BIOSYSTEMS Acro | Recombinant Proteins for Biopharma Industry

Human ACE2, Fc Tag (Cat. No. AC2-H5257) bind with SARS-CoV-2 S1 protein BLI Protocol (using Protein A Biosensors on Fortebio Octet RED96e)

Sample Information

Name	Vendor	Cat. No.	Buffer
SARS-CoV-2 S1 protein, His Tag	ACRO	S1N-C52H4	1*PBS,pH7.3 with 0.01% Tween 80 with 11% Trehalose
Human ACE2, Fc Tag	ACRO	AC2-H5257	50 mM Tris, 150 mM NaCl,1 mM ZnCl2,0.01% Tween80,pH7.5 with 20% Trehalose

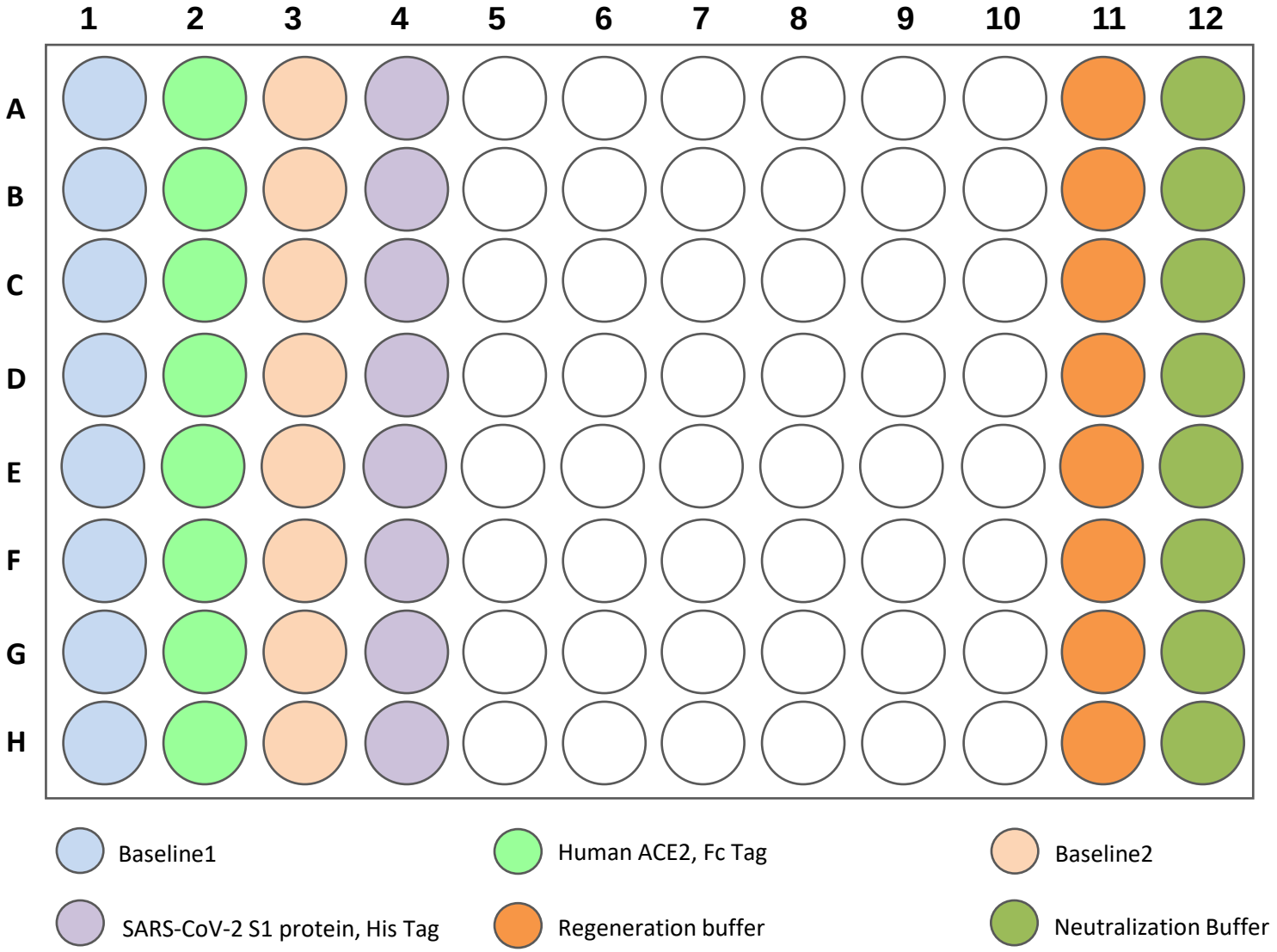
Instruments and Other Information

Name	Vendor	Cat. No.
Octet RED96e	ForteBio	NA
Protein A Biosensors	ForteBio	18-5010
Bovine Serum Albumin (IgG-Free, Protease-Free)	Jackson	001-000-162
96-well, flat bottom, black polypropylene microplate	Greiner	655209

Buffer Information

Buffer Name	Buffer Detail	Related operation steps and conditions
Loading Buffer	1×PBS, pH7.4, with 0.02% Tween-20, 0.1%BSA (10 mM $Na_2HPO_4.12H_2O$, 2 mM KH_2PO_4, 137mM NaCl, 2.7mM KCl, 0.02% Tween-20, 0.1%BSA, pH 7.4)	Baseline1: Baseline the Biosensors in Loading buffer for 60s.
		Loading: Dilute Human ACE2, Fc Tag(Cat. No. AC2-H5257) to 10 μg/mL with Loading Buffer, and Loading about 1.0 nm onto the Biosensors.
Sample dilution Buffer	1×PBS, pH7.4, with 0.02% Tween-20, 0.1%BSA (10 mM $Na_2HPO_4.12H_2O$, 2 mM KH_2PO_4, 137mM NaCl, 2.7mM KCl, 0.02% Tween-20, 0.1%BSA, pH 7.4)	Baselin2: Baseline the Biosensors in Sample Dilution Buffer for 180s.
		Association: Dilute the analyte SARS-CoV-2 S1 protein, His Tag(Cat. No. S1N-C52H4) with the Sample Dilution Buffer from 500 to 15.6 nM, and association for 200s.
