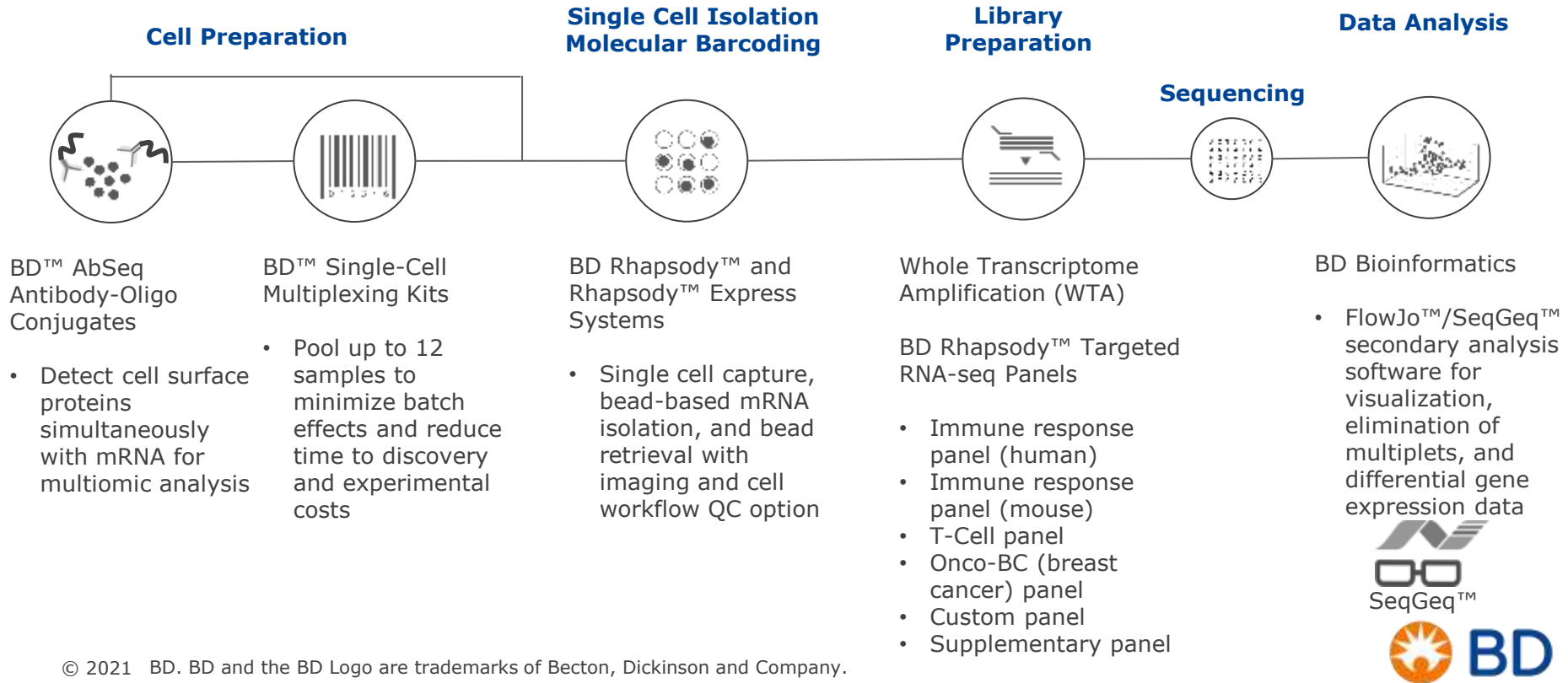


Discovering New Biology with Multiomic Single Cell Sequencing

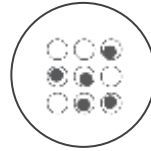
Natalia Bocharova
Application Specialist, BD Biosciences

Single cell end-to-end workflow with informatics increases experimental power for researchers



