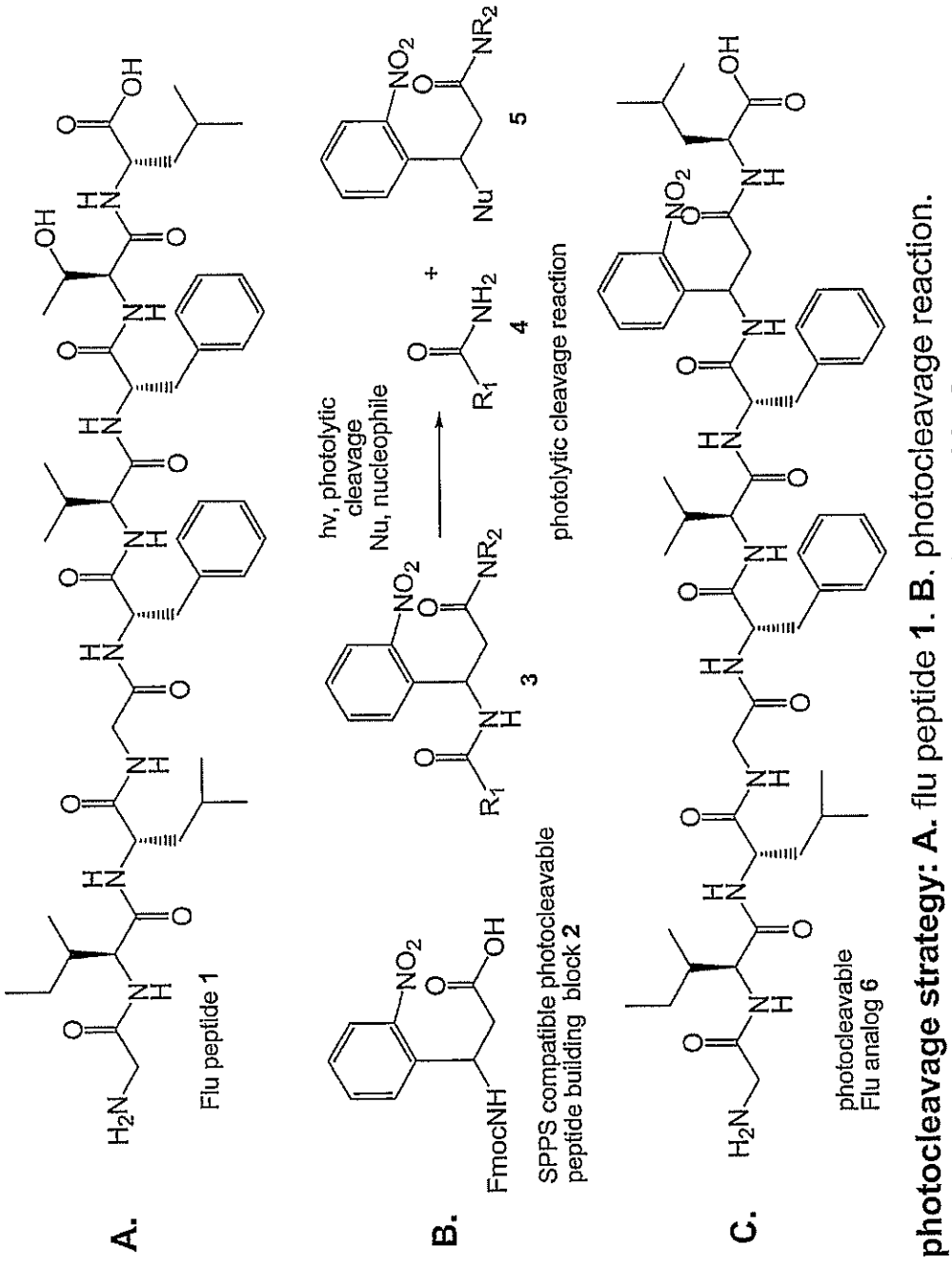
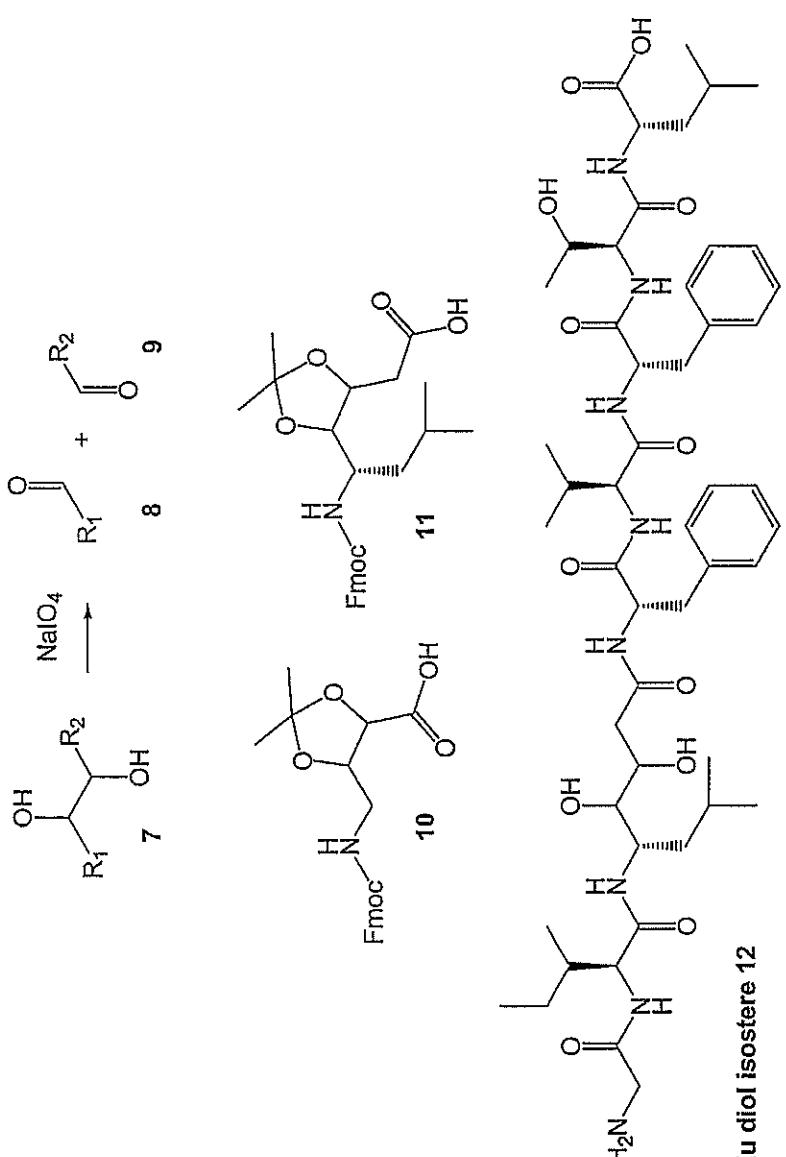