		Dissociation: The Biosensors dissociate in Sample Dilution Buffer for 300s.
Regeneration Buffer	10 mM Glycine-HCl, pH1.5	Regeneration: 3 times Regeneration in 10 mM Glycine-HCl, pH1.5 for 5s.
Neutralization Buffer	1×PBS, pH7.4, with 0.02% Tween-20, 0.1%BSA (10 mM $Na_2HPO_4.12H_2O$, 2 mM KH_2PO_4, 137mM NaCl, 2.7mM KCl, 0.02% Tween-20, 0.1%BSA, pH 7.4)	Neutralization: Neutralization for 5s in neutralization buffer immediately after each regeneration.

Sample Plate Information



To start test, all buffer or samples should be add to the wells of a 96 well, PP, F-BOTTOM (CHIMNEY WELL) Black Microplate (655209, Greiner Bio-one), 200 µl/well, and set plate temperature at 30℃.

Step1: Pre-wet the Biosensors in 1×PBS, pH7.4, with 0.02% Tween-20, 0.1%BSA in the other plate about 10min;
Step2: : Then baseline the Biosensors in 1×PBS, pH7.4, with 0.02% Tween-20, 0.1%BSA in the column 1 of the plate;
Step3: Loading the Human ACE2, Fc Tag on the Biosensors in 1×PBS, pH7.4, with 0.02% Tween-20, 0.1%BSA in the column 2 of the plate;
Step4: Baseline the Biosensors in 1×PBS, pH7.4, with 0.02% Tween-20, 0.1%BSA in the column 3 of the plate;
Step5: Associate SARS-CoV-2 S1 protein, His Tag (500-15.6 nM, dilute in 1×PBS, pH7.4, with 0.02% Tween-20, 0.1%BSA) on the Biosensors in the column 4 of the plate;
Step6: The Biosensors dissociate in 1×PBS, pH7.4, with 0.02% Tween-20, 0.1%BSA in the column 3 of the plate.
Step7:The Biosensors regenerate in 10 mM Glycine-HCl, pH1.5 in the column 11 of the plate.
Step8:The Biosensors neutralize in in 1×PBS, pH7.4, with 0.02% Tween-20, 0.1%BSA in the column 12 of the plate.

