



# SIGNALCHEM

Catalog #

Aliquot Size

C19NP-G242H-10	10 µg
C19NP-G242H-20	20 µg
C19NP-G242H-50	50 µg
C19NP-G242H-100	100 µg

## 2019-nCoV Nucleocapsid (N) Protein

Full-length recombinant protein expressed in *E. coli* cells

Catalog # C19NP-G242H

Lot # S3583-3

### Product Description

Recombinant full-length 2019-nCoV Nucleocapsid (N) Protein was expressed in *E. coli* cells with a C-terminal His tag. The gene accession number is [QHD43423](#).

### Alternative name(s)

Nucleoprotein, Nucleocapsid protein, NC, Protein N.

### Formulation

Recombinant protein stored is 10mM PBS, pH 8.0, 50mM NaCl, 0.05% Na<sub>3</sub>N.

### Storage and Stability

Store product at -70°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.

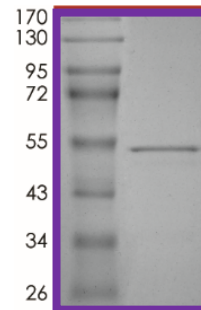
### Scientific Background

CoV N-protein is an RNA-binding protein primarily involved in binding to the viral RNA genome during packaging of viral RNA into a helical ribonucleoproteins or nucleocapsid structure (1). In addition, N-protein regulates viral RNA synthesis during replication/transcription and modulates host-pathogen interactions, such as such as actin reorganization, host cell cycle progression, and apoptosis (2). N-protein is abundantly expressed during infection and antibodies against N-protein have been detected in confirmed cases of Covid-19. Therefore, N-protein is a potent antigen that provides basis for future vaccine and diagnostic kit development (3).

### References

1. McBride R, et al: The coronavirus nucleocapsid is a multifunctional protein. *Viruses*. 2014, 6:2991-3018.
2. Surjit M, et al: The nucleocapsid protein of severe acute respiratory syndrome-coronavirus inhibits the activity of cyclin-cyclin-dependent kinase complex and blocks S phase progression in mammalian cells. *J Biol Chem*. 2006, 281:10669-10681
3. Zeng W, et al: Biochemical characterization of SARS-CoV-2 nucleocapsid protein. *Biochem Biophys Res Commun*. 2020, 527(3):618-623.

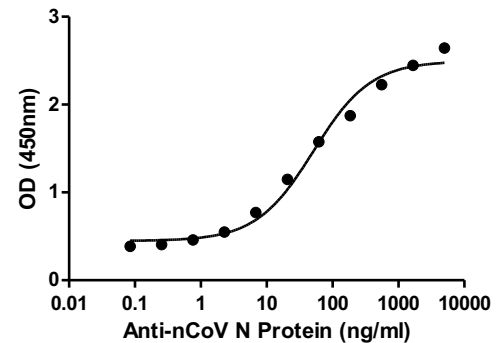
### Purity



#### SDS-PAGE gel image

The purity was determined to be >90% by densitometry. Approx. MW 52 kDa.

### Activity



Binding of Anti-2019-nCoV N-Protein Antibody (C19NP-60H) to immobilized 2019-nCoV Nucleocapsid (N) Protein (C19NP-G242H) determined by ELISA using Goat anti-human Fc-HRP.

## 2019-nCoV Nucleocapsid (N) Protein

Full-length recombinant protein expressed in *E. coli* cells

Catalog #	C19NP-G242H
Lot #	S3583-3
Purity	>90%
Concentration	2 µg/µl
Stability	1yr at -70°C from date of shipment
Storage & Shipping	Store product at -70°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: 2019-nCoV Nucleocapsid (N) Protein**

**Catalog # C19NP-G242H**

*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:** None.
- **Hazard Pictograms:** None.
- **Signal words:** None.
- **Hazard statements:** None.
- **Precautionary statements:** None.
- **Other hazards:** None known.

## Article 3 – Composition/Information on Ingredients

**Chemical Characterization:** Mixture.

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

Common name	Chemical name	CAS-No.	Concentration
Sodium Phosphate, Dibasic	Sodium Phosphate, Dibasic	7782-85-6	0.248%
Potassium Phosphate, Monobasic	Potassium Phosphate, Monobasic	7778-77-0	0.024%
NaCl	Sodium Chloride	7647-14-5	≤0.72%
Protein	N/A	N/A	≤0.2%
Potassium Chloride	Potassium Chloride	7447-40-7	0.02%
Na <sub>3</sub> N	Trisodium nitride	12136-83-3	0.05%

## Article 4 – First-aid Measures

- **General information:** Consult a physician by providing the SDS.
- **After inhalation:** Breath 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. 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, 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.

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## 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.

## Article 8 - Exposure Controls/Personal Protection

- **Components with limit monitoring values at workplace:**  
NA
- **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> 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> > 100 °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> 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:** Not determined.
- **Hazardous decomposition products:** Not determined.

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# SAFETY DATA SHEET

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## Article 11 - Toxicological Information

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- **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: 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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