For Research Use Only

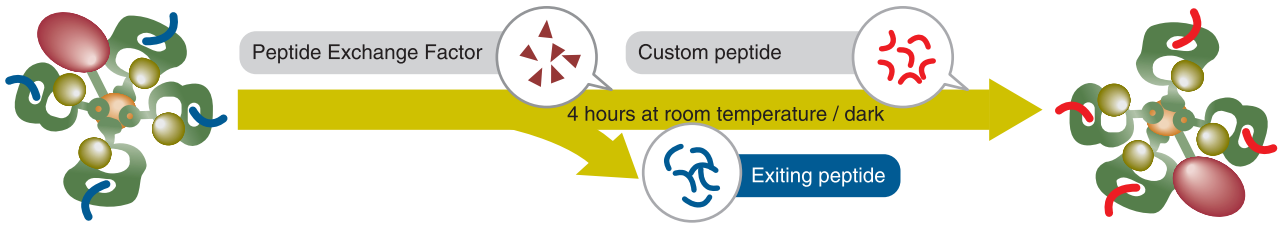
MBL
A JSR Life Sciences Company

QuickSwitch™ Custom Tetramer Kits

Kits for preparation of custom tetramers in the laboratory using our proprietary peptide exchange technology

- Prepare custom tetramers in 4 hours
- No UV lamp or special instrument required
- Quantify peptide exchange efficiency (Quant Tetramer Kits)
- Select ready-to-use tetramer in PE, APC, or BV421

Principle of the peptide exchange reaction

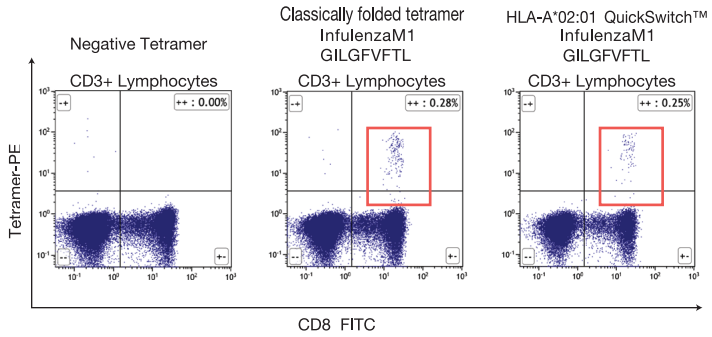


MHC tetramers in QuickSwitch™ Custom Tetramer Kits are pre-bound with “exiting peptide” (shown in blue) to maintain structural integrity. Exchange of the exiting peptide with custom peptide (shown in red) is initiated upon addition of the custom peptide and a peptide-exchange factor (reaction time is 4 hours).
The efficiency of peptide exchange depends on the sequence of the custom peptide. QuickSwitch™ Quant Tetramer Kits contain reagents for determination of the peptide exchange efficiency (see the reverse side for details).

Tetramer preparation and cell staining using QuickSwitch™ Tetramer Kits

- CTL staining with HLA-A*02:01 Influenza M1 (GILGFVFTL) tetramers

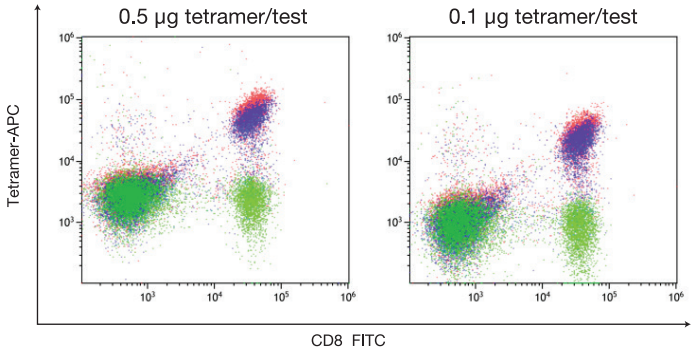
  Human PBMCs were stained with tetramer prepared using QuickSwitch™ Tetramer Kit or with MBL’s equivalent tetramer product. (The number in the upper right corner of each panel indicates the percentage of tetramer-positive cells that are also CD8-positive.)
  The peptide exchange efficiency of influenza M1 (GILGFVFTL) was 89%. (Data not shown.)



