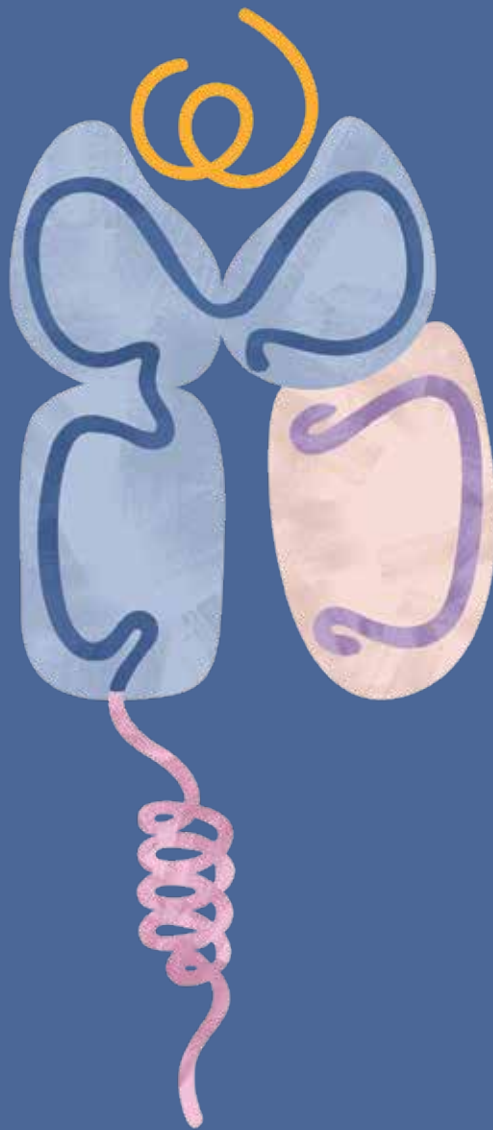


# MHC & TCR Solutions

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Catalog & Custom Services for MHC  
Monomers, Tetramers, & Soluble TCRs



# MHC Monomer & Tetramer Catalog Products

KACTUS has successfully developed a series of MHC catalog products, including monomers, tetramers, chimeric MHCs, and peptide-ready MHCs, as well as related custom services. This product line is designed to support the TCR, TCR-T and TCR-mimic antibody drug development.

Our MHC portfolio covers the common MHC alleles and popular targets such as NY-ESO-1, KRAS, AFP, and HPV16 which can be used to meet the diverse needs of drug discovery and bioanalytical applications.



**Off-the-Shelf  
Catalog Products**



**Choice of Various  
Alleles**



**Verified Bioactivity via  
ELISA, SPR, & FACS**



**Biotinylation &  
Fluorescent-Labeling  
Available**

## Our MHC Product Portfolio



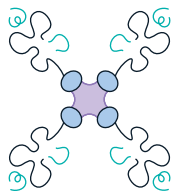
### MHC-Peptide Monomers

Mammalian-expressed Single Chain Trimer (SCT) and Bacteria-refold MHC Monomers



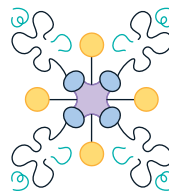
### Biotinylated MHC-Peptide Monomers

MHC monomers with biotinylated for TCR screening or tetramer assembly



### MHC-Peptide Tetramers

MHC Tetramers for TCR screening & more with enhanced binding affinity



### Fluorescent MHC-Peptide Tetramers

Identify antigen-specific T cells via FACS

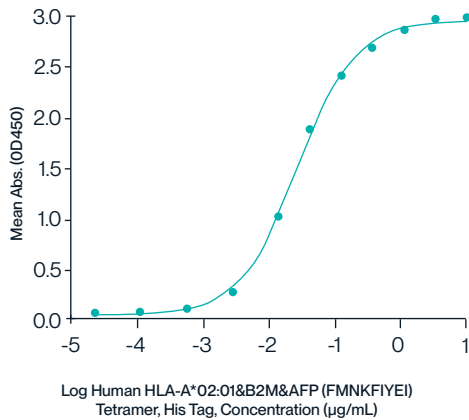


Learn More & Browse

# High Binding Affinities to Soluble TCRs and TCR-Mimic Antibodies

We've demonstrated via ELISA and SPR binding assays that our MHC-peptide complexes have strong binding affinity to soluble TCRs and TCR-mimic antibodies.

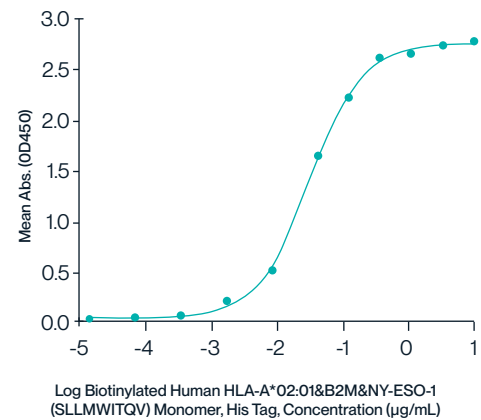
Our MHC products are well-suited for applications such as antibody binding, affinity research, and TCR screening.



## Human HLA-A\*02:01&B2M&AFP (FMNKFIYEI) Tetramer

Catalog No. MHC-HM407T

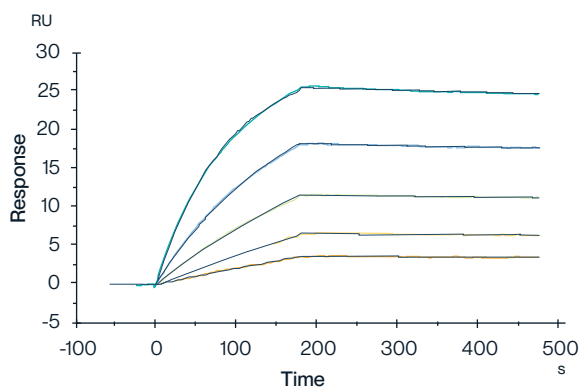
Immobilized HLA-A\*02:01&B2M&AFP (FMNKFIYEI) TCR can bind HLA-A\*02:01&B2M&AFP (FMNKFIYEI) Tetramer in ELISA with an EC<sub>50</sub> of 26.6ng/mL.



## Biotinylated Human HLA-A\*02:01&B2M&NY-ESO-1 (SLLMWITQV) Monomer

Catalog No. MHC-HM407T

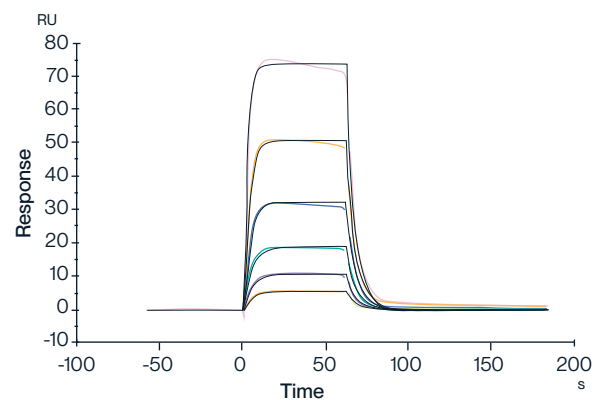
Anti-HLA-A\*02:01&B2M&NY-ESO-1 (SLLMWITQV) Antibody can bind Biotinylated Human HLA-A\*02:01&B2M&NY-ESO-1 (SLLMWITQV) Monomer in ELISA with an EC<sub>50</sub> of 31.3ng/mL.



