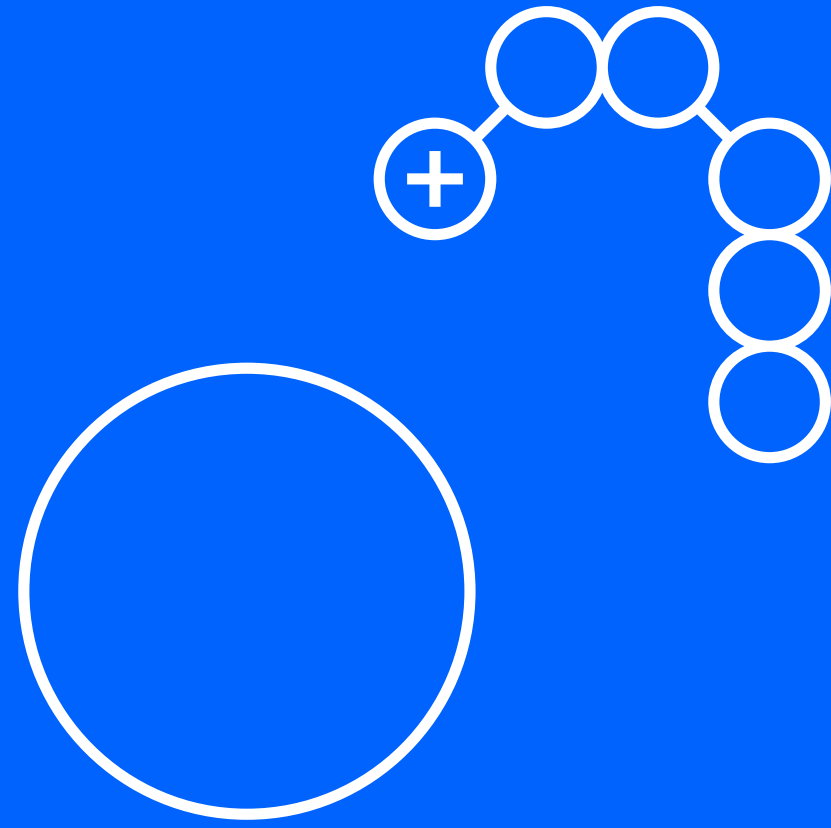


GoBio™ columns with excellent resolution and high capacities

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Introduction

The prepacked GoBio™ Mini columns for ion exchange chromatography (IEX) are designed for easy and convenient purification of protein, peptides and oligonucleotides. Giving excellent resolution and high capacity make them useful tools in research and process development.

We have used standard IEX methods and compared the resolution and dynamic binding capacity (DBC) on GoBio Mini columns for IEX towards HiTrap™ Capto™ SP ImpRes 1 mL and HiTrap Capto Q ImpRes 1 mL.

Results

The resolution of GoBio Mini S 1 mL (cation exchanger) and GoBio Mini Q 1 mL (anion exchanger), compared to HiTrap Capto SP ImpRes 1 mL and HiTrap Capto Q ImpRes 1 mL is shown in Fig 1 and Fig 2. The results show significantly higher resolution for GoBio Mini S 1 mL and equal resolution for GoBio Mini Q 1 mL.

A five times scaling up from GoBio Mini S 1 mL to GoBio Mini 5 mL is shown in Fig 3. Results show even higher resolution while increasing the column volume by five.

Sample: 0.25 mL 1.5 mg/mL concanavalin A, 0.5 mg/mL α -chymotrypsinogen A, 1.5 mg/mL ribonuclease A, 0.5 mg/mL lysozyme in binding buffer
Binding buffer: 50 mM MES, pH 6.0
Elution buffer: 50 mM MES, 1 M NaCl, pH 6.0
Gradient: 0–50% in 20 column volumes (CV)
Flow: 1 mL/min (150 cm/h)

