

WorkBeads™

Exceptional Chromatography Resins

Our Technology



Faster

Bio-Works™ proprietary agarose bead technology allows use of smaller beads, giving faster mass transport. Surface properties are also favorable for purifying hydrophobic proteins and peptides.



Higher

WorkBeads cross-linking gives more 'walls' in the beads and greater accessible surface area both for ligand coupling and target molecules. This favors both yield and purity of the target molecules.



Stronger

WorkBeads are cross-linked with a shorter spacer, so the distance between 'walls' is shorter and bead more rigid. Beads strength is increased and can withstand a higher linear flowrate, allowing a shorter process time.

Our products stand out as innovative and cutting edge with exceptional performance.

Bio-Works Product Range

WorkBeads™

- Scalable
- Robust
- Approx. 45 µm bead size
- Approx. 100 µm bead size
- Uniform pore sizes
- High selectivity and performance
- Increased capacity and productivity
- No polymers grafted on the agarose core



BabyBio™

- Prepacked formats with WorkBeads resins (except SEC)
- Either 1 ml or 5 ml
- Optimized column design
- Connect columns in series for easy scaling up



OptioBio™ 10x100

- Prepacked with WorkBeads 40S or WorkBeads 40Q
- Design-in tools
- Prepacked format, 10x100mm (7.9 ml)
- Optimized column design
- High performance glass column



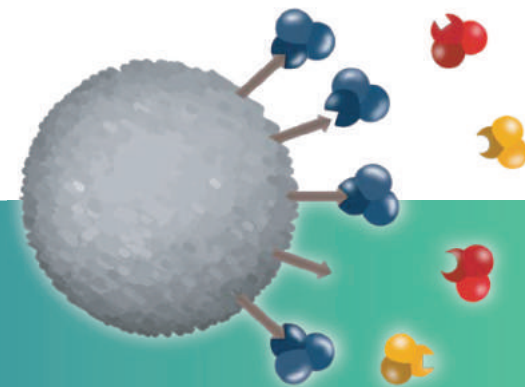
Affinity Chromatography

Affinity chromatography (AC) separates proteins on the basis of a reversible interaction between a protein (or group of proteins) and a specific ligand coupled to a chromatography matrix. The technique is ideal for the capture step in a purification protocol.

The target protein is collected in a highly pure and concentrated form. The high selectivity of affinity chromatography enables many purifications to be achieved in only one simple step, for example, purification of antibodies.

Target molecules

Monoclonal and polyclonal antibodies, bound via the Fc-region.



Schematic depicting affinity chromatography



WorkBeads affimAb

Top performance dynamic binding capacity also at short residence time

Outstanding alkali stability with 0.5 M NaOH, and intermittently with 1.0 M NaOH extends the number of purification cycles

Excellent purity, recovery and reproducibility

Negligible protein A leakage

Conveniently prepacked in 1 ml and 5 ml BabyBio columns

WorkBeads Protein A

For routine purification of antibodies including mouse, in the research lab

High dynamic binding capacity with excellent recovery and purity

Reliable, reproducible and efficient

Conveniently prepacked in 1 ml and 5 ml BabyBio columns

Applications

Dynamic binding capacity vs residence time

Resins:

WorkBeads affimAb and MabSelect SuRe™

Column volumes:

3.4 ml (6.6 × 100 mm)

Sample:

1 mg/ml human polyclonal IgG in 20 mM PBS, pH 7.4

Binding buffer:

PBS, pH 7.4

Elution buffer:

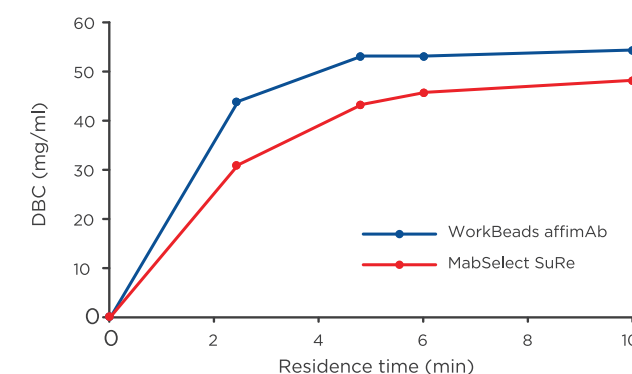
0.1 M glycine-HCl, pH 2.7

Cleaning-in-place (CIP):

