## Appendix 1

## National Microbiology Framework Agreement Order Form

**FROM**

| | |
|---|---|
| **Authority:** | The Secretary of State for Health and Social Care as part of the Crown acting through the UK Health Security Agency of Nobel House, 17 Smith Square, London, SW1P 3HX (the **"Authority"**) |
| **Invoice address:** | Post: United Kingdom Health Security Agency, Financial Operations and Control, Porton Down, Salisbury, Wiltshire. SP4 0JG.<br>Email: p[redacted] |
| **Contract Manager:** | Name: [redacted]<br>Phone: [redacted]<br>E-mail: [redacted]k |
| **Secondary Contact: eg. business operational contact, project manager** | Name: [redacted]<br>Phone: [redacted]<br>E-mail: [redacted] |
| **Procurement lead** | Name: [redacted]<br>Phone: [redacted]<br>E-mail: [redacted] |
| **Name and address for notices:** | Name: [redacted]<br>Address: UK Health Security Agency, Nobel House, 17 Smith Square, London, SW1P 3JR |
| **Internal reference (if applicable):** | To be quoted on all correspondence relating to this Order Form: C120761 |

**TO**

| | |
|---|---|
| **Supplier:** | Stratech Scientific Limited, Cambridge House, St. Thomas Place, Ely, England, CB7 4EX, Registered in England no: 01690218 (the "**Supplier**") |
| **Contract Manager:** | Name: [redacted]<br>Phone: [redacted]<br>E-mail: [redacted] |
| **Secondary Contact:** | Name: [redacted]<br>Phone: [redacted]<br>E-mail: [redacted] |
| **Account Manager:** | Name: [redacted] |

| | |
|---|---|
| | Phone: [redacted]<br>E-mail: [redacted] |
| **Name and address for notices:** | Name: [redacted]<br>Address: Stratech Scientific Limited, Cambridge House, St. Thomas Place, Ely, England, CB7 4EX |

## Applicable terms and conditions

The following terms and conditions are applicable to the Contract for this Order:

| | | |
|---|---|---|
| **Appendix A** | Call-off Terms and Conditions for the Supply of Goods and the Provision of Services | **Applicable to this Contract** |
| **Appendix B** | Optional Additional Call-off Terms and Conditions for Installation and Commissioning Services | ☐ **(only applicable if this box is checked)** |
| **Appendix C** | Optional Additional Call-off Terms and Conditions for Maintenance Services | ☐ **(only applicable if this box is checked)** |
| **Appendix D** | Optional Additional Call-off Terms and Conditions for Bespoke Research, Development and Manufacturing Requirements | ☐ **(only applicable if this box is checked and to the extent the applicable terms are included in Annex A (Order Specific Key Provisions))** |
| **Appendix E** | Optional Additional Call-off Terms and Conditions for Reagent Rental | ☐ **(only applicable if this box is checked)** |
| **Appendix F** | Optional Additional Call-off Terms and Conditions for Managed Equipment Services | ☐ **(only applicable if this box is checked)** |
| **Appendix G** | Optional Additional Call-off Terms and Conditions for Clinical Laboratory Diagnostic Testing Services | ☐ **(only applicable if this box is checked and to the extent the applicable terms are included in Annex A (Order Specific Key Provisions))** |
| **Appendix H** | Further Optional Additional Call-off Terms and Conditions<br>Each of the following clauses in Appendix H is only applicable to this Contract if the relevant box is checked: | **(only applicable if one or more boxes are checked)** |
| | 1. TUPE applies at the commencement of the provision of Services ☐ | |
| | 2. TUPE on exit ☐ | |
| | 3. Different levels and/or types of insurance ☐ | |
| | 4. Induction training for Services ☐ | |
| | 5. Further Authority obligations ☐ | |