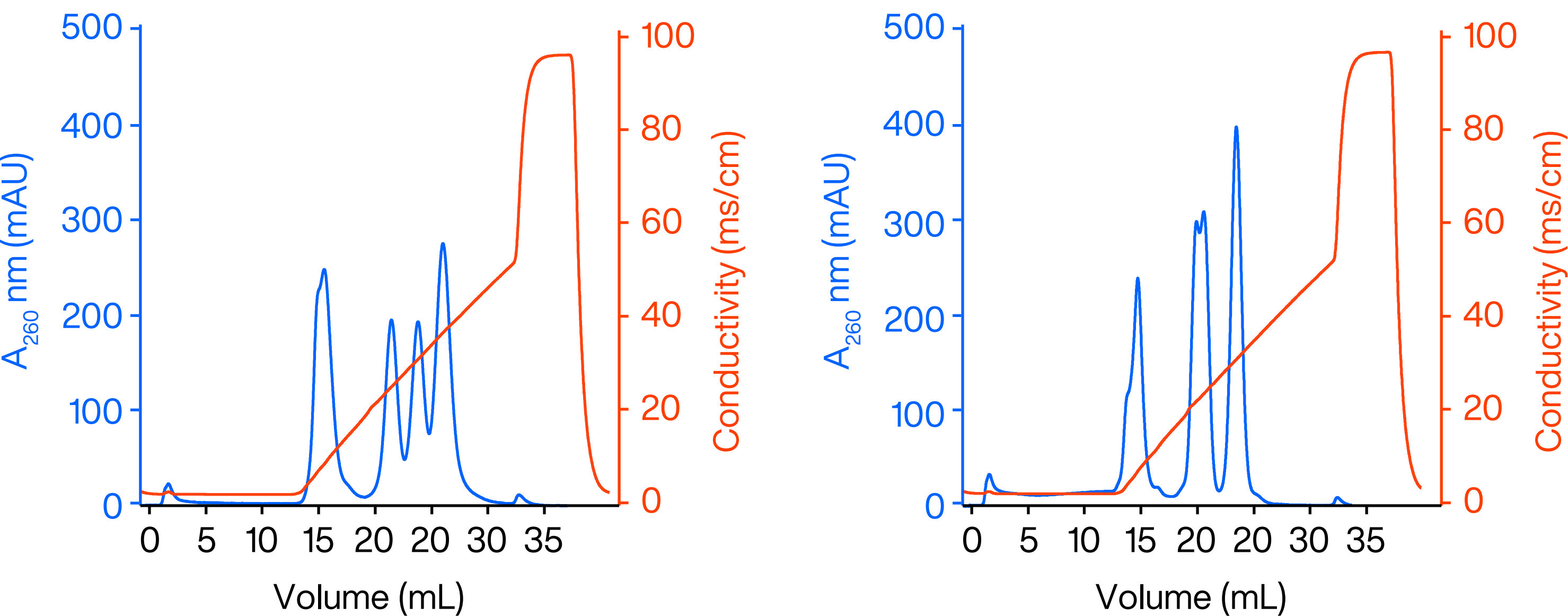


Figure 1. Separation on GoBio S 1 mL (A) and HiTrap Capto SP ImpRes 1 mL (B).

Sample: 2 mL 0.3 mg/mL apo transferrin, 0.2 mg/mL α -lactalbumin, 0.6 mg/mL soybean trypsin inhibitor in binding buffer
Binding buffer: 50 mM Tris HCl, pH 7.4
Elution buffer: 50 mM Tris HCl, 1 M NaCl, pH 7.4
Gradient: 0–40% in 20 CV
Flow: 1 mL/min (150 cm/h)