## Human HLA-A\*02:01&B2M&NY-ESO-1 (SLLMWITQC) Tetramer

Catalog No. MHC-HM405T

Anti-HLA-A\*02:01&B2M&NY-ESO-1 (SLLMWITQC) Antibody can bind Human HLA-A\*02:01&B2M&NY-ESO-1 (SLLMWITQC) Tetramer in SPR assay with an affinity constant of 0.09 nM.



## Human HLA-A\*02:01&B2M&AFP (FMNKFIYEI) Monomer

Catalog No. MHC-HM407

Human HLA-A\*02:01&B2M&AFP (FMNKFIYEI) Monomer can bind HLA-A\*02:01&B2M&AFP (FMNKFIYEI) TCR in SPR assay with an affinity constant of 0.923µM.

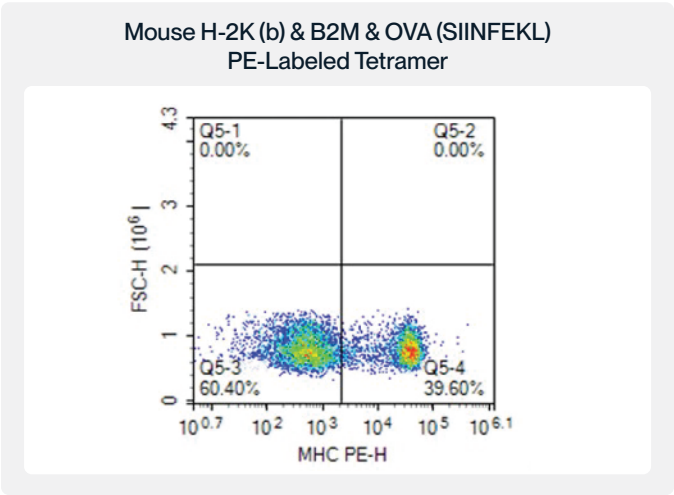
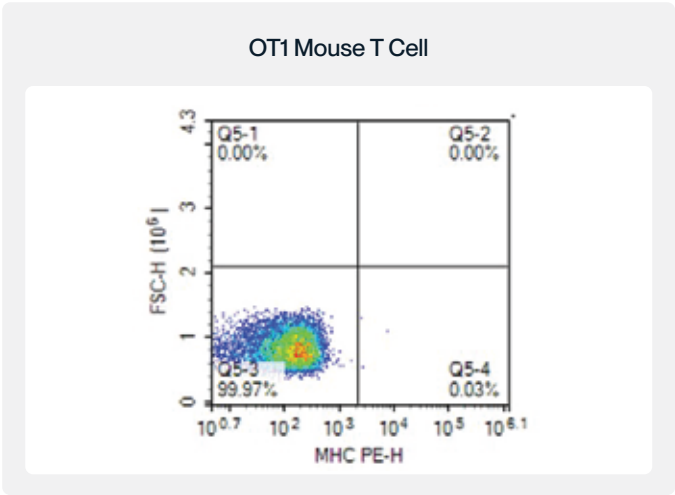
# MHC-Peptide Tetramer Binds Antigen-Specific T Cells

MHC-peptide tetramers are an essential tool in immunology for detecting and studying antigen-specific T cells, offering insights into immune responses and TCR specificity. Our PE-labeled MHC-peptide tetramers are designed to provide researchers with an accurate and robust solutions for identifying antigen-specific T cells.

Here, we demonstrated via flow cytometry that our MHC-peptide tetramer binds antigen-specific T cells in OT-1 mouse whole blood and spleen blood with high specificity and precision.

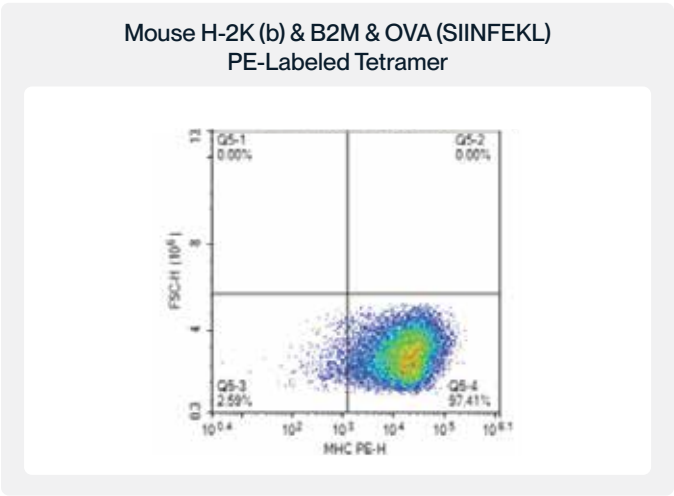
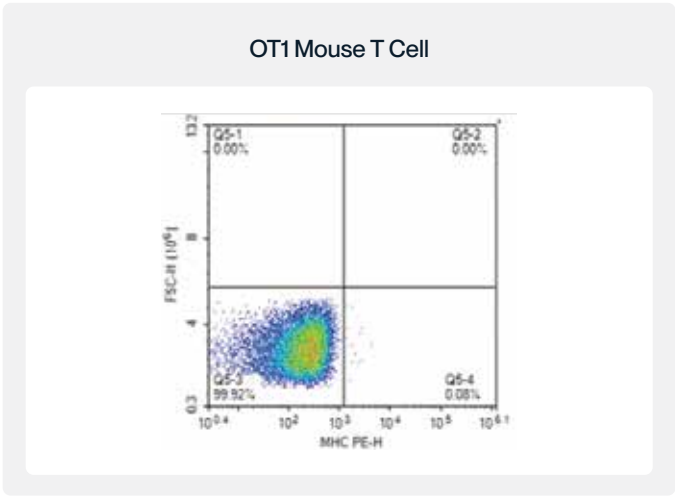
## PE-Labeled Mouse H-2K(b)&B2M&OVA (SIINFEKL) Tetramer Protein

Catalog No. MHC-MM453TP



### OT-1 Mouse Whole Blood

Flow Cytometry Analysis of OT-1 Mouse Whole Blood Cells and T Cells Using PE-SA Assembled Tetramers. The right panel displays the binding of OT-1 mouse T cells to the Mouse H-2K(b) & B2M & OVA (SIINFEKL) PE-SA assembled tetramer, with a significant shift in fluorescence and higher percentage of MHC PE-H positive cells (39.60% in Q5-4), compared to the left control, demonstrating effective binding and tetramer assembly.



### Peptide-Pulsed OT-1 Mouse Spleen Blood

Flow Cytometry Analysis of SIINFEKL Peptide-Pulsed OT-1 Mouse Spleen Cells Using PE-SA Assembled Tetramers. The right panel displays the binding of OT-1 mouse spleen cells to the custom-assembled tetramer (Mouse H-2K(b) & B2M & OVA (SIINFEKL) PE-SA), with a significant shift in fluorescence and higher percentage of MHC PE-H positive cells (97.41% in Q5-4), demonstrating effective binding and tetramer assembly.