5 column volumes (CV) 0.5 M NaOH at 2.4 min residence time (RT)

Residence times:

2.4, 4.8, 6 and 10 min (250, 125, 100 and 60 cm/h)



Alkali stability comparison

Resins:

WorkBeads affimAb and MabSelect SuRe™

Column volumes:

3.4 ml (6.6 × 100 mm)

DBC (10% breakthrough) determined at start and after each 20th CIP cycle

Sample:

1 mg/ml human polyclonal IgG in 20 mM PBS, pH 7.4

Flow rate:

1.4 ml/min (2.4 min RT)

Binding buffer:

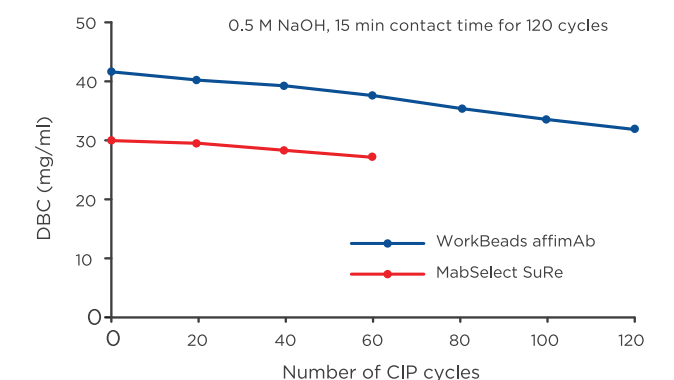
PBS, pH 7.4

Elution buffer:

0.1 M glycine-HCl, pH 2.7

Each CIP cycle:

- 5 CV 20 mM PBS, pH 7.4 at 1.4 ml/min (2.4 min RT)
- 0.5 M NaOH, 15 min contact time at 1 ml/min
- 5 CV PBS, pH 7.4 at 1.4 ml/min
- 5 CV 0.1 M glycine-HCl, pH 2.7 at 1.4 ml/min
- 5 CV 20 mM PBS, pH 7.4 at 1.4 ml/min



Applications

HCP and HCD impurities in eluted mAb

Columns:
WorkBeads affimAb: 6.6 x 50mm, 1.7ml
MabSelect SuRe: 6.6 x 50 mm, 1.7 ml

Feed:
18 ml clarified cell supernatant from CHO cells (100 cm/h)

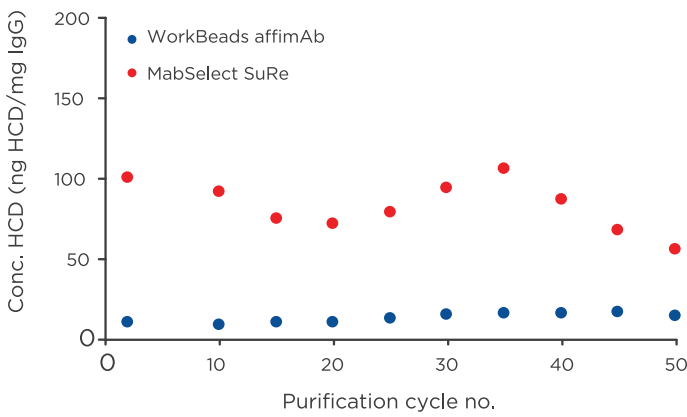
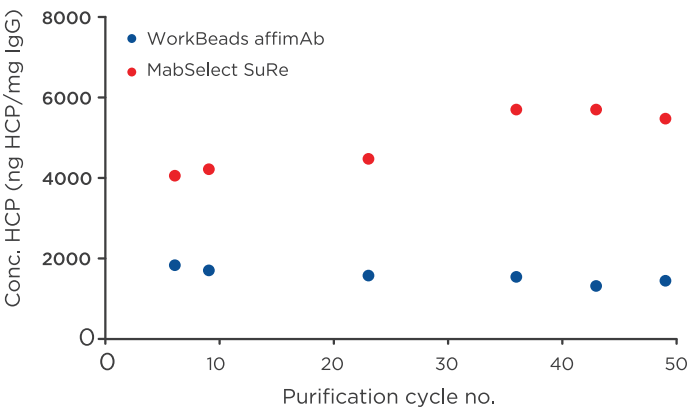
Binding/wash buffer:
PBS, pH 7.4 (300 cm/h)