Interaction analysis of Human ACE2, Fc Tag(Cat. No. AC2-H5257) with SARS-CoV-2 S1 protein, His Tag (Cat. No. S1N-C52H4) using Protein A Biosensors on ForteBio Octet Red96e

Assay Protocol

- **Protein Reconstitution**

Please reconstitute the protein following the COA. To avoid surface adsorption loss and inactivation, the reconstituted protein must **NOT** be aliquoted to **less than 10 μg per vial.**

- **Materials and Buffer Preparation**

Protein A Biosensor and 96 well, PP, F-BOTTOM(CHIMNEY WELL) Black Microplate(655209, Greiner Bio-one) should be prepared before the experiment. Prepare all buffer containing 1×PBS, pH7.4, with 0.02% Tween-20, 0.1%BSA (10 mM $Na_2HPO_4.12H_2O$, 2 mM KH_2PO_4, 137mM NaCl, 2.7mM KCl, 0.02% Tween-20, 0.1%BSA, pH 7.4) and regeneration buffer(10 mM Glycine-HCl, pH1.5). The 1×PBS, pH7.4, with 0.02% Tween-20, 0.1%BSA used as Pre-wet buffer, Loading Buffer, Sample dilution Buffer and neutralization buffer.

Please bring all reagents and samples to room temperature before use (balance for about 30 minutes).

- **Pre-wet of Biosensors**

Add pre-wet buffer (1×PBS, pH7.4, with 0.02% Tween-20, 0.1%BSA) to a 96 well, PP, F-BOTTOM(CHIMNEY WELL) Black Microplate (655209, Greiner Bio-one), 200 µl/well, place the plate under the biosensor tray, and pre-wet the Protein A Biosensors in 1×PBS, pH7.4, with 0.02% Tween-20, 0.1%BSA for 10min in the Greiner black microplate.

- **Add Buffers and Samples to the plate**

Add all Buffers and samples to another Greiner black microplate according to the “Sample Plate Information” on page 3, 200 µl/well. Set up the method and details by online-software, set the plate temperature at 30 ℃ , set the acquisition rate as standard kinetics(5.0 HZ, averaging by 20).

Interaction analysis of Human ACE2, Fc Tag(Cat. No. AC2-H5257) with SARS-CoV-2 S1 protein, His Tag (Cat. No. S1N-C52H4) using Protein A Biosensors on ForteBio Octet Red96e

Assay Protocol

- **Baseline1**

Baseline the Biosensors in 1×PBS, pH7.4, with 0.02% Tween-20, 0.1%BSA for 60s in the column 1 of the Greiner black microplate.

- **Loading Ligand onto Biosensors**

Dilute Human ACE2, Fc Tag (Cat. No. AC2-H5257) to 10 μg/mL with Loading Buffer (1×PBS, pH7.4, with 0.02% Tween-20, 0.1%BSA) and then loading onto the Biosensors (**1** nm Value, about Loading for **100-120** s) in the column 2 of the Greiner black microplate.

Note: Prepare the fresh diluted ligand solution just immediately before analysis, and do not store diluted ligand solution to avoid performance decrease. The loading time required for desired loading level may vary slightly, and just keep the loading signal value from 0.95 to 1.0 nm each time to get good reproducibility.

- **Baseline2**

Baseline the Biosensors in Sample Dilution Buffer (1×PBS, pH7.4, with 0.02% Tween-20, 0.1%BSA) for 180s in the column 3 of the Greiner black microplate.

- **Analyte Association**

Dilute the analyte SARS-CoV-2 S1 protein, His Tag (Cat. No. S1N-C52H4) with the Sample Dilution Buffer(1×PBS, pH7.4, with 0.02% Tween-20, 0.1%BSA) to 7 concentrations (500, 250, 125, 62.5, 31.25, 15.625, 0 nM). Then add the series of concentration samples to the wells from Row A to Row G in the column 4 of the Greiner black microplate. The Human ACE2, Fc Tag (Cat. No. AC2-H5257) on Biosensors is associating with SARS-CoV-2 S1 protein, His Tag (Cat. No. S1N-C52H4) of 7 concentrations at the same time for 200s.

