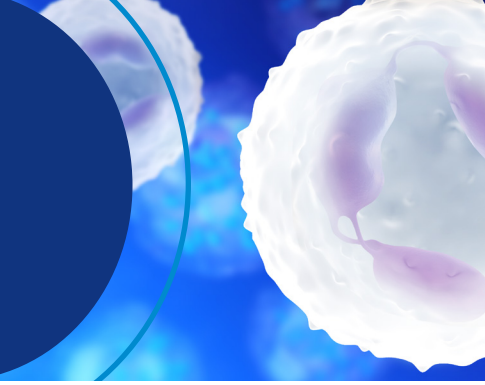
59-plex Adaptive Immunity Discovery Panel

BD® OMICS-One Adaptive Protein Panel



The power of protein + RNA without the high cost and complexity

Deep dive into adaptive cell immune biology using a validated panel that simplifies the CITE-seq workflow and minimizes your sequencing cost. As part of our family of BD® OMICS-One Protein Panels, this focused panel targets 59 key markers to uncover T- and B-cell populations of interest. Use this panel on its own or paired with other assays from our single-cell multiomics portfolio to explore adaptive immune cell populations and uncover their activation or suppression states with ease.

Flexible: Compatible with other BD® OMICS-One Protein Panels or drop-ins from growing library of more than 470 single-vial BD® AbSeq Antibody-Oligo Reagents

SMART: Designed to lower your sequencing cost without compromising sensitivity

Multiomics enabled: Optimized to work with whole transcriptome, targeted and TCR/BCR profiling RNA-seq assays for multiomics studies

Panel content

Specificity	Clone
CD1d	CD1d42
CD5	UCHT2
CD9	M-L13
CD10	HI10A
CD19	SJ25C1
CD20	2H7
CD21	B-LY4
CD22	HIB22
CD23	EBVCS-5
CD24	ML5
CD3	UCHT1
CD4*	SK3
CD8	SK1
CD25	2A3
CD28	L293
CD44*	L178
CD45RO	UCHL1
CD45RA	HI100
CD69	FN50
CD62L	DREG-56

Specificity	Clone
CD27	M-T271
CD30	BERH8
CD34	581
CD38	HB7
CD40	5C3
CD43*	1G10
CD73	AD2
CD79b	CB3-1
CD80	L307.4
CD95**	DX2
CD103	BER-ACT8
CD127	HIL-7R-M21
CD134	ACT35
CD137	4B4-1
CD154	TRAP1
CD161	HP-3G10
CD183	1C6/CXCR3
CD194	1G1
CD196	11A9
CD197	2-L1-A

Specificity	Clone
CD126	M5
CD138	MI15
CD184	12G5
CD185	RF8B2
CD268	11C1
CD275	2D3/B7-H2
HLA-DR*	G46-6
IgD	IA6-2
IgG	G18-145
IgM	G20-127
CD223	T47-530
CD272	J168-540
CD278	DX29
CD279	EH12.1
CD357	V27-580
CD366	7D3
TCRγ/δ	11F2
TCR Vα24-Jα18	6B11
TIGIT	TgMab-2

*Targets for SMART panel design

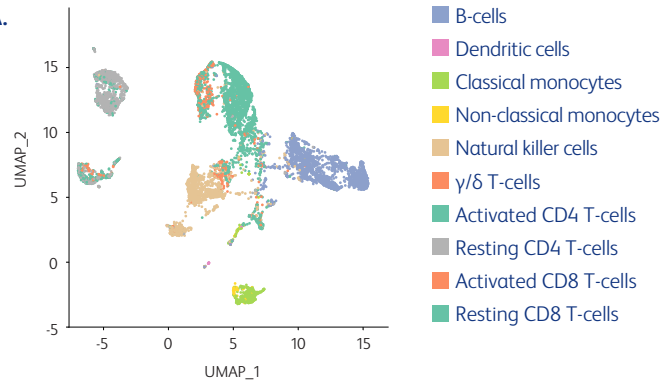
**The BD® OMICS-One Adaptive Protein Panel consists of two 30-plex protein panels: The BD® OMICS-One T-Cell Protein Panel and B-Cell Protein Panel. Both the T-cell and B-cell panel contain the same anti-CD95 antibody.

