



Catalog #

Aliquot Size

PA01-RA551-5

5 mL

PA01-RA551-100

100 mL

PA01-RA551-500

500 mL

## Protein A Resin

Catalog # PA01-RA551

Lot # E4282-8

### Product Description

Protein A At-HDmicro is alkali stable protein A-modified agarose. It is a versatile affinity chromatography media for the isolation and purification of monoclonal antibody, polyclonal antibody, or Fc-tag fusion protein.

### Storage and Stability

Store at 2°C - 8°C. Product is stable for 24 months under these conditions.

### Specifications

Features	Specifications
Support/matrix	Highly cross-linked 4% agarose
Ligand	Recombinant alkali stable Protein A
Density of Ligand	8 mg Protein A/ml matrix
Binding capacity	>50mg human IgG/ml matrix
Average particle size	70µm
Max. tolerance pressure	0.3 Mpa
pH stability	2-13
Storage Buffer	1XPBS with 20% Alcohol
Storage temperature	2°C - 8°C

## Protein A Resin

Catalog #

PA01-RA551

Lot #

E4282-8

Stability

24mo at 2°C - 8°C from date of shipment

Storage & Shipping

Store at 2°C - 8°C.

Product shipped on ice pack.

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# Protein Purification Protocol

The procedure outlined below is recommended as a starting point for purifications using this resin. All procedures and buffer formulations may be optimized by the user based on their own specific antibody samples and experiences.

## Buffer Preparation

All water and buffers are recommended to be filtered with a 0.22 µm or 0.45 µm filter prior to use.

**Storage buffer:** 20% ethanol in 1X PBS

**Equilibration buffer:** 20 mM Na<sub>2</sub>HPO<sub>4</sub>, 0.15M NaCl, pH 7.0-7.4

**Elution buffer:** 0.1M Glycine, pH 3.0

**Neutralization Buffer:** 1M Tris-HCl, pH 8.5

## Sample Preparation

Make sure that the sample solution has the appropriate ionic strength and pH value before loading the column. Serum samples, ascites fluid or cell culture can be diluted with equilibration buffer, or the sample can be dialyzed with equilibration buffer. It is recommended that samples be filtered with a 0.22 µm or 0.45 µm filter or centrifuged to remove micro particles prior to loading. It is recommended to dilute the sample with the target IgG concentration around 2mg/ml.

## Column Packing

Assemble the column according to the column instructions. Fill the column with the desired volume of slurry suspended in packing solution (20% ethanol in PBS). Let the flow run until the bed consolidates. Make sure no air is trapped in the bed.

## IgG Purification Procedure

1. After packing into columns, Protein A At-HDmicro can be installed on medium or low pressure chromatography systems, the pressure should be less than 0.3MPa.
2. Equilibrate the column with 5-10 column volumes of equilibration buffer.
3. Load the samples at a flow rate of 0.2ml/min (for 1ml column, with residence time about 5 minutes). The maximum volume of the sample to be loaded is calculated according to the concentration of the target IgG and the DBC (dynamic binding capacity) of the column: total target IgG should not exceed 80% of the DBC.
4. Wash the column with 5-10 column volumes of equilibration buffer until OD280 is at the baseline.
5. Elute the column with 5-10 column volumes of elution buffer until OD280 is at the baseline. Collect the fractions in tubes.
6. Pool the fractions with target IgG and quantify. Add neutralization buffer to PH 7.0-7.5.

## Column Wash

1. Wash the column with 5-10 column volumes of equilibration buffer at flow rate of 0.2ml/min (for 1ml column).
2. Wash the column with 5-10 column volumes of storage buffer (1XPBS with 20% ethanol), then store at 2-8°C.

## Column Regeneration

1. Regenerate the column with 3-5 column volumes of elution buffer.
2. Equilibrate the column with 3-5 column volumes of equilibration buffer.

## Cleaning in place (CIP)

Cleaning-in-place can effectively remove accumulated contaminants on the resin to recover the binding capacity. Perform clean-in-place as follows:

1. Wash with 0.2 M NaOH for 2 column volumes.
2. Wash with 6 M guanidine hydrochloride for 2 column volumes.
3. Wash with 0.1 M phosphoric acid for 2 column volumes.
4. Equilibrate with equilibration buffer for 2 column volumes.

