CENTRE FOR
Tropical Bioinformatics and Molecular Biology

Long-read Sequencing for Research in the Tropics : Round 4

The Centre for Tropical Bioinformatics and Molecular Biology is once again offering its members the chance to win access to **free long read sequencing** using an Oxford Nanopore sequencer. This time the centre has four MinION flow cells and reagents for standard ligation library prep.

Nanopore sequencing is a type of single molecule nucleic acid (DNA or RNA) sequencing that offers ultra-long reads, rapid operation and relatively high total throughput. Oxford Nanopore develops a range of instruments for nanopore sequencing including the MinION, which is highly portable (phone sized), inexpensive and flexible -making it particularly suited to molecular biology in the tropics.

Access grants details

CTBMB has four MinION flow cells as well as basic reagents for preparing DNA sequencing libraries. These will be used to support small sequencing projects using the MinION. Applications are encouraged from all CTBMB members, however, you will need to be relatively self-sufficient with the associated labwork. If you are unsure whether the system is appropriate for your research you should first explore examples listed here https://nanoporetech.com/applications or seek advice from ira.cooke@jcu.edu.au.

Assessment criteria;

- The project leader should be a member of the CTBMB. Non-members can submit a membership application online via https://forms.gle/283UUmvfTd5qh1s19
- MinION sequencing should offer significant enhancements to the project compared with other sequencing platforms (eg in terms of cost-effectiveness, overall quality of the final result, unique findings only possible with long read technology, portability)
- Project outcomes should be clearly identified and feasible, for example;
    - Validation of a method that will have high utility if successful
    - Direct outcomes that could not have been achieved with other technologies
    - Realistic, small proof of concept projects that support future grant applications

- Projects should be self-sufficient other than the MinION sequencer, flow cell and sequencing kit. These requirements include basic lab facilities and expertise to prepare DNA (e.g., high molecular weight DNA extraction).
- Flow cells have a limited shelf life so it is important that projects are able to **start sequencing within 1 month**.
- Access grant awardees should aim to present results at the CTBMB conference

Submission and assessment process:

Grant applications should be a single page or less. Submit your application by email to ira.cooke@jcu.edu.au no later than 15th March 2024.

Applications will be assessed by the CTBMB executive team and applicants will be notified of the outcome by 1st April 2024.

CTBMB Long Read Access Grant: Application Template

Applications should follow the template below and should be no more than 1 single sided A4 page when complete.

Project Title:

Significance:

Provide a brief introduction to the project and describe how long read (and/or portable) sequencing will help achieve its overall aims. If there are any unique features of the MinION system that are a particularly good fit for the project describe those here.

Project plan:

Describe the sample(s) that you would like to sequence (eg species, tissue type), the data you expect to obtain (eg whole genomic reads from a single species, full length amplicons, full length transcripts), and (in broad terms) what it will be used for (eg de novo genome assembly, whole metagenome analysis, haplotype phasing etc).