Single cell analysis with the BD Rhapsody™ and BD Rhapsody™ Express

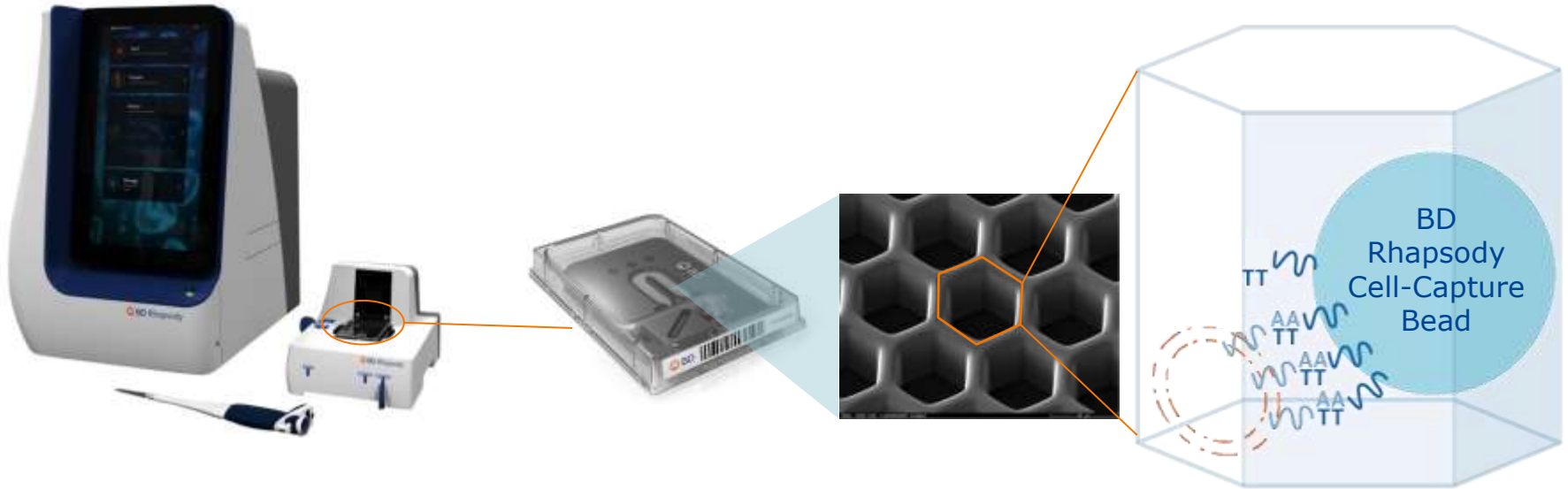
Single Cell Isolation Molecular Barcoding



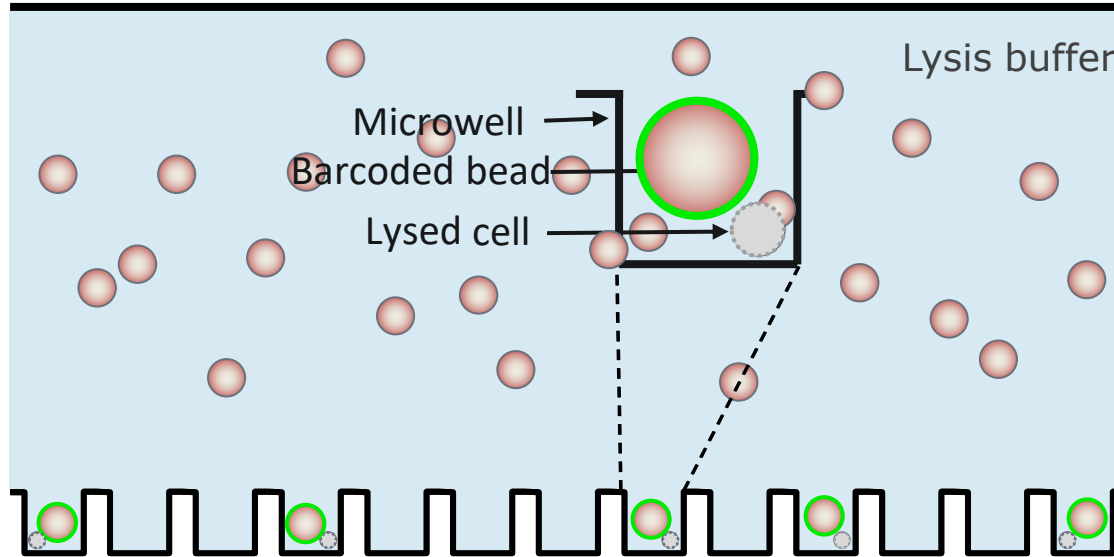
BD Rhapsody™ and
Rhapsody™ Express
Systems

- Single cell capture, bead-based mRNA isolation, and bead retrieval with imaging and cell workflow QC option

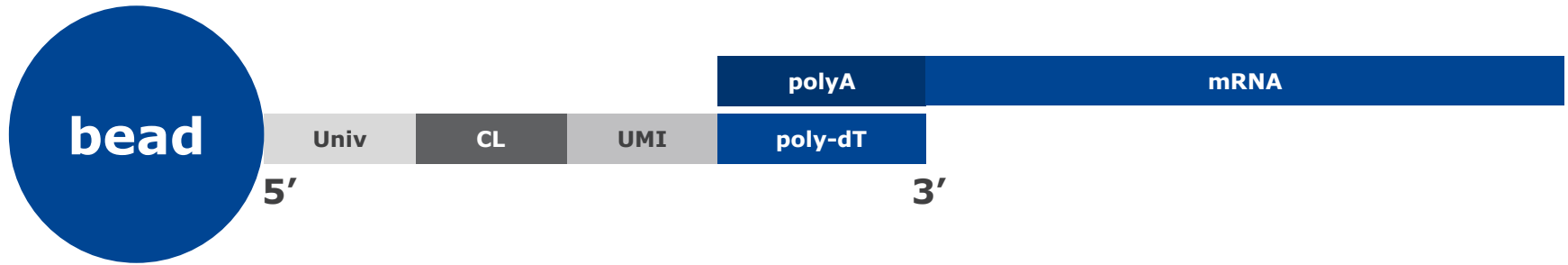
mRNA is captured by oligo-dT sequences on beads



