

TECHNICAL SPECIFICATIONS FOR CONTRACTING THE SERVICE OF SEQUENCING AND QUALITY CONTROL OF LIBRARIES FOR THE PROJECT "UNDERSTANDING THE HOST-ENVIRONMENTAL INTERACTIONS ACROSS THE LIFESPAN DETERMINING LUNG FUNCTION TRAJECTORIES AND COPD (PredictCOPD)", OF THE UNIVERSITAT DE BARCELONA

EXPEDIENT 2025/80

The purpose of this document is to establish the technical requirements that govern the procurement procedure for a sequencing service for the project 'Understanding the host-environmental interactions across the lifespan, determining lung function trajectories and COPD (PredictCOPD)', with number GA 101044387, funded by the European Commission, Horizon Europe-ERC-2021-CoG.

1. Background

The project "Understanding the host-environmental interactions across the lifespan, determining lung function trajectories and COPD" (101044387), funded by the European Union, has as one of its objectives to perform a genomic analysis of liquid biopsy in individuals from different cohorts in order to monitor the balance between lung injury and repair.

It is possible to detect, in blood plasma, cell-free DNA, as well as cell-free RNAs, which regulate gene expression.

2. Purpose of the contract

The purpose of the contract is to contract the sequencing and quality control service for DNA libraries prepared using the KappaHyperprep (Roche) kits. Given the small amount of sample and the high number of reads required per sample, the use of a NovaSeqX sequencer or similar is required.

Since the University of Barcelona does not have a sequencer of this type and it is not advisable to expand existing resources, it is proposed to contract this service through an external company.

3. Technical requirements of the service to be contracted

Below are the minimum technical specifications of the service to be hired:

- **Materials:**

The libraries will be provided by the research team of the University of Barcelona and will be sent to the awarded company in 96-well plates of 0.2ml. Additionally, the necessary information will be sent, including the barcode codes (dual index i7/i5) used for each sample (library). The libraries will be sent in fractions depending on the needs during the validity of the project.



- Activities and functions of the contracting company:

- The functions that the contracting company must assume are the following:
- Quality control of the libraries.
- Sequencing of the libraries.
- Demultiplexing of the sequences obtained per sample according to the barcodes provided by the University of Barcelona.
- Delivery of the files (in hard disk format) of sequences of each sample, including information on the reads obtained for each sample within the deadlines indicated in these specifications.

- Equipment and personnel:

The contracting company must have sufficient technical, material and personal resources to carry out the tasks covered by this contract.

- Protocol:

The protocols are those that guarantee the safety of workers, the reproducibility of the results obtained, and correct handling of the samples, avoiding degradation of nucleic acids.

1. Description and technical characteristics

The sequencing of DNA libraries includes:

1. Quality control of the libraries that consists of measuring their length using TapeStation type electrophoresis or similar.
2. The sequencing of the libraries must be with Paired End reads, 2x150bp and an estimated 120M reads per sample. It is expected to generate 36Gb per sample (i.e. per library).
3. It is expected to add a % of PhIX or run control according to the protocol.
4. The delivery time of results for each batch of samples (libraries) will be a maximum of 6 weeks from the date of shipment.
5. Quality control of the sequence data, demultiplexing and delivery via external hard drive or similar.

2. Collection and transport of samples

The company awarded this contract must provide the service of collection and transport of samples, DNA sequencing analysis, and sending of results.

The awardee is responsible for having the authorizations required by the regulations for the transport of the samples and for carrying it out in the appropriate conditions to avoid possible problems that may lead to alterations in them or their loss.

The UB and the awarded company, through the designated responsible persons, will agree on the collection system for the libraries.



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