BD

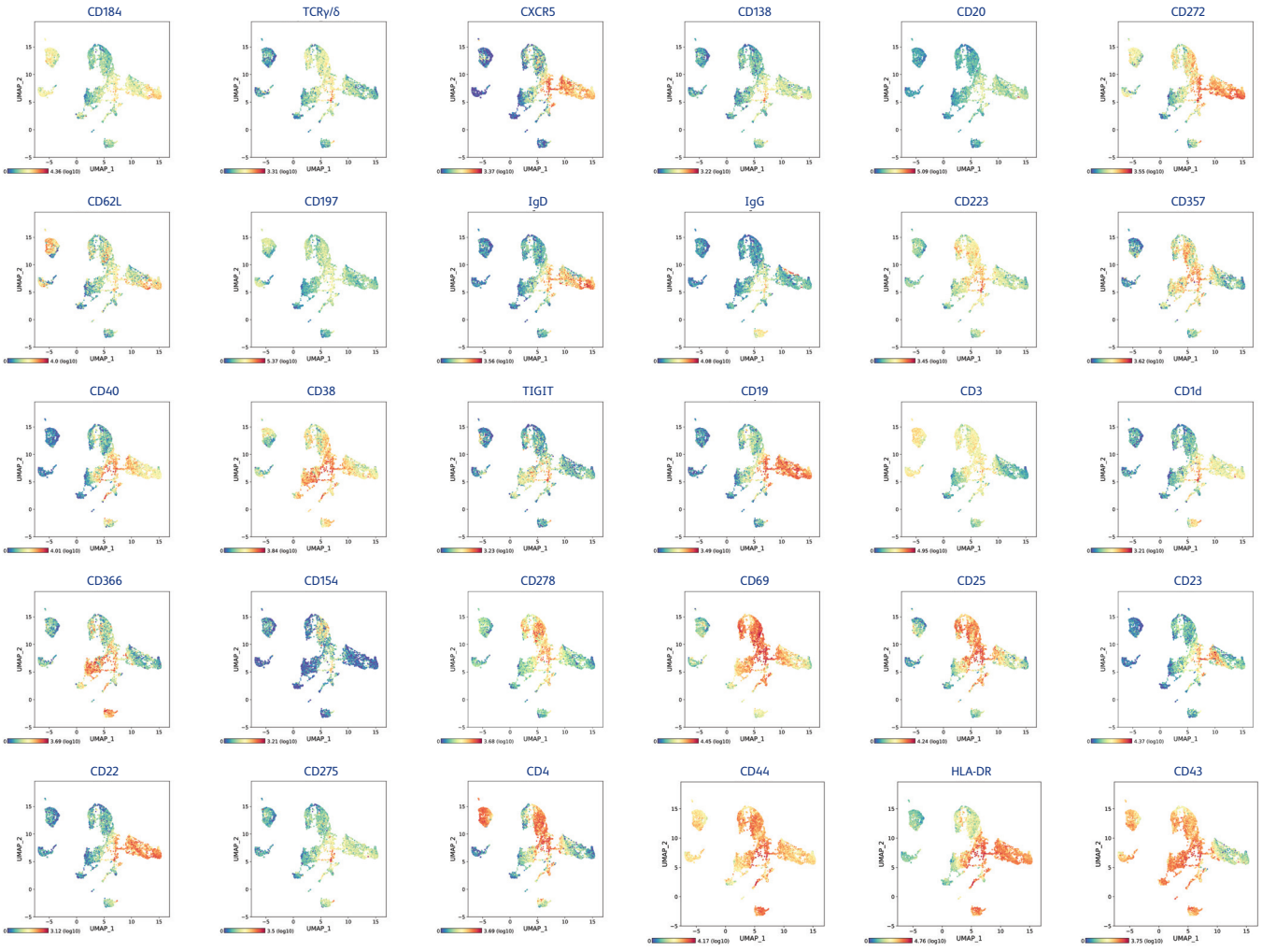
Reliably detect 59 key markers of adaptive immune cell activation and suppression

Performance of all 59 markers included in the BD® OMICS-One Adaptive Protein Panel is optimized for detection in each cell type.

A.



B.



Performance of specificities included in the BD® OMICS-One Adaptive Protein Panel. Resting PBMC, stimulated PBMC with PHA, and stimulated PBMC with CD3/CD28/IL2 were labeled with BD® Human Single-Cell Multiplexing Kit Sample Tags and pooled at 1:1:1 ratio. The single-cell suspension was stained with reconstituted BD® OMICS-One Adaptive Protein Panel. After staining, cells were captured on the BD Rhapsody™ Single-Cell Analysis System. AbSeq, WTA and SMK libraries were generated and sequenced. **A.** Cell annotation on UMAP of resting + activated T and B cells resolved by the BD® OMICS-One Adaptive Protein Panel antibodies and the WTA mRNA profile. **B.** Heat maps of 30 representative specificities from the BD® OMICS-One Adaptive Protein Panel on UMAP showing the specificity of detection for individual cell types.

