Upgrade your monoclonal antibody purification workflow with a new source of Protein A resin

Introducing Thermo Scientific MabCaptureC affinity matrix

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Bioprocessing

Introduction into a new source of Protein A

Since decades Protein A chromatography has been the method of choice for the purification of monoclonal antibodies. Modifications to the first generation of Protein A ligands has given way to more robust and efficient purification resins allowing the design of antibody purification processes with greater flexibility. With the introduction of Thermo Scientific™ MabCaptureC™ affinity matrix, a new Protein A resin is now available. Featuring high capacity and a highly cross-linked agarose backbone, this Protein A resin is specifically designed to help improve the productivity and efficiency of your antibody purification process.

MabCaptureC affinity matrix – features and benefits

Our MabCaptureC™ resin is based on a new engineered and in-house produced protein A ligand, recombinantly expressed in yeast. It features:

- **High binding capacity: >50 g/L IgG at 4.8 min residence time**
- **Alkali stable ligand: >100 cycles at 0.2M NaOH**
- **Highly cross-linked agarose backbone (Praesto™ jetted technology)**
- **Uniform bead size (75 µm +/- 10 µm) delivering improved performance characteristics**
- **Excellent scalability and free of animal components – allowing use in commercial manufacturing**

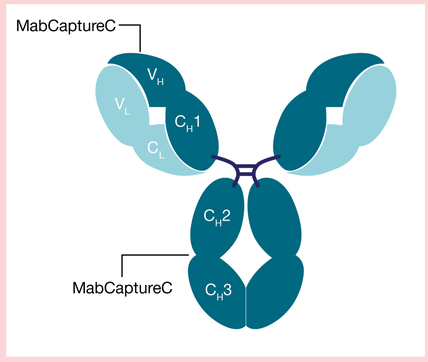

Fig 1. The MabcaptureC resin binds at the C_H2-C_H3 interface and V_H3 region of IgG

MabCaptureC resin Binding Capacity and Elution Properties

Dynamic Binding Capacity

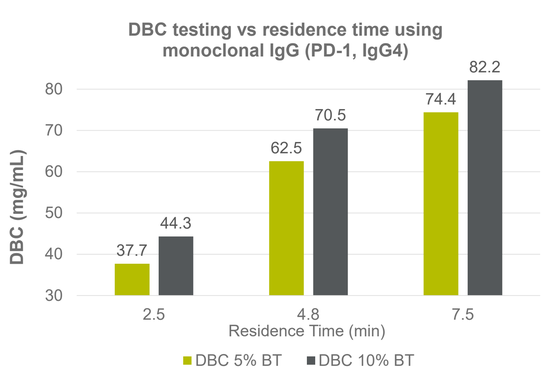

Fig 2. MabCaptureC resin dynamic binding capacity measured at 5 & 10% breakthrough at 2.5-, 4.8- and 7.5-min residence time using monoclonal IgG (load density 70mg/mL)

Elution performance

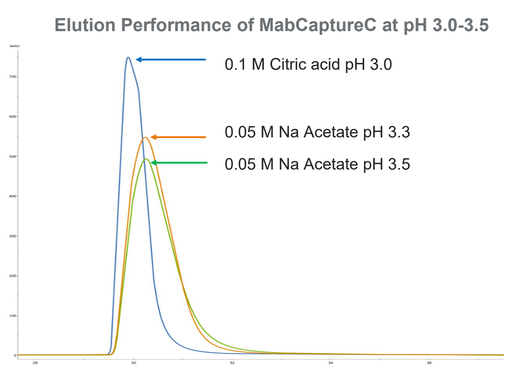

Fig 3. MabCaptureC resin was tested in a 2cm 0.4mL column and displayed efficient elution at pH 3.0 – 3.5

- ✓ **The MabCaptureC resin demonstrates high dynamic binding capacity**
- ✓ **The resin shows efficient elution (>98%) at pH 3.0-3.5**

Dynamic Binding Capacity comparison at increased residence times

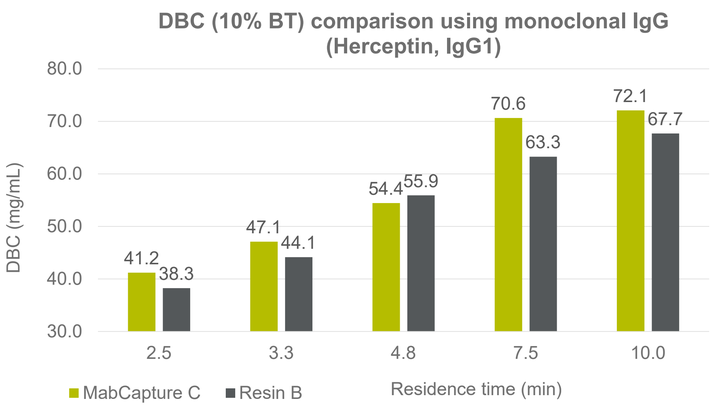

Fig 4. Comparison study of dynamic binding capacity measured at 10% breakthrough with increasing residence times using MabCaptureC resin and a comparative resin.

