Technical Data Sheet

Tumor Protein Panel

Product Information

Material Number:	572310
Size:	2 Tests
Reactivity:	Tested in Development: Human
Storage Buffer:	Lyophilized powder containing BSA and ≤ 0.25% sodium azide
Component:	51-9025129
Description:	Tumor Protein Panel
Size:	1 Test (2 each)

Description

The BD® OMICS-One Tumor Protein Panel consists of 30 different specificities against major Tumor markers in a single tube. Designed and optimized to work on the BD Rhapsody™ System, the Tumor Protein Panel is tested to work seamlessly alongside the BD Rhapsody™ Whole Transcriptome Analysis (WTA) Assay, Targeted mRNA Assay, BD® Single-Cell Multiplexing Kit (SMK), BD® Intracellular CITE-seq (IC-AbSeq) Assay, and BD Rhapsody™ TCR/BCR Next Multiomic Assay for human. The individual antibodies were each conjugated to an oligonucleotide that contains a specific antibody barcode sequence flanked by a polyA tail on the 3' end and a common PCR handle (PCR primer binding site) on the 5' end. All AbSeq barcode sequences were generated in-silico with minimal sequence similarity to the human genomes, have low predicted secondary structure, and have high Hamming distance within the BD antibody-oligo portfolio, to allow for sequencing error correction and unique mapping. The polyA tail of the oligonucleotide allows the barcode sequence to be captured by BD Rhapsody™ Enhanced Cell Capture Beads. The 5' PCR handle allows for efficient library generation for various sequencing platforms. Each individual antibody exists at an optimal concentration within the 30-plex to enable superior target and population resolution.

The Tumor Protein Panel is designed with SMART technology. SMART technology helps lower sequencing cost while increasing data resolution by attenuating antibodies that target high-expressing primary markers and allowing reallocation of sequencing reads to markers expressed at lower levels. With SMART technology, markers low in expression can be quantified without having to do deeper sequencing and incurring high sequencing cost. The three specificities attenuated in the Tumor Protein Panel are CD44, HLA-ABC, and CD45.

Preparation and Storage

Store at 2−8°C and protected from prolonged exposure to light. Do not freeze.

Application Notes

Application:	Single Cell 3' Sequencing (Qualified)
Barcode Sequence:	Specific for each individual AbSeq antibody (see panel table on page 3)
Sequence ID:	Specific for each individual AbSeq antibody (see panel table on page 3)

Recommended Assay Procedure

This reagent is provided lyophilized in a pre-titrated format.

1. Remove the BD® OMICS-One Tumor Protein Panel tube from the foil bag and bring up to room temperature for 5 minutes.
2. Make sure the pellet is located at the bottom of the tube. If not, briefly centrifuge to collect the contents at the tube bottom.
3. Add 35 µL of nuclease-free water to the bottom of the tube and allow antibodies to reconstitute for 5 minutes at room temperature.
4. Transfer the reconstituted antibodies on ice until the cells are ready for staining.
   Note: Reconstitute antibody immediately before cell staining. Prolonged incubation of reconstituted antibody may increase the non-specific background.

BD Biosciences
bdbiosciences.com

United States	Canada	Europe	Japan	Asia Pacific	Latin America/Caribbean
877.232.8995	866.979.9408	32.2.400.98.95	0120.8555.90	65.6861.0633	55.11.5185.9995

For country contact information, visit **bdbiosciences.com/contact**.

Conditions: The information disclosed herein is not to be construed as a recommendation to use the above product in violation of any patents. BD Biosciences will not be held responsible for patent infringement or other violations that may occur with the use of our products. Purchase does not include or carry any right to resell or transfer this product either as a stand-alone product or as a component of another product. Any use of this product other than the permitted use without the express written authorization of Becton, Dickinson and Company is strictly prohibited.

For Research Use Only. Not for use in diagnostic or therapeutic procedures. Not for resale.
© 2025 BD. BD, the BD Logo and all other trademarks are the property of Becton, Dickinson and Company.

5. For BD® AbSeq Ab-Oligo drop-in of 60 plex or lower, prepare the BD® AbSeq labeling MasterMix in 1.5-mL LoBind tube on ice.
Note: For drop-in with more than 60 plex, reach out to technical support for calculation.

For sequential labeling with Sample Tags or no Sample Tags, prepare BD® AbSeq labeling MasterMix for drop-ins as follows.