| | | | |
|---|---|---|---|
| | 6. Assignment of Intellectual Property Rights in deliverables, materials and outputs of the Services | ☐ | |
| | 7. Inclusion of a Change Control Process | ☐ | |
| | 8. Authority step-in rights | ☐ | |
| | 9. Guarantee | ☐ | |
| | 10. Termination for convenience | ☒ | |
| | 11. Pre-Acquisition Questionnaire | ☐ | |
| | 12. Time of the essence (Goods) | ☒ | |
| | 13. Time of the essence (Services) | ☐ | |
| | 14. Specific time periods for inspection | ☐ | |
| | 15. Specific time periods for rights and remedies under Clause 3.6 of Schedule 2 of Appendix A | ☐ | |
| | 16. Right to terminate following a specified number of material breaches | ☐ | |
| | 17. Expert Determination | ☐ | |
| | 18. Consigned Goods | ☐ | |
| | 19. Improving visibility of Sub-contract opportunities available to Small and Medium Size Enterprises and Voluntary, Community and Social Enterprises | ☐ | |
| | 20. Management Charges and Information | ☐ | |
| | 21. COVID-19 related enhanced business continuity provisions | ☐ | |
| | 22. Buffer stock requirements | ☐ | |
| | 23. Modern slavery | ☒ | |
| The additional Order Specific Key Provisions set out at Annex A (Order Specific Key Provisions) to this Order Form shall also apply to this Contract. | | | ☐ **(only applicable if this box is checked)** |

## 1. CONTRACT DETAILS

**(1.1) Commencement Date:**

26 January 2023

**(1.2) Services Commencement Date (if applicable):**

**(1.3) Contract Price ((i) breakdown and (ii) payment profile):**

**(1.3) Contract Price ((i)**

1.3.1. The maximum value of the Goods that can be ordered under this Contract is five hundred thousand pounds (£500,000) excluding VAT and is inclusive of freight and delivery charges to the Authority's nominated Premises and Locations stated within section 2.2 below, or such other location as the Authority informs the Supplier from time to time (the "Contract Price"). For the avoidance of doubt, the Authority is not committed to pay the Contract Price.

1.3.2. Full details of the Contract Price are contained in the Table 1, Table 2 and Table 3.

**Table 1 – Bulking Pricing**

| Product Code | Product Description | Unit | Qty | Price (Excluding VAT) |
|---|---|---|---|---|
| 40588-V07E-SIB-CU STOM | SARS-CoV-2 (2019-nCoV) Nucleocapsid-His Recombinant Protein - Frozen Liquid - 36mg<br>To be supplied as 360 x 100ug<br>To be as supplied as lyophilised | 36mg | 1 | [redacted] |
| 40588-V07E32 SIB-C USTOM | SARS-CoV-2 Nucleocapsid (D63G, R203M, G215C, D377Y) Protein (His Tag) - 36mg<br>To be supplied as 360 x 100ug | 36mg | 1 | [redacted] |
| 40588-V07E34-SIB-C USTOM | SARS-CoV-2 B.1.1.529 (Omicron) Nucleocapsid Protein (His Tag) - 25m<br>To be supplied as 100 x 250ug | 25mg | 1 | [redacted] |
| 40588-V07E37-SIB-C USTOM | SARS-CoV-2 (BA.4) Nucleocapsid Protein (His Tag) - 25mg<br>To be supplied as 100 x 250ug | 25mg | 1 | [redacted] |
| 40588-V07E7-SIB-CU STOM | SARS-CoV-2 (2019-nCoV) Nucleocapsid (D3L, R203K, G204R, S235F)-His Recombinant Protein - 36mg<br>To be supplied as 360 x 100ug | 36mg | 1 | [redacted] |
| 40588-V07E35- | SARS-CoV-2 (B.1.1.529 sublineage | 30mg | 1 | [redacted] |

| | | | | |
|---|---|---|---|---|
| SIB-C USTOM | BA.2) Nucleocapsid Protein (His Tag) - 30mg To be supplied as 120 x 250ug | | | |

**Table 2 – Individual Unit Pricing**

| Product Code | Product Description | Unit | Qty | Price (Excluding VAT) |
|---|---|---|---|---|
| 40588-V07E-SIB-100ug | SARS-CoV-2 (2019-nCoV) Nucleocapsid-His Recombinant Protein | 100 ug | 1 | [redacted] |
| 40588-V07E32-SIB-100ug | SARS-CoV-2 Nucleocapsid (D63G, R203M, G215C, D377Y) Protein (His Tag) | 100 ug | 1 | [redacted] |
| 40588-V07E34-SIB-100ug | SARS-CoV-2 B.1.1.529 (Omicron) Nucleocapsid Protein (His Tag) | 100 ug | 1 | [redacted] |
| 40588-V07E37-SIB-100ug | SARS-CoV-2 (BA.4) Nucleocapsid Protein (His Tag) | 100 ug | 1 | [redacted] |
| 40588-V07E7-SIB-100ug | SARS-CoV-2 (2019-nCoV) Nucleocapsid(D3L, R203K, G204R, S235F)-His Recombinant Protein | 100 ug | 1 | [redacted] |
| 40588-V07E35-SIB-100ug | SARS-CoV-2 (B.1.1.529 sublineage BA.2) Nucleocapsid Protein (His Tag) | 100 ug | 1 | [redacted] |

**Table 3 – Services**

| Description | Maximum Price (Excluding VAT) |
|---|---|
| Custom Recombinant Protein Production Service | [redacted] |

1.3.3. There is no commitment from the Authority to order specific volumes under this Contract and for the avoidance of doubt.