Interaction analysis of Human ACE2, Fc Tag(Cat. No. AC2-H5257) with SARS-CoV-2 S1 protein, His Tag (Cat. No. S1N-C52H4) using Protein A Biosensors on ForteBio Octet Red96e

Assay Protocol

- **Dissociation**

The Biosensors dissociate in the Sample Dilution Buffer(1×PBS, pH7.4, with 0.02% Tween-20, 0.1%BSA) for 300s, and SARS-CoV-2 S1 protein, His Tag (Cat. No. S1N-C52H4) dissociates from the Biosensors in the column 3 of the Greiner black microplate.

- **Regeneration**

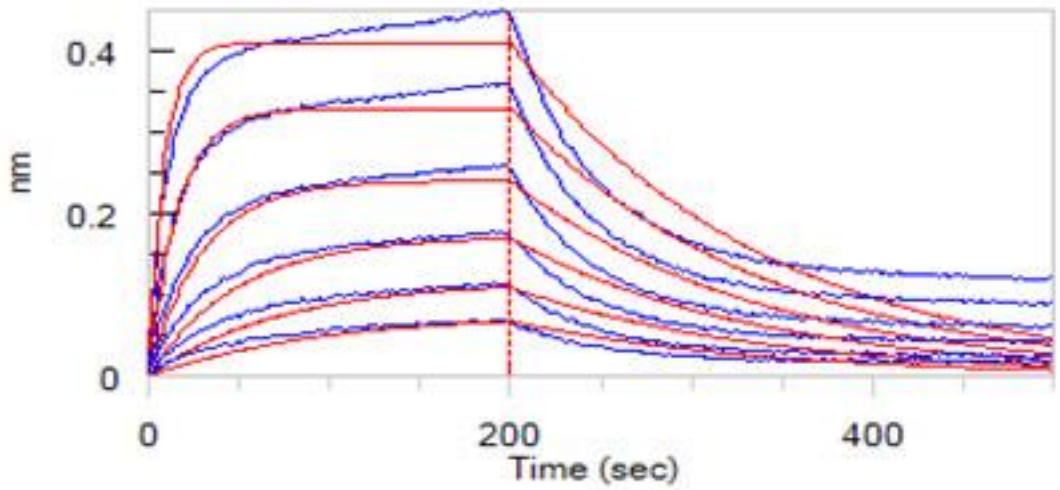
The Biosensors Run a Regeneration procedure (The Biosensors are regenerated for 5 s in Regeneration Buffer (10 mM Glycine-HCl, pH1.5) in the column 11 of the Greiner black microplate, followed by neutralization for 5s in Neutralization Buffer (1×PBS, pH7.4, with 0.02% Tween-20, 0.1%BSA) in the column 12 of the Greiner black microplate, this process repeat 3 times).

Note: To ensure experiment repeatability， please keep close eye on the sensor performance after each regeneration cycle, and change the new biosensors when required (According to our experience, normally the biosensors can be regenerated and reused with above regeneration conditions for 5 times without significant performance decrease).

- **Other Details**

Once the samples are diluted, and added to the wells, we need to finish the assay on the same day, storage of the samples in wells is not recommended to avoid the performance decrease.

Interaction analysis of Human ACE2, Fc Tag(Cat. No. AC2-H5257) with SARS-CoV-2 S1 protein, His Tag (Cat. No. S1N-C52H4) using Protein A Biosensors on ForteBio Octet Red96e



Loaded Human ACE2, Fc Tag(Cat. No. AC2-H5257) on Protein A Biosensor, can bind SARS-CoV-2 S1 protein, His Tag(Cat. No. S1N-C52H4) with an affinity constant of 33.5 nM as determined in BLI assay (ForteBio Octet Red96e).

Kinetic global fit (1:1 binding) Analysis（BLI）

Method	Ligand Load Lot. No.	Ligand Conc. (μg/ml)	Loading (nm)	Analyte	Analyte Conc.	Kinetic global fit(1:1 binding)			
						KD (M)	kon(1/Ms)	kdis(1/s)	RMax
Protein A	Human ACE2, Fc Tag, (Cat. No. AC2-H5257)	10	1.0	SARS-CoV-2 S1 protein, His Tag (Cat. No. S1N-C52H4)	500-15.6 nM	3.35E-08	2.16E+05	7.25E-03	0.4362