Component	1 sample (µL)	1 sample + 30% overage (µL)	2 samples + 30% overage (µL)
Per BD® AbSeq Ab-Oligo	2.0	2.6	5.2
Total of AbSeq Ab-Oligo (N = Number of drop-in antibodies) N=0 if no drop-in antibodies	2.0 × N	2.6 × N	5.2 × N
BD Pharmingen™ Stain Buffer (FBS) (catalog number 554656)	140 – (2.0 × N)	182 – (2.6 × N)	364 – (5.2 × N)
Total	**140**	**182**	**364**

For co-labeling with Sample Tags, prepare BD® AbSeq labeling MasterMix for drop-ins as specified in the following table.

Component	1 sample (µL)	1 sample + 30% overage (µL)	2 samples + 30% overage (µL)
Per BD® AbSeq Ab-Oligo	2.0	2.6	5.2
Total of AbSeq Ab-Oligo (N = Number of drop-in antibodies) N=0 if no drop-in antibodies	2.0 × N	2.6 × N	5.2 × N
BD Pharmingen™ Stain Buffer (FBS) (catalog number 554656)	120 – (2.0 × N)	156 – (2.6 × N)	312 – (5.2 × N)
Total	**120**	**156**	**312**

6. Pipet-mix the BD® AbSeq labeling MasterMix for drop-ins. Briefly centrifuge to collect the contents at the bottom, and place back on ice.
7. For sequential labeling with Sample Tags or no Sample Tags, for each sample, add 140 µL BD® AbSeq labeling MasterMix of drop-ins to the tube containing 35 µL reconstituted Tumor Protein Panel solution to make a total volume of 175 µL.
For co-labeling with Sample Tags, for each sample, add 120 µL BD® AbSeq labeling MasterMix of drop-ins and 20 µL Sample Tag to the tube containing 35 µL reconstituted Tumor Protein Panel solution to make a total volume of 175 µL.
8. Pipet-mix the mixture, briefly centrifuge to collect the contents at the tube bottom, and place back on ice.
9. Centrifuge cells at 400 × *g* for 5 minutes. If Fc Block is used, proceed to step 10. If Fc Block is not used. skip to step 11.
10. (Optional) For samples containing myeloid and B lymphocytes, BD Biosciences recommends blocking nonspecific Fc Receptor–mediated false-positive signals with Human BD Fc Block (catalog number 564220).
    a. To perform blocking, pipet the Fc Block MasterMix into a new 1.5-mL LoBind tube on ice:

Component	1 sample (µL)*	1 sample + 20% overage (µL)
BD Pharmingen™ Stain Buffer (FBS) (catalog number 554656)	20.0	24.0
BD Pharmingen™ Human BD Fc Block (catalog number 564220)	5.0	6.0
Total	**25.0**	**30.0**

    * Sufficient for up to 1,000,000 cells. To block more cells, adjust the volume.
    b. Pipet-mix the Fc Block MasterMix and briefly centrifuge. Place on ice.
    c. Remove the supernatant from the cells without disturbing the pellet.
    d. Resuspend the cells in 25 µL of Fc Block MasterMix.
    e. Incubate the cells at room temperature (15°C to 25°C) for 10 minutes.
    f. Add 175 µL of BD® AbSeq labeling MasterMix from Step 8 into the cell suspension. Pipet-mix and proceed to Step 12.
11. Remove the supernatant from the cells without disturbing the pellet. Add 25 µL Stain Buffer (FBS) to the 175 µL of BD® AbSeq labeling MasterMix from Step 8 to make a total volume of 200 µL. Resuspend the cell pellet in 200 µL total volume. Pipet-mix.
12. Transfer the cells with BD® AbSeq labeling MasterMix into a new 5-mL polystyrene Falcon tube.
13. Stain the cells on ice for 30 minutes.
14. Add 3-4 mL Stain Buffer (FBS) to labelled cells and pipet-mix.
15. Centrifuge at 400 × *g* for 5 minutes.
16. Uncap the tube and invert to decant supernatant into biohazardous waste. Keep the tube inverted and gently blot on a lint-free wiper to remove residual supernatant from tube rim.
17. Repeat steps 14–16 twice more for a total of three washes.
18. Resuspend the final washed cell pellet in 620 µL cold Sample Buffer from the BD Rhapsody™ Enhanced Cartridge Reagent V3 (catalog number 667052) and proceed to single cell capture with on-cartridge washing described in substeps a–c. Refer to the *BD Rhapsody™ HT Single-Cell Analysis System Single-Cell Capture and cDNA Synthesis Protocol* (Doc ID 23-24252) or *BD Rhapsody™ HT Xpress System Single-Cell Capture and cDNA Synthesis Protocol* (Doc ID 23-24253) for additional details.
Note: Perform on-cartridge washing after cell settling (8-minute incubation) as described in the following sub-steps.
    a. At the protocol section of "Loading cells in BD Rhapsody™ 8-Lane Cartridge", after cell load, incubate the cartridge in the dark at room temperature for 8 minutes.