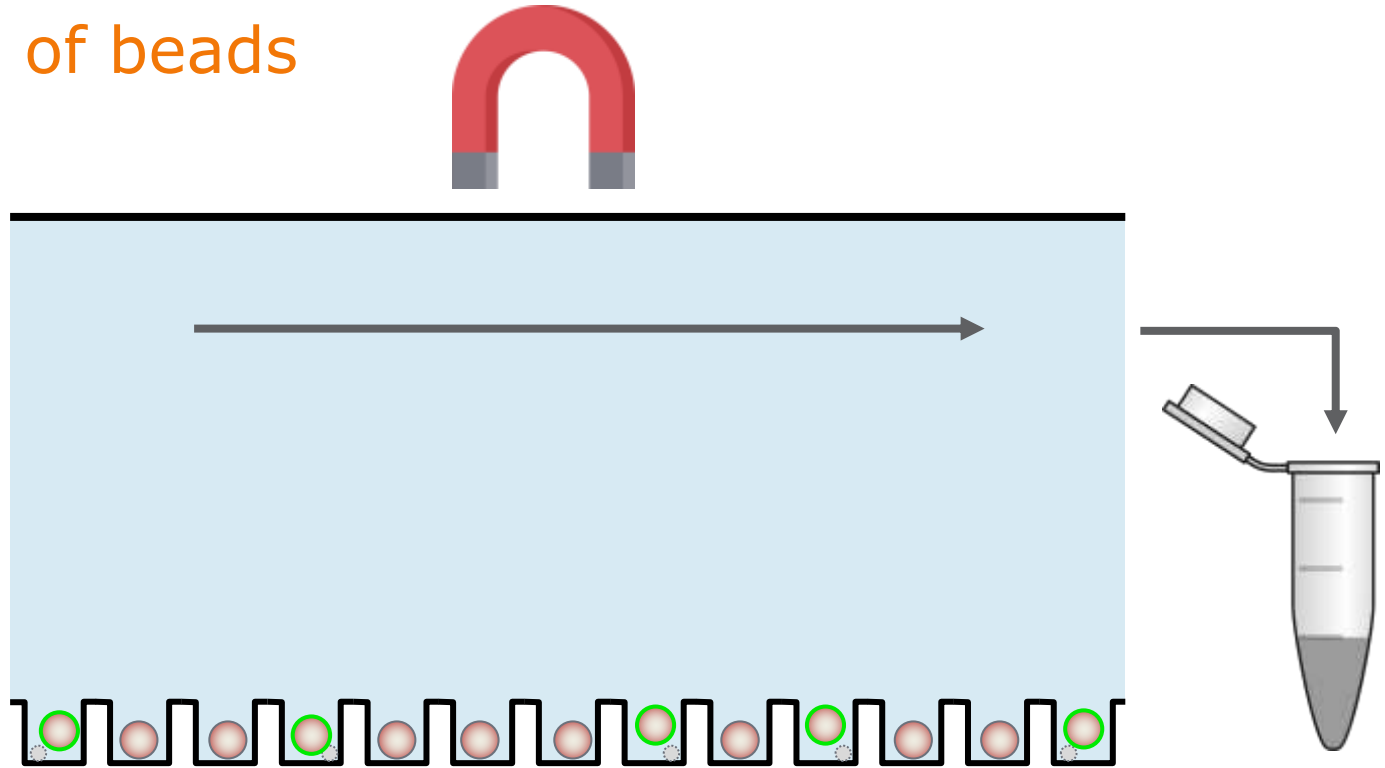
Cell and bead loading, Lysis and mRNA hybridization