# Mammalian-Expressed Single Chain Trimer MHC-Peptide Complexes

| Catalog #   | Allele               | Type                 | Species     | Antigen       | Peptide       | Tag       |
|-------------|----------------------|----------------------|-------------|---------------|---------------|-----------|
| MHC-MM453   | H-2K (b)             | Monomer              | Mouse       | OVA           | SIINFEKL      | C-His-Avi |
| MHC-MM453B  | H-2K(b)              | Biotinylated Monomer | Mouse       | OVA           | SIINFEKL      | C-His-Avi |
| MHC-MM453TP | H-2K(b)              | PE-Labeled Tetramer  | Mouse       | OVA           | SIINFEKL      | C-His-Avi |
| MHC-HM102   | HLA (DRDB1 04:05:01) | Monomer              | Human       | Hemagglutinin | PKYVKQNTLKLAT | C-His     |
| MHC-HM101   | HLA (DRDB1 04:05:01) | Monomer              | Human       | Hemagglutinin | PKYVKQNTLKLAT | C-His     |
| MHC-HM426   | HLA-A*01:01          | Monomer              | Human       | CT83          | NTDNNLAVY     | C-His-Avi |
| MHC-HM426T  | HLA-A*01:01          | Tetramer             | Human       | CT83          | NTDNNLAVY     | C-His-Avi |
| MHC-HM428   | HLA-A*01:01          | Monomer              | Human       | DSG3          | YTDNWLAVY     | C-His-Avi |
| MHC-HM427B  | HLA-A*01:01          | Biotinylated Monomer | Human       | MAGE-A3       | EVDPIGHLY     | C-His-Avi |
| MHC-HM427   | HLA-A*01:01          | Monomer              | Human       | MAGE-A3       | EVDPIGHLY     | C-His-Avi |
| MHC-HM427T  | HLA-A*01:01          | Tetramer             | Human       | MAGE-A3       | EVDPIGHLY     | C-His-Avi |
| MHC-HM407B  | HLA-A*02:01          | Biotinylated Monomer | Human       | AFP           | FMNKFIYEI     | C-His-Avi |
| MHC-HM407   | HLA-A*02:01          | Monomer              | Human       | AFP           | FMNKFIYEI     | C-His-Avi |
| MHC-HM407TP | HLA-A*02:01          | PE-Labeled Tetramer  | Human       | AFP           | FMNKFIYEI     | C-His-Avi |
| MHC-HM407T  | HLA-A*02:01          | Tetramer             | Human       | AFP           | FMNKFIYEI     | C-His-Avi |
| MHC-HM408B  | HLA-A*02:01          | Biotinylated Monomer | Human       | AFP           | PLFQVPEPV     | C-His-Avi |
| MHC-HM408   | HLA-A*02:01          | Monomer              | Human       | AFP           | PLFQVPEPV     | C-His-Avi |
| MHC-HM408T  | HLA-A*02:01          | Tetramer             | Human       | AFP           | PLFQVPEPV     | C-His-Avi |
| MHC-HM458B  | HLA-A*02:01          | Biotinylated Monomer | Human       | CMV pp65      | NLVPMVATV     | C-His-Avi |
| MHC-HM458   | HLA-A*02:01          | Monomer              | Human       | CMV pp65      | NLVPMVATV     | C-His-Avi |
| MHC-HM458TP | HLA-A*02:01          | PE-Labeled Tetramer  | Human       | CMV pp65      | NLVPMVATV     | C-His-Avi |
| MHC-HM458T  | HLA-A*02:01          | Tetramer             | Human       | CMV pp65      | NLVPMVATV     | C-His-Avi |
| MHC-HM402B  | HLA-A*02:01          | Biotinylated Monomer | Human       | GP100         | YLEPGPVTA     | C-His-Avi |
| MHC-HM402   | HLA-A*02:01          | Monomer              | Human       | GP100         | YLEPGPVTA     | C-His-Avi |
| MHC-HM150   | HLA-A*02:01          | Monomer              | Human&Mouse | GP100         | YLEPGPVTA     | C-His     |
| MHC-HM402T  | HLA-A*02:01          | Tetramer             | Human       | GP100         | YLEPGPVTA     | C-His-Avi |
| MHC-HM409B  | HLA-A*02:01          | Biotinylated Monomer | Human       | HBV           | FLLTRILT      | C-His-Avi |
| MHC-HM409   | HLA-A*02:01          | Monomer              | Human       | HBV           | FLLTRILT      | C-His-Avi |
| MHC-HM409T  | HLA-A*02:01          | Tetramer             | Human       | HBV           | FLLTRILT      | C-His-Avi |
| MHC-HM465   | HLA-A*02:01          | Monomer              | Human       | HIV Gag       | SLYNTVATL     | C-His-Avi |
| MHC-HM436   | HLA-A*02:01          | Monomer              | Human       | HPV 16 E6     | KLPQLCTEL     | C-His-Avi |
| MHC-HM436T  | HLA-A*02:01          | Tetramer             | Human       | HPV 16 E6     | KLPQLCTEL     | C-His-Avi |
| MHC-HM424B  | HLA-A*02:01          | Biotinylated Monomer | Human       | HPV16 E7      | YMLDLQPET     | C-His-Avi |
| MHC-HM424   | HLA-A*02:01          | Monomer              | Human       | HPV16 E7      | YMLDLQPET     | C-His-Avi |
| MHC-HM24MT  | HLA-A*02:01          | Tetramer             | Human       | HPV16 E7      | YMLDLQPET     | C-His-Avi |
| MHC-HM411B  | HLA-A*02:01          | Biotinylated Monomer | Human       | LMP2          | CLGGLTMTV     | C-His-Avi |
| MHC-HM411   | HLA-A*02:01          | Monomer              | Human       | LMP2          | CLGGLTMTV     | C-His-Avi |
| MHC-HM413   | HLA-A*02:01          | Monomer              | Human&Mouse | LMP2          | CLGGLTMTV     | C-His-Avi |
| MHC-HM411T  | HLA-A*02:01          | Tetramer             | Human       | LMP2          | CLGGLTMTV     | C-His-Avi |
| MHC-HM413T  | HLA-A*02:01          | Tetramer             | Human&Mouse | LMP2          | CLGGLTMTV     | C-His-Avi |
| MHC-HM445B  | HLA-A*02:01          | Biotinylated Monomer | Human       | MAGE-A1       | KVLEYVIKV     | C-His-Avi |
| MHC-HM445   | HLA-A*02:01          | Monomer              | Human       | MAGE-A1       | KVLEYVIKV     | C-His-Avi |
| MHC-HM103   | HLA-A*02:01          | Monomer              | Human&Mouse | MAGE-A1       | KVLEYVIKV     | C-His     |
| MHC-HM445TP | HLA-A*02:01          | PE-Labeled Tetramer  | Human       | MAGE-A1       | KVLEYVIKV     | C-His-Avi |
| MHC-HM445T  | HLA-A*02:01          | Tetramer             | Human       | MAGE-A1       | KVLEYVIKV     | C-His-Avi |
| MHC-HM459B  | HLA-A*02:01          | Biotinylated Monomer | Human       | MAGE-A10      | GLYDGMEHL     | C-His-Avi |
| MHC-HM459   | HLA-A*02:01          | Monomer              | Human       | MAGE-A10      | GLYDGMEHL     | C-His-Avi |
| MHC-HM459TP | HLA-A*02:01          | PE-Labeled Tetramer  | Human       | MAGE-A10      | GLYDGMEHL     | C-His-Avi |