b. Place the cartridge on the BD Rhapsody™ HT Xpress and perform the On-Cartridge Wash steps as follows:

Material to load	Volume (uL) 1 lane	Pipette Mode
Air	380	Prime/Wash
Cold Sample Buffer	380	Prime/Wash
Air	380	Prime/Wash
Cold Sample Buffer	380	Prime/Wash

c. (Optional) Perform the scanner step: Cell Load Scan, if using *BD Rhapsody™ HT Single-Cell Analysis System Single-Cell Capture and cDNA Synthesis Protocol* (Doc ID 23-24252). No need for 8-minute delay before scanning.

Warning: All biological specimens and materials are considered biohazardous. Handle as if capable of transmitting infection and dispose using proper precautions in accordance with federal, state, and local regulations. Never pipette by mouth. Wear suitable protective clothing, eyewear, and gloves.

List of all 30 Human AbSeq specificities included in the BD® OMICS-One Tumor panel:

Specificity	Clone	Oligo ID	BD® AbSeq Barcode Sequence
CD274 (PD-L1)	MIH1	AHS0004	ATCGTAAGGCTCGTGGTTCGTAAGTAAGTTCGTATC
CD279 (PD-1)	EH12.1	AHS0014	ATGGTAGTATCACGACGTAGTAGGGTAATTGGCAGT
CD45	HI30	AHS0040	GTGCGAAATGGCGGAATGTTATCTGCGAATGTAGTC
CD324 (E-cad)	67A4	AHS0041	GATATGAATGGGTTGCGGTGTAAAGTCGTAATGGTT
CD24	ML5	AHS0042	ACTTTGGGTTGAGCGCATGATTATTCGTGACACTTT
CD90	5E10	AHS0045	GACTATATGTACGGTGTTAATTCGGGATCCTGCGCT
CD34	581	AHS0061	TGGGTGTATTACGGTTAGTTTATGCGCGAAGGTGTT
CD117	YB5.B8	AHS0064	GGATTAGTTGTCGTTATAGGGAGTGCGTTCTTAGCG
HLA-A,B,C	G46-2.6	AHS0066	GATATGCATGGCGAGTAGGTAGAACGAAGCTTAGGT
CD54	HA58	AHS0076	AAGAGAATATATGCGTGCGTTGTTAAGGGAATGCGT
CD29	MAR4	AHS0080	TGGTAAGGTGGTTGCGAGTAAGTAGCGGTGAGTTGT
CD47	B6H12	AHS0087	TGTTAGGTTCGACGTATTATGTGTAGATCCGCAAGG
CD326 (EpCam)	EBA-1	AHS0089	TTGAGCGTAAAGTTGCGTCCGGTAATTGAGTTGCGT
CD66	B1.1/CD66	AHS0094	GTCTGCGCAAGGTAAGCTAAGTAACGAAAGGGATCT
CD133	W6B3C1	AHS0103	TTTGGTATTGGCACGGTTTGTAGCGAGTTGACGGTC
CD26	M-A261	AHS0109	TGTAGGTTGCGCGGTTATTAGGGTATTATCGATCTG
CD155	TX24	AHS0111	GCGGTGGATCGATGGGTATAGTTGGTAATTTGCGTC
CD146	P1H12	AHS0127	AGGTTATTTAGGTGACGGTTGTATTGACGAGAGAGG
C-MET	3D6	AHS0132	AGCGTGAGTTGTCGGTAGTTAATTATCGGAGAGTTT
ITGRN BTA 7	FIB504	AHS0158	TTTCAGTTTGGTCGCAGTTAAGGTATCGTATGGGTC
CD44	L178	AHS0167	GTGATTGATTAGGACAGTTCGTTGCTTAGTAGTGGG
PECAM1 (CD31)	WM59	AHS0170	CTAAGGGACGTAATTGAGTTTCGGTGATCGCAGTTT
EphB2	2H9	AHS0176	TATTGCGGGTAGGATTTGTCTCGAAGCGTAGGTAGC
Vista	MIH65.RMAB	AHS0187	ATCAGGGAATCTCGGTAAGTTAAACGTGTATAGTGC
PDPLN	LPMAB-17	AHS0192	TTTATGAGTATTACGTCTGTTGCGATTGTTGGCGGT
NOTCH1	MHN1-519	AHS0214	CGTAGTAGGAGCGTGTTTCATCGGCATTATCGTTTG
CD325 (n-Cad)	8C11	AHS0223	TAGGATGAGTTTCGTAAGTAAGGTAGTCGTATGGCT
CD58	1C3	AHS0237	TTGGTGAGTATTGGTGCGTAGTATGCGGGATGTTTG
EGFR	EGFR.1	AHS0241	ATATGATTGATGCGGGTTAGCCTACAGATTCGAGTT
CD227 (MUC1)	HMFG2	AHS0247	AGTGCATGGTTAGTAGGTGTGAGTCGTTAGATATTC