Rev04
Update: Aug,17,2022

DATASHEET

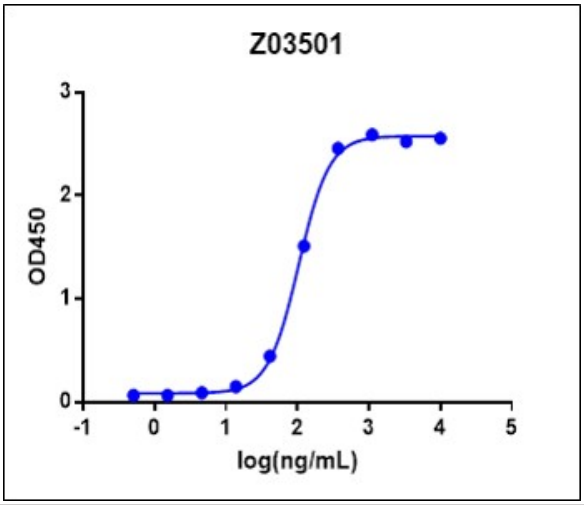
SARS-CoV-2 Spike protein (S1)

Cat. No.: Z03501

Product Introduction

Species	SARS-CoV-2
Protein Construction	**S1 protein (Gln14-Arg685)** **Accession # P0DTC2**
Purity	> 90% as analyzed by SDS-PAGE
Endotoxin Level	< 0.2 EU/μg of protein by gel clotting method
Biological Activity	SARS-CoV-2 Spike protein (S1) can bind with Human ACE2 in functional ELISA assay.
Expression System	293 Cells
Theoretical Molecular Weight	78.3 kDa (Additional amino acids from the vector are included. The sequence of them is confidential.)
Formulation	Supplied as a solution in PBS pH 7.4
Concentration	Please refer to the COA for the specific lot.
Storage & Stability	Upon receiving, this product remains stable for up to 6 months at -20°C or below. Avoid repeated freeze-thaw cycles.

Examples



Immobilized SARS-CoV-2 Spike protein (S1) (Cat. No. Z03501) at 1 μg/mL can bind ACE-2 Fc Chimera, Human (Cat. No. Z03484) with a serial dilution.
Mouse Anti-Human IgG Fc Antibody[HRP], mAb (Cat.No. A01854) is used as a secondary antibody (0.1 μg/mL).

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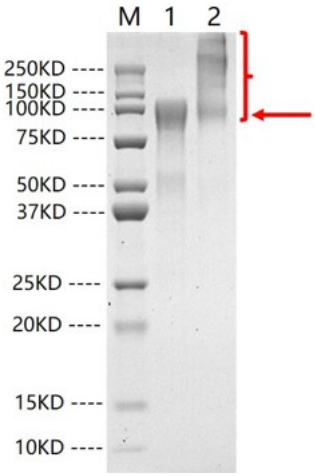
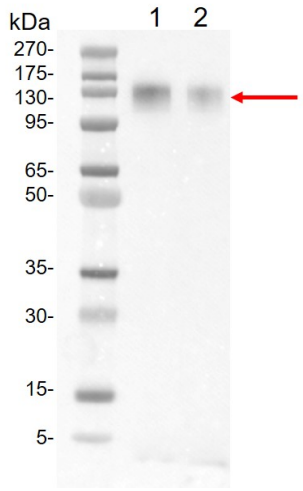


Lane 1: 2μg of SARS-CoV-2 Spike protein (S1), reducing(R)
Lane 2: 2μg of SARS-CoV-2 Spike protein (S1), non-reducing(NR)
> 85% as analyzed by SDS-PAGE



Western blot analysis of SARS-CoV-2 Spike protein (S1) (GenScript, Z03501) using S1 Antibody(GenScript, A02053).
Lane 1: 10 ng of Z03501
Lane 2: 5ng of Z03501

Background

Target Background : SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2) also known as 2019-nCoV (2019 Novel Coronavirus) is a virus that causes illnesses ranging from the common cold to severe diseases. SARS-CoV-2 Spike Protein is composed of S1 domain and S2 domain. S1 contains a receptor-binding domain (RBD) that can specifically bind to angiotensin-converting enzyme 2 (ACE2), the receptor on target cells. S protein plays an important role in the induction of neutralizing-antibodies and T-cell responses, as well as protective immunity.