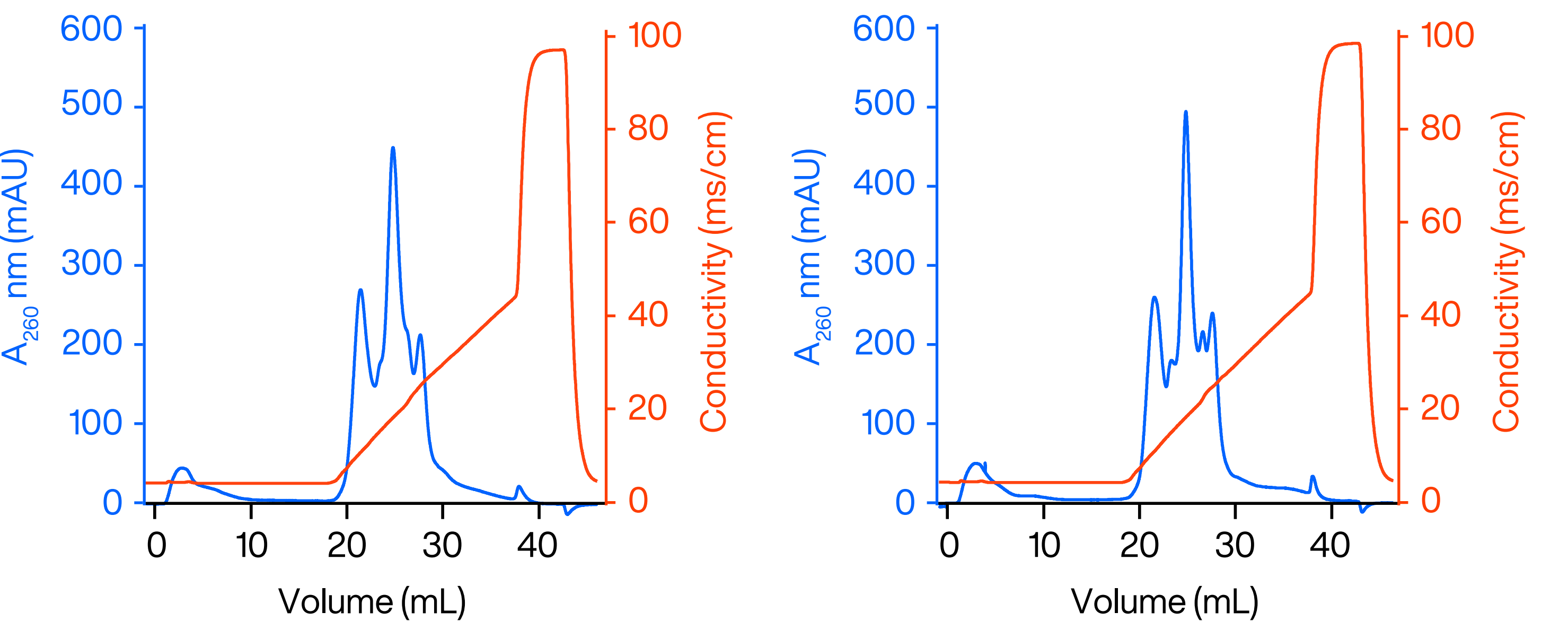


Figure 2. Separation on GoBio Mini Q 1 mL (A) and HiTrap Capto Q ImpRes 1 mL (B).

Sample volume: (A) 0.25 mL, (B) 1.25 mL
Sample: 1.5 mg/mL concanavalin A, 0.5 mg/mL α -chymotrypsinogen A, 1.5 mg/mL ribonuclease A, 0.5 mg/mL lysozyme in binding buffer
Binding buffer: 50 mM MES, pH 6.0
Elution buffer: 50 mM MES, 1 M NaCl, pH 6.0
Gradient: 0–50% in 20 CV
Flow: (A) 1 mL/min (150 cm/h)
(B) 3.5 mL/min (150 cm/h)