photocleavage strategy: A. flu peptide **1**. **B**. photocleavage reaction. **C.** photocleavable flu peptide **6.**

Fig. 1A



oxidative periodate-mediated peptide cleavage:

A. cleavage reaction.

B. building blocks compatible with solid phase peptide synthesis: protected dihydroxy amino acid **10** and protected dipeptide istostere **11**.

C. deprotected periodatecleavable flu peptide **12** containing diol dipeptide isostere **11**.

Fig. 1B

Dissociation of MHC-bound peptide by UV

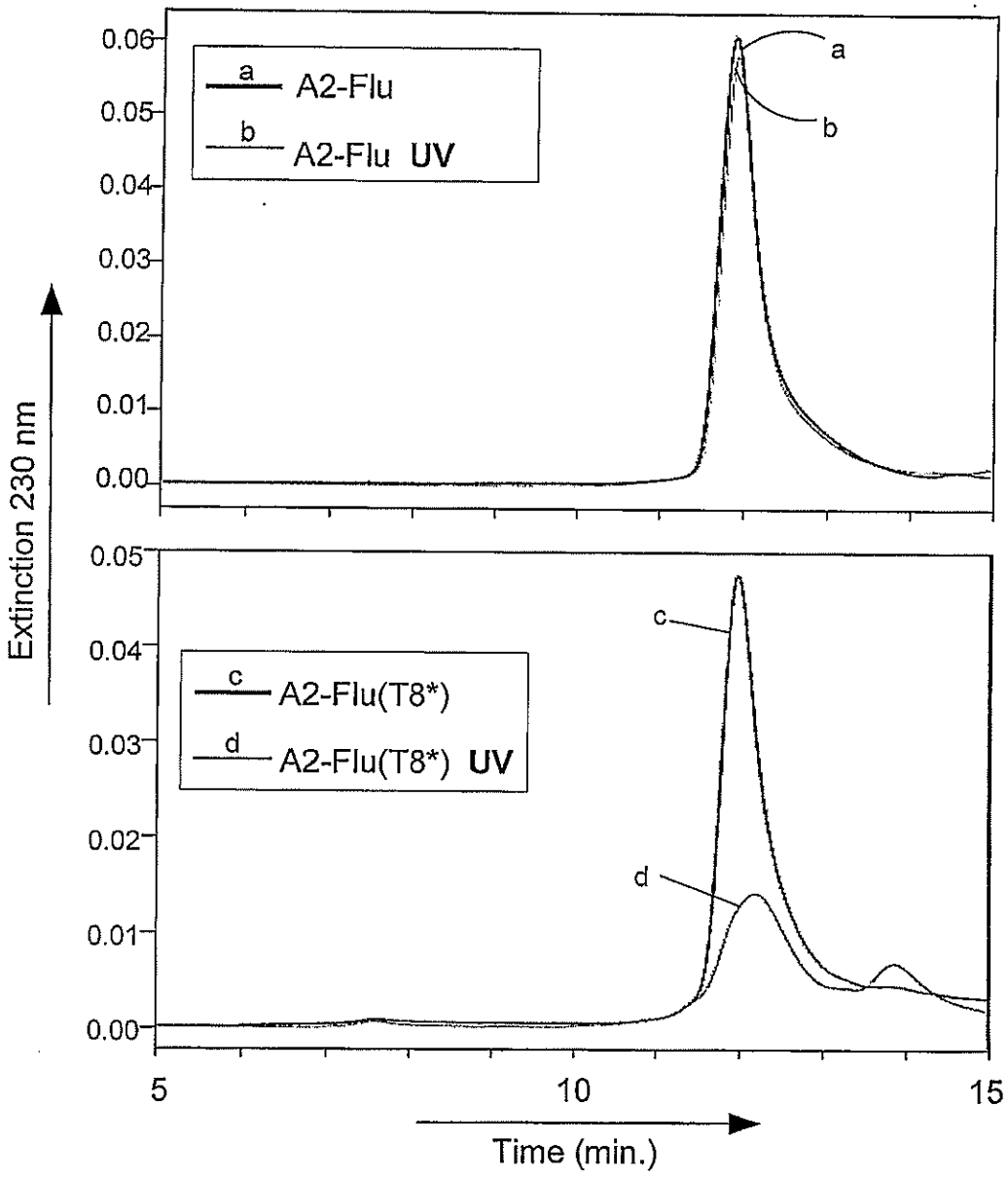
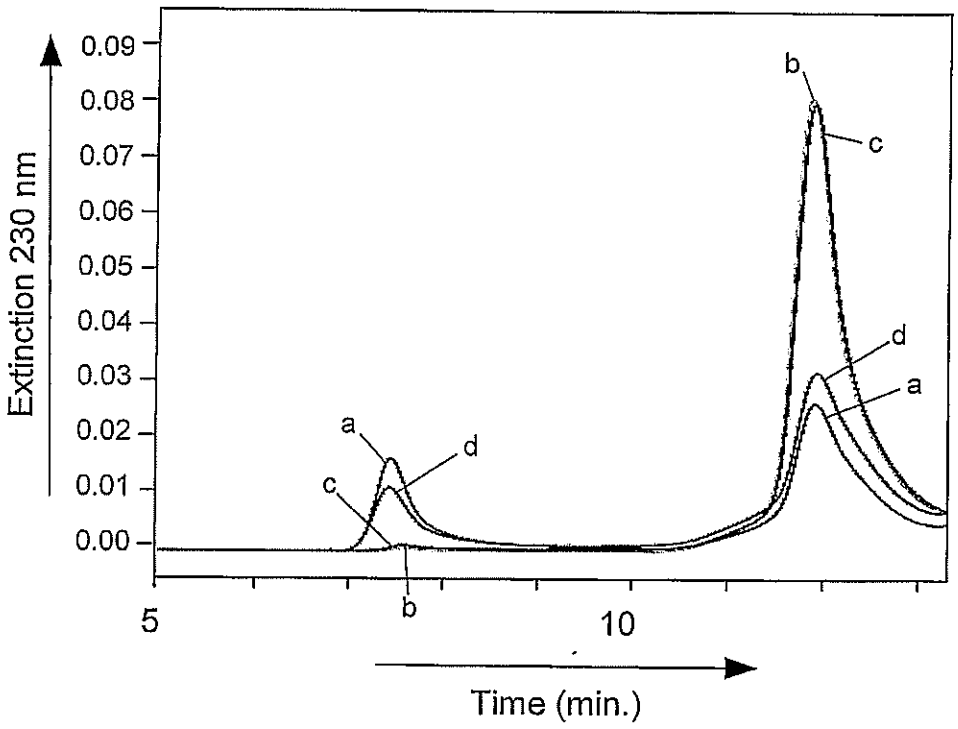


Fig. 2A

Binding of specific peptides to empty MHC



a A2-Flu(T8*) **UV**

b A2-Flu(T8*) **UV** + $MART_{26-35(A2L)}$ (A2 binder)

c A2-Flu(T8*) **UV** + $HY_{311-319}$ (A2 binder)

d A2-Flu(T8*) **UV** + $GP100_{614-622}$ (A3 binder)

