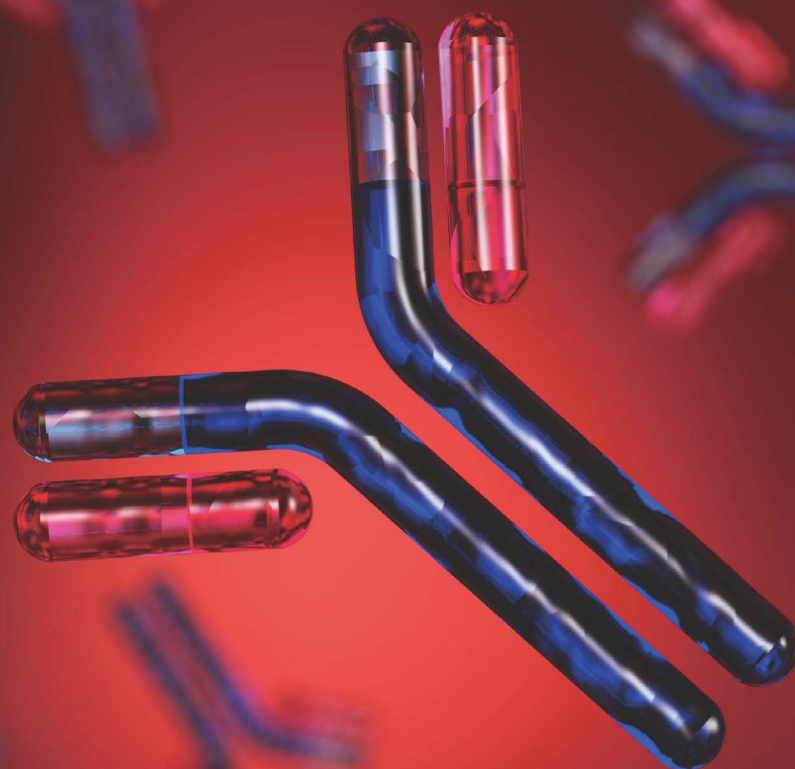
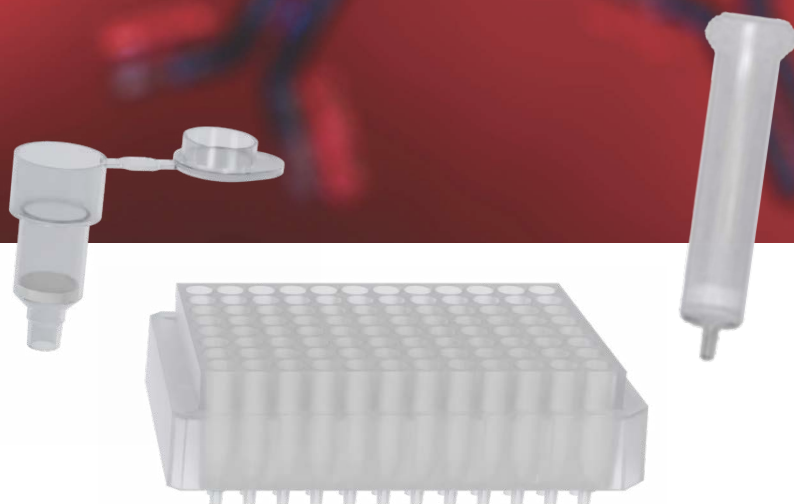


