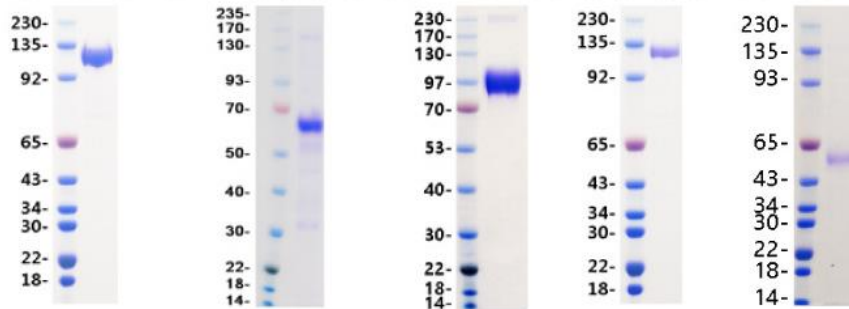


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1. Coronavirus SARS-CoV-2 Nucleocapsid Protein, DYKDDDDK tag;
2. SARS-CoV-2 Spike RBD Protein, human IgG1 Fc tag;
3. Recombinant Human ACE2 Protein, human IgG1 Fc tag;
4. Recombinant SARS-CoV-2 Spike S2 Protein, polyhistidine tag;
5. Human ACE2 Protein (H374N, and H378N), human IgG1 Fc tag;
6. Recombinant SARS-CoV-2 Spike S1 Protein, polyhistidine tag

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2019 Novel Coronavirus SARS-CoV-2 is a virus identified as the cause of an outbreak of respiratory illness Covid-19 first detected in Wuhan, China.

The coronavirus Nucleocapsid (N) of Coronavirus forms the helical ribonucleocapsid complexes with positive strand viral genomic RNA. It plays an important role in virus replication, transcription, and assembly.

The coronavirus Spike protein (S) is a large oligomeric transmembrane protein that mediates coronavirus entry into host cells. It contains S1 and S2 two subunits. The receptor-binding domain (RBD) of the S1 subunit recognizes host cell surface receptors. S2 subunit is responsible for the membrane fusion.

The Covid-19 uses the cellular Angiotensin converting enzyme 2 (ACE2) protein as a receptor for cellular entry.

2019 Coronavirus SARS-CoV-2 Nucleocapsid Protein

Name: 2019 Coronavirus SARS-CoV-2 Nucleocapsid Protein

Description: Recombinant protein of SARS-CoV-2 nucleocapsid phosphoprotein (N) from Wuhan pneumonia virus (MN908947.3) , with a DYKDDDDK tag.

Host: Human cells

RefSeq: MN908947.3; QHD43423.2;

Molecular Weight: 49.4 kDa

Applications: Antigens, Western, ELISA and other in vitro binding or in vivo functional assays, and protein-protein interaction studies

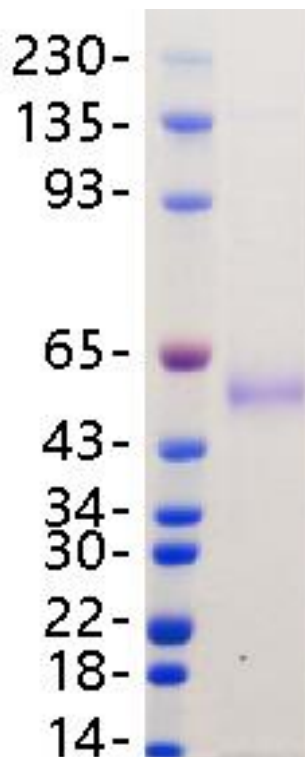
Quantity: 50ug, >Endotoxin level is < 0.1 ng/μg of protein (<1EU/μg)

Purity: >90% by SDS-PAGE gel and Coomassie Blue staining

Formulation: Purified protein formulated in a sterile solution of PBS buffer, pH7.2, without any preservatives