Fig. 2B

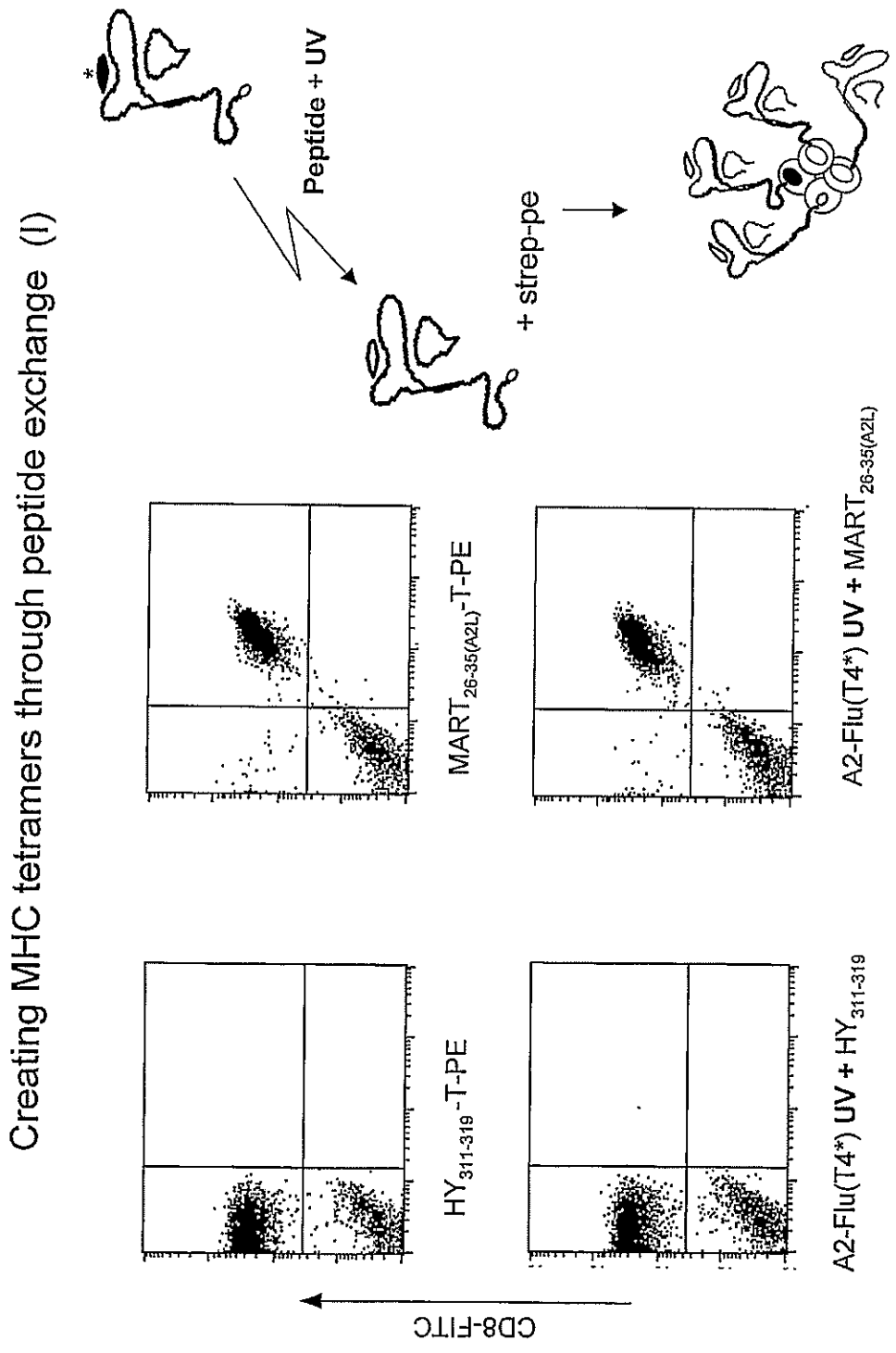

Creating MHC tetramers through peptide exchange (I)
Peptide + UV
+ strep-pe
MART26-35(A2L)-T-PE
HY311-319-T-PE
A2-Flu(T4*) UV + MART26-35(A2L)
A2-Flu(T4*) UV + HY311-319
MART26-35 CTL clone
CD8-FITC