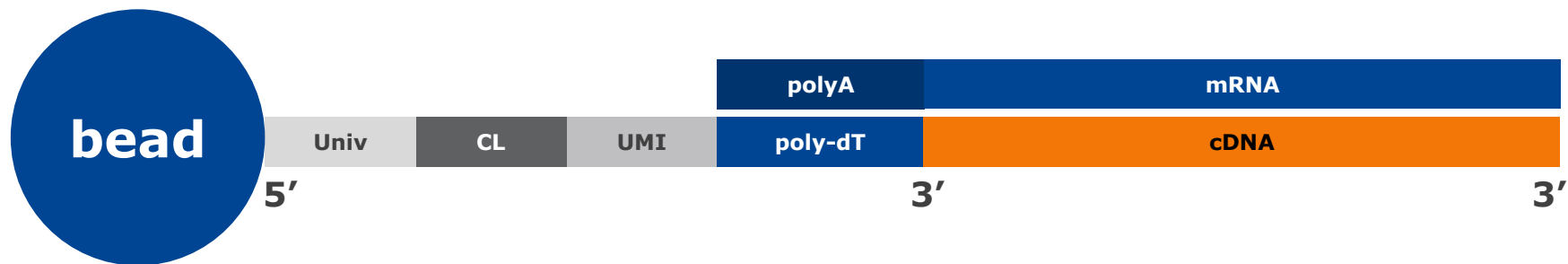
mRNA capture on bead



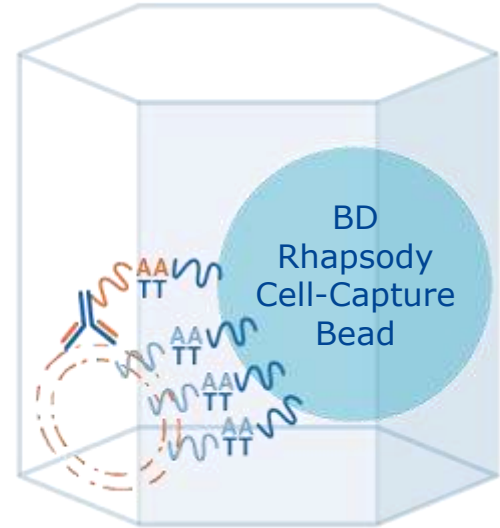
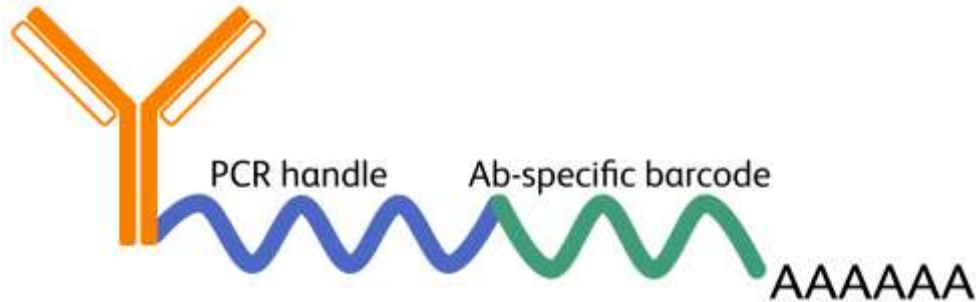
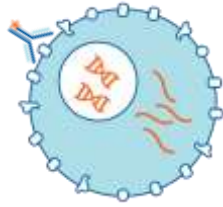
Retrieval of beads



cDNA synthesis on bead



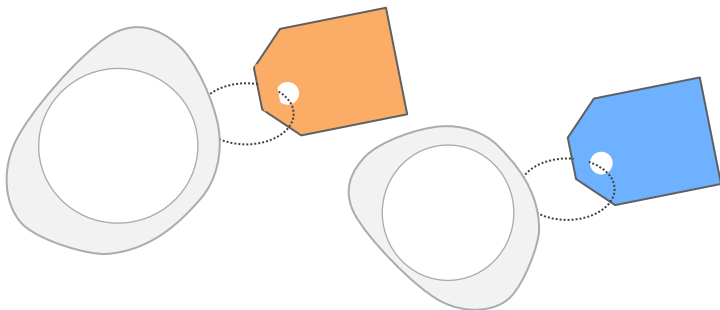
Using oligo-conjugated antibodies for protein information from high-throughput sequencing



BD's oligo-conjugated antibody technologies

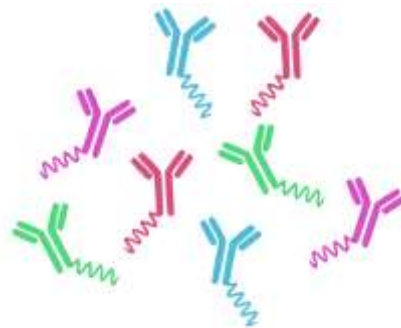
BD™ Human Single-Cell Multiplexing Kits

1 universal antibody, 12 sample-specific barcodes



- ✓ Increase throughput per single cell cartridge
- ✓ Lower reagent cost
- ✓ Reduce technical errors

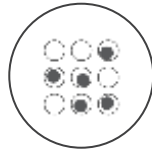
BD™ AbSeq



- ✓ Unique barcode conjugated to a variety of antibodies from BD's portfolio
- ✓ Simple panel design
- ✓ High parameter analysis along with RNA-seq

Multiple options for library preparation enables flexibility in experimental design

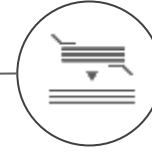
Single Cell Isolation Molecular Barcoding



BD Rhapsody™ and
Rhapsody™ Express
Systems

- Single cell capture, bead-based mRNA isolation, and bead retrieval with imaging and cell workflow QC option

Library Preparation



Whole Transcriptome
Amplification (WTA)

BD Rhapsody™ Targeted
RNA-seq Panels

- Immune response panel (human)
- Immune response panel (mouse)
- T-Cell panel
- Onco-BC (breast cancer) panel
- Custom panel
- Supplementary panel

Multiple options for library preparation enable flexible workflows for researchers