1.3.4 The pricing in Tables 1, 2 and 3 shall remain fixed until 31st March 2023.

**1.4. Contract Price payment profile**

1.4.1 Payment terms are net 30 days from receipt of a valid invoice.

1.4.2 The Authority will send one or more unique purchase orders ("**PO**") for either the Premises and Locations for their total requirements.

1.4.3 Any purchase order issued by the Authority in respect of this Contract does not form part of this Contract.

1.4.5 All invoices must be sent to [redacted] quoting a valid PO number.

1.4.6 To avoid delay in payment it is important that the Supplier provides a compliant invoice that includes, as a minimum, a valid PO number, PO line-item number (if applicable), PO line description, and the details (name and telephone number) of the Authority's authorised representative. Non – compliant invoices will be sent back to the Supplier, which may lead to a delay in a payment.

1.4.7 In support of a valid invoice the Supplier shall provide to the Authority a certificate of quality for the Goods together with a signed delivery note confirming receipt of the Goods by the Authority at the Authority's nominated Premises and Locations or any other agreed point(s) of delivery.

1.4.8 Any queries regarding an outstanding payment shall be directed to [redacted]

1.4.9 The Authority shall have the right to audit Supplier stock at any time on not less than 5 (five) Business Days' notice. The parties shall be responsible their own expenses or costs that occur as part of any of these audits.

**(1.4) Term of Contract:**

1.4.1. This Contract shall be deemed to have commenced on 26 January 2023 (the "**Commencement Date**") and shall, unless terminated earlier, or extended, in accordance with its terms, expire on 31 March 2023 (the "Term").

1.4.2. The Authority may terminate the Contract for convenience at any time pursuant to clause 10 (Termination for convenience) of Appendix H (Further Optional Additional Call-off Terms and Conditions) of this Contract provided the Authority gives the Supplier not less than 90 days written notice.

**(1.5) Term extension options:**

1.5.1. The Authority may extend the contract for the period 1st April 2023 – 31st March 2025, or such shorter period as the Authority may specify in the notice, (the "**Extension Period**") by giving the Supplier written notice no less than 10 days written notice.

## 2. GOODS AND/OR SERVICES REQUIREMENTS

**(2.1) Description of the Goods / Services:**

2.1.1 The specifications of the Goods ("**Specifications**") are as follows:

**SARS-CoV-2 (2019-nCoV) Nucleocapsid Protein (His tag) - Catalogue Number: 40588-V07E**

- Gene Name Synonym:
  - Coronavirus NP; coronavirus Nucleocapsid; coronavirus Nucleoprotein; cov np; ncov NP; NCP-CoV Nucleocapsid; novel coronavirus NP; novel coronavirus Nucleocapsid; novel coronavirus Nucleoprotein; np; nucleocapsid; Nucleoprotein
- Protein Construction:
  - A DNA sequence encoding the SARS-CoV-2 (2019-nCoV) Nucleocapsid Protein (YP_009724397.2) (Met1-Ala419(335Gly/Ala)) was expressed with a polyhistidine tag at the N-terminus.
- Source: 2019-nCoV
- Expression Host: E. coli
- Purity: > 90 % as determined by SDS-PAGE.