Background: The spike (S) glycoprotein of coronaviruses is known to be essential in the binding of the virus to the host cell at the advent of the infection process. Most notable is severe acute respiratory syndrome (SARS). The severe acute respiratory syndrome-coronavirus (SARS-CoV) spike (S) glycoprotein alone can mediate the membrane fusion required for virus entry and cell fusion. It is also a major immunogen and a target for entry inhibitors. The SARS-CoV-2 spike (S) protein is composed of two subunits; the S1 subunit contains a receptor-binding domain that engages with the host cell receptor angiotensin-converting enzyme 2 and the S2 subunit mediates fusion between the viral and host cell membranes. The S RBD protein plays key parts in the induction of neutralizing-antibody and T-cell responses, as well as protective immunity, during infection with SARS-CoV-2 (2019-nCoV) as in recent COVID-19 outbreak.

Purity: Purity: >90% by SDS-PAGE gel and Coomassie Blue staining



2019 Coronavirus SARS-CoV-2 Spike S1 RBD Protein

Description: 2019 Coronavirus SARS-CoV-2 Spike S1 RBD Protein

Product: Recombinant protein from the receptor-binding domain (RBD) of 2019 Spike S1 of Wuhan pneumonia virus (MN908947.3) SARS-CoV-2, with a human IgG1 Fc tag.

Host: Human cells

RefSeq: MN908947.3; QHD43416.1;

Molecular Weight: 52.3 kDa

Applications: Antigens, Western, ELISA and other in vitro binding or in vivo functional assays, and protein-protein interaction studies

Background: The spike (S) glycoprotein of coronaviruses is known to be essential in the binding of the virus to the host cell at the advent of the infection process. Most notable is severe acute respiratory syndrome (SARS). The severe acute respiratory syndrome-coronavirus (SARS-CoV) spike (S) glycoprotein alone can mediate the membrane fusion required for virus entry and cell fusion. It is also a major immunogen and a target for entry inhibitors. The SARS-CoV-2 spike (S) protein is composed of two subunits; the S1 subunit contains a receptor-binding domain that engages with the host cell receptor angiotensin-converting enzyme 2 and the S2 subunit mediates fusion between the viral and host cell membranes. The S RBD protein plays key parts in the induction of neutralizing-antibody and T-cell responses, as well as protective immunity, during infection with SARS-CoV-2 (2019-nCoV) as in recent COVID-19 outbreak.

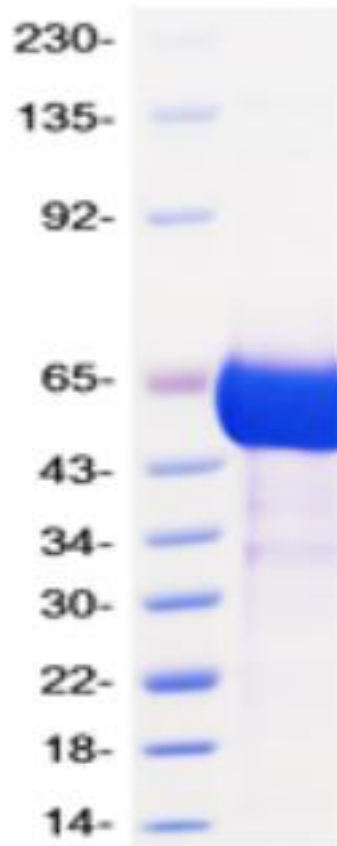
Quantity: 50ug, >Endotoxin level is < 0.1 ng/μg of protein (<1EU/μg)

Purity: >90% by SDS-PAGE gel and Coomassie Blue staining

Formulation: Purified protein formulated in a sterile solution of PBS buffer, pH7.2, without any preservatives

Download Data File: 

SDS-PAGE & Biological Activity: Predicted MW of this product is ~ 52 kDa when running on SDS-PAGE under the reduced condition



Human ACE2 Protein

Description: Recombinant Human ACE2 Protein

Description: Recombinant protein of the extracellular domain (Gln18-Ser740) of Homo sapiens angiotensin converting enzyme 2 (ACE2), transcript variant 2 (NM_021804), with a human IgG1 Fc tag.

