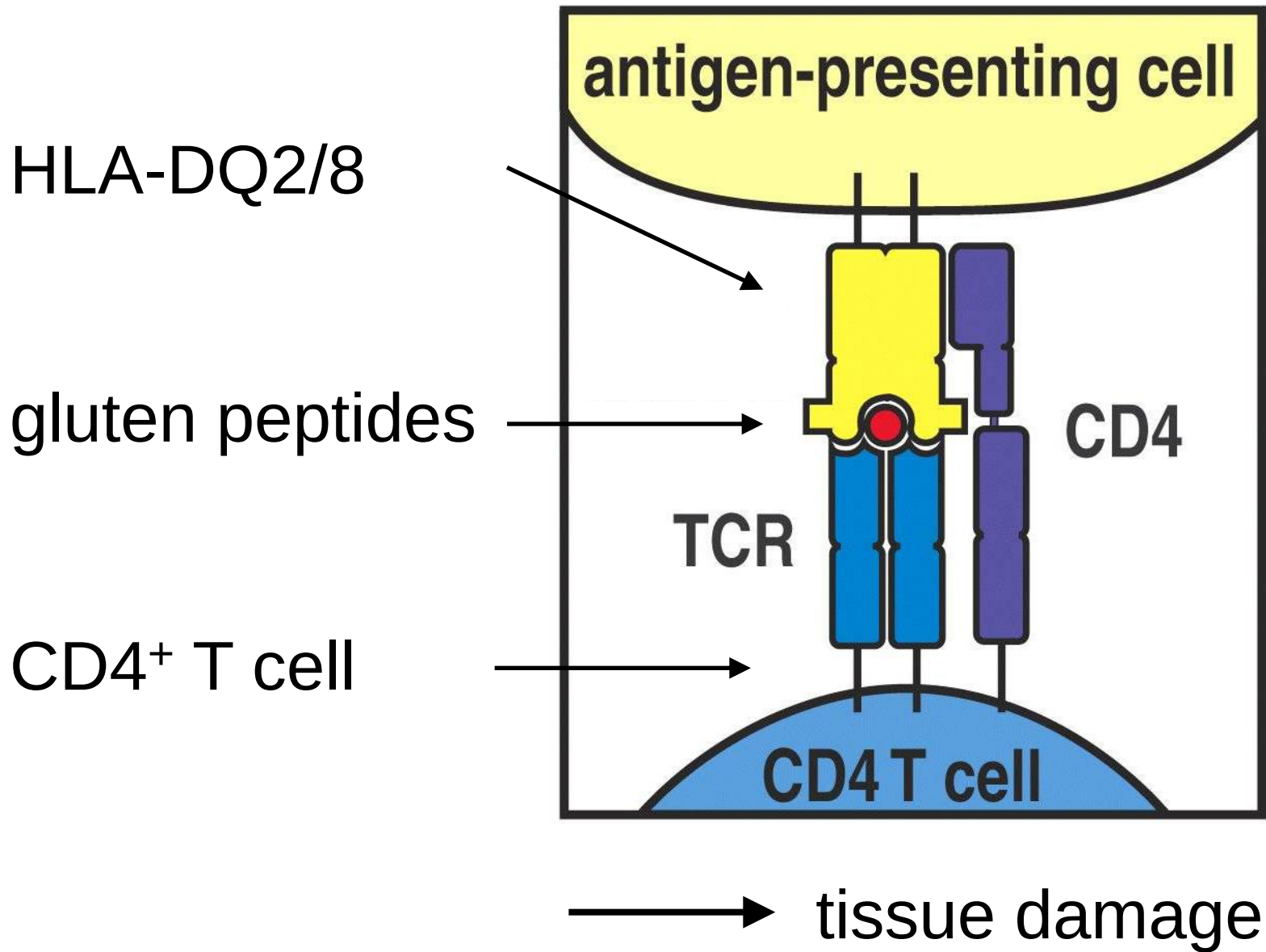




Celiac disease — DQ2 T-cell epitopes