# Antibody Purification Column

## MonoSpin Pro, the Innovative Monolithic Silica Technology



## Just Spin, Purify, and Recover by Low Elution Volume



# Introduction of MonoSpin Series

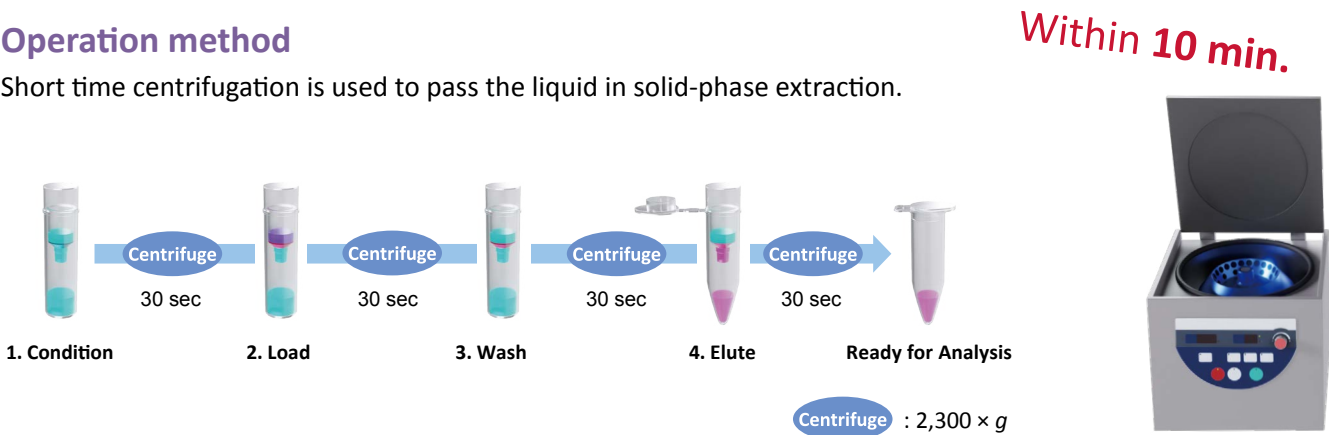
MonoSpin ProA, MonoSpin ProG, MonoSpin ProL

## Fast Processing Ensures High Recovery Rate

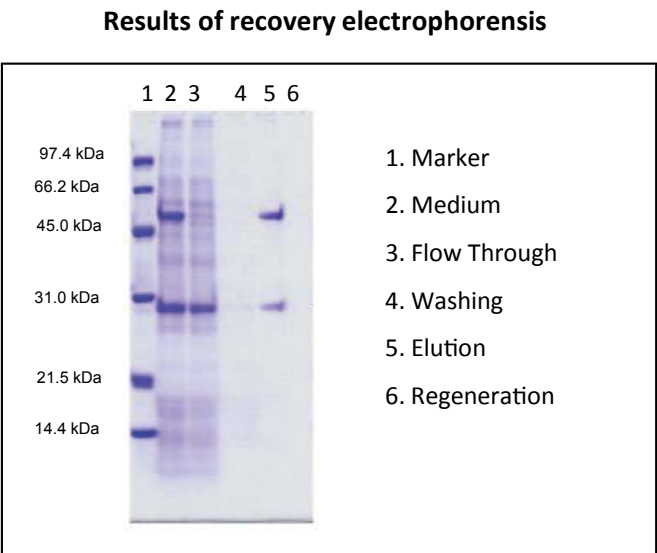
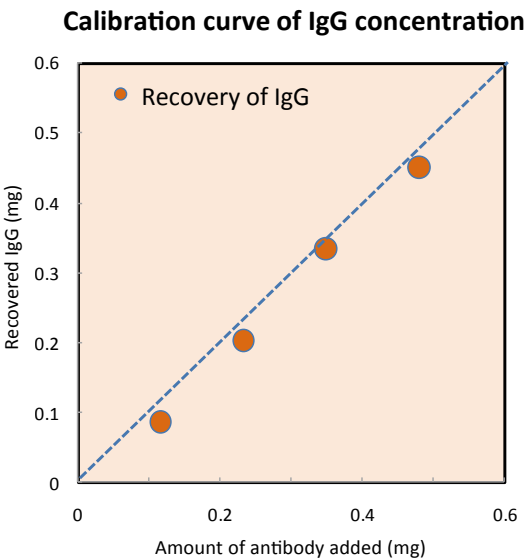
Antibodies can be easily purified by centrifugation in a short time in a tabletop centrifuge With silica monoliths. When collecting antibodies, the neutralizing solution can be added to the collection tube in advance to immediately neutralize the antibodies collected by the acid immediately. This action greatly reduces the risk of antibody degeneration.

### Operation method

Short time centrifugation is used to pass the liquid in solid-phase extraction.



As shown below, the antibody concentrations were determined quantitatively from the medium of CHOcells. The purified antibodies show very few impurities by the results of electrophoresis.