Fig. 3

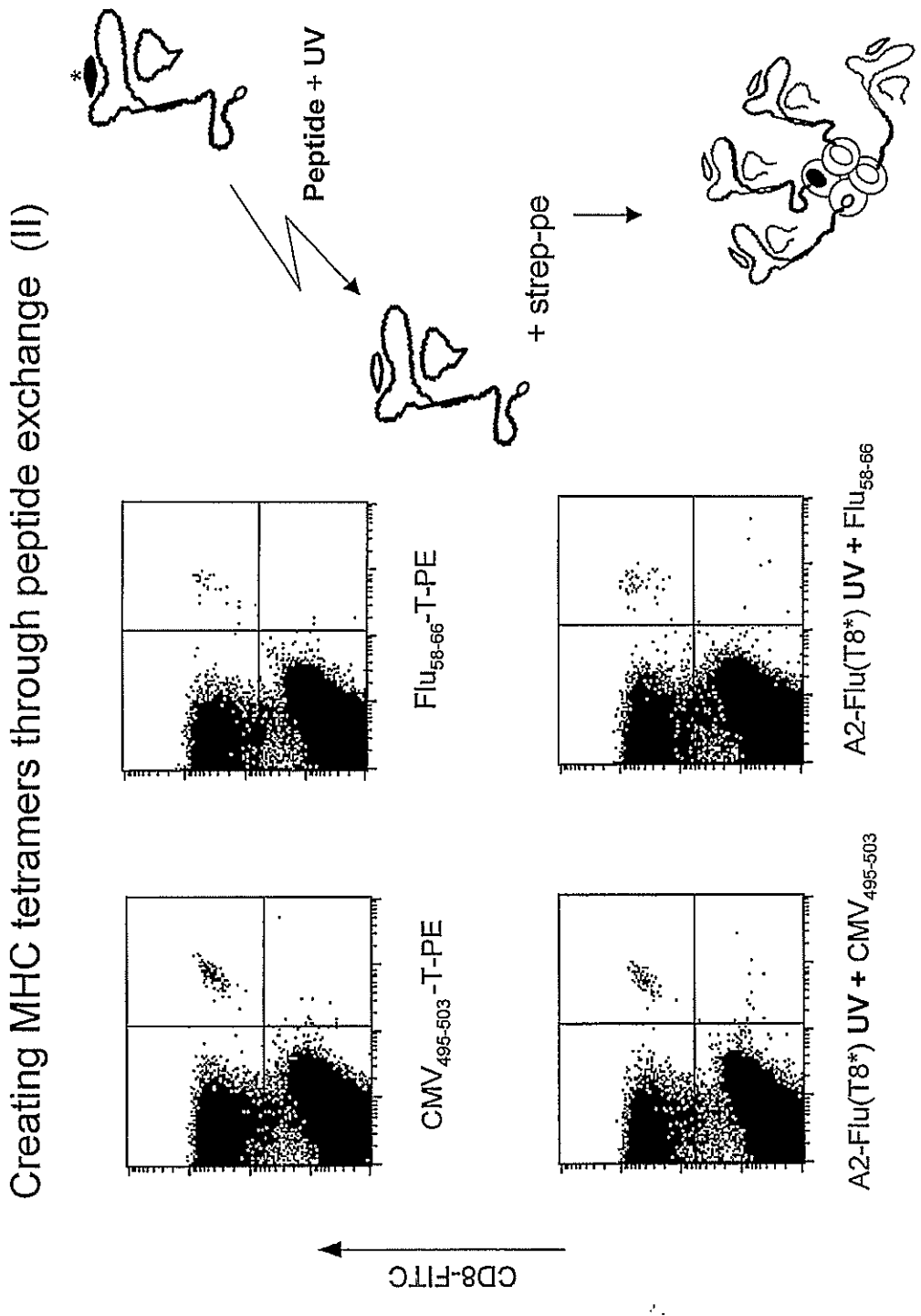

Creating MHC tetramers through peptide exchange (II)
Peptide + UV
+ strep-pe
Flu_{58-66}-T-PE
$CMV_{495-503}$-T-PE
A2-Flu(T8*) UV + Flu_{58-66}
A2-Flu(T8*) UV + $CMV_{495-503}$
CD8-FITC
PBMCs