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## Troubleshooting

Issue	Possible reason	Suggested solution
High back pressure during the run	In-line filter is clogged	20% ethanol ultrasonic clean for 30min or replace the filter.
	Resin is clogged	Repack the column. Wash the resin 3 times. Confirm samples are filtered or centrifuged prior to loading.
Unstable pressure curve during sample application	Air bubbles in sample or buffer	Repack the column to remove the air bubbles.
		Degas the resin using a vacuum degasser.
No target protein in the elution samples	Target protein concentration is too low in the original sample	If there is low level of target protein expression, increase the amount of lysate used.
	Target protein is degraded	Increase the pH of the elution buffer
Gradual decrease in yield	Sample load exceeds capacity.	Decrease the sample load
	The resin is contaminated.	Perform CIP, clean the resin thoroughly.

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# SAFETY DATA SHEET

## Article 1 - Product Identification

**Product Name: Protein A Resin**

**Catalog # PA01-RA551**

*This product is sold only for research use by qualified laboratory personnel, and is not to be used as a drug, medical device, food additive, cosmetic, nor household chemical. It is not to be used in diagnostic, therapeutic, consumer, agricultural, nor pesticidal applications.*

Supplier of Datasheet: SignalChem Diagnostics Inc.  
 Street Address: 190-13160 Vanier Place  
 City, Prov. Postal Code: Richmond, BC, V6V 2J2  
 Country: Canada  
 Emergency Phone: 1-888-606-3424 (Toll free)  
 1-778-326-0223 (local)

## Article 2 - Hazard Identification

- **GHS classification:**
  - Flammable liquids (Category 3), H226
  - Eye irritation (Category 2A), H319

- **Hazard Pictograms:**



- **Signal words:** Warning
- **Hazard statements:**
  - H226 Flammable liquid and vapor
  - H319 Causes serious eye irritation
- **Precautionary statements:**
  - P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
  - P233 Keep container tightly closed.
  - P264 Wash skin thoroughly after handling.
  - P280 Wear protective gloves / protective clothing / eye protection / face protection
  - P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
  - P337+P313 If eye irritation persists: Get medical advice / attention.
  - P370+P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
  - P403 + P235 Store in a well-ventilated place. Keep cool.
  - P501 Dispose of contents / container to an approved waste disposal plant.
- **Other hazards:** None known.

## Article 3 – Composition/Information on Ingredients

**Chemical Characterization:** Mixtures.

**Description:** This product consists of the substances listed below.

Common name	Chemical name	CAS-No.	Concentration
Agarose	Agarose	9012-36-6	50%
Ethanol	Ethanol	64-17-5	20%
Sodium Chloride	Sodium Chloride	7647-14-5	0.72%
Sodium Phosphate, Dibasic	Sodium Phosphate, Dibasic	7782-85-6	0.25%
Potassium Phosphate, Monobasic	Potassium Phosphate, Monobasic	7778-77-0	0.024%
Potassium Chloride	Potassium Chloride	7447-40-7	0.02%

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# SAFETY DATA SHEET

## Article 4 – First-aid Measures

- **General information:** Consult a physician by providing the SDS.
- **After inhalation:** In case of irritation by inhaling this product, move affected person to fresh air and await recovery. If irritation persists, seek immediate medical attention. If casualty cannot breathe, give artificial respiration and seek immediate medical attention.
- **After skin contact:** Immediately wash with soap and plenty of water and rinse thoroughly. Consult a physician.
- **After eye contact:** Rinse opened eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do so. Consult a physician.
- **After swallowing:** Not expected to present a significant ingestion hazard under anticipated conditions of normal use. If you feel unwell, seek medical advice.

## Article 5 - Fire-fighting Measures

- **Suitable extinguishing media:** Use water spray, alcohol-resistant foam, extinguishing powder, carbon dioxide, or other appropriate measure that is suitable to the environment.
- **Specific hazards arising from the substance or mixture:** Carbon oxides, Nitrogen oxides, Sulfur oxides, Hydrogen chloride gas, Sodium oxides.
- **Special protective equipment and precautions for fire-fighters:** Self-contained breathing apparatus if necessary.

## Article 6 – Accidental Release Measures

- **Personal precautions, protective equipment, and emergency procedures:** Apply standard laboratory practices and personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation.
- **Environmental precautions:** Do not allow to enter drains.
- **Methods and materials for containment and cleaning up:** Absorb on sand or vermiculite and place in closed containers for disposal.

## Article 7 - Handling and Storage

- **Precautions for safe handling:** Wear chemical safety goggles and compatible chemical-resistant gloves. Avoid inhalation, contact with eyes, skin or clothing.
- **Conditions for safe storage:** Store according to product label instructions. Keep container upright and tightly closed.