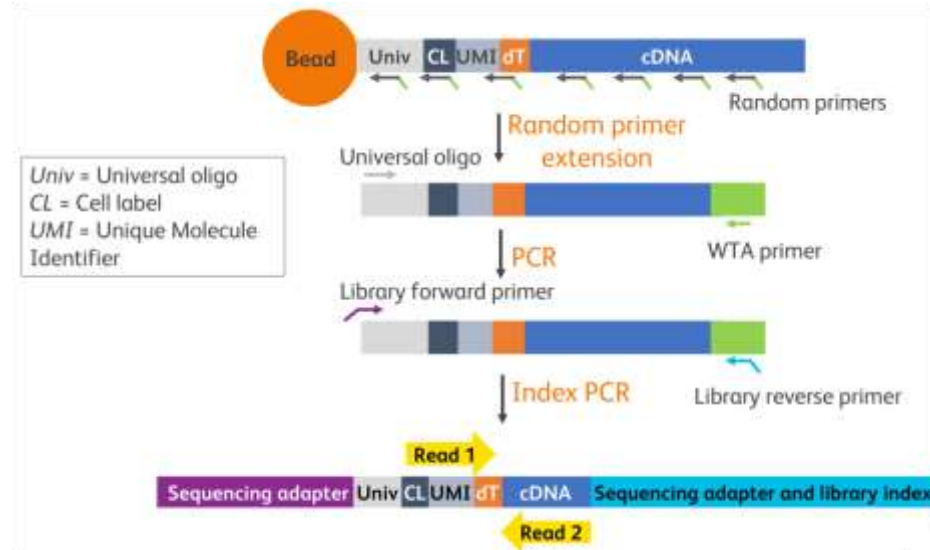
Library Preparation



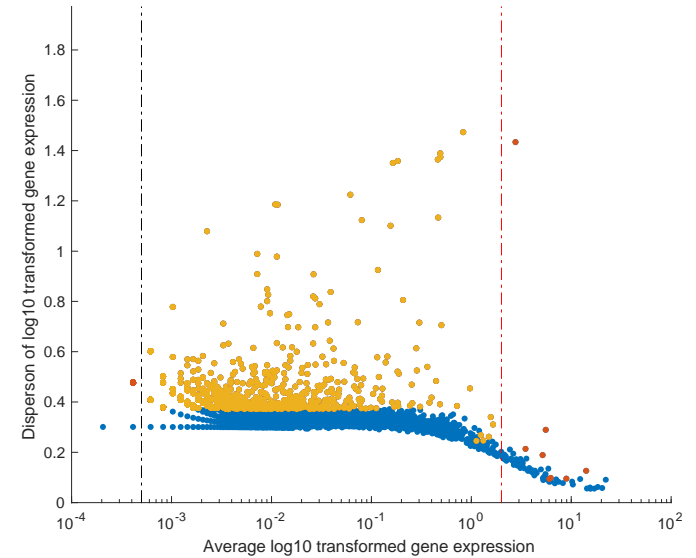
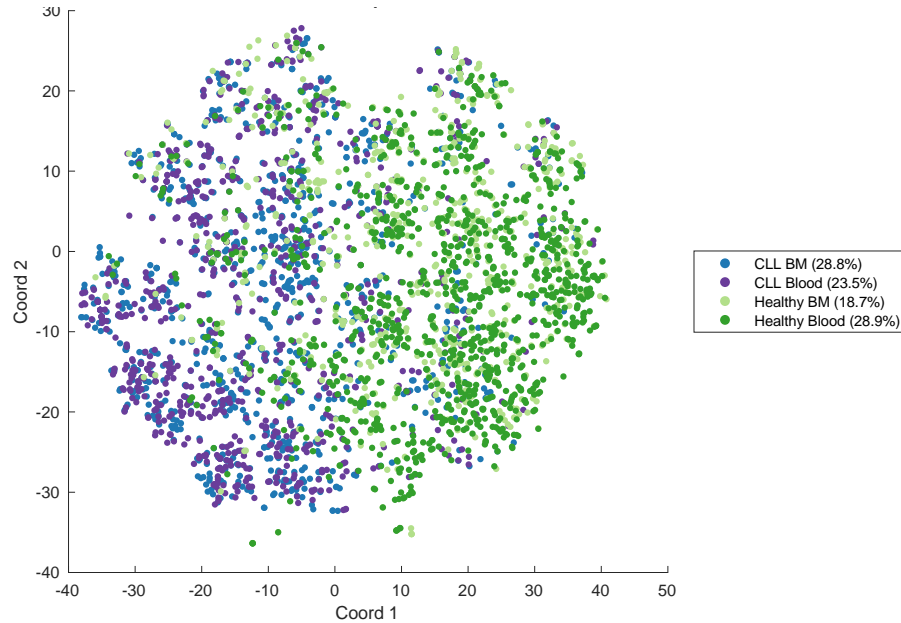
Whole Transcriptome Amplification (WTA)

BD Rhapsody™ Targeted RNA-seq Panels

- Immune response panel (human)
- Immune response panel (mouse)
- T-Cell panel
- Onco-BC (breast cancer) panel
- Custom panel
- Supplementary panel



WTA data can be mined to find a small set of highly variable genes that capture cell heterogeneity



- All genes (20,115)
- Genes meeting dispersion score but outside expression cutoffs (132)
- Genes selected (1,119)
- - - High expressor cutoff (2)
- · · Low expressor cutoff (0.0005)

Multiple options for library preparation enable flexible workflows for researchers