Fig. 4

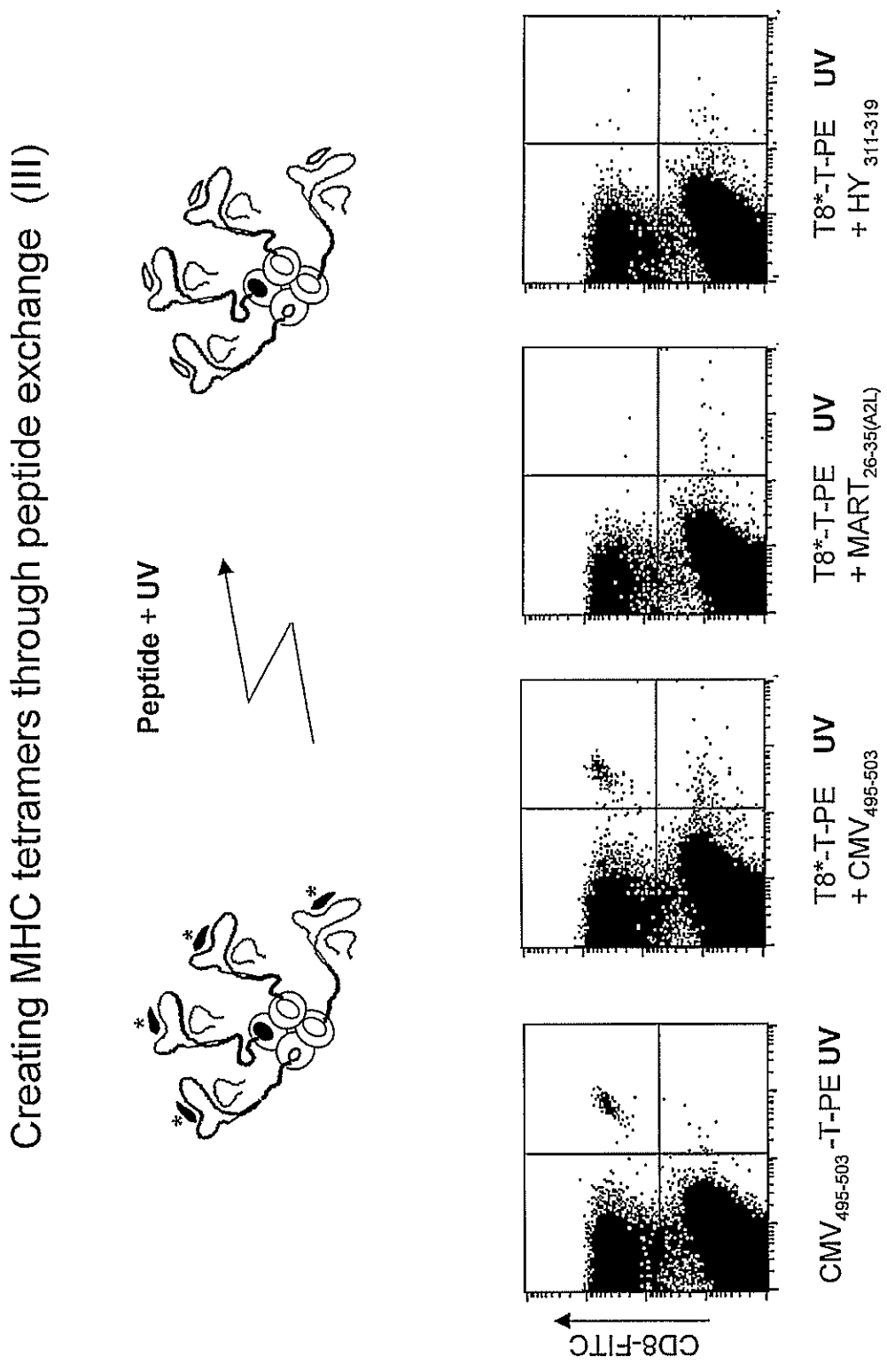

Creating MHC tetramers through peptide exchange (III)
Peptide + UV
CD8-FITC
CMV495-503-T-PE UV
T8*-T-PE UV + CMV495-503
T8*-T-PE UV + MART26-35(A2L)
T8*-T-PE UV + HY311-319