Manage sequencing costs and improve detection sensitivity with SMART panel design

SMART panel design helps lower sequencing cost while increasing data resolution by using pre-titrated, optimal concentrations of antibody-oligos against select high-expressing primary markers in the panel. This allows re-allocation of sequencing reads otherwise allotted to these high expressers to now detect secondary and tertiary cell surface markers expressed at lower levels.

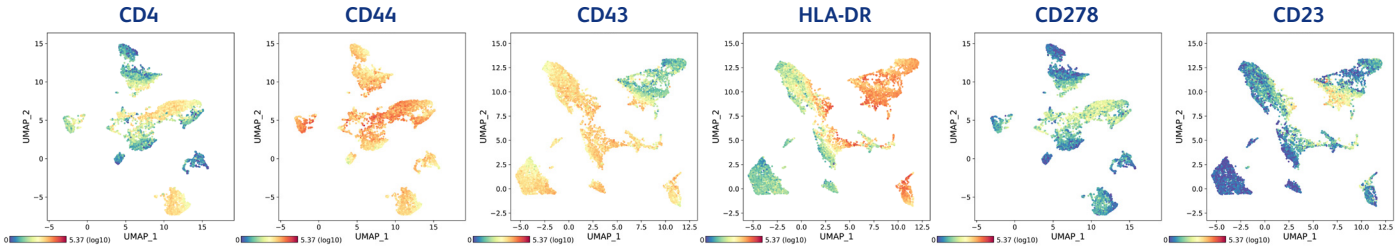
The four specificities selected for SMART panel design in the BD® OMICS-One Adaptive Protein Panel are CD3, CD43, CD44 and HLA-DR.

A. Allocation of sequencing reads

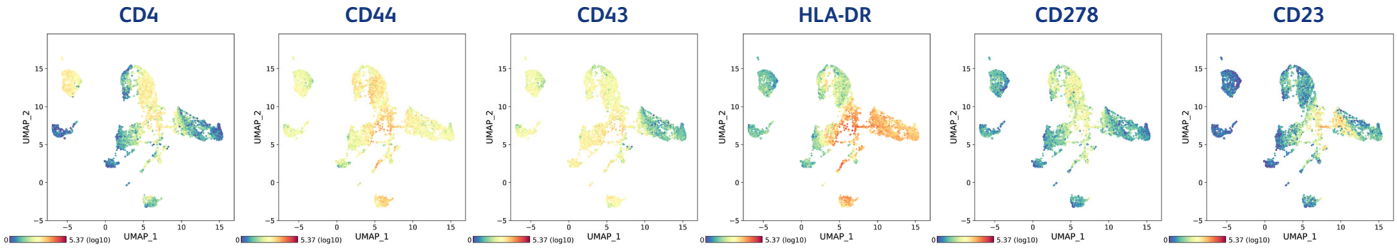
Percent of Total Sequencing Reads Consumed		
Markers	Without SMART panel design	With SMART panel design
Reduction of sequencing reads allocated to primary markers ▼		
CD44	23.20	5.34
HLA-DR	19.06	14.12
CD43	8.63	3.74
CD4	2.98	2.25
Read re-allocation to lowly expressed markers ▲		
CD3	1.16	2.58
CD62L	0.68	1.39
CD272	0.86	1.61
CD184	0.44	1.41
CD69	4.78	11.82
CD38	1.08	1.92
IgD	0.44	0.80
CD19	0.61	1.13
CD366	0.91	1.54
CD22	0.46	0.65

Percent of Total Sequencing Reads Consumed		
Markers	Without SMART panel design	With SMART panel design
CD197	0.46	1.38
IgG	0.33	0.44
CD40	0.47	0.91
CD185	0.19	0.48
CD25	1.87	4.34
CD1d	0.41	0.43
CD20	0.65	1.53
CD275	0.86	0.73
CD357	0.28	0.64
CD223	0.39	0.86
CD23	0.87	1.27
TIGIT	0.19	0.33
CD278	0.33	0.77
CD138	0.21	0.24
TCRγ/δ	0.17	0.33
CD154	0.07	0.14