- CTL staining with H-2Kb OVA (SIINFEKL) tetramers

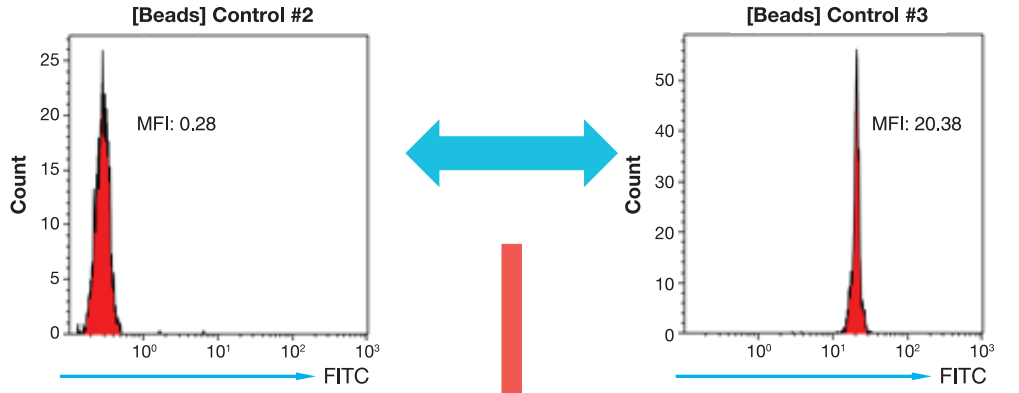
  Spleens were harvested from OT-I TCR transgenic mice, and splenocytes (1.2 x 10^5 cells/test) were stained with 0.5 or 0.1 µg of tetramer reagents.

  Green: H-2Kb TRP-2 Tetramer (negative control)
  Red: H-2Kb OVA SIINFEKL Tetramer (prepared using QuickSwitch™ Tetramer kit)
  Blue: H-2Kb OVA SIINFEKL Tetramer (MBL’s equivalent tetramer product)



Determination of peptide exchange efficiency

QuickSwitch™ Quant Tetramer Kits contain FITC labeled antibody which detects to the exiting peptide pre-bound to MHC molecules. After the peptide-exchange reaction, the MHC tetramers are adsorbed to special beads and reacted with the antibody for the determination of peptide exchange efficiency by flow cytometry.



Shown is the FITC mean fluorescence intensity (MFI) of the special beads. Tetramer molecules are not included. Exchange efficiency is set as 100% at this value, because there is no bound exiting peptide.

Above is the FITC mean fluorescence intensity (MFI) of QuickSwitch™ tetramer molecules before peptide exchange reaction. Exchange efficiency is set as 0% at this value, because all bound peptide is the exiting peptide.

Theoretical mean fluorescence intensity (MFI) of tetramers after exchange reaction with custom peptide will lie between these values.

Peptide sample	FITC mean fluorescence intensity (MFI) after peptide exchange reaction	Peptide exchange efficiency (%)
A	9.37	54.78
B	5.29	75.07
C	2.12	90.85
D	1.29	94.98
E	22	FALSE
F	0.11	100.45

Experimental example: Peptide exchange reactions were performed with 6 custom peptides (A–F), and exchange efficiencies were determined. The higher (closer to 100%) the peptide exchange efficiency (%) was, the more completely the peptides were exchanged.

<Product List>

*QuickSwitch™ Quant Tetramer Kits contain reagents for the determination of peptide exchange efficiency.

Code No.	Product name	Size
TB-7300-K1	QuickSwitch™ Quant HLA-A*02:01 Tetramer Kit-PE	25 µg
TB-7300-K2	QuickSwitch™ Quant HLA-A*02:01 Tetramer Kit-APC	25 µg
TB-7300-K4	QuickSwitch™ Quant HLA-A*02:01 Tetramer Kit-BV421	25 µg
TB-7400-K1	QuickSwitch™ Quant H-2Kb Tetramer Kit-PE	25 µg
TB-7400-K2	QuickSwitch™ Quant H-2Kb Tetramer Kit-APC	25 µg
TB-7400-K4	QuickSwitch™ Quant H-2Kb Tetramer Kit-BV421	25 µg

*QuickSwitch™ Tetramer Kits do not include these reagents.

Code No.	Product name	Size
TB-7301-K1	QuickSwitch™ HLA-A*02:01 Tetramer Kit-PE	25 µg
TB-7301-K2	QuickSwitch™ HLA-A*02:01 Tetramer Kit-APC	25 µg
TB-7301-K4	QuickSwitch™ HLA-A*02:01 Tetramer Kit-BV421	25 µg
TB-7401-K1	QuickSwitch™ H-2Kb Tetramer Kit-PE	25 µg
TB-7401-K2	QuickSwitch™ H-2Kb Tetramer Kit-APC	25 µg
TB-7401-K4	QuickSwitch™ H-2Kb Tetramer Kit-BV421	25 µg

- When using the standard protocol, each kit is sufficient for custom tetramers for 10 different peptide sequences. Each peptide sequence requires approximately 2.5 µg of tetramer molecules. The amount of custom tetramers to use for staining T cells in PBMCs needs to be determined for each peptide sequence.

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Produced by
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