Suggested Companion Products

Catalog Number	Description	Size	Clone
554656	BD Pharmingen™ Stain Buffer (FBS)	500 mL	(none)
564220	BD Pharmingen™ Human BD Fc Block	0.25 mg	Fc1
633801	BD Rhapsody™ Whole Transcriptome Analysis (WTA) Amplification Kit	1 each	(none)
633774	BD Rhapsody™ Targeted mRNA and AbSeq Amplification Kit	1 each	(none)
667058	BD Rhapsody™ TCR/BCR Next Amplification Kit	1 each	(none)
633773	BD Rhapsody™ cDNA Kit	1 each	(none)
666262	BD Rhapsody™ 8-lane cartridge	1 each	(none)
667052	BD Rhapsody™ Enhanced Cartridge Reagent V3	1 each	(none)
633781	BD® Human Single-Cell Multiplexing Kit	1 each	(none)
633849	BD® Flex Single-Cell Multiplexing Kit A, Flex Sample Tag 1–6	1 each	(none)
633850	BD® Flex Single-Cell Multiplexing Kit A, Flex Sample Tag 7–12	1 each	(none)
633851	BD® Flex Single-Cell Multiplexing Kit A, Flex Sample Tag 13–18	1 each	(none)
633852	BD® Flex Single-Cell Multiplexing Kit A, Flex Sample Tag 19–24	1 each	(none)
666625	BD Rhapsody™ HT Xpress Package	NA	(none)
633701	BD Rhapsody™ Scanner	NA	(none)
570742	BD Rhapsody™ Intracellular AbSeq Buffer Kit	1 each	(none)
570911	BD® Omics-Guard Sample Preservation Buffer	1 each	(none)
570750	BD® AbSeq Enhancer	1 each	(none)
570751	BD® RNase Inhibitor	1 each	(none)

Product Notices

1. This reagent is provided lyophilized in a pre-titrated format.
2. The production process underwent stringent testing and validation to assure that it generates a high-quality conjugate with consistent performance and specific binding activity. However, verification testing has not been performed on all conjugate lots.
3. Go to https://www.bdbiosciences.com/en-us/resources/protocols/single-cell-multiomics for additional BD Rhapsody protocols.
4. Go to https://abseq-ref-gen.genomics.bd.com/ to access AbSeq reference files in FASTA format for bioinformatics analyses.
5. **Caution:** Sodium azide yields highly toxic hydrazoic acid under acidic conditions. Dilute azide compounds in running water before discarding to avoid accumulation of potentially explosive deposits in plumbing. Follow state and local guidelines when disposing of hazardous waste.
6. Source of all serum proteins is from USDA inspected abattoirs located in the United States.
7. For U.S. patents that may apply, go to bd.com/patents.
8. Read and understand the safety data sheets (SDSs) before handling chemicals. To obtain SDSs, go to regdocs.bd.com or contact BD Biosciences technical support at researchapplications@bd.com.