## Format

MonoSpin series cartridges of different types are available:

Type S: Excellent for pretreating the sample for 50–800  $\mu\text{L}$

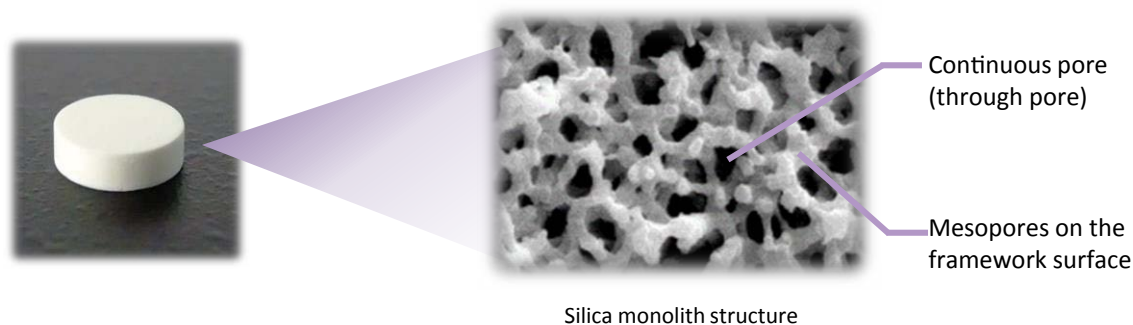
Type L: Appropriate for sample 0.5–8 mL.

For the details of the varied functional group, please see the next page.

| Format                            | Type S                                                                            | Type WP                                                                            | Type L                                                                              |
|-----------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                   | Spin Column                                                                       | Well Plate                                                                         | Large Spin Column                                                                   |
|                                   |  |  |  |
| Through Pore                      | 2 $\mu\text{m}$                                                                   | 2 $\mu\text{m}$                                                                    | 2 $\mu\text{m}$                                                                     |
| Mesopore                          | 60 nm                                                                             | 60 nm                                                                              | 60 nm                                                                               |
| Disc Size                         | 4.6mm $\times$ 1.5 mm                                                             | 4.6mm $\times$ 1.5 mm                                                              | 15.7mm $\times$ 3.0 mm                                                              |
| Sample Liquid Volume              | $\sim$ 500 $\mu\text{L}$                                                          | $\sim$ 500 $\mu\text{L}$                                                           | $\sim$ 8 mL                                                                         |
| Elution Volume                    | 50 $\sim$ 500 $\mu\text{L}$                                                       | 50 $\sim$ 500 $\mu\text{L}$                                                        | 2 $\sim$ 8 mL                                                                       |
| Centrifugal Force                 | 2,300 $\times$ g                                                                  | 2,300 $\times$ g                                                                   | 1,500 $\times$ g                                                                    |
| Sample Load Capacity<br>Protein A | 400 $\mu\text{g}$                                                                 | 400 $\mu\text{g}$                                                                  | 16 mg                                                                               |
| Sample Load Capacity<br>Protein G | 300 $\mu\text{g}$                                                                 | 300 $\mu\text{g}$                                                                  | 12 mg                                                                               |
| Sample Load Capacity<br>Protein L | 200 $\mu\text{g}$                                                                 | —                                                                                  | —                                                                                   |

