

The Extended Lifespan of Sartobind® Rapid A Lab Reduces the Cost of Antibody Purification

Sartobind® Rapid A Lab is an affinity chromatography unit for research-scale antibody purification. Its membrane-based stationary phase offers several advantages over conventional resin columns, including significantly faster purification cycles, less setup time, and easy process transfer to commercial production. However, stationary phase fouling can be a challenge in both resin- and membrane-based chromatography, resulting in irreversible blocking and the need for more frequent consumable replacement, reducing productivity and increasing research costs.

In this case study, Sartobind® Rapid A Lab was compared with equivalent commercially available membrane chromatography units. The performance of each consumable was evaluated in terms of reproducibility, reusability and purification costs. The results show that Sartobind® Rapid A Lab provides consistent elution profiles over a longer consumable lifespan, making it a more cost-effective solution for the purification of Fc-containing molecules, including mAbs, ADCs and Fc fusion proteins.

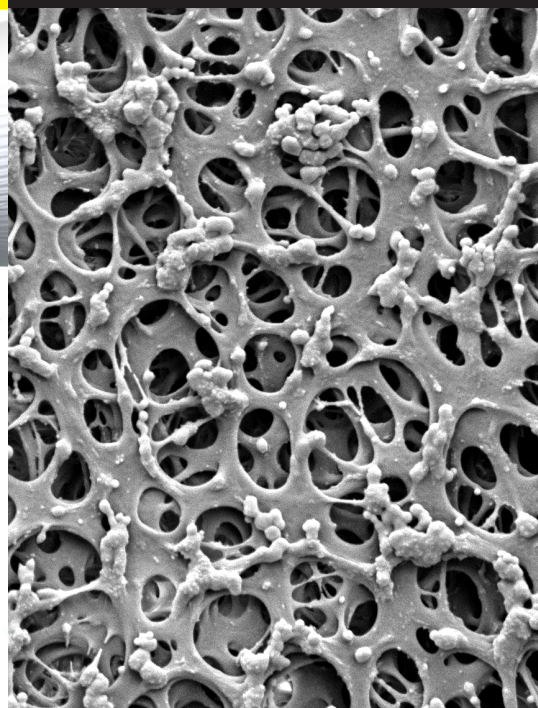
Case Profile

Objective:

This case study shows how Sartobind® Lab can improve the cost efficiency of antibody purification in research and development laboratories. The blocking-resistant Sartobind® Rapid A membrane delivers consistent purification over more cycles, reducing the frequency of consumable replacement.

Keywords:

Affinity chromatography, antibody, consumable lifespan, membrane chromatography, preparative purification, reproducibility, reusability, Sartobind® Lab



Results

Rapid cycling allows large quantities of antibodies to be quickly purified from clarified cell cultures. **Figure 1** shows consistent peak retention in every cycle for Sartobind® Rapid A Lab, whereas Products B and C showed peak shifts after 1 and 10 cycles, respectively, indicative of membrane aging.

Consumable lifespans have a direct impact on research budgets. **Figure 2** shows that backpressures on Sartobind® Rapid A Lab remained stable up to the 50th cycle. With subsequent increases in backpressure remaining within operating limits, more than 70 purification cycles were possible for a single consumable. In contrast, backpressures quickly increased for Products B and C, with irreversible membrane blocking in the 6th and 20th cycles, respectively.

Figure 3 shows how each consumable influences the cost of antibody purification, considering the measured binding capacity and lifespan of each product. Sartobind® Rapid A Lab could reduce the cost of each milligram of purified antibody by 0.55 to 1.93 EUR.

Conclusion

Our results show that purification with Sartobind® Rapid A Lab was reproducible over 70 cycles. With no membrane blocking, the consumable lifespan was at least 4 to 12 times longer than other membrane chromatography products. In addition, we evaluated the impact of the different consumable binding capacities and lifespans on purification costs, showing that Sartobind® Rapid A Lab can save up to 1.93 EUR/mg of purified antibody. This demonstrates the value of Sartobind® Lab in rapid cycling applications where consistent results and low running costs are critical.

Figure 1. Purification Reproducibility

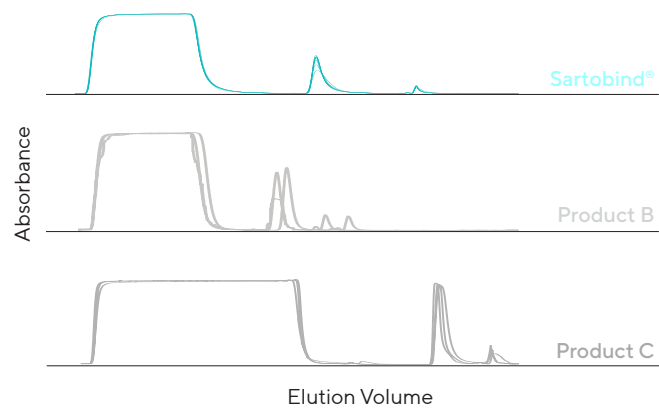


Figure 2. Consumable Lifespan

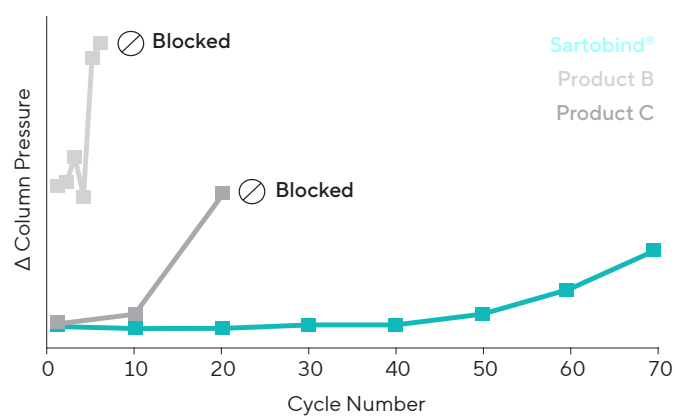


Figure 3. Consumable Impact on Purification Cost

Product	Binding Capacity	Lifespan	Cost
Sartobind® Lab	30.5 mg/cycle	> 70 cycles	< 0.06 EUR/mg IgG
Product B	18.3 mg/cycle	6 cycles	1.99 EUR/mg IgG
Product C	51.0 mg/cycle	20 cycles	0.61 EUR/mg IgG

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