Host: Human cells

RefSeq: NM_021804; NP_068576; UniProt#: Q9BYF1; GeneID: 59272;

Molecular Weight: 110 kDa

Applications: Antigens, Western, ELISA and other in vitro binding or in vivo functional assays, and protein-protein interaction studies

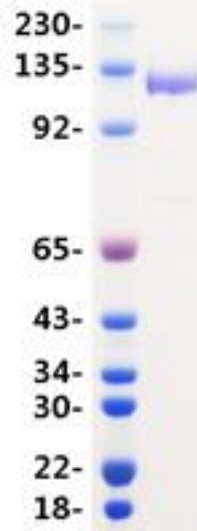
Quantity: 50ug, >Endotoxin level is < 0.1 ng/μg of protein (<1EU/μg)

Formulation: Purified protein formulated in a sterile solution of PBS buffer, pH7.2, without any preservatives

Background: Purified protein formulated in a sterile solution of PBS buffer, pH7.2, without any preservatives

Download Data File: 

Purity: Purity: >90% by SDS-PAGE gel and Coomassie Blue staining



Recombinant SARS-CoV-2 Spike S2 Protein

Description: Recombinant SARS-CoV-2 Spike S2 Protein

Product: Recombinant protein of SARS-CoV-2 Spike S2 extracellular domain region from Wuhan pneumonia virus (MN908947.3), with a polyhistidine tag.

Host: Human cells

RefSeq: NC_045512.2 / MN908947.3; YP_009724390.1 / QHD43416.1; GeneID: 43740568;

Molecular Weight: 59.7 kDa

Applications: Antigens, Western, ELISA and other in vitro binding or in vivo functional assays, and protein-protein interaction studies; For research & development use only!

Background: The spike (S) glycoprotein of coronaviruses is known to be essential in the binding of the virus to the host cell at the advent of the infection process. Most

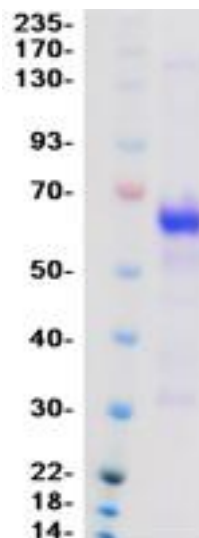
notable is severe acute respiratory syndrome (SARS). The severe acute respiratory syndrome-coronavirus (SARS-CoV) spike (S) glycoprotein alone can mediate the membrane fusion required for virus entry and cell fusion. It is also a major immunogen and a target for entry inhibitors. The SARS-CoV-2 spike (S) protein is composed of two subunits; the S1 subunit contains a receptor-binding domain that engages with the host cell receptor angiotensin-converting enzyme 2 and the S2 subunit mediates fusion between the viral and host cell membranes. The S RBD protein plays key parts in the induction of neutralizing-antibody and T-cell responses, as well as protective immunity, during infection with SARS-CoV-2 (2019-nCoV) as in recent COVID-19 outbreak.

Quantity: 50ug, >Endotoxin level is < 0.1 ng/μg of protein (<1EU/μg)

Purity: >90% by SDS-PAGE gel and Coomassie Blue staining

Formulation: Purified protein formulated in a sterile solution of PBS buffer, pH7.2, without any preservatives

Download Data File: 



Recombinant Human ACE2 Protein(H374N, and H378N)

Description: Recombinant Human ACE2 Protein(H374N, and H378N)

Product: Recombinant protein of the extracellular domain (Gln18-Asp615) of Homo sapiens angiotensin converting enzyme 2 (ACE2), transcript variant 2 (NM_021804), with H374N, H378N point mutation, and a Human IgG1 Fc tag.

Host: Human cells

RefSeq: NM_021804; NP_068576; UniProt#: Q9BYF1; GeneID: 59272;

Molecular Weight: 97.8 kDa

Applications: Antigens, Western, ELISA and other in vitro binding or in vivo functional assays, and protein-protein interaction studies; For research & development use only!