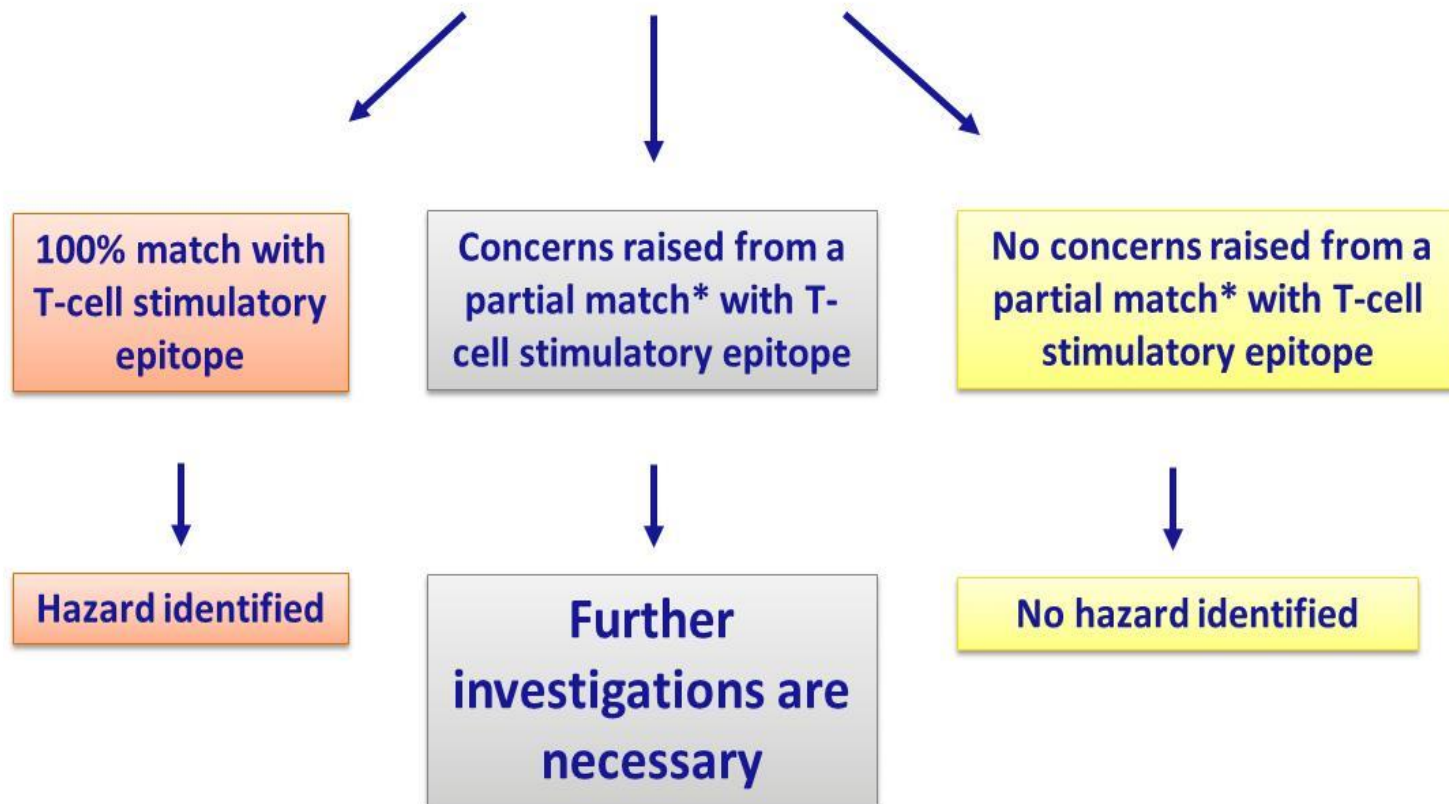
DQ2 restricted epitopes

[Sollid et al., 2012. Immunogenetics, 64, 455-460](#)