- ✓ **The MabCaptureC resin shows excellent binding capacity compared to comparative resins**
- ✓ **High dynamic binding capacity is shown at increased residence times, allowing processing of high-titer feedstocks**

MabCaptureC resin cleaning, reusability and impurity removal

Advised cleaning strategy

Acid strip after every run:
Up to 0.5 M Citric acid or Acetic acid

Additional cleaning/sanitization steps
Process optimization mainly depending on type of feed
- Cleaning after every run with 0.2 M NaOH
- If needed, cleaning with 0.4 M NaOH after every 5th or 10th run

Reusability: Life cycle study with CIP 0.2M NaOH for 100 cycles

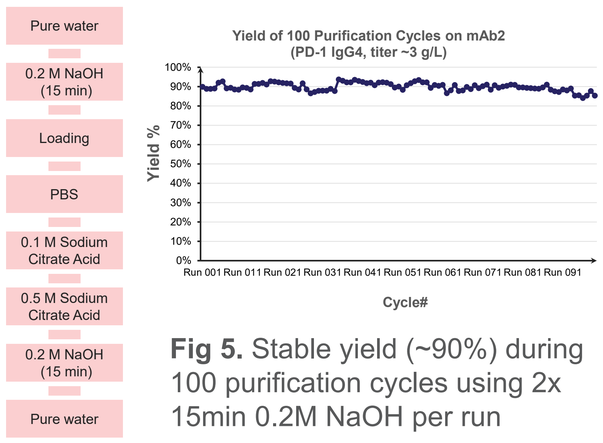

Fig 5. Stable yield (~90%) during 100 purification cycles using 2x 15min 0.2M NaOH per run

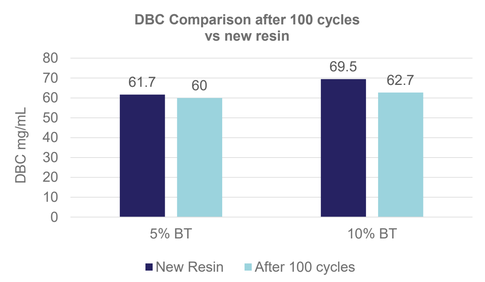

Fig 6. Excellent reusability: less than 10% capacity loss after 100 cycles

- ✓ **Excellent alkaline stability – No decline in capacity is observed after cleaning with 0.2M NaOH (2x 15 min/cycle) for 100 cycles**

Protein A ligand leakage

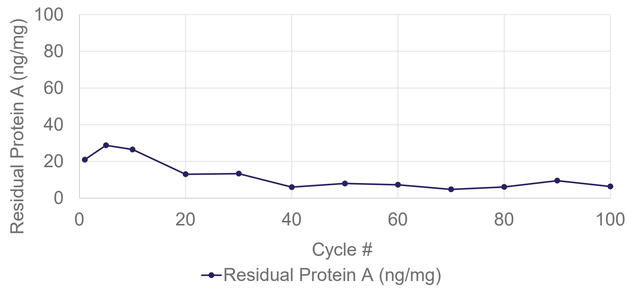

Fig 7. Ligand leakage (ppm) was measured over a 100 cycles using the Cygnus rec. Protein A ELISA kit demonstrating leakage on average of 12ppm over 100 cycles.

Residual DNA and HCP removal

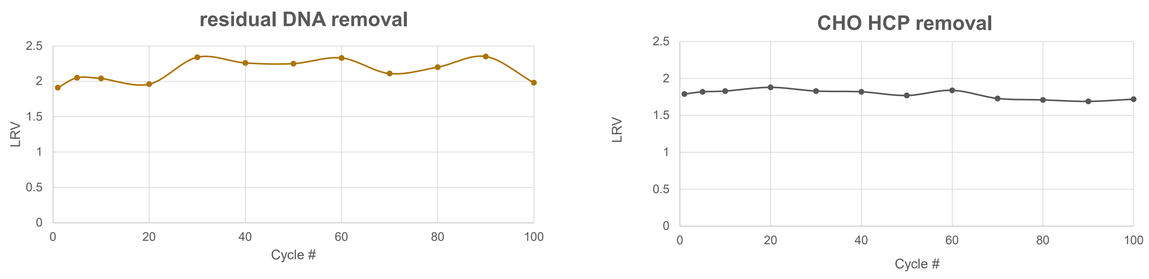

Fig 8. Consistent residual DNA and CHO HCP removal over a 100 cycles

Pressure-Flow characteristics

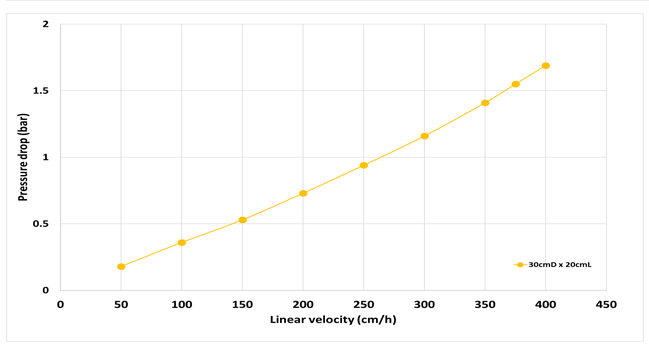

Fig 9. The MabCaptureC resin demonstrates high permeability **-** <2 bar at 400 cm/h in a 30 cm diameter column x 20 cm bed height

Available products

Cat nr.	Product
1963662250*	MabCaptureC Affinity Matrix 250ml
196366201L*	MabCaptureC Affinity Matrix 1L
196366205L*	MabCaptureC Affinity Matrix 5L
5943662001	MabCaptureC MiniChrom 1 ml
5943662005	MabCaptureC MiniChrom 5 ml
5943662200	MabCaptureC RoboColumn 200 ul
5943662600	MabCaptureC RoboColumn 600 ul

** Products come with regulatory support (RSF)*

Conclusion

Featuring high capacity, excellent alkaline stability and increased productivity, the MabCaptureC affinity matrix is your protein A resin of choice in the monoclonal antibody purification workflow.

TRADEMARKS/LICENSING

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Learn more at thermofisher.com/mabcapturec

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