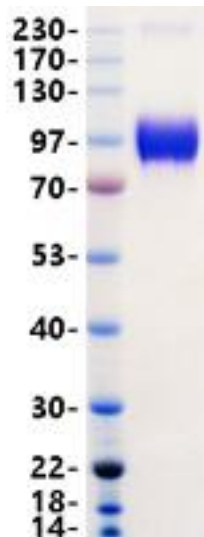
Background: The protein encoded by this gene belongs to the angiotensin-converting enzyme family of dipeptidyl carboxydipeptidases and has considerable homology to human angiotensin 1 converting enzyme. This secreted protein catalyzes the cleavage of angiotensin I into angiotensin 1-9, and angiotensin II into the vasodilator angiotensin 1-7. The organ- and cell-specific expression of this gene suggests that it may play a role in the regulation of cardiovascular and renal function, as well as fertility. In addition, the encoded protein is a functional receptor for the spike glycoprotein of the human coronaviruses SARS and HCoV-NL63. [provided by RefSeq, Jul 2008].

Quantity: 50ug, >Endotoxin level is < 0.1 ng/μg of protein (<1EU/μg)

Purity: >90% by SDS-PAGE gel and Coomassie Blue staining

Formulation: Purified protein formulated in a sterile solution of PBS buffer, pH7.2, without any preservatives

Download Data File: 



Recombinant SARS-CoV-2 Spike S1 Protein

Description: Recombinant SARS-CoV-2 Spike S1 Protein

Product: Recombinant protein of SARS-CoV-2 Spike S1 from Wuhan pneumonia virus (MN908947.3) , with a polyhistidine tag.

Host: Human cells

RefSeq: NC_045512.2/MN908947.3; YP_009724390.1/QHD43416.1; GeneID: 43740568;

Molecular Weight: 77.1 kDa

Applications: Antigens, Western, ELISA and other in vitro binding or in vivo functional assays, and protein-protein interaction studies; For research & development use only!

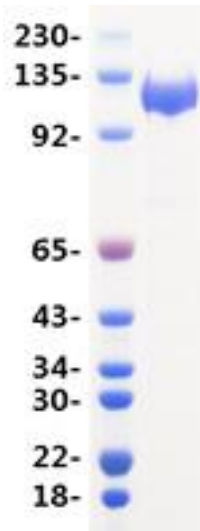
Background: The spike (S) glycoprotein of coronaviruses is known to be essential in the binding of the virus to the host cell at the advent of the infection process. Most notable is severe acute respiratory syndrome (SARS). The severe acute respiratory syndrome-coronavirus (SARS-CoV) spike (S) glycoprotein alone can mediate the membrane fusion required for virus entry and cell fusion. It is also a major immunogen and a target for entry inhibitors. The SARS-CoV-2 spike (S) protein is composed of two subunits; the S1 subunit contains a receptor-binding domain that engages with the host cell receptor angiotensin-converting enzyme 2 and the S2 subunit mediates fusion between the viral and host cell membranes. The S RBD protein plays key parts in the induction of neutralizing-antibody and T-cell responses, as well as protective immunity, during infection with SARS-CoV-2 (2019-nCoV) as in recent COVID-19 outbreak.