Fig. 5

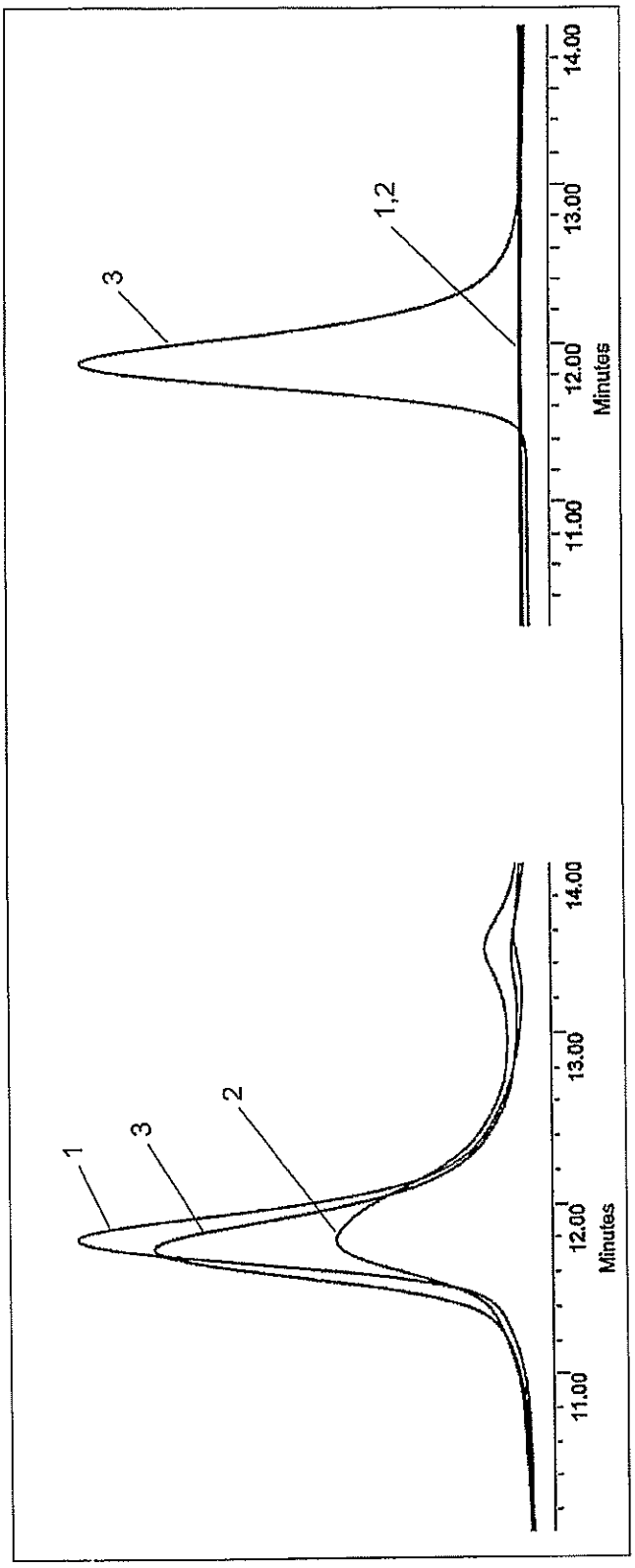

1
3
2
11.00
12.00
13.00
14.00
Minutes
3
1,2
11.00
12.00
13.00
14.00
Minutes

Fig. 6

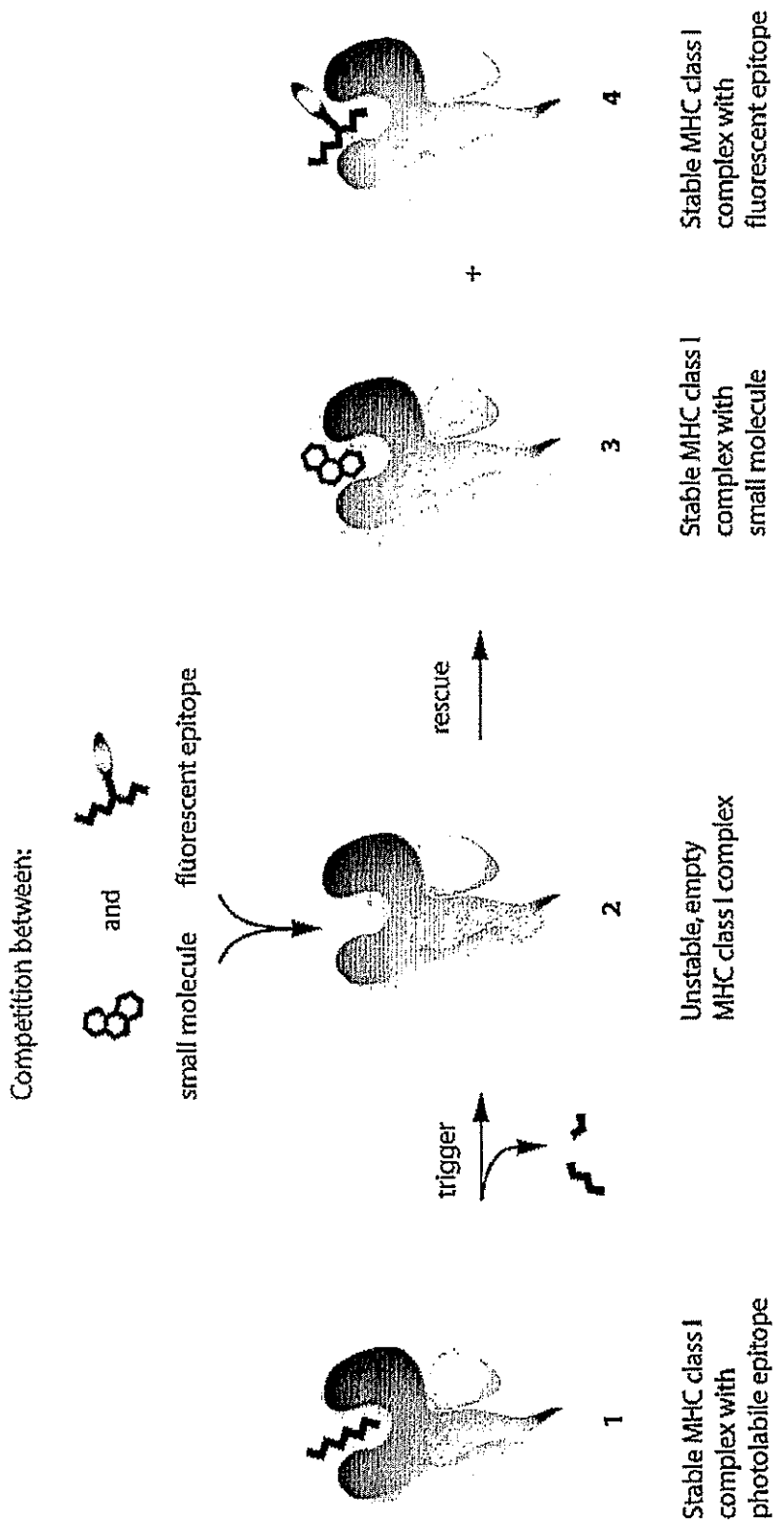

Competition between:
and
small molecule
fluorescent epitope
trigger
rescue
+
1
2
3
4
Stable MHC class I complex with photolabile epitope
Unstable, empty MHC class I complex
Stable MHC class I complex with small molecule
Stable MHC class I complex with fluorescent epitope