| Catalog #   | Allele      | Type                    | Species     | Antigen   | Peptide    | Tag       |
|-------------|-------------|-------------------------|-------------|-----------|------------|-----------|
| MHC-HM459T  | HLA-A*02:01 | Tetramer                | Human       | MAGE-A10  | GLYDGMEHL  | C-His-Avi |
| MHC-HM460B  | HLA-A*02:01 | Biotinylated Monomer    | Human       | MAGE-A2   | KMVELVHFL  | C-His-Avi |
| MHC-HM104   | HLA-A*02:01 | Monomer                 | Human&Mouse | MAGE-A2   | KMVELVHFL  | C-His     |
| MHC-HM461B  | HLA-A*02:01 | Biotinylated Monomer    | Human       | MAGE-A3   | KVAELVHFL  | C-His-Avi |
| MHC-HM105   | HLA-A*02:01 | Monomer                 | Human&Mouse | MAGE-A3   | KVAELVHFL  | C-His     |
| MHC-HM401B  | HLA-A*02:01 | Biotinylated Monomer    | Human       | MAGE-A4   | GVYDGREHTV | C-His-Avi |
| MHC-HM401   | HLA-A*02:01 | Monomer                 | Human       | MAGE-A4   | GVYDGREHTV | C-His-Avi |
| MHC-HM401TP | HLA-A*02:01 | PE-Labeled Tetramer     | Human       | MAGE-A4   | GVYDGREHTV | C-His-Avi |
| MHC-HM401T  | HLA-A*02:01 | Tetramer                | Human       | MAGE-A4   | GVYDGREHTV | C-His-Avi |
| MHC-HM437B  | HLA-A*02:01 | Biotinylated Monomer    | Human       | MAGE-A4   | KVLEHVVRV  | C-His-Avi |
| MHC-HM437   | HLA-A*02:01 | Monomer                 | Human       | MAGE-A4   | KVLEHVVRV  | C-His-Avi |
| MHC-HM106   | HLA-A*02:01 | Monomer                 | Human       | MAGE-A4   | KVLEHVVRV  | C-His     |
| MHC-HM435B  | HLA-A*02:01 | Biotinylated Monomer    | Human       | MART-1    | ELAGIGILTV | C-His-Avi |
| MHC-HM435   | HLA-A*02:01 | Monomer                 | Human       | MART-1    | ELAGIGILTV | C-His-Avi |
| MHC-HM435TP | HLA-A*02:01 | PE-Labeled Tetramer     | Human       | MART-1    | ELAGIGILTV | C-His-Avi |
| MHC-HM435T  | HLA-A*02:01 | Tetramer                | Human       | MART-1    | ELAGIGILTV | C-His-Avi |
| MHC-HM405B  | HLA-A*02:01 | Biotinylated Monomer    | Human       | NY-ESO-1  | SLLMWITQC  | C-His-Avi |
| MHC-HM405   | HLA-A*02:01 | Monomer                 | Human       | NY-ESO-1  | SLLMWITQC  | C-His-Avi |
| MHC-HM151   | HLA-A*02:01 | Monomer                 | Human&Mouse | NY-ESO-1  | SLLMWITQC  | C-His     |
| MHC-HM405TP | HLA-A*02:01 | PE-Labeled Tetramer     | Human       | NY-ESO-1  | SLLMWITQC  | C-His-Avi |
| MHC-HM405T  | HLA-A*02:01 | Tetramer                | Human       | NY-ESO-1  | SLLMWITQC  | C-His-Avi |
| MHC-HM40NB  | HLA-A*02:01 | Biotinylated Monomer    | Human       | NY-ESO-1  | SLLMWITQV  | C-His-Avi |
| MHC-HM40N   | HLA-A*02:01 | Monomer                 | Human       | NY-ESO-1  | SLLMWITQV  | C-His-Avi |
| MHC-HM40NT  | HLA-A*02:01 | Tetramer                | Human       | NY-ESO-1  | SLLMWITQV  | C-His-Avi |
| MHC-HM10BTC | HLA-A*02:01 | APC-Equivalent Tetramer | Human       | P53 R175H | HMTEVVRHC  | C-His     |
| MHC-HM415   | HLA-A*02:01 | Monomer                 | Human       | P53 R175H | HMTEVVRHC  | C-His-Avi |
| MHC-HM415TP | HLA-A*02:01 | PE-Labeled Tetramer     | Human       | P53 R175H | HMTEVVRHC  | C-His-Avi |
| MHC-HM415T  | HLA-A*02:01 | Tetramer                | Human       | P53 R175H | HMTEVVRHC  | C-His-Avi |
| MHC-HM416B  | HLA-A*02:01 | Biotinylated Monomer    | Human       | P53 WT    | HMTEVVRRC  | C-His-Avi |
| MHC-HM416   | HLA-A*02:01 | Monomer                 | Human       | P53 WT    | HMTEVVRRC  | C-His-Avi |
| MHC-HM416TP | HLA-A*02:01 | PE-Labeled Tetramer     | Human       | P53 WT    | HMTEVVRRC  | C-His-Avi |
| MHC-HM416T  | HLA-A*02:01 | Tetramer                | Human       | P53 WT    | HMTEVVRRC  | C-His-Avi |
| MHC-HM447B  | HLA-A*02:01 | Biotinylated Monomer    | Human       | PRAME     | ALYVDSLFFL | C-His-Avi |
| MHC-HM447   | HLA-A*02:01 | Monomer                 | Human       | PRAME     | ALYVDSLFFL | C-His-Avi |
| MHC-HM447T  | HLA-A*02:01 | Tetramer                | Human       | PRAME     | ALYVDSLFFL | C-His-Avi |
| MHC-HM443B  | HLA-A*02:01 | Biotinylated Monomer    | Human       | PRAME     | SLLQHLIGL  | C-His-Avi |
| MHC-HM443   | HLA-A*02:01 | Monomer                 | Human       | PRAME     | SLLQHLIGL  | C-His-Avi |
| MHC-HM443TP | HLA-A*02:01 | PE-Labeled Tetramer     | Human       | PRAME     | SLLQHLIGL  | C-His-Avi |
| MHC-HM443T  | HLA-A*02:01 | Tetramer                | Human       | PRAME     | SLLQHLIGL  | C-His-Avi |
| MHC-HM412B  | HLA-A*02:01 | Biotinylated Monomer    | Human       | Survivin  | LMLGEFLKL  | C-His-Avi |
| MHC-HM412   | HLA-A*02:01 | Monomer                 | Human       | Survivin  | LMLGEFLKL  | C-His-Avi |
| MHC-HM412T  | HLA-A*02:01 | Tetramer                | Human       | Survivin  | LMLGEFLKL  | C-His-Avi |
| MHC-HM4A1B  | HLA-A*02:01 | Biotinylated Monomer    | Human       | Survivin  | LTLGEFLKL  | C-His-Avi |
| MHC-HM4A1T  | HLA-A*02:01 | Tetramer                | Human       | Survivin  | LTLGEFLKL  | C-His-Avi |
| MHC-HM473   | HLA-A*02:01 | Monomer                 | Human       | TERT      | ILAKFLHWL  | C-His-Avi |
| MHC-HM107   | HLA-A*02:01 | Monomer                 | Human       | TERT      | ILAKFLHWL  | C-His     |
| MHC-HM431B  | HLA-A*02:01 | Biotinylated Monomer    | Human       | WT-1      | RMFPNAPYL  | C-His-Avi |
| MHC-HM431   | HLA-A*02:01 | Monomer                 | Human       | WT-1      | RMFPNAPYL  | C-His-Avi |
| MHC-HM414   | HLA-A*02:01 | Monomer                 | Human&Mouse | WT-1      | RMFPNAPYL  | C-His-Avi |
| MHC-HM467   | HLA-A*02:01 | Monomer                 | Human&Mouse | WT-1      | RMFPNAPYL  | C-His     |