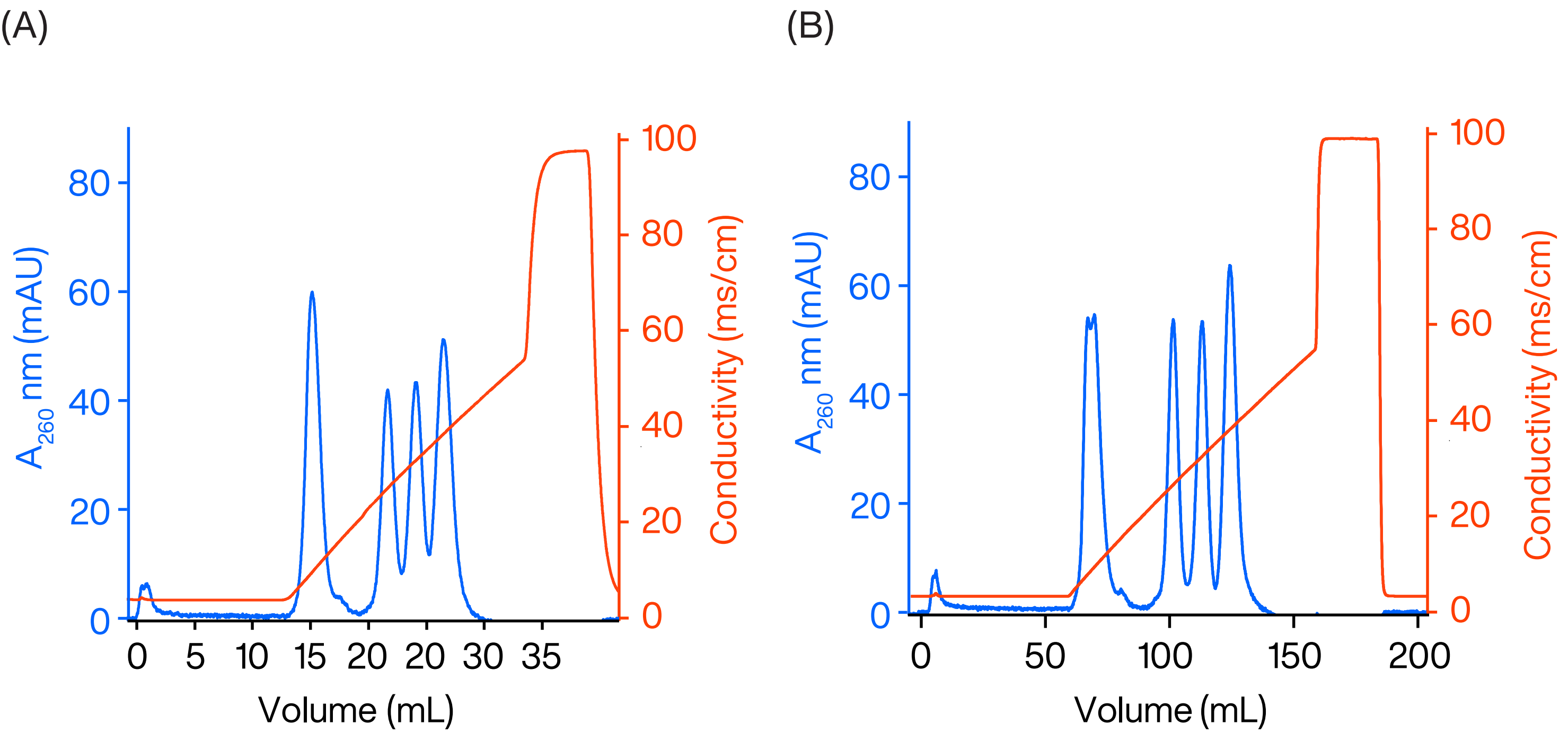


Figure 3. Scale up from a GoBio S 1 mL column to a GoBio S 5 mL column.

DBC was determined using bovine serum albumin (for GoBio S 1 mL, GoBio Q 1 mL, HiTrap Capto SP ImpRes 1 mL and HiTrap Capto Q ImpRes 1 mL (Fig 4). The results show 15% and 30% higher dynamic binding capacity, respectively, compared to competitor products.

