Award

Sequencing Technologies in Clinical Research

THE UNIVERSITY OF BIRMINGHAM

F15: Voluntary ex ante transparency notice
Notice identifier: 2024/S 000-038813
Procurement identifier (OCID): ocds-h6vhtk-04c19f
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Section I: Contracting authority/entity

I.1) Name and addresses

THE UNIVERSITY OF BIRMINGHAM

Edgbaston

BIRMINGHAM

B152TT

Contact

Kseniya Samsonik

Email

K.Samsonik@bham.ac.uk

Country

United Kingdom

Region code

UKG31 - Birmingham

UK Register of Learning Providers (UKPRN number)

10006840

Internet address(es)

Main address

www.bham.ac.uk

I.4) Type of the contracting authority

Body governed by public law

I.5) Main activity

Education

Section II: Object

II.1) Scope of the procurement

II.1.1) Title

Sequencing Technologies in Clinical Research

Reference number

SC13310/24

II.1.2) Main CPV code

- 38000000 - Laboratory, optical and precision equipments (excl. glasses)

II.1.3) Type of contract

Supplies

II.1.4) Short description

Nanopore-based sequencing has become a highly effective next generation sequencing tool for biological research. Nanopore sequencing converts the electrical signals generated by a nucleotide strand (either DNA or RNA) passing through the nanopore into the base sequence.

This methodology was exclusively commercialized by Oxford Nanopore Technologies, allowing sequencing of long reads with real-time sequence detection and analysis. It can also provide base modification detection. The technique has short sample preparation times with low instrument costs.

The technology is a relatively new, rapidly expanding and groundbreaking, with ~79% of nanopore-related literature published within the last 5 years (determined from PUBMED publication stats).

The design of nanopore devices has given this technology greater versatility/flexibility than other sequencing platforms. Allowing work to occur out in the field (using a portable sequencing device) or within a traditional lab research setting. A portable version of Nanopore have been used in randomised clinical trial to produce real-time near-complete genome sequencing of viruses isolated from clinical samples. This study suggests a future role of this portable technique in virus infection monitoring for early detection in diverse populations. As well as analysis of human samples and long-read sequencing of bacterial genomes.

Prof Beggs research group has been as the forefront of the optimisation and deployment of Nanopore sequencing technologies in clinical research. This work that has been disseminated in multiple peer-reviewed publications (in 2018, 2020, 2021 and 2023). Beggs group have used this unique technology to address existing clinical questions such as "how we can improve HLA typing, by potentially reducing process time and cost", aiming to generate a rapid single-tube assay?

Nanopore dependent-research (within Cancer and Genomic Sciences) and service support (from Genomics Birmingham) are essential for our work and supporting the sequencing of internal and external clients, now and moving forward.

Illumina and Nanopore sequencing are currently used routinely within our labs. Both rapidly sequence DNA or RNA and produced rapid and highly accurate genomic, transcriptomic and epigenomic data.

II.1.6) Information about lots

This contract is divided into lots: No

II.1.7) Total value of the procurement (excluding VAT)

Value excluding VAT: £3,000,000

II.2) Description

II.2.2) Additional CPV code(s)

- 71900000 - Laboratory services

II.2.3) Place of performance

NUTS codes

- UKG - West Midlands (England)

II.2.4) Description of the procurement

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Illumina and Nanopore sequencing are currently used routinely within our labs. Both rapidly sequence DNA or RNA and produced rapid and highly accurate genomic, transcriptomic and epigenomic data.

Below are some of the specific, unique properties of Oxford Nanopore technologies (using either the GridIon or PromethION 24 sequencers).

1. Nanopore devices (GridIon, MinION and PromethION 24) can sequence native DNA and RNA from fragment sizes of 20 bp to millions of bases for up to 5 independent MinION or Flongle Flow Cells or 24 independent PromethION Flow Cells, gaining coverage of ~30X per human genome per flow cell.

2. The allow direct, PCR-free sequencing of DNA and RNA

3. Providing standard (FASTQ and BAM) output files, the latter including epigenetic modifications for 5mC and 5hmC methylation apart from the standard bases.

4. They perform Real-time sequencing, with integrated compute enabling real-time basecalling including modifications (5mC and 5hmC, high accuracy basecalling model).

5. With real-time data analysis, e.g., aligning to reference directly from the device software.

6. Sequencing continues until a defined coverage is met and/or define a specific run time for your sequencing run.

7. Sequencing libraries can be used with any Oxford Nanopore device, allowing for instance to conduct library quality control on a lower capacity device prior to generating data on a high-capacity instrument.

8. There are rapid library preparation solutions (from 10 minutes) as well as automatable, high-throughput library preparation that can be performed on various liquid handlers from as little as 3.5 hours for 96 samples.

9. Post sequencing, the library can potentially be covered from the flow cell, and re-sequenced on another flow cell to increase output.

Nanopore technology is the only supplier of these unique products, equipment and support services, we need to continue our specific work.

II.2.11) Information about options

Options: No

II.2.14) Additional information

750,000.00 per annum based over 4 years.

Section IV. Procedure

IV.1) Description

IV.1.1) Type of procedure

Negotiated without a prior call for competition

- The products involved are manufactured purely for the purpose of research, experiment, study or development

Explanation:

Nanopore technology is the only supplier of these unique products, equipment and support services, we need to continue our specific work. We require this VEAT to allow us access to these niche products/ services, so we can continue to support cutting-edge research.

IV.1.8) Information about the Government Procurement Agreement (GPA)

The procurement is covered by the Government Procurement Agreement: No

Section V. Award of contract/concession

A contract/lot is awarded: Yes

V.2) Award of contract/concession

V.2.1) Date of conclusion of the contract

2 December 2024

V.2.2) Information about tenders

The contract has been awarded to a group of economic operators: No

V.2.3) Name and address of the contractor/concessionaire

Oxford Nanopore Technologies

Oxfordshire

Country

United Kingdom

NUTS code

- UKJ - South East (England)

Companies House

14680804

The contractor/concessionaire is an SME

No

V.2.4) Information on value of contract/lot/concession (excluding VAT)

Total value of the contract/lot/concession: £3,000,000

Section VI. Complementary information

VI.3) Additional information

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Nanopore technology is the only supplier of these unique products, equipment and support services, we need to continue our specific work. We require this VEAT to allow us access to these niche products/ services, so we can continue to support cutting-edge research. This will potentially lead to the development of new Genomics Birmingham Nanopore services for both research and clinical projects in the near future.

VI.4) Procedures for review

VI.4.1) Review body

University of Birmingham

Edgbaston

B15 2TT

Country

United Kingdom