## Article 8 - Exposure Controls/Personal Protection

- **Components with limit monitoring values at workplace:**  
Ethanol, 1000 ppm
- **Appropriate engineering controls:**  
Apply adequate ventilation including mechanical exhaust or laboratory fume hood. Follow standard laboratory practices.
- **Individual protection measures:**  
**Respiratory protection:**  
Use appropriate respirator if there is inadequate ventilation by following the government standards.  
**Hand protection:**  
Wear gloves and use proper glove removal technique to avoid skin contact. Discard gloves after use by following the applicable laboratory regulations. Wash and dry hands.  
**Eye/face protection:**  
Safety goggles with side-shields approved under appropriate government standards.  
**Skin/body protection:**  
Use appropriate clothing, footwear and any additional protection measures to protect from splashing or contamination.

## Article 9 – Physical and Chemical Properties

<b>Appearance:</b> White/ opaque liquid (suspension)	<b>Danger of explosion:</b> Product does not present an explosion hazard.
<b>Odour/Odour Threshold:</b> Not determined.	<b>Explosion limits:</b> Not available.
<b>pH:</b> Not available.	<b>Decomposition temperature:</b> Not available.
<b>Melting point/freezing point:</b> Not determined.	<b>Vapor pressure at 20 °C:</b> Not available.
<b>Boiling point/Boiling range:</b> >100 °C.	<b>Density:</b> Not determined.
<b>Flash point:</b> 82.3 °C.	<b>Relative density:</b> Not determined.
<b>Flammability (solid, gaseous):</b> Not determined.	<b>Vapor density:</b> Not determined.
<b>Ignition temperature:</b> Not determined.	<b>Evaporation rate:</b> Not determined.
<b>Auto-igniting:</b> Product is not self-igniting.	<b>Solubility in / Miscibility with Water:</b> Insoluble.

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# SAFETY DATA SHEET

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## Article 10 - Stability and Reactivity

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- **Reactivity:** Stable under recommended transport and storage conditions.
- **Chemical stability:** Stable under recommended transport and storage conditions.
- **Possible hazardous reactions:** No dangerous reactions known.
- **Conditions to avoid:** Heat, flames and sparks.
- **Incompatible materials:** Strong oxidizing agents.
- **Hazardous decomposition products:** In the event of fire, see Section 5.

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## Article 11 - Toxicological Information

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- **Acute toxicity:** estimate Oral > 5000 mg/kg.
- **LD/LC50:** Not available.
- **Skin corrosion/irritation:** Not available.
- **Serious eye damage/eye irritation:** Not available.
- **Respiratory or skin sensitization:** Not available.
- **Germ cell mutagenicity:** Not available.
- **Carcinogenicity:** No components are listed in IARC, or NTP, or OSHA, or ACGIH.
- **Reproductive toxicity:** Not available.
- **Teratogenicity:** Not available.
- **Specific target organ toxicity - single exposure/ - repeated exposure (GHS):** Not available.
- **Aspiration hazard:** Not available.
- **Potential health effects:**
  - Inhalation: No data available
  - Ingestion: No data available
  - Skin: No data available
  - Eyes: No data available
- **Signs and Symptoms of Exposure:** No data available
- **Synergistic effects:** Not available.

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## Article 12 - Ecological Information

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- **Eco-toxicity:** No data available.
- **Biodegradability:** Not applicable.
- **Bio-accumulative potential:** Not applicable.
- **Mobility in soil:** Not applicable.
- **PBT and vPvB assessment:** Not applicable.
- **Other adverse effects:** Not applicable.

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## Article 13 - Disposal Considerations

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- **Disposal methods:** In accordance to applicable national, regional, or local laws and regulations. For additional handling information and protection of employees please refer to Article 7 and 8.
- **Contaminated packaging:** Disposal should be made in accordance to official regulations. Use water or cleansing agents to clean the area.

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## Article 14 - Transport Information

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- **DOT:** Not dangerous goods.
- **IMDG:** Not dangerous goods.
- **IATA:** Not dangerous goods.

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## Article 15 - Regulatory Information

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- **WHMIS Classification:** Non-hazardous.
- **GHS label elements:** Not applicable.
- **Signal word:** Not applicable.
- **Hazard statements:** Not applicable.

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## Article 16 - Other Information

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The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. SignalChem shall not be held liable for any damage resulting from handling or from contact with the above product. See the Technical Specification, Packing Slip, Invoice, and Product Catalog for additional terms and conditions of sale.

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