

2017 Single Cell Genomics RFA

The GRCF is excited to announce the award of \$25,000 in Core Coins as a funding mechanism to help accelerate investigation and discovery in the area of single cell genomics. Core Coins is a program designed to encourage investigators to access core services and facilities that help to address small but critical gaps in basic, clinical and translational research currently not funded by other sources. Applications for the competitive funds are **due to the GRCF Biorepository & Cell Center no later than Thursday August 31, 2017 at 5pm.**

Three years ago, the GRCF introduced a service offering genomic analysis of single cells, including RNA-seq, gene expression profiling by qPCR and DNA amplification for whole-genome or targeted (exome or PCR-based analysis). To this end, in the spring of 2016, the GRCF acquired a 10x Genomics Single-Cell system, a new technology allowing for single-cell capture rates not available through commercial alternatives. This system offers a high throughput molecular barcoding and analysis suite that delivers cell-by-cell 3' counting of mRNA transcripts for many tens of thousands of cells per run. The platform supports a broad range of applications, including cancer-cell transcriptomics and cell-type identification and discovery. More recently, 10x Genomics released the V(D)J solution aimed at being a scalable tool for profiling full-length paired V(D)J transcripts from hundreds to millions of lymphocytes. The solution enables assembly of full-length V(D)J sequences on a cell-by-cell basis, providing high resolution insights into the adaptive immune system. Because the 10x Genomics Single-Cell platform works with short read sequencers, it integrates easily into the existing GRCF RNAseq workflow. To date, the GRCF has performed more than 75 successful unique single-cell capture experiments utilizing this powerful technology.

As part of this RFA, the GRCF will offer awards for the capture and library preparation of **8** specimens. These awards will be divided, based on received applications, to award funds for single-cell captures utilizing the 10x Genomics platform for **one or two specimens** (awarding a total of 4-8 investigators). ***The cost of downstream RNA sequencing and analysis through the 10x Genomics pipeline would be the responsibility of the awardee.*** A single sample with a cell capture rate of ~6000 cells could be sequenced and analyzed by the 10x Genomics pipeline for a cost of \$3,400 (targeting 100,000 reads per cell) through the GRCF.

The recipient of the Core Coins award will be selected based on project, need, time to completion, agreement to recognize the Core Coins program and the GRCF in any publications generated as a result of the funding and, depending on the stage of research, presentation of results at the annual GRCF research symposium.

In order to apply, a one-page statement of research and how awarding of the coins would help bridge gaps currently not funded by other sources, would be required. Preferences will be made for junior faculty lacking full support, data needed to strengthen a grant application, new faculty with specific needs or supporting data needed for publication. Applicants will be reviewed by a GRCF panel and promptly notified of an award and timetable for utilization. [The application should identify the cell type and species and expected timetable to completion] Please email all applications to Melissa V. Olson, Ph.D. at mvolson@jhu.edu.