| Catalog #   | Allele      | Type                 | Species     | Antigen    | Peptide   | Tag       |
|-------------|-------------|----------------------|-------------|------------|-----------|-----------|
| MHC-HM431T  | HLA-A*02:01 | Tetramer             | Human       | WT-1       | RMFPNAPYL | C-His-Avi |
| MHC-HM414T  | HLA-A*02:01 | Tetramer             | Human&Mouse | WT-1       | RMFPNAPYL | C-His-Avi |
| MHC-HM432B  | HLA-A*02:03 | Biotinylated Monomer | Human       | AFP        | FMNKFYIEI | C-His-Avi |
| MHC-HM432   | HLA-A*02:03 | Monomer              | Human       | AFP        | FMNKFYIEI | C-His-Avi |
| MHC-HM432TP | HLA-A*02:03 | PE-Labeled Tetramer  | Human       | AFP        | FMNKFYIEI | C-His-Avi |
| MHC-HM432T  | HLA-A*02:03 | Tetramer             | Human       | AFP        | FMNKFYIEI | C-His-Avi |
| MHC-HM463B  | HLA-A*03:01 | Biotinylated Monomer | Human       | gp100      | ALLAVGATK | C-His-Avi |
| MHC-HM463   | HLA-A*03:01 | Monomer              | Human       | gp100      | ALLAVGATK | C-His-Avi |
| MHC-HM463T  | HLA-A*03:01 | Tetramer             | Human       | gp100      | ALLAVGATK | C-His-Avi |
| MHC-HM456B  | HLA-A*03:01 | Biotinylated Monomer | Human       | KRAS G12V  | VVGAVGVGK | C-His-Avi |
| MHC-HM456   | HLA-A*03:01 | Monomer              | Human       | KRAS G12V  | VVGAVGVGK | C-His-Avi |
| MHC-HM456TP | HLA-A*03:01 | PE-Labeled Tetramer  | Human       | KRAS G12V  | VVGAVGVGK | C-His-Avi |
| MHC-HM418B  | HLA-A*03:01 | Biotinylated Monomer | Human       | KRAS G12V  | VVGAVGVGK | C-His-Avi |
| MHC-HM418   | HLA-A*03:01 | Monomer              | Human       | KRAS G12V  | VVGAVGVGK | C-His-Avi |
| MHC-HM418TP | HLA-A*03:01 | PE-Labeled Tetramer  | Human       | KRAS G12V  | VVGAVGVGK | C-His-Avi |
| MHC-HM418T  | HLA-A*03:01 | Tetramer             | Human       | KRAS G12V  | VVGAVGVGK | C-His-Avi |
| MHC-HM423B  | HLA-A*03:01 | Biotinylated Monomer | Human       | KRAS WT    | VVGAGGVGK | C-His-Avi |
| MHC-HM423   | HLA-A*03:01 | Monomer              | Human       | KRAS WT    | VVGAGGVGK | C-His-Avi |
| MHC-HM423T  | HLA-A*03:01 | Tetramer             | Human       | KRAS WT    | VVGAGGVGK | C-His-Avi |
| MHC-HM478   | HLA-A*11:01 | Monomer              | Human       | EGFR L858R | KITDFGRAK | C-His     |
| MHC-HM479T  | HLA-A*11:01 | Tetramer             | Human       | EGFR L858R | KITDFGRAK | C-His-Avi |
| MHC-HM464B  | HLA-A*11:01 | Biotinylated Monomer | Human       | HPV16 E7   | IVCPICSQK | C-His-Avi |
| MHC-HM464   | HLA-A*11:01 | Monomer              | Human       | HPV16 E7   | IVCPICSQK | C-His-Avi |
| MHC-HM464T  | HLA-A*11:01 | Tetramer             | Human       | HPV16 E7   | IVCPICSQK | C-His-Avi |
| MHC-HM441B  | HLA-A*11:01 | Biotinylated Monomer | Human       | KRAS G12A  | VVGAAGVGK | C-His-Avi |
| MHC-HM441   | HLA-A*11:01 | Monomer              | Human       | KRAS G12A  | VVGAAGVGK | C-His-Avi |
| MHC-HM441T  | HLA-A*11:01 | Tetramer             | Human       | KRAS G12A  | VVGAAGVGK | C-His-Avi |
| MHC-HM439B  | HLA-A*11:01 | Biotinylated Monomer | Human       | KRAS G12C  | VVGACGVGK | C-His-Avi |
| MHC-HM439   | HLA-A*11:01 | Monomer              | Human       | KRAS G12C  | VVGACGVGK | C-His-Avi |
| MHC-HM439T  | HLA-A*11:01 | Tetramer             | Human       | KRAS G12C  | VVGACGVGK | C-His-Avi |
| MHC-HM420B  | HLA-A*11:01 | Biotinylated Monomer | Human       | KRAS G12D  | VVGADGVGK | C-His-Avi |
| MHC-HM420   | HLA-A*11:01 | Monomer              | Human       | KRAS G12D  | VVGADGVGK | C-His-Avi |
| MHC-HM420TP | HLA-A*11:01 | PE-Labeled Tetramer  | Human       | KRAS G12D  | VVGADGVGK | C-His-Avi |
| MHC-HM420T  | HLA-A*11:01 | Tetramer             | Human       | KRAS G12D  | VVGADGVGK | C-His-Avi |
| MHC-HM440B  | HLA-A*11:01 | Biotinylated Monomer | Human       | KRAS G12R  | VVGARGVGK | C-His-Avi |
| MHC-HM440   | HLA-A*11:01 | Monomer              | Human       | KRAS G12R  | VVGARGVGK | C-His-Avi |
| MHC-HM440T  | HLA-A*11:01 | Tetramer             | Human       | KRAS G12R  | VVGARGVGK | C-His-Avi |
| MHC-HM442B  | HLA-A*11:01 | Biotinylated Monomer | Human       | KRAS G12S  | VVGASGVGK | C-His-Avi |
| MHC-HM442   | HLA-A*11:01 | Monomer              | Human       | KRAS G12S  | VVGASGVGK | C-His-Avi |
| MHC-HM442T  | HLA-A*11:01 | Tetramer             | Human       | KRAS G12S  | VVGASGVGK | C-His-Avi |
| MHC-HM422B  | HLA-A*11:01 | Biotinylated Monomer | Human       | KRAS G12V  | VVGAVGVGK | C-His-Avi |
| MHC-HM422   | HLA-A*11:01 | Monomer              | Human       | KRAS G12V  | VVGAVGVGK | C-His-Avi |
| MHC-HM422T  | HLA-A*11:01 | Tetramer             | Human       | KRAS G12V  | VVGAVGVGK | C-His-Avi |
| MHC-HM421B  | HLA-A*11:01 | Biotinylated Monomer | Human       | KRAS G12V  | VVGAVGVGK | C-His-Avi |
| MHC-HM421F  | HLA-A*11:01 | FITC-Labeled Monomer | Human       | KRAS G12V  | VVGAVGVGK | C-His-Avi |
| MHC-HM421   | HLA-A*11:01 | Monomer              | Human       | KRAS G12V  | VVGAVGVGK | C-His-Avi |
| MHC-HM421TP | HLA-A*11:01 | PE-Labeled Tetramer  | Human       | KRAS G12V  | VVGAVGVGK | C-His-Avi |
| MHC-HM421T  | HLA-A*11:01 | Tetramer             | Human       | KRAS G12V  | VVGAVGVGK | C-His-Avi |
| MHC-HM429B  | HLA-A*11:01 | Biotinylated Monomer | Human       | KRAS WT    | VVGAGGVGK | C-His-Avi |
| MHC-HM429F  | HLA-A*11:01 | FITC-Labeled Monomer | Human       | KRAS WT    | VVGAGGVGK | C-His-Avi |