- Predicted N terminal: Met
- Molecular Mass:
  - The recombinant SARS-CoV-2 (2019-nCoV) Nucleocapsid Protein (His tag) consists of 426 amino acids and predicts a molecular mass of 46.61 kDa.
- Formulation:
  - Lyophilized from sterile PBS, pH 7.4
  - Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization.
- Stability & Storage:
  - Samples are stable for twelve months from date of receipt at -20℃ to -80℃.
  - Store it under sterile conditions at -20℃ to -80℃ upon receiving.
  - Recommend to aliquot the protein into smaller quantities for optimal storage
  - Avoid repeated freeze-thaw cycles
- Protein Description
  - Coronaviruses are enveloped viruses with a positive-sense RNA genome and with a nucleocapsid of helical symmetry. Coronavirus nucleoproteins localize to the cytoplasm and the nucleolus, a subnuclear structure, in both virus-infected primary cells and in cells transfected with plasmids that express N protein. Coronavirus N protein is required for coronavirus RNA synthesis, and has RNA chaperone activity that may be involved in template switch. Nucleocapsid protein is a most abundant protein of coronavirus. During virion assembly, N protein binds to viral RNA and leads to formation of the helical nucleocapsid. Nucleocapsid protein is a highly immunogenic phosphoprotein also implicated in viral genome replication and in modulating cell signaling pathways. Because of the conservation of N protein sequence and its strong immunogenicity, the N protein of coronavirus is chosen as a diagnostic tool.

**SARS-CoV-2 Nucleocapsid (D63G, R203M, G215C, D377Y) Protein (His Tag) - Catalogue Number: 40588-V07E32**

- Gene Name Synonym: Spike
- Protein Construction:
  - A DNA sequence encoding the SARS-CoV-2 Nucleocapsid (YP_009724397.2, with mutations D63G, R203M, G215C, D377Y) (Met1-Ala419) was expressed with a polyhistidine tag at the N-terminus. The mutations were identified in the SARS-CoV-2 variant (known as variant (AY.1,3;AY.3.1)(B.1.617.2.1,3)) which emerged in the India.
- Source: SARS-CoV-2
- Expression Host: E. coli
- Purity: > 95 % as determined by SDS-PAGE
- Predicted N terminal: Met
- Molecular Mass:
  - The recombinant SARS-CoV-2 Nucleocapsid consists of 426 amino acids and predicts a molecular mass of 46.60 kDa.
- Formulation:
  - Lyophilized from sterile 50mM PB, 500mM NaCl, pH 7.4.
  - Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization.
- Stability & Storage:
  - Samples are stable for twelve months from date of receipt at -20℃ to -80℃.
  - Store it under sterile conditions at -20℃ to -80℃ upon receiving.
  - Recommend to aliquot the protein into smaller quantities for optimal storage.
  - Avoid repeated freeze-thaw cycle
- Protein Description

- The spike (S) glycoprotein of coronaviruses contains protrusions that will only bind to certain receptors on the host cell. Known receptors bind S1 are ACE2, angiotensin-converting enzyme 2; DPP4, dipeptidyl peptidase-4; APN, aminopeptidase N; CEACAM, carcinoembryonic antigen-related cell adhesion molecule 1; Sia, sialic acid; O-ac Sia, O-acetylated sialic acid. The spike is essential for both host specificity and viral infectivity. The term 'peplomer' is typically used to refer to a grouping of heterologous proteins on the virus surface that function together. 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. It's been reported that SARS-CoV-2 (COVID-19 coronavirus, 2019-nCoV) can infect the human respiratory epithelial cells through interaction with the human ACE2 receptor. The spike protein is a large type I transmembrane protein containing two subunits, S1 and S2. S1 mainly contains a receptor binding domain (RBD), which is responsible for recognizing the cell surface receptor. S2 contains basic elements needed for the membrane fusion. The S protein plays key parts in the induction of neutralizing-antibody and T-cell responses, as well as protective immunity. The main functions for the Spike protein are summarized as: Mediate receptor binding and membrane fusion; Defines the range of the hosts and specificity of the virus; Main component to bind with the neutralizing antibody; Key target for vaccine design; Can be transmitted between different hosts through gene recombination or mutation of the receptor binding domain (RBD), leading to a higher mortality rate.