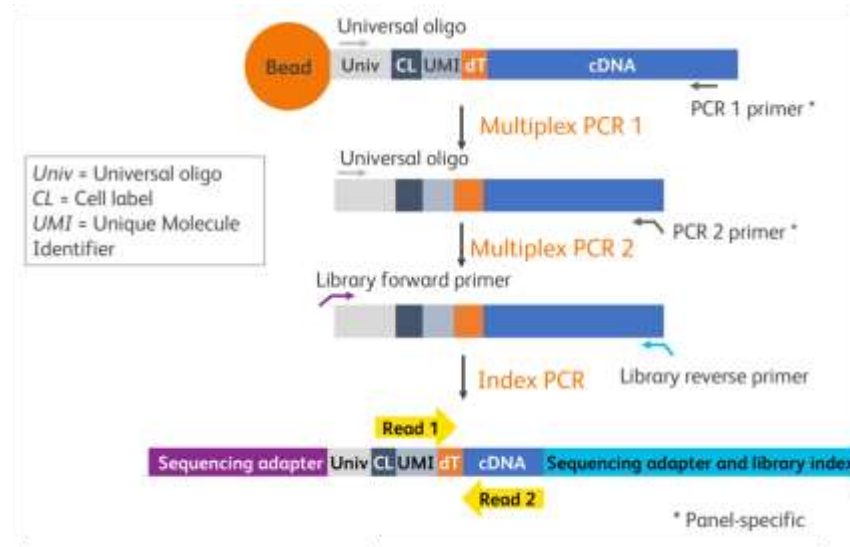
Library Preparation



Whole Transcriptome Amplification (WTA)

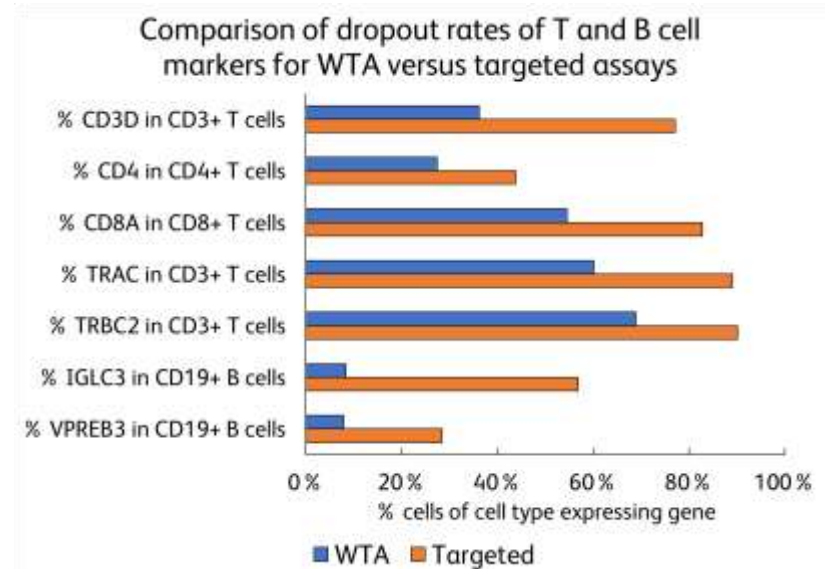
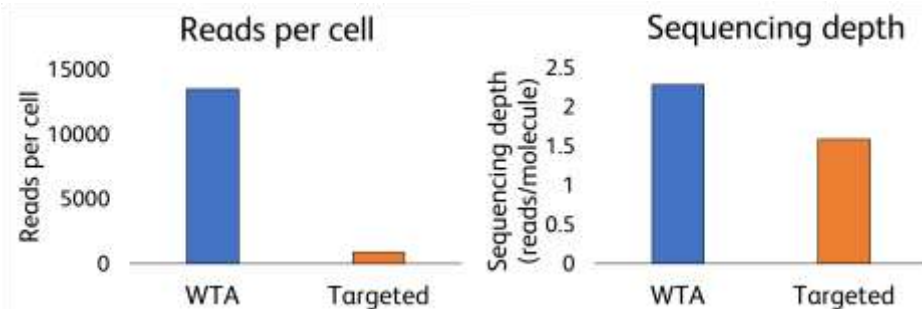
BD Rhapsody™ Targeted RNA-seq Panels

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- Custom panel
- Supplementary panel



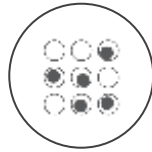
Harnessing key data collected from WTA analysis to increase experimental power with targeted panels

- Targeted panels can increase throughput, decrease sequencing cost, and capture rare transcripts



Simple SeqGeq interface helps users easily interrogate sequencing data

Single Cell Isolation Molecular Barcoding



BD Rhapsody™ and Rhapsody™ Express Systems

- Single cell capture, bead-based mRNA isolation, and bead retrieval with imaging and cell workflow QC option

Library Preparation

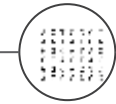


Whole Transcriptome Amplification (WTA)

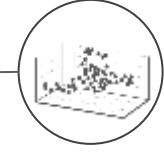
BD Rhapsody™ Targeted RNA-seq Panels

- Immune response panel (human)
- Immune response panel (mouse)
- T-Cell panel
- Onco-BC (breast cancer) panel
- Custom panel
- Supplementary panel