Synonyms : SARS-CoV-2 S1 protein; 2019-nCoV S1 protein

For laboratory research use only. Direct human use, including taking orally and injection and clinical use are forbidden.

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Rev03
Update: Dec,14,2021

DATASHEET

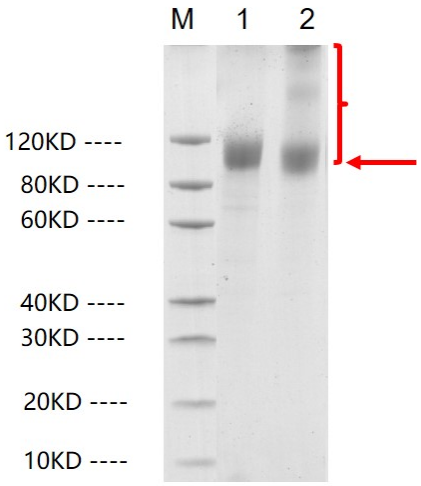
SARS-CoV-2 Spike protein (S1, His Tag)

Cat. No.: Z03485

Product Introduction

Species	SARS-CoV-2
Protein Construction	S1 protein (Val16-Arg685) Accession # P0DTC2 — Poly-His N-term C-term
Purity	> 90% as analyzed by SDS-PAGE
Endotoxin Level	< 0.2 EU/μg of protein by gel clotting method
Biological Activity	SARS-CoV-2 Spike protein (S1) can bind with Human ACE2 in functional ELISA assay.
Expression System	293 Cells
Theoretical Molecular Weight	79 kDa
Formulation	Supplied as a solution in PBS pH 7.2 containing 10% glycerol.
Concentration	Please refer to the COA for the specific lot.
Storage & Stability	Upon receiving, this product remains stable for up to 6 months at -20°C or below. Avoid repeated freeze-thaw cycles.

Examples



1: 2 μg of S1, reducing (R)
2: 2 μg of S1, non-reducing (N)
> 85% as analyzed by SDS-PAGE

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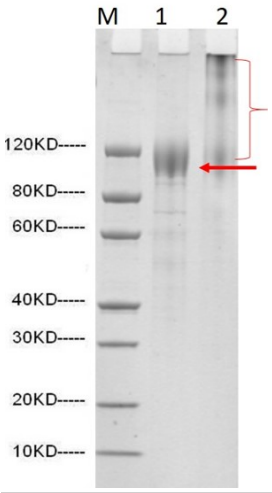
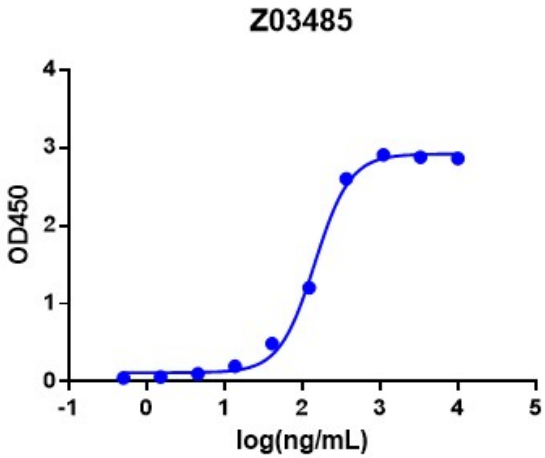
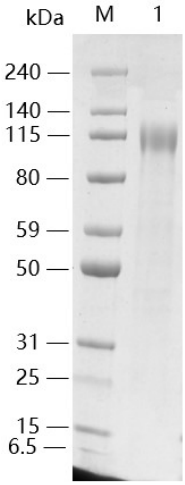


> 85% as analyzed by SDS-PAGE



Immobilized SARS-CoV-2 S1 protein(His Tag) (Cat. No. Z03485) at 1 μg/mL can bind ACE-2 Fc Chimera, Human (Cat. No. Z03516) with a serial dilution.
Mouse Anti-Human IgG Fc Antibody[HRP], mAb (Cat.No. A01854) is used as a secondary antibody (0.1 μg/mL).