| Catalog #    | Allele      | Type                    | Species        | Antigen            | Peptide    | Tag       |
|--------------|-------------|-------------------------|----------------|--------------------|------------|-----------|
| MHC-HM429    | HLA-A*11:01 | Monomer                 | Human          | KRAS WT            | VVVGAGGVGK | C-His-Avi |
| MHC-HM429TP  | HLA-A*11:01 | PE-Labeled Tetramer     | Human          | KRAS WT            | VVVGAGGVGK | C-His-Avi |
| MHC-HM429T   | HLA-A*11:01 | Tetramer                | Human          | KRAS WT            | VVVGAGGVGK | C-His-Avi |
| MHC-HM410B   | HLA-A*11:01 | Biotinylated Monomer    | Human          | LMP2               | SSCSSCPLTK | C-His-Avi |
| MHC-HM410    | HLA-A*11:01 | Monomer                 | Human          | LMP2               | SSCSSCPLTK | C-His-Avi |
| MHC-HM410T   | HLA-A*11:01 | Tetramer                | Human          | LMP2               | SSCSSCPLTK | C-His-Avi |
| MHC-HM472AF6 | HLA-A*11:01 | AF647-Labeled Monomer   | Human          | MATN2              | KTLTSVFQK  | C-His-Avi |
| MHC-HM472B   | HLA-A*11:01 | Biotinylated Monomer    | Human          | MATN2              | KTLTSVFQK  | C-His-Avi |
| MHC-HM472    | HLA-A*11:01 | Monomer                 | Human          | MATN2              | KTLTSVFQK  | C-His-Avi |
| MHC-HM433B   | HLA-A*24:02 | Biotinylated Monomer    | Human          | GP100 Intron 4     | VYFFLPDHL  | C-His-Avi |
| MHC-HM433    | HLA-A*24:02 | Monomer                 | Human          | GP100 Intron 4     | VYFFLPDHL  | C-His-Avi |
| MHC-HM434B   | HLA-A*24:02 | Biotinylated Monomer    | Human          | MAGE-A3            | IMPKAGLLI  | C-His-Avi |
| MHC-HM434    | HLA-A*24:02 | Monomer                 | Human          | MAGE-A3            | IMPKAGLLI  | C-His-Avi |
| MHC-HM434T   | HLA-A*24:02 | Tetramer                | Human          | MAGE-A3            | IMPKAGLLI  | C-His-Avi |
| MHC-HM430B   | HLA-A*24:02 | Biotinylated Monomer    | Human          | Survivin 2B        | AYACNTSTL  | C-His-Avi |
| MHC-HM430    | HLA-A*24:02 | Monomer                 | Human          | Survivin 2B        | AYACNTSTL  | C-His-Avi |
| MHC-HM430T   | HLA-A*24:02 | Tetramer                | Human          | Survivin 2B        | AYACNTSTL  | C-His-Avi |
| MHC-HM448B   | HLA-B*15:01 | Biotinylated Monomer    | Human          | SARS-CoV-2 epitope | NQKLIANQF  | C-His-Avi |
| MHC-HM448    | HLA-B*15:01 | Monomer                 | Human          | SARS-CoV-2 epitope | NQKLIANQF  | C-His-Avi |
| MHC-HM10CTC  | HLA-C 03:04 | APC-Equivalent Tetramer | Human          | KRAS G12D          | GADGVGKSAL | C-His     |
| MHC-HM438B   | HLA-C 03:04 | Biotinylated Monomer    | Human          | KRAS G12D          | GADGVGKSAL | C-His-Avi |
| MHC-HM438    | HLA-C 03:04 | Monomer                 | Human          | KRAS G12D          | GADGVGKSAL | C-His-Avi |
| MHC-HM438T   | HLA-C 03:04 | Tetramer                | Human          | KRAS G12D          | GADGVGKSAL | C-His-Avi |
| MHC-HM438TP  | HLA-C 03:04 | Tetramer                | Human          | KRAS G12D          | GADGVGKSAL | C-His-Avi |
| MHC-HM40C    | HLA-E*01:03 | Monomer                 | Human          | --                 | VMAPKTLVL  | C-His-Avi |
| MHC-HM406B   | HLA-E*01:03 | Biotinylated Monomer    | Human          | --                 | VMAPRTLVL  | C-His-Avi |
| MHC-HM406TB  | HLA-E*01:03 | Biotinylated Tetramer   | Human          | --                 | VMAPRTLVL  | C-His-Avi |
| MHC-HM406    | HLA-E*01:03 | Monomer                 | Human          | --                 | VMAPRTLVL  | C-His-Avi |
| MHC-HM406T   | HLA-E*01:03 | Tetramer                | Human          | --                 | VMAPRTLVL  | C-His-Avi |
| MHC-HM466B   | HLA-E*01:03 | Biotinylated Monomer    | Human          | EBV LMP1           | GGDPHLPTL  | C-His-Avi |
| MHC-HM466    | HLA-E*01:03 | Monomer                 | Human          | EBV LMP1           | GGDPHLPTL  | C-His-Avi |
| HLG-HM40GTC  | HLA-G       | APC-Equivalent Tetramer | Human          | --                 | RIIPRHLQL  | C-His     |
| HLG-CM41CB   | HLA-G       | Biotinylated Monomer    | Cynomolgus     | --                 | RIIPRHLQL  | C-His-Avi |
| HLG-HM41CB   | HLA-G       | Biotinylated Monomer    | Human          | --                 | RIIPRHLQL  | C-His-Avi |
| HLG-RM41CB   | HLA-G       | Biotinylated Monomer    | Rhesus macaque | --                 | RIIPRHLQL  | C-His-Avi |
| HLG-HM41CTB  | HLA-G       | Biotinylated Tetramer   | Human          | --                 | RIIPRHLQL  | C-His-Avi |
| HLG-CM41C    | HLA-G       | Monomer                 | Cynomolgus     | --                 | RIIPRHLQL  | C-His-Avi |
| HLG-HM41C    | HLA-G       | Monomer                 | Human          | --                 | RIIPRHLQL  | C-His-Avi |
| HLG-RM41C    | HLA-G       | Monomer                 | Rhesus macaque | --                 | RIIPRHLQL  | C-His-Avi |
| HLG-HM41CTP  | HLA-G       | PE-Labeled Tetramer     | Human          | --                 | RIIPRHLQL  | C-His-Avi |
| HLG-CM41CT   | HLA-G       | Tetramer                | Cynomolgus     | --                 | RIIPRHLQL  | C-His-Avi |
| HLG-HM41CT   | HLA-G       | Tetramer                | Human          | --                 | RIIPRHLQL  | C-His-Avi |
| HLG-RM41CT   | HLA-G       | Tetramer                | Rhesus macaque | --                 | RIIPRHLQL  | C-His-Avi |
| MHC-MM452B   | Qa-1b       | Biotinylated Monomer    | Mouse          | Qdm                | AMAPRTLLL  | C-His-Avi |
| MHC-MM452    | Qa-1b       | Monomer                 | Mouse          | Qdm                | AMAPRTLLL  | C-His-Avi |