B. Without SMART panel design

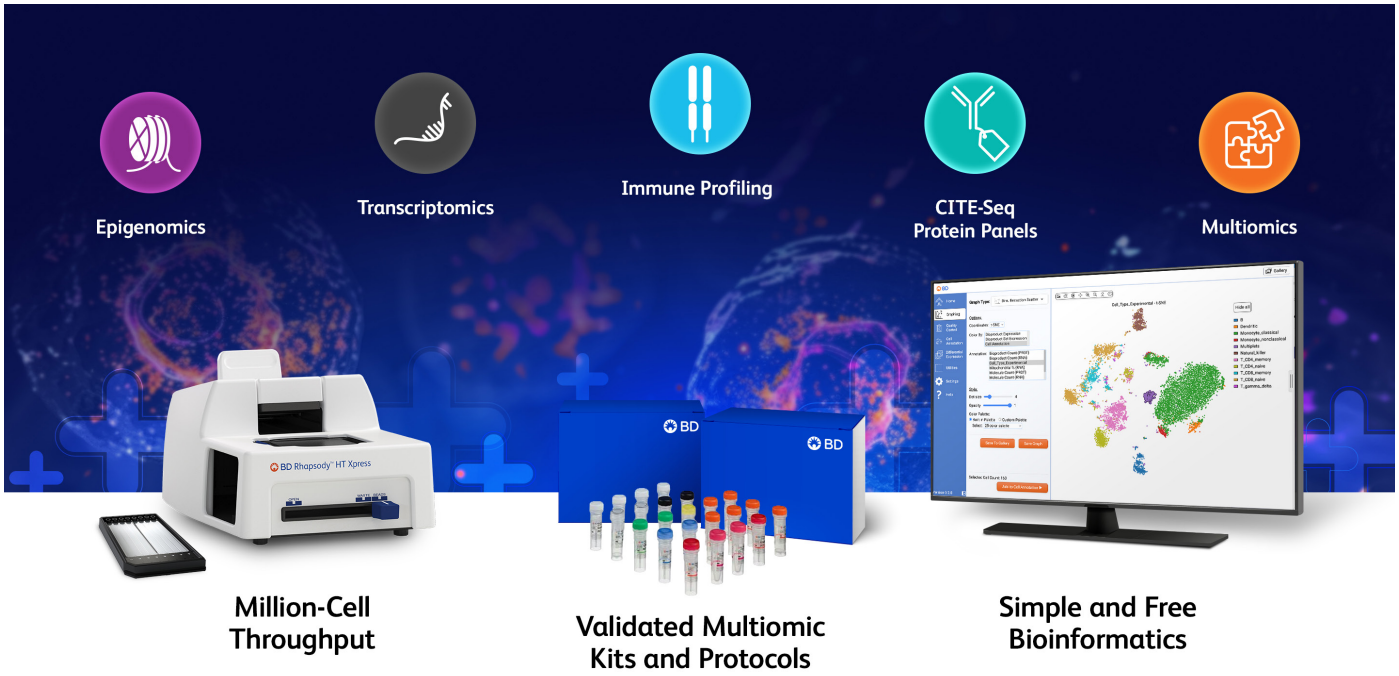


C. With SMART panel design



CD4, CD44, CD43 and HLA-DR detection is not compromised, while better resolution of low expressors is achieved with SMART panel design. A. Percent of total sequencing reads consumed by each specificity with and without SMART panel design. The table shows 30 representative specificities. Percentage of reads taken up by highly expressed markers like CD4, CD44, CD43 and HLA-DR are significantly reduced with SMART panel design. More importantly, lowly expressed markers like CD278 and CD23 are now detected at a better resolution as they have a higher percentage of sequencing reads allotted. **B.** and **C.** CD4, CD44, CD43 and HLA-DR detection with SMART panel design is not compromised compared to a regular antibody-oligo panel without SMART panel design. Meanwhile, lowly expressed proteins CD278 and CD23 are better resolved with the BD® OMICS-One Adaptive Protein Panel bearing the SMART panel design approach compared to a freshly pooled antibody-oligo panel.

Part of a complete single-cell multiomics solution



Ordering information

Description	Cat. No.
BD® OMICS-One Adaptive Protein Panel	572241

Visit **bdbiosciences.com/PanelAdaptive** to learn more about this panel and review complete performance data.

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

BD Life Sciences, Milpitas, CA 95035, U.S.

bdbiosciences.com