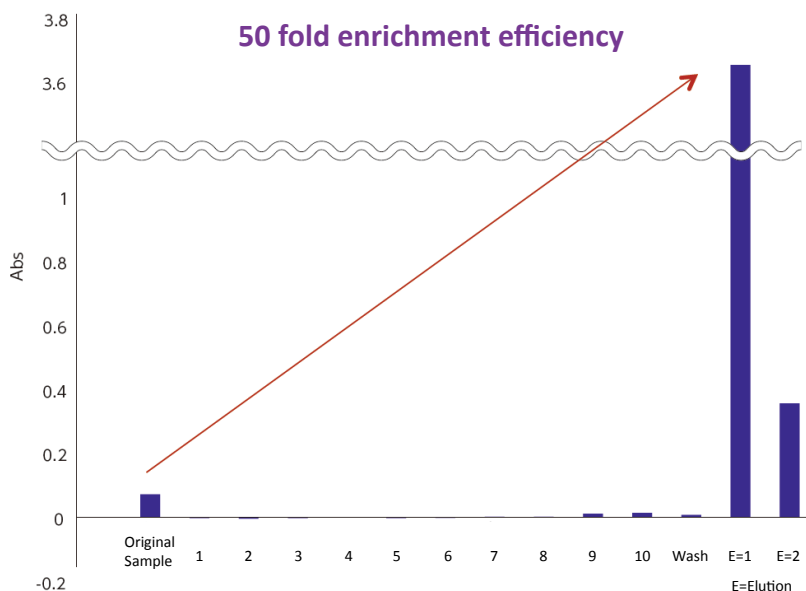
## Silica Monolith Technology ~ New separation media that are neither particulate nor membrane ~

Silica monoliths are integral silica gels with uniform continuous pores and produced from ethyl silicate. Unlike the particle media, the silica monolith is shaped like a disk. Silica monoliths have high liquid permeability and large surface area as they have through-pores and mesopores on their framework surface. Thus, this state-of-the-art medium is becoming popular worldwide for its properties: high recovery, high performance of adsorption, and desorption.



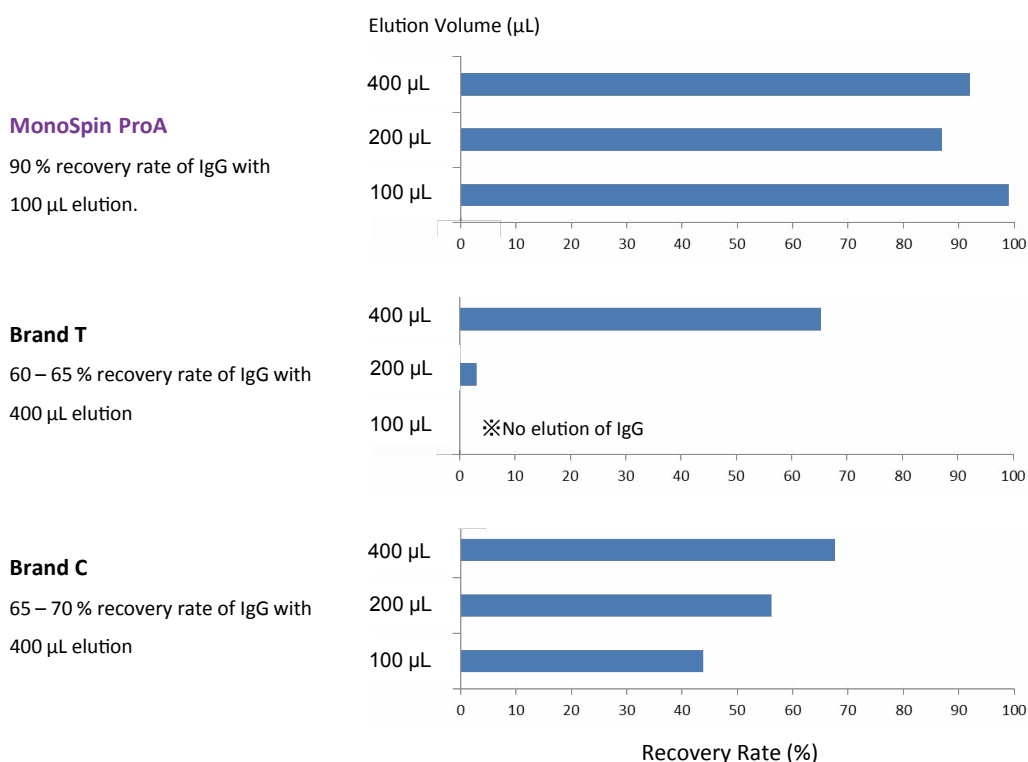
## Enrichment of Antibody Solution Using MonoSpin ProA

Human IgG solution (500  $\mu\text{L}$  of 0.025 mg/mL) was applied to a MonoSpin ProG spin column 10 times ( $I_n = I_1-I_{10}$ ). Then, the elution of IgG concentration was determined twice with 100  $\mu\text{L}$  elution buffer ( $E_n = E_1$  and  $E_2$ ). The first IgG elution ( $E_1$ ) was 50 fold concentration of the standard solution and indicates a 90% recovery of IgG without loss.