Epitope	Motif	Reference
DQ2.5-glia- α 1a	P F P Q P Q L P Y	Arentz-Hansen et al. (2000)
DQ2.5-glia- α 1b	P Y P Q P Q L P Y	Arentz-Hansen et al. (2002)
DQ2.5-glia- α 2	P Q P Q L P Y P Q	Arentz-Hansen et al. (2000)
DQ2.5-glia- α 3	F R P Q Q P Y P Q	Vader et al. (2002b)
DQ2.5-glia- γ 1	P Q Q S F P Q Q Q	Sjöström et al. (1998)
DQ2.5-glia- γ 2	I Q P Q Q P A Q L	Qiao et al. (2005), Vader et al. (2002b)
DQ2.5-glia- γ 3	Q Q P Q Q P Y P Q	Arentz-Hansen et al. (2002)
DQ2.5-glia- γ 4a	S Q P Q Q Q F P Q	Arentz-Hansen et al. (2002)
DQ2.5-glia- γ 4b	P Q P Q Q Q F P Q	Qiao et al. (2005)
DQ2.5-glia- γ 4c	Q Q P Q Q P F P Q	Arentz-Hansen et al. (2002)
DQ2.5-glia- γ 4d	P Q P Q Q P F C Q	Qiao (unpublished)
DQ2.5-glia- γ 5	Q Q P F P Q Q P Q	Arentz-Hansen et al. (2002)
DQ2.5-glia- ω 1	P F P Q P Q Q P F	Tye-Din et al. (2010)
DQ2.5-glia- ω 2	P Q P Q Q P F P W	Tye-Din et al. (2010)
DQ2.2-glut-L1	P F S Q Q Q Q P V	Vader et al. (2002b)
DQ2.5-glut-L2	F S Q Q Q Q S P F	Stepniak et al. (2005), Vader et al. (2002b)
DQ2.5-hor-1	P F P Q P Q Q P F	Tye-Din et al. (2010), Vader et al. (2003)
DQ2.5-hor-2	P Q P Q Q P F P Q	Vader et al. (2003)
DQ2.5-sec-1	P F P Q P Q Q P F	Tye-Din et al. (2010), Vader et al. (2003)
DQ2.5-sec-2	P Q P Q Q P F P Q	Vader et al. (2003)
DQ2.5-ave-1	P Y P E Q Q E P F	Arentz-Hansen et al. (2004), Vader et al. (2003)
DQ2.5-ave-1b	P Y P E Q Q Q P F	Arentz-Hansen et al. (2004), Vader et al. (2003)

RA of (novel) proteins: celiac disease

Fig 2. Search for sequence identity



*A partial match with a known T cell-stimulatory peptide raises concern because of the position and nature of the identical amino acids.

Celiac disease — DQ2 T-cell epitopes

DQ2 restricted epitopes

[Sollid et al., 2012. Immunogenetics, 64, 455-460](#)

Epitope	Motif	Reference
DQ2.5-glia- α 1a	P F P Q P Q L P Y	Arentz-Hansen et al. (2000)
DQ2.5-glia- α 1b	P Y P Q P Q L P Y	Arentz-Hansen et al. (2002)
DQ2.5-glia- α 2	P Q P Q L P Y P Q	Arentz-Hansen et al. (2000)
DQ2.5-glia- α 3	E L P Y Q Q F F A S V E Q	Vader et al. (2002b)
DQ2.5-glia- γ 1		Sjöström et al. (1998)
DQ2.5-glia- γ 2		Qiao et al. (2005), Vader et al. (2002b)
DQ2.5-glia- γ 3		Arentz-Hansen et al. (2002)
DQ2.5-glia- γ 4a		Arentz-Hansen et al. (2002)
DQ2.5-glia- γ 4b		Qiao et al. (2005)
DQ2.5-glia- γ 4c		Arentz-Hansen et al. (2002)
DQ2.5-glia- γ 4d		Qiao (unpublished)
DQ2.5-glia- γ 5		Arentz-Hansen et al. (2002)
DQ2.5-glia- ω 1		Tye-Din et al. (2010)
DQ2.5-glia- ω 2		Tye-Din et al. (2010)
DQ2.2-glut-L1		Vader et al. (2002b)
DQ2.5-glut-L2		Stepniak et al. (2005), Vader et al. (2002b)
DQ2.5-hor-1	Q/E-X1-P-X2	Tye-Din et al. (2010), Vader et al. (2003)
DQ2.5-hor-2		Vader et al. (2003)
DQ2.5-sec-1		Tye-Din et al. (2010), Vader et al. (2003)
DQ2.5-sec-2	P Q P Q Q P F P Q	Vader et al. (2003)
DQ2.5-ave-1	P Y P E Q Q E P F	Arentz-Hansen et al. (2004), Vader et al. (2003)
DQ2.5-ave-1b	P Y P E Q Q Q P F	Arentz-Hansen et al. (2004), Vader et al. (2003)