**SARS-CoV-2 B.1.1.529 (Omicron) Nucleocapsid Protein (His Tag) - Catalogue Number: 40588-V07E34**

- Gene Name Synonym: Nucleocapsid
- Protein Construction:
  - A DNA sequence encoding the SARS-CoV-2 Nucleocapsid (YP_009724397.2, with mutations P13L, ERS31-33 deletion, R203K, G204R) (Met1-Ala419) was expressed with a polyhistidine tag at the N-terminus. The mutations were identified in the SARS-CoV-2 variant (known as variant B.1.1.529) which emerged in the South Africa.
- Source: SARS-CoV-2
- Expression Host: E. coli
- Purity:
  - > 95 % as determined by SDS-PAGE
  - > 95 % as determined by SEC-HP
- Predicted N termina: Met
- Molecular Mass:
  - The recombinant SARS-CoV-2 Nucleocapsid consists of 423 amino acids and predicts a molecular mass of 46.31 kDa.
- Formulation:
  - Lyophilized from sterile 50mM PB, 500mM NaCl, pH 7.4
  - Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization.
- Stability & Storage:
  - Samples are stable for twelve months from date of receipt at -20℃ to -80℃. Store it under sterile conditions at -20℃ to -80℃ upon receiving.
  - Recommend to aliquot the protein into smaller quantities for optimal storage.
  - Avoid repeated freeze-thaw cycles.
- Protein Description:
  - Coronaviruses are enveloped viruses with a positive-sense RNA genome and with a nucleocapsid of helical symmetry. Coronavirus nucleoproteins localize to the cytoplasm and the nucleolus, a subnuclear structure, in both virus-infected primary

cells and in cells transfected with plasmids that express N protein. The coronavirus N protein is required for coronavirus RNA synthesis and has RNA chaperone activity that may be involved in template switch. Nucleocapsid protein is the most abundant protein of coronavirus. During virion assembly, N protein binds to viral RNA and leads to the formation of the helical nucleocapsid. Nucleocapsid protein is a highly immunogenic phosphoprotein also implicated in viral genome replication and in modulating cell signaling pathways. Because of the conservation of the N protein sequence and its strong immunogenicity, the N protein of coronavirus is chosen as a diagnostic tool.

**SARS-CoV-2 (BA.4) Nucleocapsid Protein (His Tag) - Catalogue Number: 40588-V07E37**

- Gene Name Synonym: NP-CoV
- Protein Construction:
  - A DNA sequence encoding the SARS-CoV-2 (BA.4) Nucleocapsid (YP_009724397.2, with mutation P13L, ERS31-33del,?P151S, R203K,?G204R, S413R) (Met1-Ala419) was expressed with a polyhistidine tag at the N-terminus. The mutations were identified in the SARS-CoV-2 variant (known as variant BA.4)
- Source: SARS-CoV-2
- Expression Host: E. coli
- Purity:
  - > 90 % as determined by SDS-PAGE. > 90 % as determined by SEC-HPLC
- Predicted N terminal: Met
- Molecular Mass:
  - The recombinant SARS-CoV-2 (BA.4)) Nucleocapsid consists of 423 amino acids and predicts a molecular mass of 46.37 kDa.
- Formulation:
  - Lyophilized from sterile 50mM PB, 500mM NaCl, pH 7.4.
  - Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization.
- Stability & Storage:
  - Samples are stable for twelve months from date of receipt at -20℃ to -80℃. Store it under sterile conditions at -20℃ to -80℃ upon receiving.
  - Recommend to aliquot the protein into smaller quantities for optimal storage.
  - Avoid repeated freeze-thaw cycles.
- Protein Description:
  - Coronaviruses are enveloped viruses with a positive-sense RNA genome and with a nucleocapsid of helical symmetry. Coronavirus nucleoproteins localize to the cytoplasm and the nucleolus, a subnuclear structure, in both virus-infected primary cells and in cells transfected with plasmids that express N protein. The coronavirus N protein is required for coronavirus RNA synthesis and has RNA chaperone activity that may be involved in template switch. Nucleocapsid protein is the most abundant protein of coronavirus. During virion assembly, N protein binds to viral RNA and leads to the formation of the helical nucleocapsid. Nucleocapsid protein is a highly immunogenic phosphoprotein also implicated in viral genome replication and in modulating cell signaling pathways. Because of the conservation of the N protein sequence and its strong immunogenicity, the N protein of coronavirus is chosen as a diagnostic tool.

**SARS-CoV-2 (2019-nCoV) Nucleocapsid (D3L, R203K, G204R, S235F)-His Recombinant Protein - Catalogue Number: 40588-V07E7**

- Gene Name Synonym:
  - Coronavirus NP; coronavirus Nucleocapsid; coronavirus Nucleoprotein; cov np; ncov NP; NCP-CoV Nucleocapsid; novel coronavirus NP; novel coronavirus

Nucleocapsid; novel coronavirus Nucleoprotein; np; nucleocapsid; Nucleoprotein.

