



CENTRE FOR Tropical Bioinformatics and Molecular Biology

Single-cell sequencing for Research in the Tropics

The Centre for Tropical Bioinformatics and Molecular Biology (CTBMB) at James Cook University has partnered with AGRF to provide **free access to single-cell sequencing** using the Chromium 10x system. This includes preparation of RNA libraries from single-cells as well as subsequent sequencing on an Illumina platform.

The 10x Chromium system uses a combination of microfluidics and barcoded beads to specifically tag individual transcripts, cells and samples. Each microfluidics chip has 8 lanes each of which can be loaded with between 500 and 10000 cells, allowing cell heterogeneity to be explored in amazing detail.

More information about the technology is provided on the 10x genomics website <https://www.10xgenomics.com/>.

The CTBMB would like to support pilot projects to explore the viability of this technology across a range of applications. It is anticipated that we will be able to support up to four projects each of which will be provided with;

1. Single-cell library preparation for up to 5000 cells
2. Sequencing with a target depth of 20k reads per cell.

Participating researchers will need to prepare their own single-cell suspensions, and ensure that they are preserved appropriately for shipping to the AGRF facility in Melbourne.

Applications are encouraged from all CTBMB members. If you are unsure whether the system is appropriate for your research the following resources may be useful;

- Recording of a zoom webinar by Leo Chan from 10x <http://bit.ly/leochan10x>
- The 10x website <https://www.10xgenomics.com/>

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>

- Feasibility of proposed sample preparation workflow. Applicants should demonstrate that they have identified a protocol that is likely to work for their study system.
- Single cell sequencing should offer a significant enhancement to your research agenda. We recognise that a small pilot project such as this may be insufficient to provide new insights but you should provide details of how the pilot data will be used to support future funding proposals for a full scale project.
- Projects should be self-sufficient up to the point of preparing samples ready to be shipped to AGRF.
- Access grant awardees will be required to present results at the CTBMB conference in 2021. Preference will be given to awardees that are willing to share their pilot data for the purposes of developing training courses for data analysis.

Submission and assessment process:

Grant applications should be a single page or less. Submit your application by email to CTBMB@jcu.edu.au no later than 1st November 2020.

Applications will be assessed by the CTBMB executive team and applications will be notified of the outcome by 10th November 2020.