Celiac disease — DQ8 T-cell epitopes

[Sollid et al., 2012. Immunogenetics, 64, 455-460](#)

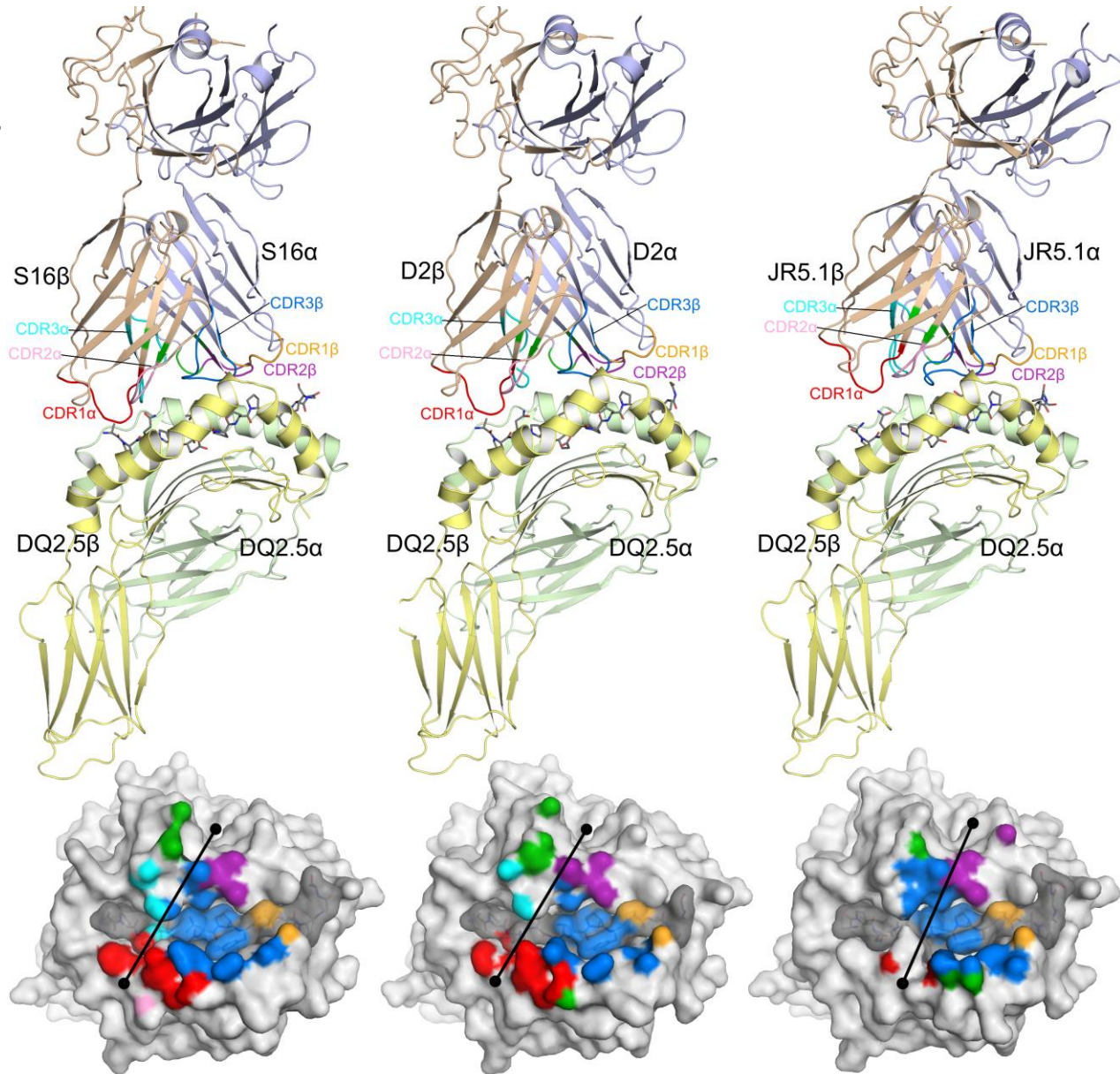
DQ8 restricted epitopes

Epitope	Motif	Reference
DQ8-glia- α 1	Q G S F Q P S Q Q	van de Wal et al. (1998b)
DQ8-glia- γ 1a	Q Q P Q Q P F P Q	Tollefsen et al. (2006)
DQ8-glia- γ 1b	Q Q P Q Q P Y P Q	Tollefsen et al. (2006)
DQ8-glut-H1	Q G Y Y P T S P Q	van de Wal et al. (1999)

