

## CASCA BD Rhapsody Services

### CASCA BD Rhapsody Single Cell mRNA & Protein “Multi-omics” Analysis Services

We have partnered with BD to offer very attractive pricing for all BD Rhapsody (BDR) Multi-omics reagents. Their cartridges and kits come in packages of four. Therefore, we have two Service plans:

- √ Consider our Basic Service option if you plan to run >4 BDR experiments as part of a large project. You can potentially obtain high-volume discounts to purchase multiple 4-experiment kits directly from BD
- √ Choose the Standard Service Option if you plan to run <4 BDR experiments to avoid having to buy an entire 4-experiment kit

If you would like a consultation and/or quote for our Basic or Standard BDR Multi-omics service, [please register with our iLab](#) and go to the Request Services page.

- You will be asked to provide a brief description of your cell types, desired assay type (WTA or Targeted), approximate number of cells to capture, and use of BD reagents for sample multiplexing or Ab-Seq.

More details on our services and pricing are provided below.

#### **BDR Basic Service \$350/experiment:**

This service includes:

- √ CASCA tech time for single cell capture and cDNA synthesis with QC report
- √ On the scheduled experiment date, please provide us with:
  - A suitable single cell suspension, pre-labeled with Sample Tag and/or Ab-Seq reagents as appropriate for your experiment
  - Please pre-purchase these reagents directly from BD:

Cat No.	Description
633733	BD Rhapsody™ Cartridge Kit
633731	BD Rhapsody™ Cartridge Reagent Kit
633773	BD Rhapsody™ cDNA Kit

- √ Quality Control (QC): The Rhapsody performs automated cell counting to report on cell viability, number of cells actually captured and the % multi-plets
  - Use this QC report to base your sequencing depth calculations on the actual number of cells captured rather than the number loaded

#### **BDR Standard Service ~\$1,900 Base Price/Experiment:**

This service includes:

- √ Initial consultation on how to optimize cell preparation, experimental design and cost
- √ Optional Sample Multiplexing: Multiplex up to 12 different mouse hematopoietic samples (anti-CD45 antibody tag) OR human nucleated cells (universal tag) in one experiment *prior to single cell capture*.
  - This option adds \$300/sample to the Base Price for Sample Tag reagent and extra labor but:
    - Reduces batch effects by simultaneously running controls and experimental samples at the same time

## CASCA BD Rhapsody Services

- Reduces cost per sample by generating scRNA-Seq libraries after multiplexing cell suspensions from different samples
- Improves detection and elimination of multi-plets from the data
- √ Optional Protein Expression: We can pre-label cells with up to 40 Ab-Seq to deeply profile surface protein expression by each cell captured and sequenced.
  - BD offers a 15% discount off their list price for Ab-Seq reagents to CASCA clients
- √ Single cell capture, mRNA extraction & cDNA synthesis
- √ QC report on report on cell viability, number of cells captured and the % multi-plets
  - Use this report to base your sequencing depth calculations on the actual number of cells captured rather than the number loaded

Here are estimated Total costs of a Standard BDR Experiment based on the number of Cell Suspensions (samples) captured in a single cartridge:

- √ *Note that the cost/sample declines as you increase the number of samples to be multiplexed in a single experiment*

# of Cell Suspensions	Cost Per Experiment	Cost Per Suspension	Max Cells/ Experiment	Max Cells/ Suspension
1	\$ 1,900	\$ 1,900	20,000	20,000
2	\$ 2,570	\$ 1,285	40,000	20,000
3	\$ 2,870	\$ 957	40,000	13,333
4	\$ 3,170	\$ 793	40,000	10,000
5	\$ 3,470	\$ 694	40,000	8,000
6	\$ 3,770	\$ 628	40,000	6,667
7	\$ 4,140	\$ 591	40,000	5,714
8	\$ 4,440	\$ 555	40,000	5,000
9	\$ 4,724	\$ 525	40,000	4,444
10	\$ 5,009	\$ 501	40,000	4,000
11	\$ 5,293	\$ 481	40,000	3,636
12	\$ 5,577	\$ 465	40,000	3,333

### BDR Library Preparation & Sequencing at the Centre for Applied Genomics (TCAG)

- If you are satisfied with the quality and quantity of cells captured, we will transfer your cDNA to TCAG to prepare and sequence your BDR single cell libraries
  - TCAG typically charges \$750 to prepare mRNA and Ab-seq libraries per BDR experiment
  - TCAG will provide a quote for sequencing costs, which will depend on the number of cells captured, the sequencing depth you require and your choice of Illumina sequencing platforms and flow cell types
  - [Consult our FAQ in iLab](#) for estimated sequencing costs for typical WTA and gene-targeted BDR experiments
- √ *Please contact [Tara Paton](#) at SickKids' [The Centre for Applied Genomics \(TCAG\)](#) for formal quotes and to schedule preparation and sequencing of your BD Rhapsody libraries*

**Bioinformatics Options for Analysis of BDR scRNA-Seq and Protein Data**

- Use existing bioinformatics tools and R pipelines to analyze the raw FASTQ sequencing data files and generate .BAM files of aligned R1 and R2 reads as well as a .csv table containing #molecules/cell
- Alternatively, ask a BD bioinformatician to run a Seven Bridges pipeline to generate .BAM files of aligned R1 and R2 reads as well as .csv tables showing transcript count, quality control metrics, filtered or unfiltered molecules/cell and reads/cell
- Use the molecules/cell .csv file to perform downstream clustering and differential expression analysis using:
  - standard R bioinformatics pipelines OR
  - SeqGeq™, BD's desktop bioinformatics platform for scRNA-Seq data that uses an intuitive FlowJo-like interface
  - For more information about SeqGeq™ click [here](#)