- Protein Construction:
  - A DNA sequence encoding the SARS-CoV-2 (2019-nCoV) Nucleocapsid Protein (YP_009724397.2) (Ser2-Ala419(D3L, R203K, G204R, S235F)) was expressed with a polyhistidine tag at the N-terminus.
- Source: SARS-CoV-2
- Expression Host: E. coli
- Purity:
  - > 90 % as determined by SDS-PAGE.
- Predicted N termina: Met
- Molecular Mass:
  - The recombinant SARS-CoV-2 (2019-nCoV) Nucleocapsid Protein (D3L,R203K, G204R, S235F)-His Recombinant Protein consists of 425 amino acids and predicts a molecular mass of 46.6 kDa.
- Formulation:
  - Lyophilized from sterile 50 mM PB, 500 mM NaCl, pH 7.0.
  - Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization
- Stability & Storage:
  - Samples are stable for twelve months from date of receipt at -20℃ to -80℃. Store it under sterile conditions at -20℃ to -80℃ upon receiving.
  - Recommend to aliquot the protein into smaller quantities for optimal storage.
  - Avoid repeated freeze-thaw cycles.
- Protein Description:
  - Coronaviruses are enveloped viruses with a positive-sense RNA genome and with a nucleocapsid of helical symmetry. Coronavirus nucleoproteins localize to the cytoplasm and the nucleolus, a subnuclear structure, in both virus-infected primary cells and in cells transfected with plasmids that express N protein. The coronavirus N protein is required for coronavirus RNA synthesis and has RNA chaperone activity that may be involved in template switch. Nucleocapsid protein is the most abundant protein of coronavirus. During virion assembly, N protein binds to viral RNA and leads to the formation of the helical nucleocapsid. Nucleocapsid protein is a highly immunogenic phosphoprotein also implicated in viral genome replication and in modulating cell signaling pathways. Because of the conservation of the N protein sequence and its strong immunogenicity, the N protein of coronavirus is chosen as a diagnostic tool.

**SARS-CoV-2 (B.1.1.529 sublineage BA.2) Nucleocapsid Protein (His Tag) - Catalogue Number: 40588-V07E35**

- Gene Name Synonym: Nucleocapsid
- Protein Construction:
  - A DNA sequence encoding the SARS-CoV-2 (B.1.1.529 sublineage BA.2) Nucleocapsid (YP_009724397.2, with mutations P13L, ERS31-33 del, R203K, G204R, S413R) (Met1-Ala419) was expressed with a polyhistidine tag at the N-terminus. The mutations were identified in the SARS-CoV-2 variant (known as variant B.1.1.529 sublineage BA.2).
- Source: SARS-CoV-2
- Expression Host: E. coli
- Purity: > 90 % as determined by SDS-PAGE.
- Predicted N termina: Met
- Molecular Mass:
  - The recombinant SARS-CoV-2 (B.1.1.529 sublineage BA.2) Nucleocapsid consists of 423 amino acids and predicts a molecular mass of 46.38 kDa.

- Formulation:
  - Lyophilized from sterile 50mM PB, 500mM NaCl, pH 7.4.
  - Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization
- Stability & Storage:
  - Samples are stable for twelve months from date of receipt at -20℃ to -80℃. Store it under sterile conditions at -20℃ to -80℃ upon receiving.
  - Recommend to aliquot the protein into smaller quantities for optimal storage.
  - Avoid repeated freeze-thaw cycles.
- Protein Description:
  - The spike (S) glycoprotein of coronaviruses contains protrusions that will only bind to certain receptors on the host cell. Known receptors bind S1 are ACE2, angiotensin-converting enzyme 2; DPP4, dipeptidyl peptidase-4; APN, aminopeptidase N; CEACAM, carcinoembryonic antigen-related cell adhesion molecule 1; Sia, sialic acid; O-ac Sia, O- acetylated sialic acid. The spike is essential for both host specificity and viral infectivity. The term 'peplomer' is typically used to refer to a grouping of heterologous proteins on the virus surface that function together. 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. It's been reported that SARS-CoV-2 (COVID-19 coronavirus, 2019-nCoV) can infect the human respiratory epithelial cells through interaction with the human ACE2 receptor. The spike protein is a large type I transmembrane protein containing two subunits, S1 and S2. S1 mainly contains a receptor binding domain (RBD), which is responsible for recognizing the cell surface receptor. S2 contains basic elements needed for the membrane fusion. The S protein plays key parts in the induction of neutralizing-antibody and T-cell responses, as well as protective immunity. The main functions for the Spike protein are summarized as: Mediate receptor binding and membrane fusion; Defines the range of the hosts and specificity of the virus; Main component to bind with the neutralizing antibody; Key target for vaccine design; Can be transmitted between different hosts through gene recombination or mutation of the receptor binding domain (RBD), leading to a higher mortality rate.