## E. Coli-Refolded MHC-Peptide Complexes

| Catalog #   | Allele      | Type                 | Antigen   | Peptide    | Species |
|-------------|-------------|----------------------|-----------|------------|---------|
| MHC-HE013B  | HLA-A*02:01 | Biotinylated Monomer | CMVpp65   | NLVPMVATV  | Human   |
| MHC-HE007B  | HLA-A*02:01 | Biotinylated Monomer | KRAS G12V | KLVVVGAVGV | Human   |
| MHC-HE008B  | HLA-A*02:01 | Biotinylated Monomer | KRAS WT   | KLVVVGAGGV | Human   |
| MHC-HE011B  | HLA-A*02:01 | Biotinylated Monomer | P53 R175H | HMTEVVRHC  | Human   |
| MHC-HE012B  | HLA-A*02:01 | Biotinylated Monomer | P53 WT    | HMTEVVRRC  | Human   |
| MHC-HM455B  | HLA-A*11:01 | Biotinylated Monomer | KRAS G12D | VVGADGVGK  | Human   |
| MHC-HM454B  | HLA-A*11:01 | Biotinylated Monomer | KRAS G12D | VVGADGVGK  | Human   |
| MHC-HE006B  | HLA-A*11:01 | Biotinylated Monomer | KRAS G12V | VVGAVGVGK  | Human   |
| MHC-HE005B  | HLA-A*11:01 | Biotinylated Monomer | KRAS G12V | VVGAVGVGK  | Human   |
| MHC-HE002B  | HLA-A*11:01 | Biotinylated Monomer | KRAS WT   | VVGAGGVGK  | Human   |
| MHC-HE001B  | HLA-A*11:01 | Biotinylated Monomer | KRAS WT   | VVGAGGVGK  | Human   |
| MHC-HE013   | HLA-A*02:01 | Monomer              | CMVpp65   | NLVPMVATV  | Human   |
| MHC-HE013T  | HLA-A*02:01 | Tetramer             | CMVpp65   | NLVPMVATV  | Human   |
| MHC-HE008   | HLA-A*02:01 | Monomer              | KRAS WT   | KLVVVGAGGV | Human   |
| MHC-HE446   | HLA-A*02:01 | Monomer              | NY-ESO-1  | SLLMWITQC  | Human   |
| MHC-HE446T  | HLA-A*02:01 | Tetramer             | NY-ESO-1  | SLLMWITQC  | Human   |
| MHC-HE011   | HLA-A*02:01 | Monomer              | P53 R175H | HMTEVVRHC  | Human   |
| MHC-HE012   | HLA-A*02:01 | Monomer              | P53 WT    | HMTEVVRRC  | Human   |
| MHC-HE010   | HLA-A*02:01 | Monomer              | WT-1      | RMFPNAPYL  | Human   |
| MHC-HM455   | HLA-A*11:01 | Monomer              | KRAS G12D | VVGADGVGK  | Human   |
| MHC-HM454   | HLA-A*11:01 | Monomer              | KRAS G12D | VVGADGVGK  | Human   |
| MHC-HE006   | HLA-A*11:01 | Monomer              | KRAS G12V | VVGAVGVGK  | Human   |
| MHC-HE005   | HLA-A*11:01 | Monomer              | KRAS G12V | VVGAVGVGK  | Human   |
| MHC-HE001   | HLA-A*11:01 | Monomer              | KRAS WT   | VVGAGGVGK  | Human   |
| MHC-HE005TP | HLA-A*11:01 | PE-Labeled Tetramer  | KRAS G12V | VVGAVGVGK  | Human   |

# Peptide-Ready MHCs

Load custom peptides onto an MHC monomer or tetramer in-house with our stabilized, peptide-free MHCs.

We have developed a portfolio of peptide-ready MHC (prMHC) proteins which are MHC monomers or tetramers stabilized without an antigenic peptide. These MHCs are peptide-ready meaning you can load your own peptides in-house to generate a custom MHC monomer or tetramer.

## Fast & Simple Loading Protocol

Our prMHCs can be conveniently loaded in your lab using a simple 3-step protocol, taking just 5–10 minutes at room temperature—no UV treatment or peptide exchange required.



### Dissolve

Dissolve the peptide to a concentration of 1mg/mL in DMSO or PBS



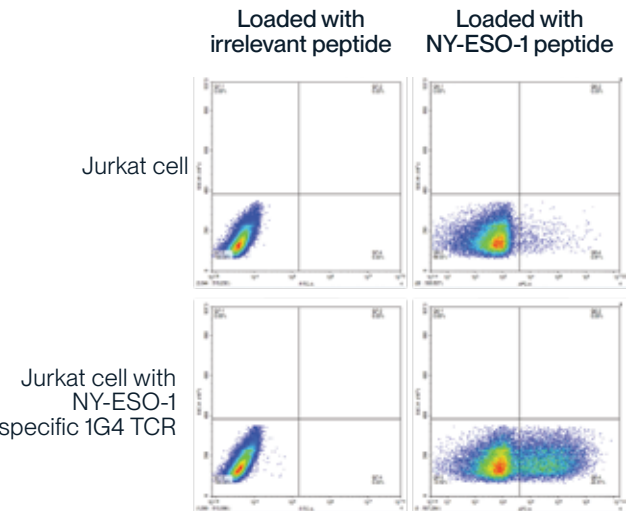
### Mix

Mix peptide with MHC at a molar ratio of 5:1 or 10:1



### Incubate

Incubate 5-10 minutes at room temperature



## Robust Antigen-Specific T Cell Sorting

Our prMHC tetramers offer high specificity and sensitivity, enabling precise identification and sorting of T cells that recognize specific antigens.