Elution buffer:
100 mM glycine-HCl, pH 2.7 (150 cm/h)

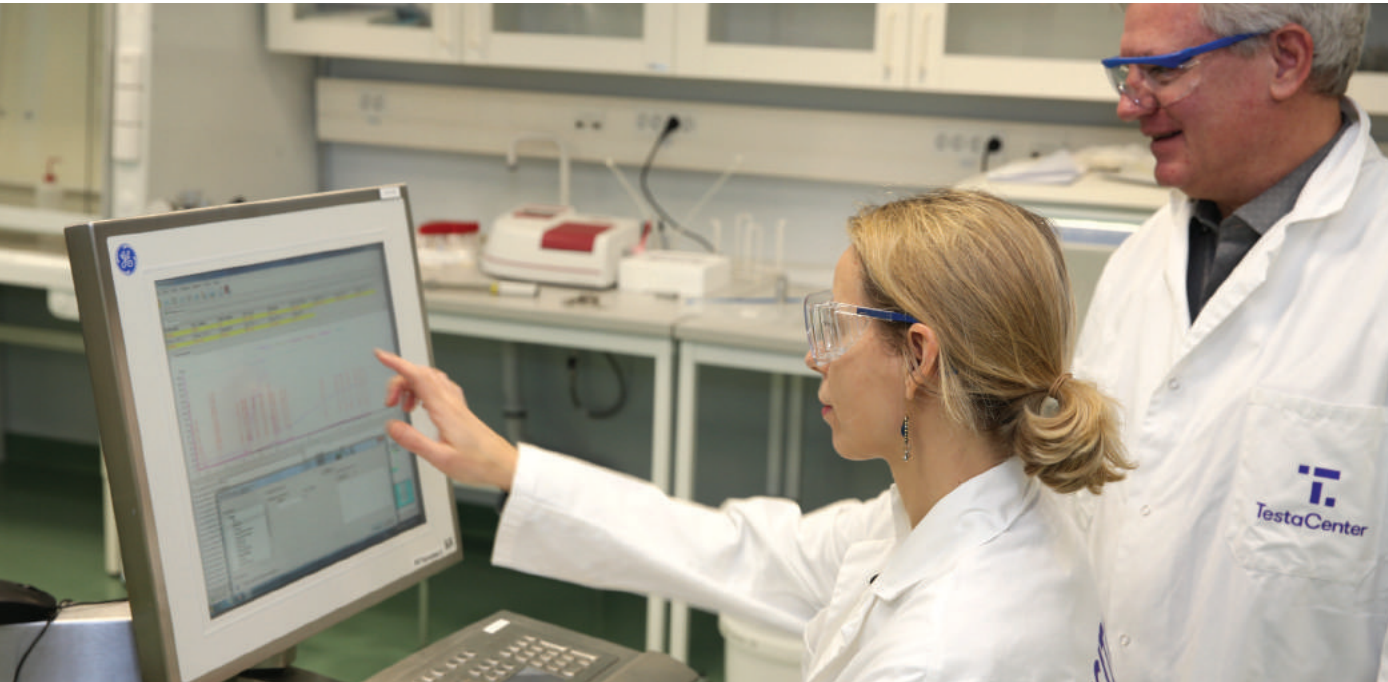
CIP:
0.5 M NaOH (100 cm/h), 10 minutes contact time in each cycle

HCP:
CHO HCP ELISA kit (#F550, Cygnus Technologies)

HCD:
Quant-iT™ PicoGreen™ dsDNA Assay Kit (#P7589, ThermoFisher)

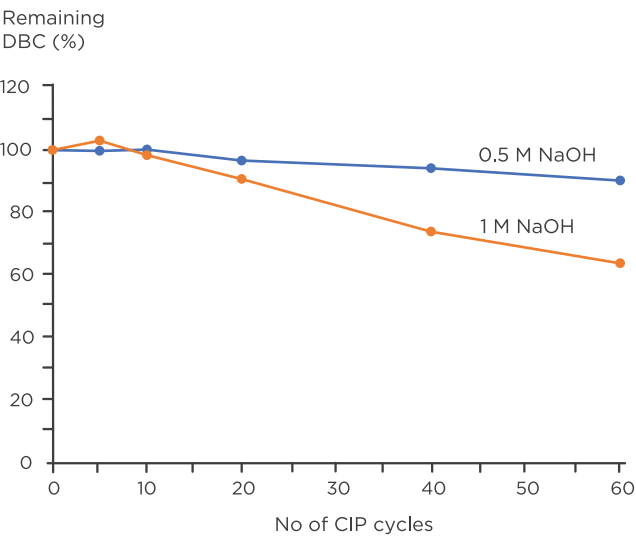


Quant-iT™ and PicoGreen™ are trademarks of Molecular Probes, Inc.