Quantity: 50ug

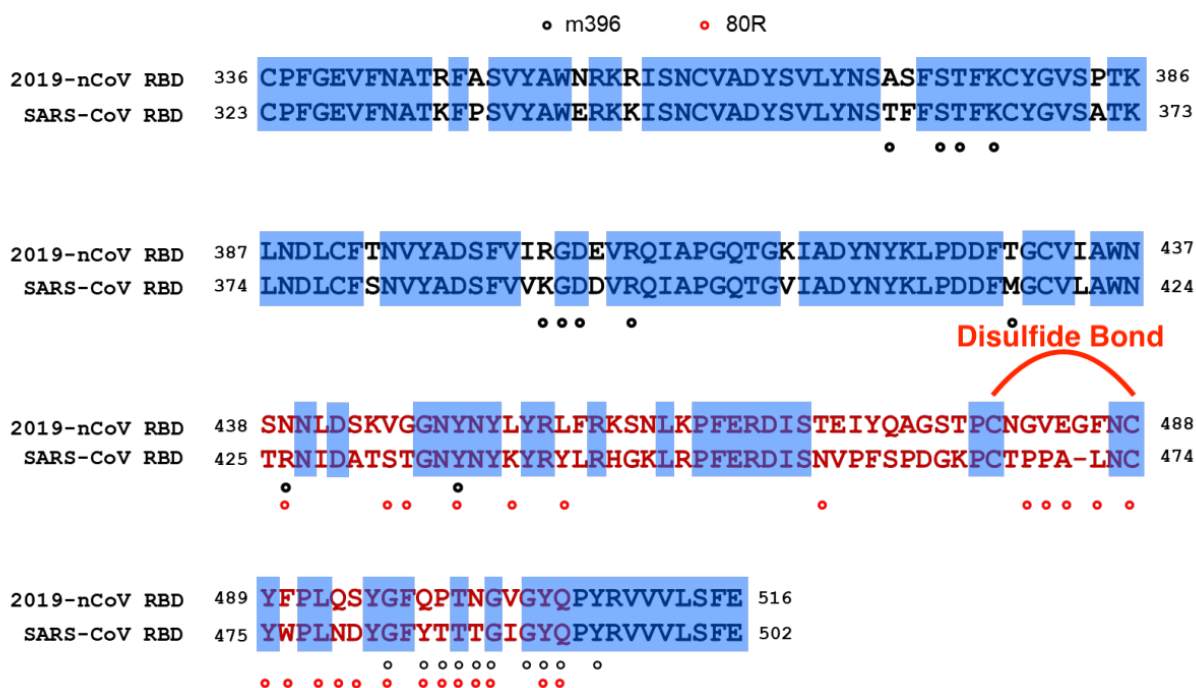
Purity: >90% by SDS-PAGE gel and Coomassie Blue staining

Formulation: Purified protein formulated in a sterile solution of PBS buffer, pH7.2, without any preservatives

Download Data File: 



2019 Coronavirus SARS-CoV-2 Receptor Binding Motif



Researchers from around the world have asked LifeTein for providing peptides to develop vaccines targeting the Wuhan coronavirus (2019-nCoV) or SARS-CoV-2.

LifeTein synthesized the receptor-binding motif (RBM) in 6 days. This is part of the receptor-binding domain (RBD). It is a critical determinant of virus-receptor interaction and thus of viral host range and tropism. The RBD also includes important viral-neutralizing epitopes (21–23), and it may be sufficient to raise a protective antibody response in inoculated animals.

A total of nine cysteine residues are found in the RBD, six of which forming three pairs of disulfide bonds. Among these three pairs, two are in the core (Cys336-Cys361 and

Cys379-Cys432) to help stabilize the beta sheet structure while the remaining one (Cys480-Cys488) connects loops in the distal end of the RBM.

Studies showed that the sequence of 2019-nCoV coronavirus RBD, including its receptor-binding motif (RBM) that directly contacts ACE2 and uses ACE2 as its receptor with much higher affinity (10-20 times higher!) than SARS.