Fig. 7

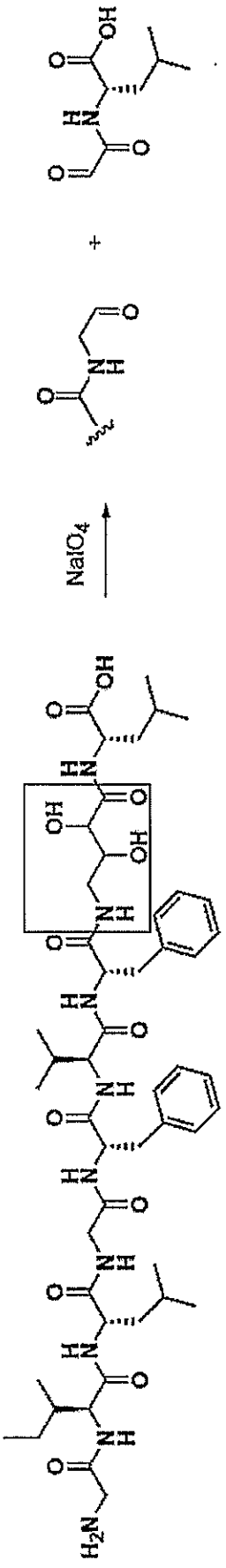


Fig. 8

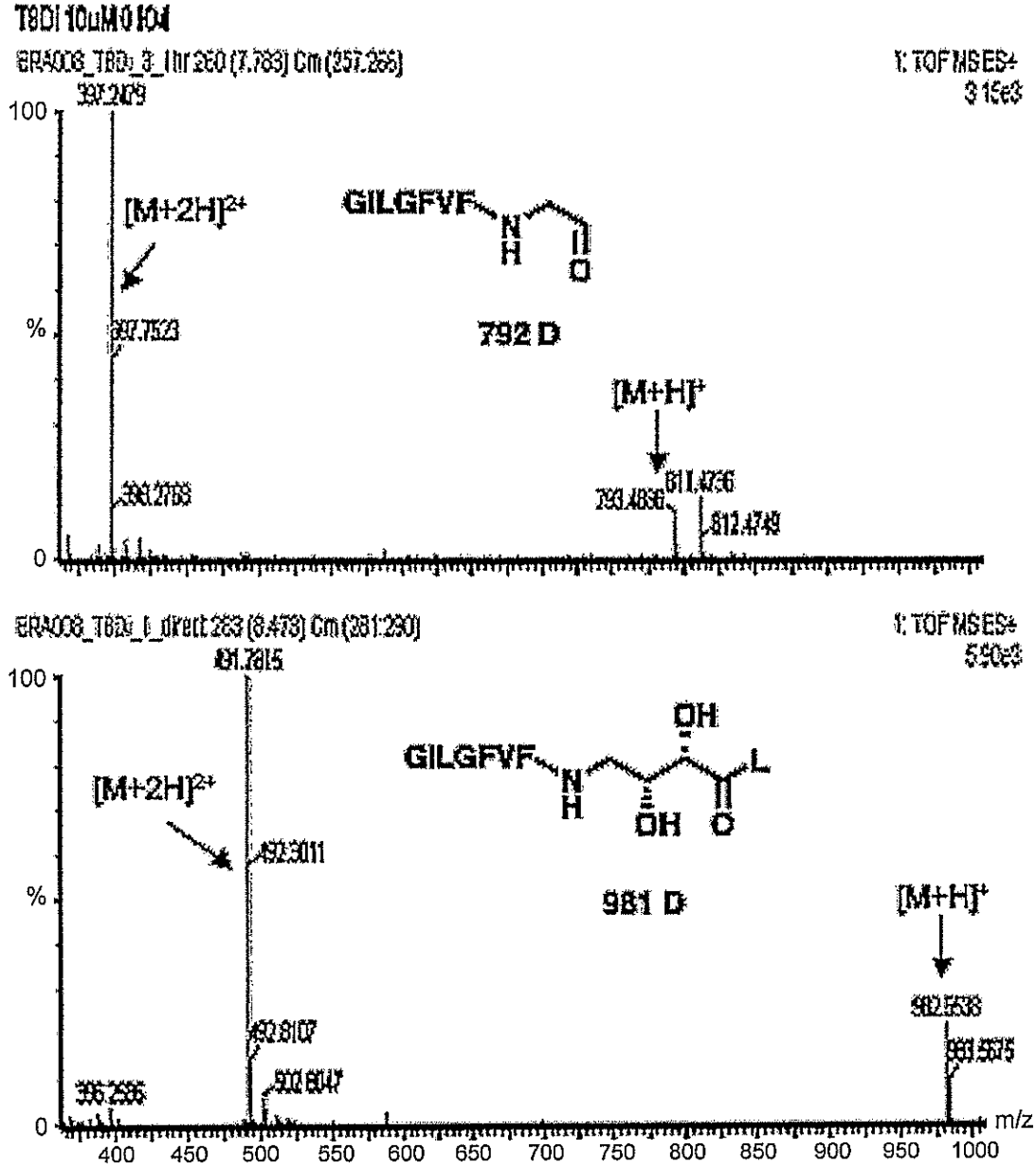

100
%
0
[M+2H]2+
GILGFVF
792 D
[M+H]+
981 D
m/z
400
450
500
550
600
650
700
750
800
850
900
950
1000

Fig. 9