Applications

Alkali tolerance of WorkBeads™ affimAb



- Maintaining 90% of DBC after 60 CIP cycles with 0.5 M NaOH
- Maintaining 64% of DBC after 60 CIP cycles with 1 M NaOH

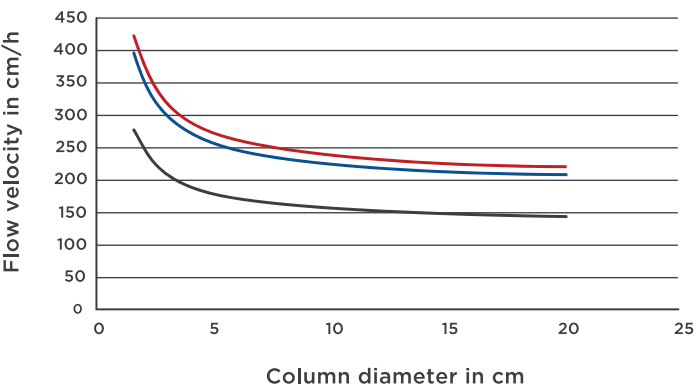
Dynamic binding capacity (DBC) determined between cleaning-in-place (CIP) cycles with a contact time of 15 minutes with 0.5 M NaOH or 1 M NaOH. Frontal analysis using 1 mg/ml human polyclonal IgG in 20 mM PBS, pH 7.4 was performed in 6.6 x 100 mm packed bed, to calculate DBC as $Q_{B10\%}$.



Flow velocity vs column diameter for -

WorkBeads 40/30000 (The base matrix used for WorkBeads affimAb)

Flow velocity vs column diameter at 20 cm bed height



Max Flow cm/h	Packing Flow cm/h	Running Flow cm/h	Max ΔP bar	Packing ΔP bar	Running ΔP bar
222	209	146	2.9	2.0	1.4

*Column: 200 x 200 mm. Resin: WorkBeads™ 40/30000. Solution: Water



Key Differentiating Factors and Bio-Works' advantages of — WorkBeads affimAb

Protein A Affinity Chromatography

- Better selectivity, higher purity by protein A optimization and bead chemistry
- Higher or matching DBC at short Residence Times (RT)
- High removal of Host Cell DNA (HCD) and Host Cells Protines (HCP)
- Excellent NaOH resistance



Ordering Information

Product Name	Pack Size	Article Number
WorkBeads affimAb	25 ml	40 800 001
	200 ml	40 800 002
	1 L	40 800 010
	5 L	40 800 050
	10 L	40 800 060
BabyBio affimAb 1 ml	1 ml × 1	45 800 101
	1 ml × 2	45 800 102
	1 ml × 5	45 800 103
	1 ml × 10	45 800 104
BabyBio affimAb 5 ml	5 ml × 1	45 800 105
	5 ml × 2	45 800 106
	5 ml × 5	45 800 107
	5 ml × 10	45 800 108
WorkBeads Protein A	10 ml	40 605 003
	100 ml	40 605 004
	1 L	40 605 005
BabyBio A 1 ml	1 ml × 1	45 605 101
	1 ml × 2	45 605 102
	1 ml × 5	45 605 103
	1 ml × 10	45 605 104
BabyBio A 5 ml	5 ml × 1	45 605 105
	5 ml × 2	45 605 106
	5 ml × 5	45 605 107
	5 ml × 10	45 605 108

More information

Data Sheet, DS 40 800 010
WorkBeads affimAb, BabyBio affimAb

Data Sheet, DS 40 605 010
WorkBeads Protein A

Data Sheet, DS 45 605 010
BabyBio A

www.bio-works.com/product/affinity-chromatography



Diameter: 100 cm
Bed height: 21 cm
Bed volume: 170 L
Flow rate 1.5 bar at
150 cm/h