Peptide sequence: SNNLDSKVGG NYNYLYRLFR KSNLKPFRD ISTEIQAGS
TPCNGVEGFN CYFPLQSYGF QPTNGVGYQ

Modifications: N-Terminal: Biotin Labeling, Disulfide Bridge: Cys480-Cys488

Quantity: 1mg

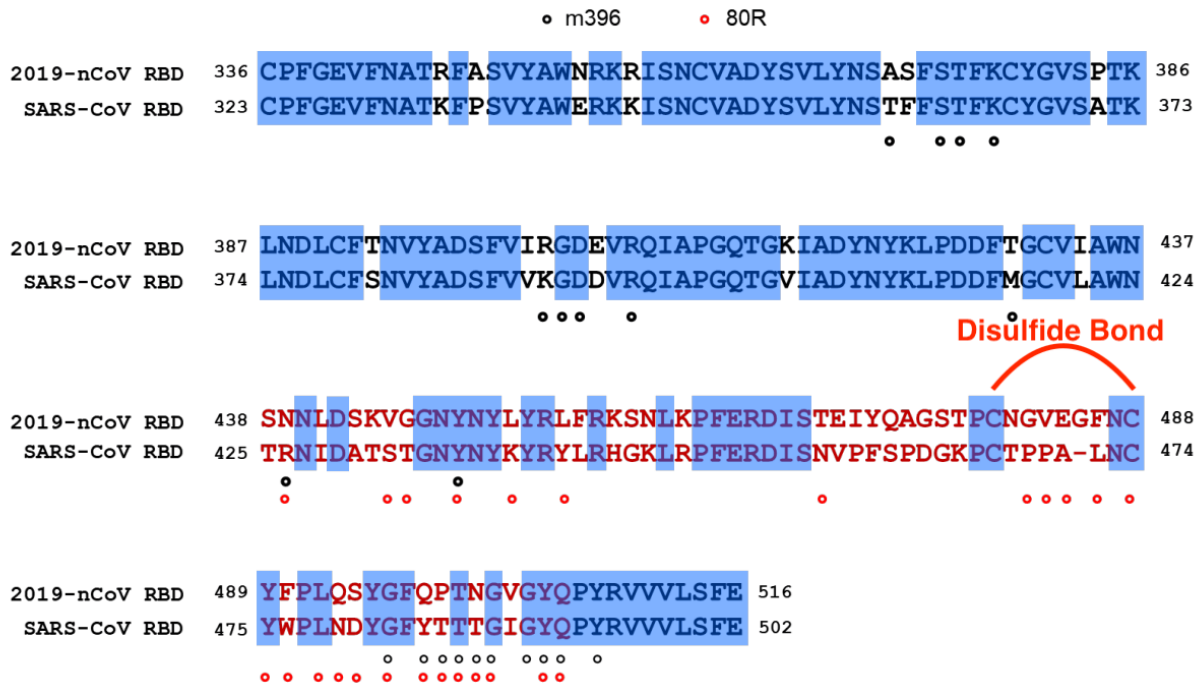
Formula: C₃₆₁H₅₂₈N₉₆O₁₀₉S₃

Molecular Weight: 8052.94

Download Data File: 

Purity: >99% by HPLC

2019 Coronavirus SARS-CoV-2 surface glycoprotein



Researchers from around the world have asked LifeTein for providing peptides to develop vaccines targeting the Wuhan coronavirus (2019-nCoV) or SARS-CoV-2.

LifeTein synthesized the receptor-binding motif (RBM) of 2019 Coronavirus SARS-CoV-2 surface glycoprotein in 6 days. This receptor-binding domain (RBD) a critical determinant of virus-receptor interaction and thus of viral host range and tropism. The RBD also includes important viral-neutralizing epitopes (21–23), and it may be sufficient to raise a protective antibody response in inoculated animals.

A total of nine cysteine residues are found in the RBD, six of which forming three pairs of disulfide bonds. Among these three pairs, two are in the core (Cys336-Cys361 and Cys379-Cys432) to help stabilize the beta sheet structure while the remaining one (Cys480-Cys488) connects loops in the distal end of the RBM.

Studies showed that the sequence of 2019-nCoV coronavirus RBD, including its receptor -binding motif (RBM) that directly contacts ACE2 and uses ACE2 as its receptor with much higher affinity (10-20 times higher!) than SARS.