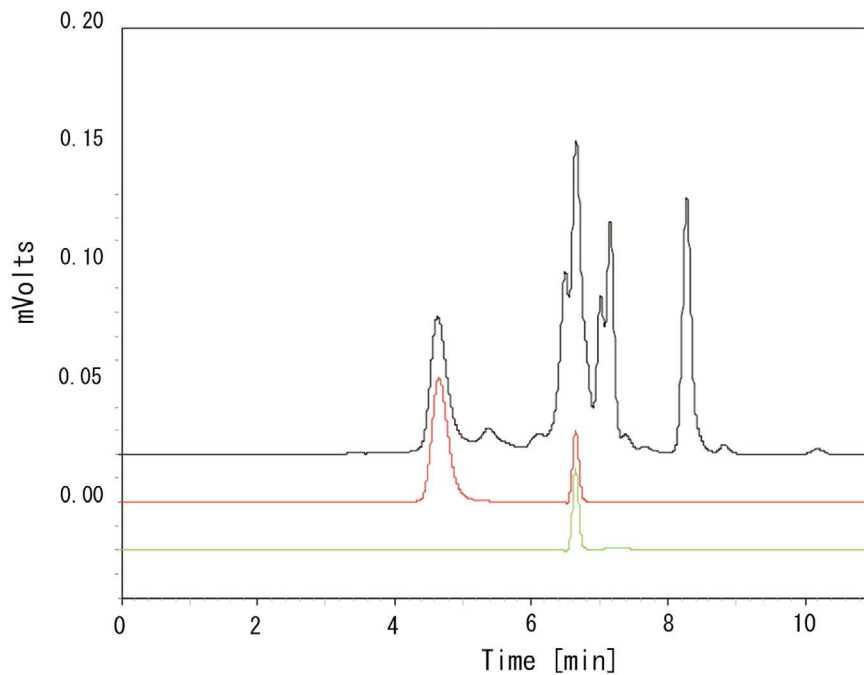
## Elution Volume and Recovery Rate Compared with Other Brand

MonoSpin ProA requires only 100  $\mu\text{L}$  of elution buffer to achieve an IgG recovery rate of at least 90%. In contrast, other brands' products require 400  $\mu\text{L}$  or more of elution buffer, with an IgG recovery rate of only 70%.



# Applications

## Purification of Antibody using MonoSpin ProA



### HPLC Conditions

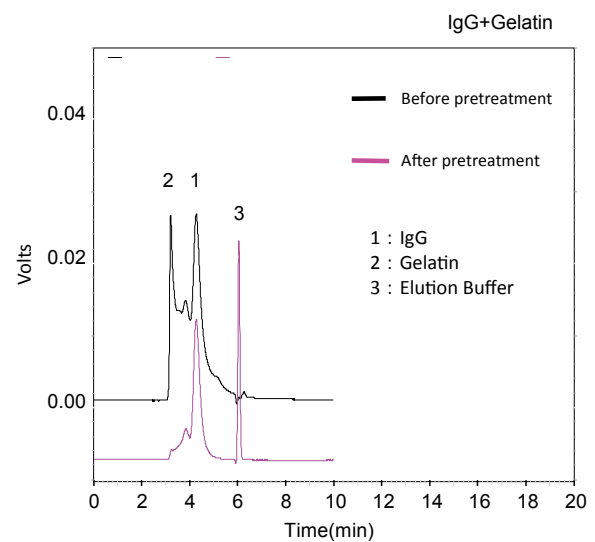
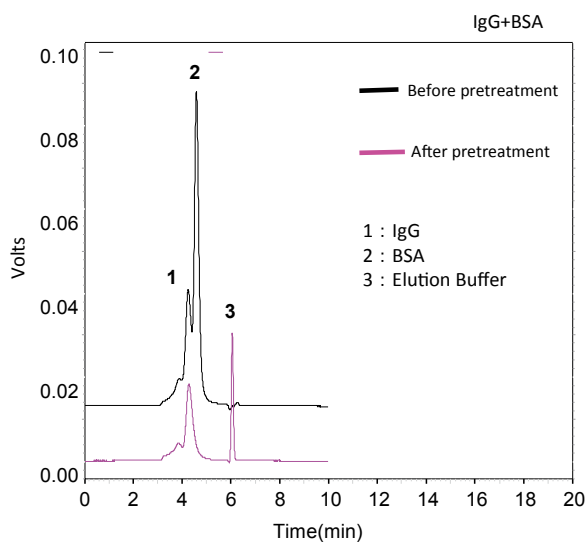
Column : ProteoSil 300-SEC  
(5 $\mu$ m, 4.6 x 250 mm)  
Eluent : 100 mM Phosphate buffer (pH7)  
-100 mM NaCl  
Flow rate : 1 mL/min  
Column temp. : 40 °C  
Detection : UV 280 nm  
Injection : 10  $\mu$ L