2.1.2 The specifications of the Services ("**Specifications**") are as follows:

**Custom Recombinant Protein Production Service**

- Gene synthesis and codon optimization
  - Authority will provide the Supplier with a protein/gene sequence or plasmid. The exact protein/gene sequence or plasmid will be confirmed at a later date
  - Estimated lead time 1-2 weeks
- **Vector construction:**
  - Cloning cDNA into expression vectors
  - Plasmid sequencing
  - Plasmid preparation
  - Sequencing report
  - Estimated lead time 1-2 weeks
- **Protein expression and purification:**
  - Transient transfection of HEK293/CHO cells
  - Protein purification
  - QC analysis (SDS-PAGE, UV, etc.)
  - Deliverables: 0.1-0.5 mg purified proteins (if feasible) and certificate of analysis
  - Estimated lead time 2-3 weeks
- **Large-scale expression and purification**

- 100+ mg
- QC analysis
- Deliverables: Purified proteins and certificate of analysis
- Estimated lead time 3-4 weeks

**(2.2) Premises and Location(s) at which the Goods / Services are to be delivered / provided:**

The Supplier shall provide goods to:

[redacted]

2.2.1 The supplier shall deliver the goods to the Premises and Location(s) detailed at 2.2 and such other locations as the Authority specifies from time to time.

2.2.2 The Supplier shall ensure that all products are labelled with product description, part number, volume, batch number, storage requirements and barcode.

2.2.3 All planned deliveries shall be pre-advised by the Supplier to the Authority's primary delivery contact stated below (individually or collectively be known as the "**Delivery Contact**") at least 48 hours prior to attendance.

2.2.4 Primary delivery contact: [redacted]

2.2.5 The Supplier shall provide the following data when notifying the Delivery Contact:

- Supplier name;
- Authority's Order Number;
- Item reference, Supplier's part code, description and quantity;
- Item / pallet / carton reference for multi-pallet / carton shipments; and
- Any special instructions originally entered for Authority's Order (e.g. project).

2.2.6 The Delivery Contact will confirm:

- Booking reference number;
- Delivery address.

2.2.7 Delivery of the Goods/Services shall be considered to have occurred when the Delivery Contact or other authorised representative of the Authority at the Authority's nominated location has signed the delivery note.

- The Supplier shall ensure that all Goods are packaged suitably so as not to cause loss or damage during shipment to a Delivery Location;
- In the event that the Supplier is unable to deliver the agreed order in full, the Supplier shall inform the Authority of the actual number of Assays and/or Consumables to be shipped prior to shipment, explaining the reasons for non-compliance with the agreed order and inform the Authority of when such missing Goods will be delivered.
- The Supplier shall, using its best endeavours, deliver such missing Goods at the earliest possible time;
- The Supplier shall ensure that all Goods are labelled with the product description, part number, volume, batch number, storage requirements and barcode.

- The Supplier shall inform the Authority of any requests, made directly to the Supplier, by the Delivery Locations, to vary the delivery and the Authority will approve or reject such requests.
- The Parties reserve the right to modify the above process, by written agreement of both Parties, as necessary during the Term of this Contract

2.2.8 The Supplier shall carry out deliveries within the ordinary working hours at the delivery location on the date specified.

**(2.3) Key personnel of the Supplier to be involved in the Goods / Services:**

Not applicable.

**(2.4) Performance standards:**

| Performance Target | Key Indicator | Performance Measure |
|---|---|---|
| Goods shipped within a minimum shelf life of twelve (12) months following the date of delivery by the Supplier | Shelf-life | 100% |
| Goods to be delivered to the Authority's nominated location within twenty (20) Business Days of the Supplier reviewing a PO from the Authority | Delivery of Goods | 100% |
| Respond to all operational enquiries within three (3) Business Days. | Provision of Response | 95% |
| Invoice timeliness. | Accuracy | 95% of all invoices are submitted accurately |
| Invoice accuracy. | Accuracy | 95% of all invoices are submitted accurately |

**(2.5) Quality standards:**

2.5.1 The Supplier shall maintain the following ISO accreditations throughout the Term of the Contract: ISO 9001:2015 and ISO 14001:2015. The Supplier shall inform the Authority within 5 Business Days of any deviations.