Catalog number: LT5578-74

Peptide sequence: NH₂- VIAWNSNLD SKVGGNYNYL
YRLFRKSNLK PFERDISTEI YQAGSTPCNG VEGFNCYFPL
QSYGFQPTNG VGYQ -CONH₂

Three letter sequence: NH₂- Val - Ile - Ala - Trp - Asn - Ser -
Asn - Asn - Leu - Asp - Ser - Lys - Val - Gly - Gly - Asn - Tyr -
Asn - Tyr - Leu - Tyr - Arg - Leu - Phe - Arg - Lys - Ser - Asn -
Leu - Lys - Pro - Phe - Glu - Arg - Asp - Ile - Ser - Thr - Glu -
Ile - Tyr - Gln - Ala - Gly - Ser - Thr - Pro - Cys - Asn - Gly -
Val - Glu - Gly - Phe - Asn - Cys - Tyr - Phe - Pro - Leu - Gln -
Ser - Tyr - Gly - Phe - Gln - Pro - Thr - Asn - Gly - Val - Gly -
Tyr - Gln -CONH₂

Modifications: Disulfide Bridge: Cys480-Cys488

Quantity: 1mg

Purity: >97% by HPLC

Molecular Weight: 8410.21 g/mol

Sequence interpretation

Single letter code: NH2- VIAWNSNLD SKVGGNYNYL YRLF RKSNLK PFERDISTEI YQAGSTPCNG VEGFNCFPL QSYGFQPTNG VGYQ -CONH2

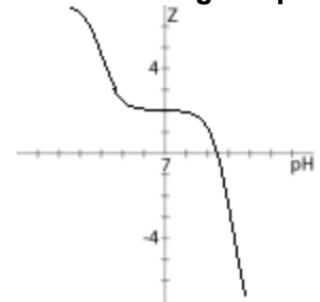
Triple letter code: NH2- Val - Ile - Ala - Trp - Asn - Ser - Asn - Asn - Asn - Leu - Asp - Ser - Lys - Val - Gly - Gly - Asn - Tyr - Asn - Tyr - Leu - Tyr - Arg - Leu - Phe - Arg - Lys - Ser - Asn - Leu - Lys - Pro - Phe - Glu - Arg - Asp - Ile - Ser - Thr - Glu - Ile - Tyr - Gln - Ala - Gly - Ser - Thr - Pro - Cys - Asn - Gly - Val - Glu - Gly - Phe - Asn - Cys - Tyr - Phe - Pro - Leu - Gln - Ser - Tyr - Gly - Phe - Gln - Pro - Thr - Asn - Gly - Val - Gly - Tyr - Gln -CONH2

Disulphide connectivity: Cys48 - Cys56

Physiochemical properties

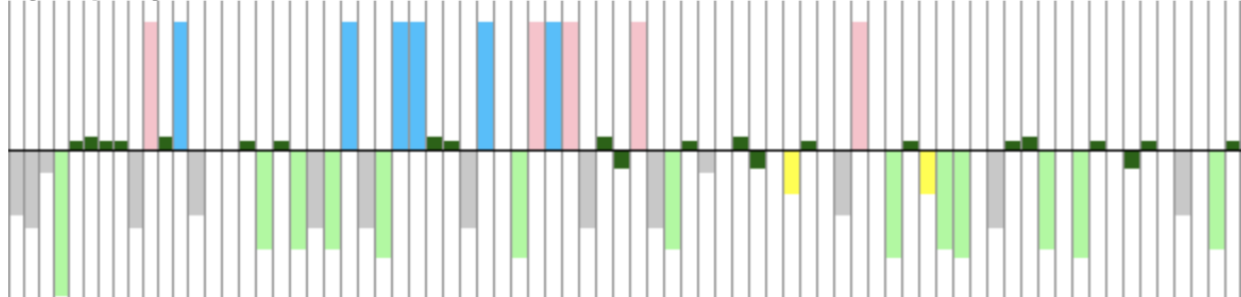
Number of residues:	74	
Molecular weight:	8410.21 g/mol	notes on MW
Extinction coefficient:	14770 M ⁻¹ cm ⁻¹	notes on Ext. Coefficient
Iso-electric point:	pH 9.47	notes on pI
Net charge at pH 7:	2	notes on net charge
Estimated solubility:	Poor water solubility.	notes on solubility

Net charge vs pH



Hydropathy

Hopp & Woods



Top is hydrophilic
Bottom is hydrophobic
Color codes:

Acidic Aromatic Basic Aliphatic Polar Cysteine