CHO cell culture

**Purification using MonoSpin ProA**

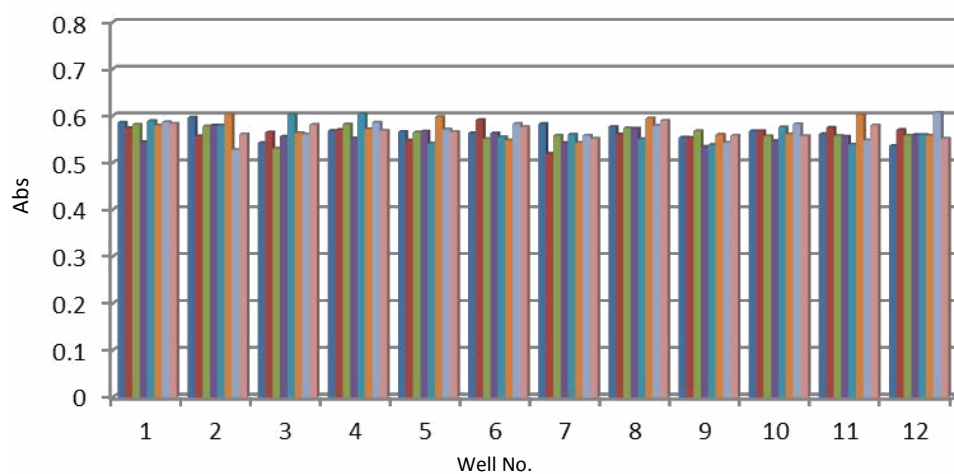
Elution buffer

## Removal of preservatives in antibody solutions



**MonoSpin ProA/ProG enables you to remove proteins such as BSA and Gelatin in antibody solutions without dilution.**

## Recovery of antibodies from CHO cell culture medium (96-well plate)



Sample volume : 150  $\mu$ L  
 Elution volume : 150  $\mu$ L  
 Recovery rate : 90% (CV 3.1 %)  
 IgG concentration : 1.3 mg/mL



## Purification of antibodies using MonoSpin L ProA

### Procedure

1. Apply 5 mL of equilibration buffer.
- ↓
2. Apply sample (Max. 8 mL) after filtration through 0.2  $\mu$ m filtration.
- ↓
3. Apply 5 mL of washing buffer.
- ↓
4. Apply 5 mL of elution buffer.

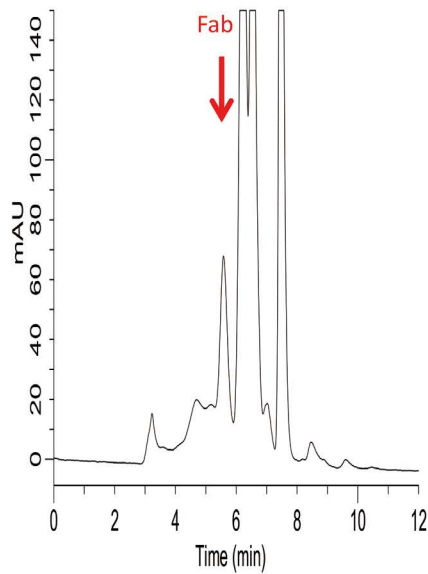
Centrifugal force at each step : 1,500 x g, 2 min

\* MonoSpin ProA/G buffer kit was used.