2.5.2. The Supplier shall ensure that the Goods are shipped within a minimum shelf life of twelve (12) months following the date of delivery by the Supplier, to allow the laboratories sufficient time to use the goods.

2.5.3 The Supplier warrants the Goods shall be fit for purpose and shall conform to the Specification for not less than twelve (12) months commencing from the date of delivery in accordance with Clause 10 of the Call-Off Terms and Conditions.

2.5.4 In the event that Goods are deemed to be Defective Goods by the Authority, the Authority, at its sole discretion, shall provide a written notice to the Supplier in accordance with Schedule 2, clause 3.6 of the Call-Off Terms and Conditions.

**2.5.5. Return Conditions**

For Goods that do not meet the quality and performance standards The Return Conditions will be as follows:

2.5.5.1 The Supplier is responsible for collecting the Goods.

2.5.5.2 The Supplier is responsible for the costs of returning/collecting the Goods.

2.3.5.3 Return Conditions shall be in accordance with Schedule 2 - clause 3 (Inspection, rejection, return and recall of the Goods) of the Call Off Terms and Condition

**(2.6) Contract monitoring arrangements:**

2.6.1 The Authority Contract Manager (or their delegate) and the Supplier Contract Manager shall meet Monthly (or such other frequency as reasonably requested by the Authority) and no less than quarterly (unless otherwise notified by the Authority) to discuss the Supplier's performance and other matters connected to the delivery of the Contract.

2.6.2 The Supplier shall provide any management information required on a monthly basis to include:

2.6.2.1 Performance against KPIs, delivery expectations, demand/call-off plan

2.6.2.2 Stock and deliveries against call off orders

2.6.2.3 Compliance to processes: Delivery schedules and Invoicing

2.6.2.4 Overview of any innovation, product performance/enhancement

2.6.2.5 Supplier input/issues on contract performance

**(2.7) Management information and meetings:**

2.7.1 The Parties as stated in clause 2.6.3 shall meet on a monthly basis. At such meetings:

(i) The Authority shall review stock levels at each of the Premises and Locations with a view to placing further POs for additional Goods.
(ii) The Supplier shall provide data on deliveries that are scheduled to take place within the next calendar month for each Premises and Location or any other agreed point(s) of delivery, where applicable
(iii) Issues relating to future deliveries of the Goods and any issues incurred in the month immediately prior to such meeting;
(iv) Delivery schedules,
(v) Invoicing,
(vi) Production/manufacture date,
(vii) Batch expiry date,
(viii) Batch number
(ix) Product data sheet,
(x) Material Safety Data Sheet(s),
(xi) Certificate of analysis/testing,
(xii) Delivery information such as tracking number,
(xiii) Proof of delivery,
(xiv) Overview of any innovation, product performance/enhancement, service redesign and horizon plans,
(xv) Supplier input/issues on Contract performance, and

(xvi) Discuss such other matters as the parties may consider appropriate.

2.7.2 The Supplier shall provide to the Authority, on a monthly basis, 2 (two) Business Days prior to each meeting, a management report in the same or similar format as Appendix C – Management Information Reporting together with any other pertinent information.

2.7.3 The Supplier shall attend such other ad hoc formal and informal meetings as maybe requested by the Authority from time to time.

2.7.4 At the Authority's request, within five (5) Business Days of such request, the Supplier shall provide such management information to the Authority as the Authority may reasonably request from time to time.

## 3. CONFIDENTIAL INFORMATION (if applicable)

**(3.1) The following information shall be deemed Confidential Information:**

- Supplier pricing.
- Contact details including, but not limited to, email addresses, landline / mobile phone numbers, etc. of Supplier representatives
- Contact details including, but not limited to, email addresses, landline / mobile phone numbers, etc. of Authority's representatives

**(3.2) Duration that the information shall be deemed Confidential Information:**

For a period of three (3) years after the expiry or earlier termination of this Contract unless otherwise agreed in writing by the Parties.

## 4. DATA PROCESSING (if applicable)

**(4.1) Personal Data to be processed by the Supplier:**
In accordance with the Data Protection Protocol.

## 5. LEASE / LICENSE (if applicable)

**(5.1) The Authority is granting the following lease or licence to the Supplier:**

Not applicable.

| For and on behalf of the Authority | For and on behalf of the Supplier |
| --- | --- |
| [redacted] | |

## Annex A

## Order Specific Key Provisions

**N/A**