

Catalog #	Aliquot Size
PA01-S551H-10	10 mg
PA01-S551H-20	20 mg
PA01-S551H-50	50 mg
PA01-S551H-100	100 mg

## Protein A

Recombinant protein expressed in *E. coli* cells

Catalog # PA01-S551H

Lot # O4031-2

### Product Description

Recombinant Protein A from *Staphylococcus aureus* was expressed in *E. coli* using N-terminal His tag. The gene accession number is [CAE54483](#)

### Alternative name

SpA

### Formulation

Recombinant protein stored in 50mM sodium phosphate, pH 7.5, 300mM NaCl, 300mM imidazole.

### Storage and Stability

Store product at  $-70^{\circ}\text{C}$ . For optimal storage, aliquot target into smaller quantities after centrifugation and store at recommended temperature. For most favorable performance, avoid repeated handling and multiple freeze/thaw cycles.

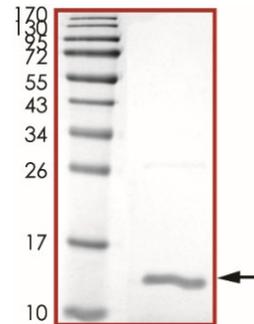
### Scientific Background

An immunoglobulin (Ig) binding protein, Protein A (SpA) is present on the surface of bacteria and secreted into the extracellular environment. Protein A is known to bind the Fab regions, B-cell receptor (IgM), and Fc region of antibody in the host cell and suppresses host cell immune responses (1,2). Such cross-linking is found to prevent opsonophagocytosis and result in B-cell death in vitro (2). In most cases, protein A binds IgG but in certain species the binding is restricted to IgG subclasses. This characteristic enables efficient immunoglobulin purification and analysis, and fractionation of subclasses (3). Overall, protein A can be used as an immunological reagent in a broad range of studies that involve detection of antibody-secreting cells (4).

### References

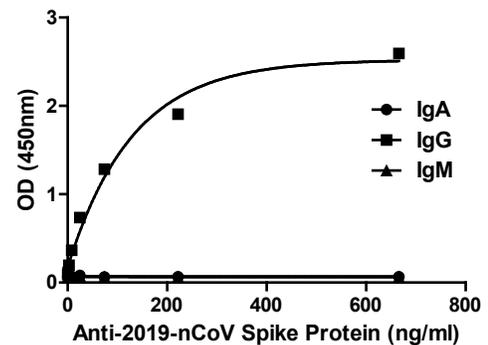
- Kim, HK, et al. Protein A suppresses immune responses during *Staphylococcus aureus* bloodstream infection in guinea pigs. 2015, MBio 6.1: e02369-14.
- Dossett, JH., et al. Antiphagocytic effects of staphylococcal protein A. *The Journal of Immunology*. 1969, 103.6 : 1405-1410.
- Moks, Tomas, et al. Staphylococcal protein A consists of five IgG-binding domains. *European journal of biochemistry*. 1986, 156.3:637-643.
- Goding JW. Use of staphylococcal protein A as an immunological reagent. *Journal of immunological methods*. 1978, 20:241-53.

### Purity



**Figure 1. SDS-PAGE gel image**  
The purity of Protein A was determined to be **>90%** by densitometry, approx. MW **15.2 kDa**.

### Activity



**Figure 2.** Protein A specifically binds to IgG isotype of anti 2019-nCoV spike protein antibody (C19S1-61H) without any nonspecific binding to IgA (C19S1-A60H) and IgM (C19S1-M60H) isotypes of the antibody.

## Protein A

Recombinant protein expressed in *E. coli* cells

Catalog #	PA01-S551H
Lot #	O4031-2
Purity	>90%
Concentration	5.0 mg/ml
Stability	1yr at $-70^{\circ}\text{C}$ from date of shipment
Storage & Shipping	Store product at $-70^{\circ}\text{C}$ . For optimal storage, aliquot target into smaller quantities after centrifugation and store at recommended temperature. For most favorable performance, avoid repeated handling and multiple freeze/thaw cycles. Product shipped on dry ice.

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# SAFETY DATA SHEET

## Article 1 – Product Identification

**Product Name: Protein A****Catalog # PA01-S551H**

*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.*

Manufacturer's Name: SignalChem Biotech Inc.  
Street Address: 110-13120 Vanier Place  
City, Prov. Postal Code: Richmond, BC, V6V 2J2  
Fax: 604-232-4601  
EMERGENCY PHONE: 604-232-4600

## Article 2 - Hazard Identification

- **WHMIS Classification:** Not WHMIS controlled.
- **GHS classification:** Not classified.
- **Hazard Pictograms:** none.
- **Signal words:** Warning.
- **Hazard statements:** N/A
- **Precautionary statements:** N/A
- **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
Imidazole	1,3-Diaza-2,4-cyclopentadiene	288-32-4	2.04%
NaCl	Sodium chloride	7647-14-5	1.75%
Sodium Phosphate, Dibasic	Sodium Phosphate, Dibasic	7782-85-6	1.34%
Protein		No data available	1.271%

## Article 4 – First-aid Measures

- **General information:** Consult a physician by providing the SDS.
- **After inhalation:** Breathe in fresh air. If cannot breathe, give artificial respiration and consult a physician.
- **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. Consult a physician.
- **After swallowing:** rinse the mouth with plenty of water and consult a physician.

## Article 5 - Fire-fighting Measures

- **Suitable extinguishing media:** Use water spray, extinguishing powder, carbon dioxide, or other appropriate measure that is suitable to the environment.
- **Specific hazards arising from the substance or mixture:** None known.
- **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 in a dry and well-ventilated place in -70 °C. Keep container upright and tightly closed.

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## Article 8 - Exposure Controls/Personal Protection

- **Components with limit monitoring values at workplace:** N/A
- **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> Colorless fluid.	<b>Danger of explosion:</b> Not determined.
<b>Odour/Odour Threshold:</b> Not determined.	<b>Explosion limits:</b> Not determined.
<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 determined.
<b>Boiling point/Boiling range:</b> Not determined.	<b>Density:</b> Not determined.
<b>Flash point:</b> Not determined.	<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> Not determined.	<b>Solubility in / Miscibility with Water:</b> Fully miscible.

## Article 10 - Stability and Reactivity

- **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 and moisture.
- **Incompatible materials:** Strong acids/bases, strong oxidizing/reducing agents.
- **Hazardous decomposition products:** Carbon oxides may be formed under fire conditions; no known decomposition information for other decomposition products.

## Article 11 - Toxicological Information

- **Acute toxicity:** Not available.
- **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: Not available.  
Ingestion: Not available.  
Skin: Not available.  
Eyes: Not available.
- **Signs and Symptoms of Exposure:** Not available.
- **Synergistic effects:** Not available.

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## Article 12 - Ecological Information

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- **Eco-toxicity:** Not applicable.
- **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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