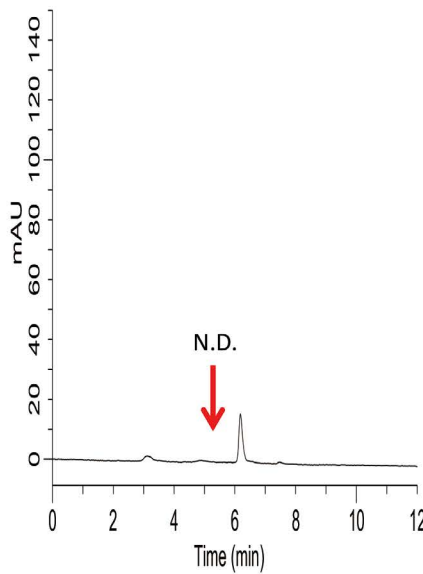


## Selectivity of MonoSpin ProL

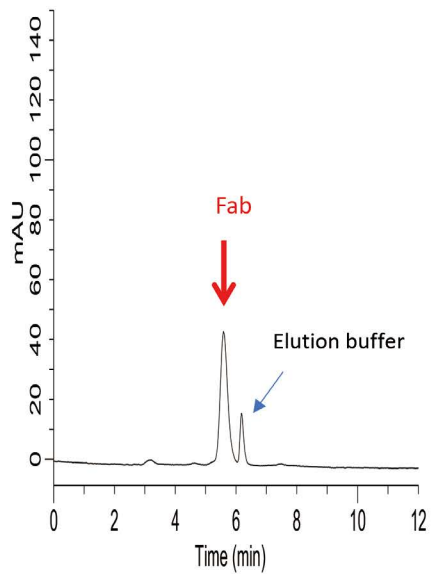
Cell culture



MonoSpin ProA  
: Low selectivity to Fab

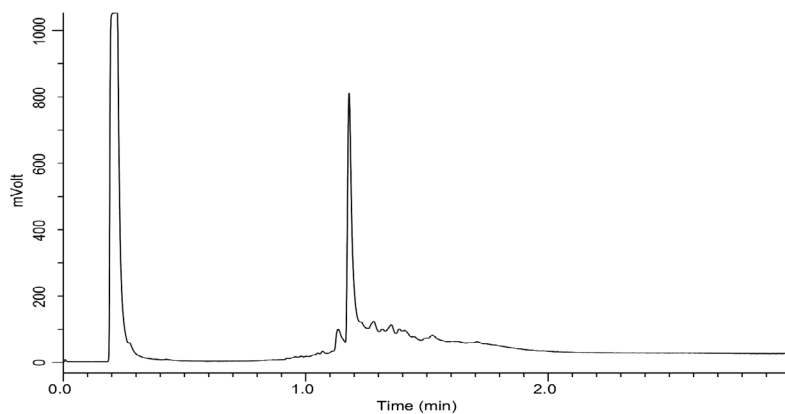


MonoSpin ProL  
: High selectivity to Fab

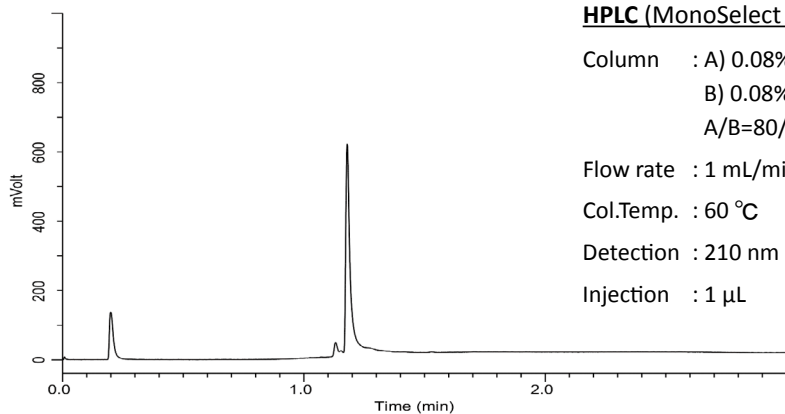


## Purification of Fab using MonoSpin ProL

① Cell culuter



② Purification using MonoSpin ProteinL

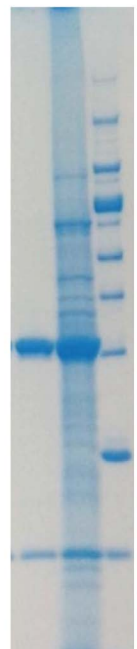


### HPLC (MonoSelect RP-mAb)

Column : A) 0.08% HCOOH-0.02% TFA-H<sub>2</sub>O  
B) 0.08% HCOOH-0.02% TFA-CH<sub>3</sub>CN  
A/B=80/20-2.5 min-10/90

Flow rate : 1 mL/min  
Col.Temp. : 60 °C  
Detection : 210 nm  
Injection : 1 µL

① ② ③



Fab →

- ① Purification using MonoSpin ProL
- ② cell culture
- ③ Marker

## Ordering Information

| Description                 | Format            | Qty. | Cat.No.    |
|-----------------------------|-------------------|------|------------|
| MonoSpin ProA               | Spin Column       | 10   | 7510-11310 |
| MonoSpin ProG               | Spin Column       | 10   | 7510-11311 |
| MonoSpin ProA 96 well plate | 96 Well-plate     | 1    | 7510-11312 |
| MonoSpin ProG 96 well plate | 96 Well-plate     | 1    | 7510-11313 |
| MonoSpin L ProA             | Large Spin Column | 4    | 7510-11314 |
| MonoSpin L ProG             | Large Spin Column | 4    | 7510-11315 |
| MonoSpin ProA/G buffer kit  | -                 | -    | 7510-11316 |