Lane 1: 1μg of SARS-CoV-2 Spike protein (S1, His Tag), reducing(R)
> 95% as analyzed by SDS-PAGE

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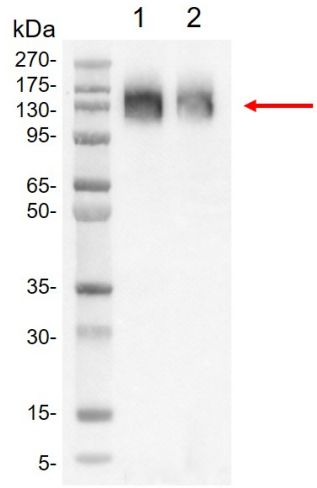
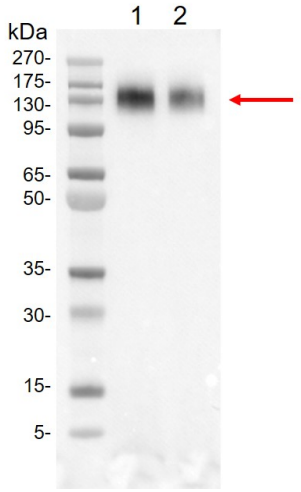


Western blot analysis of SARS-CoV-2 S1 protein （His- tagged) (GenScript, Z03485) using His Antibody (GenScript, A00186).
Lane 1: 10 ng of Z03485
Lane 2: 5ng of Z03485



Western blot analysis of SARS-CoV-2 S1 protein （His- tagged) (GenScript, Z03485) using S1 Antibody(GenScript, A02053).
Lane 1: 10 ng of Z03485
Lane 2: 5ng of Z03485

Background

Target Background : SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2) also known as 2019-nCoV (2019 Novel Coronavirus) is a virus that causes illnesses ranging from the common cold to severe diseases. SARS-CoV-2 Spike Protein is composed of S1 domain and S2 domain. S1 contains a receptor-binding domain (RBD) that can specifically bind to angiotensin-converting enzyme 2 (ACE2), the receptor on target cells. S protein plays an important role in the induction of neutralizing antibodies and T-cell responses, as well as protective immunity.

Synonyms : SARS-CoV-2 S1 protein; 2019-nCoV S1 protein

For laboratory research use only. Direct human use, including taking orally and injection and clinical use are forbidden.

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SAFETY DATA SHEET

Generic SDS (EU) - No country specific data

Version 3.8. Revision Date 06.02.2015

Issued on 2023.01.13

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product Name:	(3R)-5-oxothiomorpholine-3-carboxylic acid
Product Catalogue Number:	EN300-657320
EC number:	N/A
REACH No.:	A registration number for this substance / mixture is not available. The substance is exempted from registration as the annual tonnage does not require a registration or registration is envisaged for a later registration deadline.
CAS-No.:	62305-89-9
Alias product code(s):	N/A

1.2 Recommended use of the substance and restrictions on use

Recommended use:	Laboratory chemicals, research and development use only.

1.3 Supplier's details

Company:	ENAMINE Ltd.78 Chervonotkatska Street02094 KyivUkraine
Telephone:	+38 044 495 88 17
Fax:	+380 44 5373253
E-mail address:	SDS@enamine.net

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance / mixture

Classification according to Regulation (EC) No 1272/2008
Skin corrosion/irritation(Category 2), H315
Serious eye damage/eye irritation(Category 2), H319
Specific target organ toxicity, single exposure; Respiratory tract irritation(Category 3), H335
For the full text of the H-Statements mentioned in this Section, see Section 2.2.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

Pictogram: 

Signal word: Warning

Hazard statement(s):

H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation

Precautionary statements:

P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash hands thoroughly after handling. Wash skin thouroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352	IF ON SKIN: wash with plenty of soap and water.
P304+P340	IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P332+P313	IF SKIN irritation occurs: Get medical advice/attention.
P337+P313	IF eye irritation persists: Get medical advice/attention.
P362	Take off contaminated clothing and wash before reuse.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards

N/A

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms:	N/A
Formula:	C5H7NO3S
Molecular Weight:	161.179
CAS-No.:	62305-89-9

EC number	N/A

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component: (3R)-5-oxothiomorpholine-3-carboxylic acid

Classification:

Skin corrosion/irritation (Category 2), H315
Serious eye damage/eye irritation (Category 2), H319
Specific target organ toxicity, single exposure; Respiratory tract irritation (Category 3), H335

Concentration, %: N/A

For the full text of the H-Statements mentioned in this Section, see Section 2.2.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice:	Consult a physician. Show this safety data sheet to the doctor in attendance.
Inhalation:	If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention immediately.
Skin contact:	In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.
Eye contact:	In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.
Ingestion:	If swallowed, wash out mouth with water provided person is conscious. Call a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Suitable extinguishing media

Sand, carbon dioxide, dry chemical powder, or appropriate foam.