*Flow Cytometry Analysis of Jurkat Cells with Human APC-equivalent prMHC Tetramer (HLA-A\*02:01), His Tag. The results demonstrate specific binding of the NY-ESO-1 peptide to the NY-ESO-1 specific TCR, with a significant increase in APC-positive cells in the presence of the NY-ESO-1 peptide.*

| Catalog #   | Allele      | Type                     | Species |
|-------------|-------------|--------------------------|---------|
| MHC-HM43RB  | HLA-A*02:01 | Biotinylated Monomer     | Human   |
| MHC-HM43R   | HLA-A*02:01 | Monomer                  | Human   |
| MHC-HM43RTF | HLA-A*02:01 | Tetramer                 | Human   |
| MHC-HM44RB  | HLA-A*03:01 | Biotinylated Monomer     | Human   |
| MHC-HM44R   | HLA-A*03:01 | Monomer                  | Human   |
| MHC-HM44RTP | HLA-A*03:01 | PE-Labeled Tetramer      | Human   |
| MHC-HM44RTF | HLA-A*03:01 | Tetramer                 | Human   |
| MHC-HM41RB  | HLA-A*11:01 | Biotinylated Monomer     | Human   |
| MHC-HM41RTF | HLA-A*11:01 | FITC-Equivalent Tetramer | Human   |
| MHC-HM41R   | HLA-A*11:01 | Monomer                  | Human   |
| MHC-HM41RTP | HLA-A*11:01 | PE-Labeled Tetramer      | Human   |
| MHC-HM46RB  | HLA-A*24:02 | Biotinylated Monomer     | Human   |
| MHC-HM46RTF | HLA-A*24:02 | FITC-Equivalent Tetramer | Human   |
| MHC-HM46R   | HLA-A*24:02 | Monomer                  | Human   |
| MHC-HM54RB  | HLA-A*31:01 | Biotinylated Monomer     | Human   |
| MHC-HM53RB  | HLA-A*33:03 | Biotinylated Monomer     | Human   |
| MHC-HM47RB  | HLA-B*07:02 | Biotinylated Monomer     | Human   |
| MHC-HM47R   | HLA-B*07:02 | Monomer                  | Human   |
| MHC-HM42RB  | HLA-E*01:03 | Biotinylated Monomer     | Human   |
| MHC-HM42RTF | HLA-E*01:03 | FITC-Equivalent Tetramer | Human   |
| MHC-HM42R   | HLA-E*01:03 | Monomer                  | Human   |

# Custom MHC Expression Services

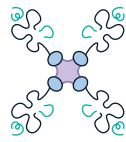
At KACTUS, we specialize in providing high-quality and reliable custom MHC complexes to meet your research needs. Our team brings extensive expertise in manufacturing MHC tetramers and monomers tailored to your specific requirements with competitive price and lead time.

After receiving the inquiry, we will reach out to you to initiate the technical discussion and feasibility assessment. In addition, we also provide SPR analysis service for your customized MHC binding affinity testing. We welcome any inquiries on custom MHC production and analysis service, including uncommon alleles, specific expression settings, or custom sequences!

## Customizable Features



Monomer



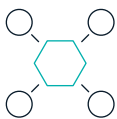
Tetramers



Peptide-Ready MHC



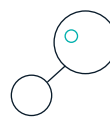
Chimeric MHCs



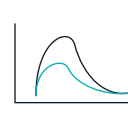
Mammalian or E. coli expression systems



Class I, Class II, Non-Classical, or alleles from other species



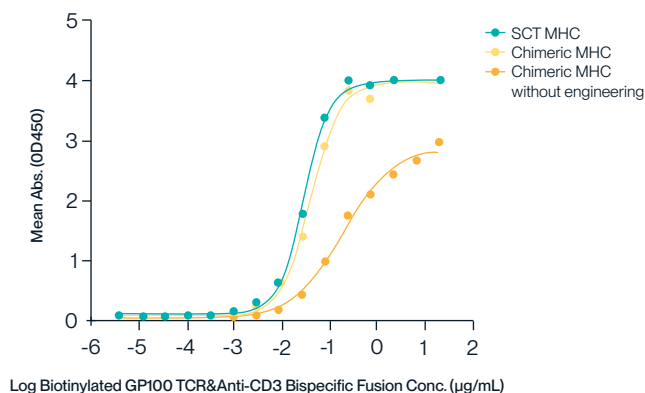
Biotinylation or Fluorescent Labeling



Biological activity verification (ELISA, SPR, FACS, etc.)

## Chimeric MHCs

Our chimeric MHCs are ideal for obtaining more effective antibodies from immunization. The human MHC  $\alpha 3$  and  $\beta 2M$  are replaced with the corresponding domains from immunization host species, and rational engineering is introduced to maintain the correct structure. This approach leaves more immunogenicity to the antigenic peptide, boosting the probability of generating effective antibodies, and thereby greatly improving the efficiency of TCR mimic antibody discovery.



ELISA validation shows that the Chimeric HLA-A02:01( $\alpha 3$ )&mB2M&GP100 (YLEPGPVTA) Monomer can bind to the GP100 TCR&Anti-CD3 Bispecific Fusion. Its activity is comparable to the non-chimeric HLA-A02:01&B2M&GP100 (YLEPGPVTA) Monomer and superior to that of the chimeric monomer without engineering.

## Request Custom MHC

To request custom MHC expression services, contact [support@kactusbio.us](mailto:support@kactusbio.us).



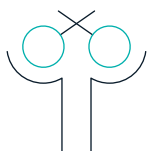
Learn More

# Soluble TCR Expression Services

To complement our MHC expression expertise, KACTUS also provides custom production services of soluble TCRs and TCR fusion proteins.

Our expert team will provide one-stop solution from plasmid establishment to protein production, as well as binding affinity verification via ELISA or our SPR analysis services for customized TCRs.

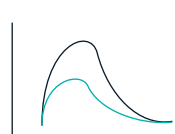
## Service Features



Production of various formats of soluble TCRs, including scFv-TCR, TCR-His, etc.



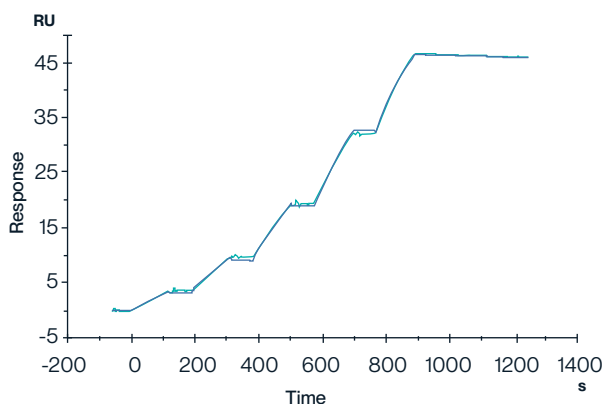
TCR engineering to optimize soluble TCR expression based on TCR modeling



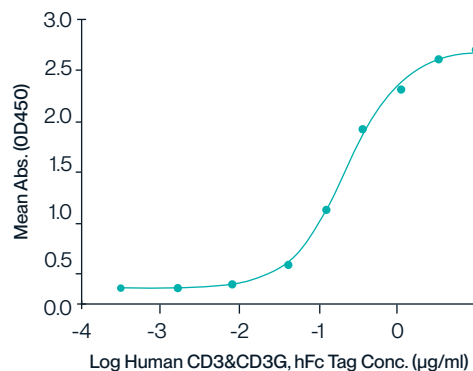
SPR or ELISA analysis of soluble TCR & MHC interactions

## GP100 TCR & Anti-CD3 Bispecific Fusion

We have successfully expressed a GP100 TCR & Anti-CD3 Bispecific Fusion, which can not only bind to HLA-A\*02:01&B2M&GP100 (YLEPGPVTA) complex, but also to CD3 heterodimers at the same time, demonstrating good bispecific binding activity.



GP100 TCR & Anti-CD3 Bispecific Fusion can bind to the HLA-A\*02:01&B2M&GP100 (YLEPGPVTA) complex tetramer in SPR, with an affinity constant of 0.196 nM.



ELISA verification demonstrates that GP100 TCR & Anti-CD3 Bispecific Fusion can bind to Human CD3E&CD3G, with an EC50 value of 0.22 µg/mL.

## Request Soluble TCR

To request TCR expression services, contact [support@kactusbio.us](mailto:support@kactusbio.us).



Learn More