Sequencing



Data Analysis

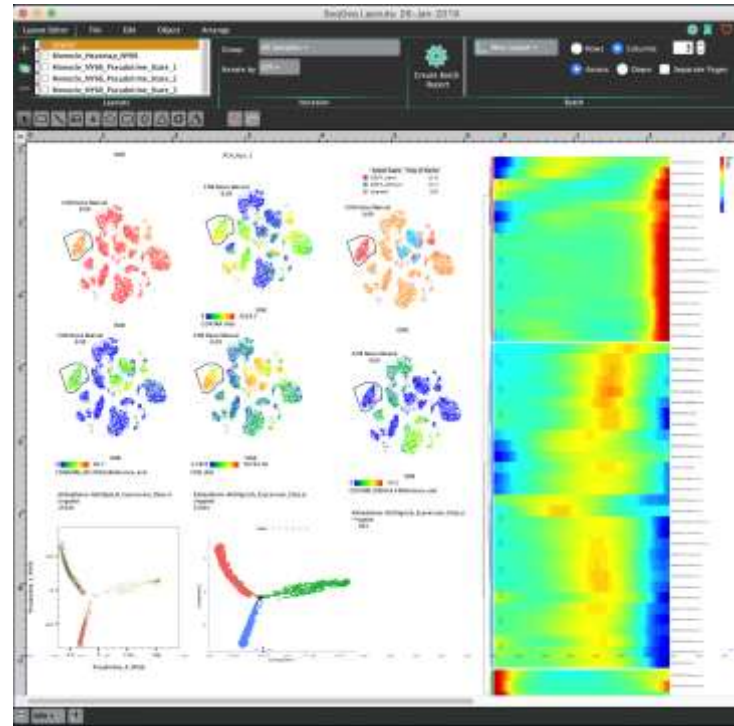
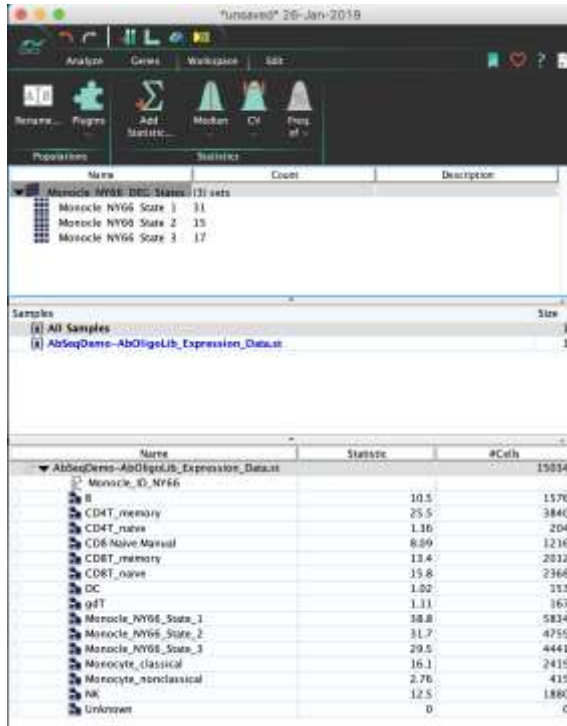


BD Bioinformatics

- FlowJo™/SeqGeq™ secondary analysis software for visualization, elimination of multiplets, and differential gene expression data