5.2 Specific hazards arising from the substance or mixture

May emit toxic fumes under fire conditions including Carbon monoxide, Carbon dioxide, Nitrogen oxides, Sulfur oxides.

5.3 Special protective equipment and precautions for firefighters

Fire-extinguishing work is done from the windward and the suitable fire-extinguishing method according to the surrounding situation is used. Uninvolved persons should evacuate to a safe place. In case of fire in the surroundings: remove movable containers if safe to do so.
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Wipe dry, place a rag in a bag and hold for waste disposal. Avoid fumes inhaling. Ventilate area and wash spill site after material pickup is complete.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Handling is performed in a well ventilated place. Wear suitable protective equipment. Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure. Wash hands and face thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed and upright. Avoid overheating. Store in a dry and well-ventilated place at +4°C.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
N/A

8.2 Appropriate engineering controls

Install a closed system or local exhaust so that workers should not be exposed directly.
Install safety shower and eye bath.
Wash hands thoroughly after handling.

8.3 Personal protective equipment

Respiratory Protection:	Government approved respirator.
Skin Protection:	Compatible chemical-resistant gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Wash and dry hands.
Eye/Face Protection:	Government approved eye/face protection equipment.
Body protection:	Protective clothing. Protective boots, if the situation requires.

9. PHYSICAL AND CHEMICAL PROPERTIES

Property	Value	At Temperature or Pressure

Appearance (20°C)	
Physical state:	crystalline powder
Odour:	N/A
Colour:	yellow
pH:	N/A
Melting point/freezing point (°C):	N/A
Initial boiling point and boiling point range (°C):	N/A
Flash Point (°C):	N/A
Vapour pressure:	N/A
Vapour density:	N/A
Relative density (g/ml):	
Partition coefficient: n-octanol/water:	-0.446
Auto-ignition temperature (°C):	N/A
Viscosity:	N/A
Flammability:	N/A
Explosive properties:	N/A
Oxidizing properties:	N/A
Water solubility:	N/A
Evaporation rate:	N/A
Refractive index:	N/A

10. STABILITY AND REACTIVITY

10.1 Chemical stability

Stable under specified storage temperature.

10.2 Possibility of hazardous reactions

No data available

10.3 Conditions to avoid

No data available

10.4 Incompatible materials

Strong oxidizing agents.

10.5 Hazardous decomposition products

Carbon monoxide, Carbon dioxide, Nitrogen oxides, Sulfur oxides

11. TOXICOLOGICAL INFORMATION

N/A

Toxicological properties were not fully evaluated.

12. ECOLOGICAL INFORMATION

N/A

13. DISPOSAL CONSIDERATIONS

Substance disposal:	Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations
Contaminated packaging disposal:	Dispose of as unused product

14. TRANSPORT INFORMATION

14.1 UN number

ADR/RID: - IMDG: - IATA: -

14.2 UN proper shipping name

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

14.3 Transport hazard class(es)

ADR/RID: - IMDG: - IATA: -

14.4 Packaging group

ADR/RID: - IMDG: - IATA: -

14.5 Environmental hazards

ADR/RID: no IMDG: no IATA: no

14.6 Special precautions for user

No data available

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulations (EC) No. 1907/2006 and No. 1272/2008.

15.1 Safety, health and environmental regulations specific for the substance or mixture

No data available

15.2 Chemical Safety Assessment

For this product no chemical safety assessment was carried out at Enamine Ltd.

16. OTHER INFORMATION

Further information

For R&D use only. Not for drug, household or other uses.

This is an experimental product whose properties are not fully evaluated yet. The information contained herein is based on the present state of our knowledge and therefore does not guarantee certain properties. Recipients of the product must take responsibility for observing existing laws and regulations.

End of Safety Data Sheet