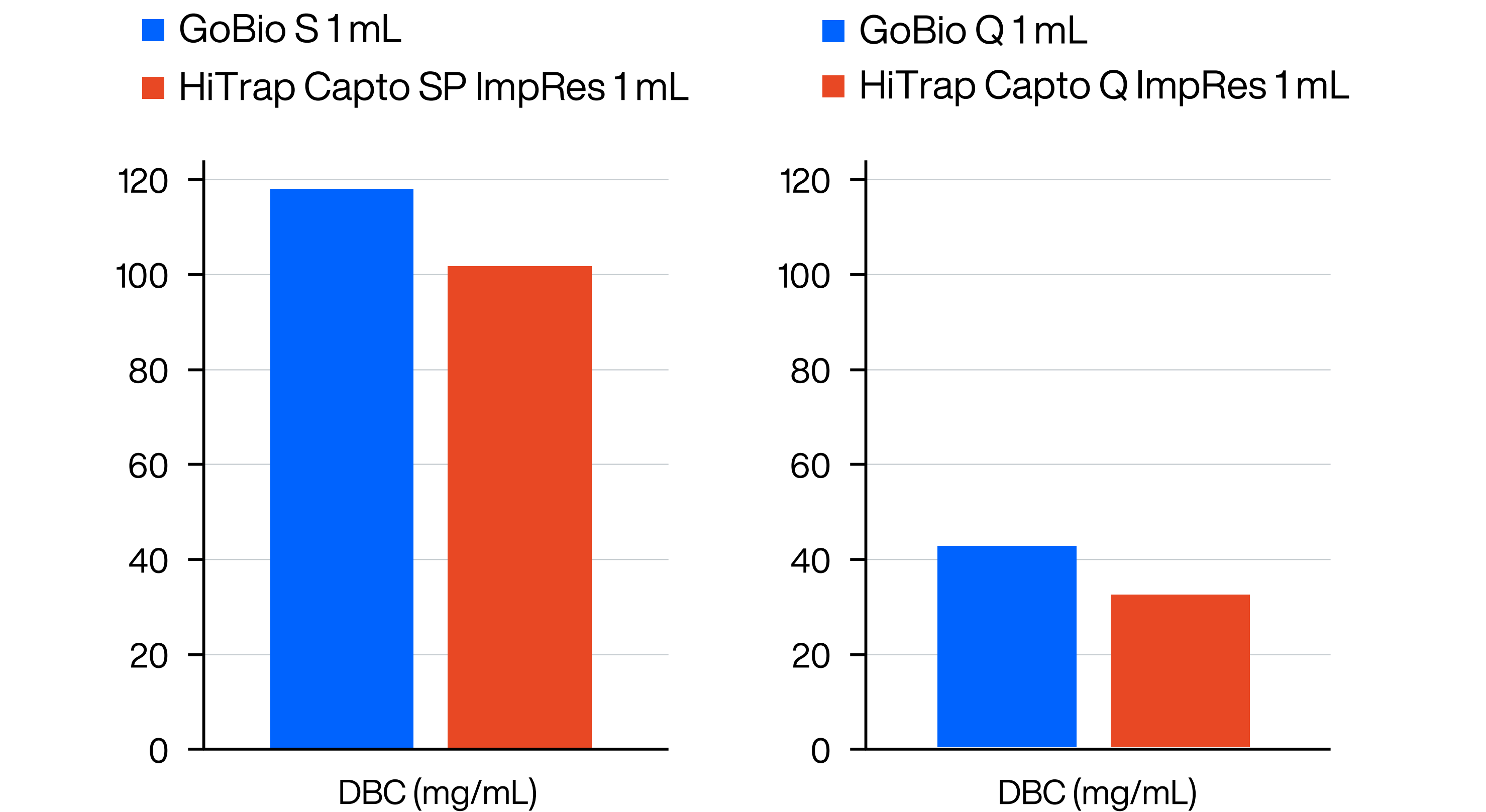


Figure 4. DBC measured at 10 breakthrough ($QB_{10\%}$). (A) 2 mg BSA/mL in 20 mM Na citrate, pH 4.0 Flow rate 1 mL/min (150 cm/h). (B) 1 mg BSA/mL in 50 mM Tris HCl 50 mM NaCl, pH 8.0 Flow rate 1 mL/min (150 cm/h).

Summary

GoBio columns for IEX show excellent results during investigation of both resolution and dynamic binding capacity. GoBio Mini S 1 mL gives significantly higher resolution compared to HiTrap Capto SP ImpRes 1 mL. GoBio Mini Q 1 mL gives equal resolution as HiTrap Capto Q ImpRes 1 mL.

Finally, both GoBio Mini S 1 mL and GoBio Mini Q 1 mL have higher dynamic binding capacity in this comparison.