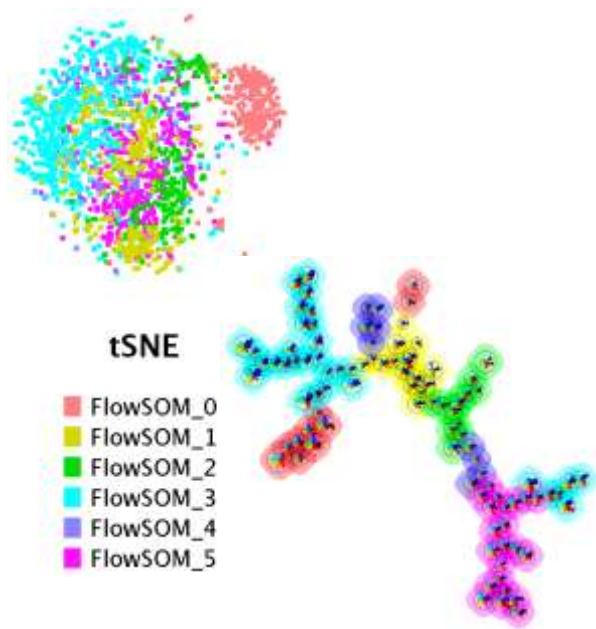


Simple SeqGeq interface helps users easily interrogate sequencing data

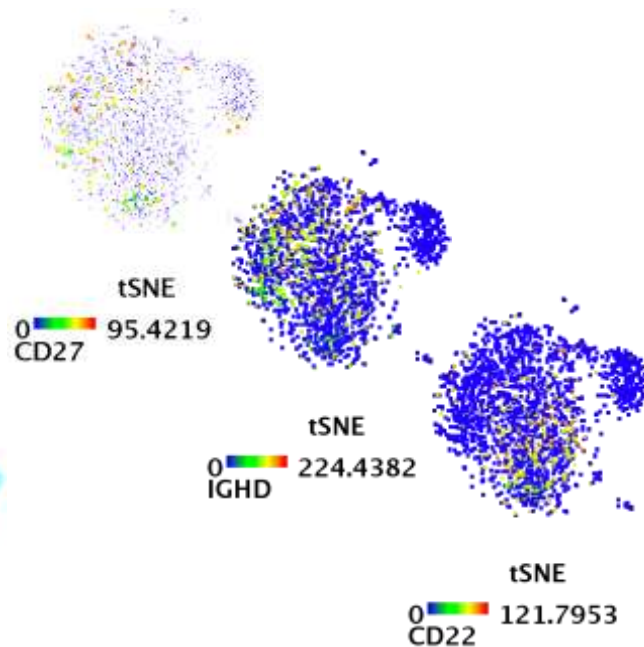


Identifying cell subsets in WTA data

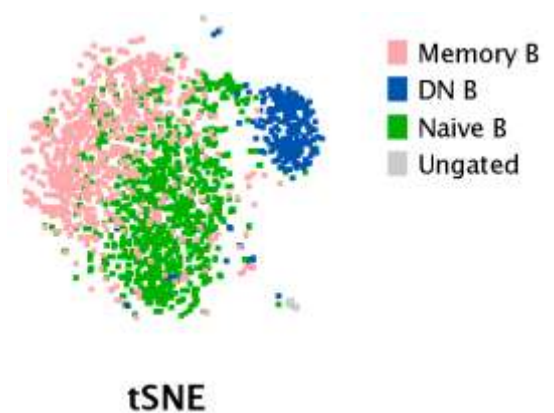
DimRedux
Lineage mapping



Gene expression
heat map



Cell type
annotation

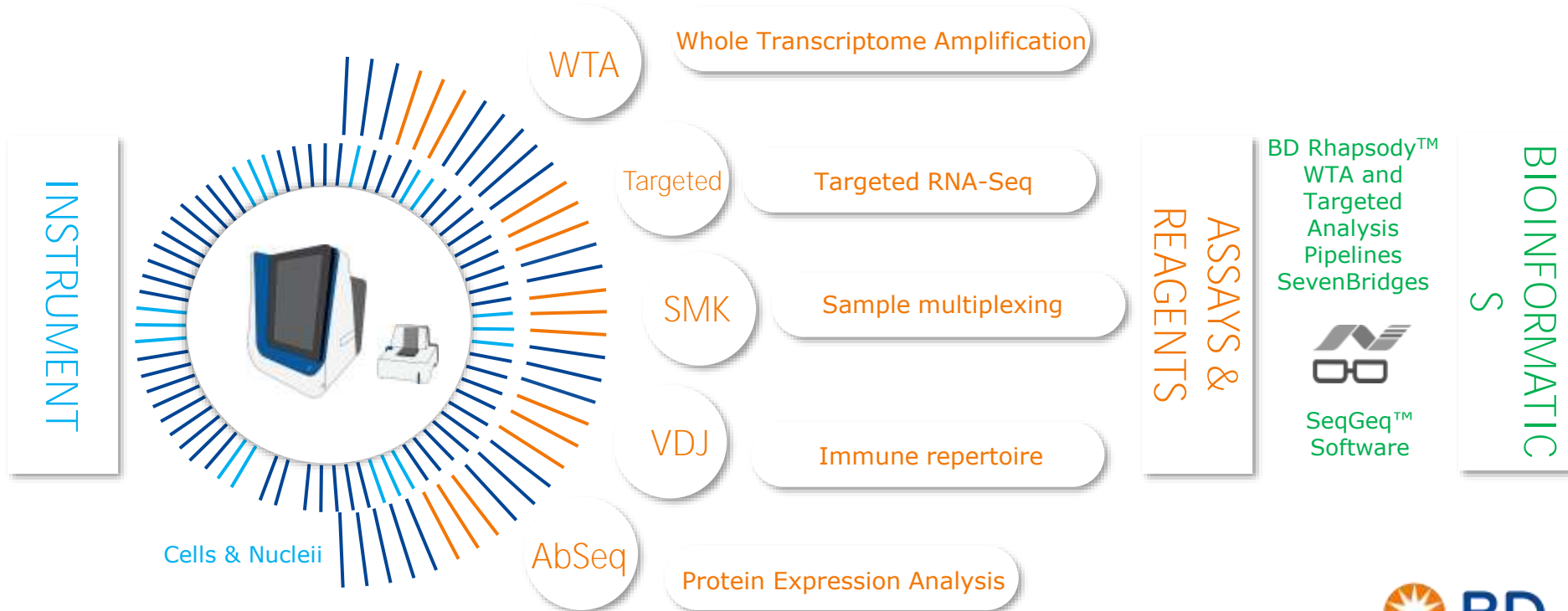


A complete single-cell multiomics offering

BD Rhapsody™ Single-Cell Analysis System

BD Rhapsody™ Assays & Reagents

BD Rhapsody™ Analysis Pipelines & SeqGeq™ Software





Thank you!

SCOMIX@bdscbd.com

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