| MonoSpin ProL               | Large Spin Column | 6    | 7510-11317 |

## Related Product

### HPLC Column for mAb Analysis

#### MonoSelect RP-mAb set (Holder+Cartridge)

| Item                         | I.D. (mm) | Length (mm) | Cat.No.    |
|------------------------------|-----------|-------------|------------|
| MonoSelect RP-mAb Holder Set | 2.1       | 20          | 5020-10818 |

#### MonoSelect RP-mAb Cartridge

| Item                        | I.D. (mm) | Length (mm) | Cat.No.    |
|-----------------------------|-----------|-------------|------------|
| MonoSelect RP-mAb Cartridge | 2.1       | 20          | 5020-10819 |

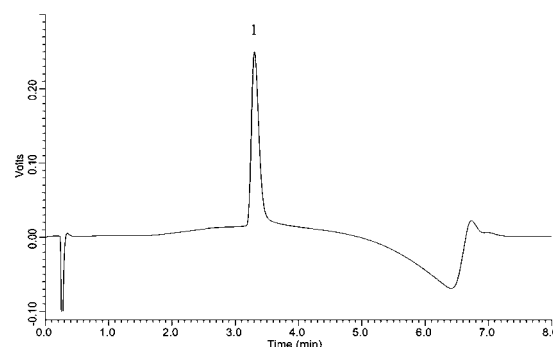
#### Cartridge Holder

| Item                        | Length of the Cartridge Applicable | Cat.No.    |
|-----------------------------|------------------------------------|------------|
| MonoSelect Cartridge Holder | 20 mm                              | 5020-10815 |



MonoSelect RP-mAb

#### Analysis of IgG



#### Conditions

Column Cat. No.: 5020-10818  
 Column : MonoSelect RP-mAb (20 x 2.1 mm I.D.)  
 A) 0.1%TFA in CH<sub>3</sub>CN  
 Eluent : B) 0.1%TFA in H<sub>2</sub>O  
 A/B = 5/95 – 5 min – 90/10 – 0.1 min – 5/95 – 3  
 Flow Rate : 0.3 mL/min  
 Col. Temp. : 80 °C  
 Detection : UV 210 nm  
 Injection Vol. : 5 µL  
 Sample : Standard

#### Analyte

1. IgG 0.1 mg/mL

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