Partial matches without the Q/E-X1-P-X2
to be investigated

DQ2-glia- α 2 recognition

TRAV26-01
TRBV7-02⁺



T cell receptor

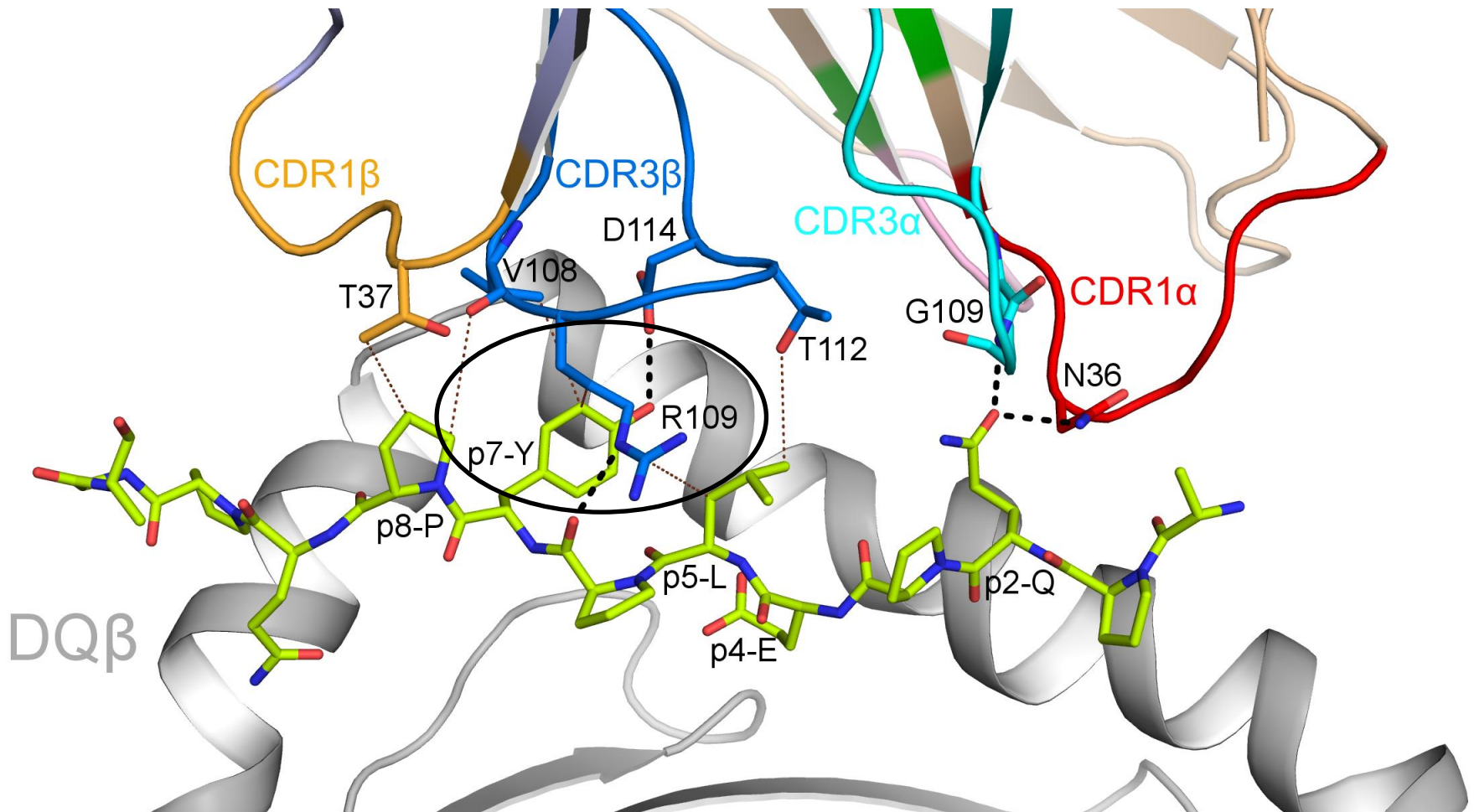
Peptide

DQ2

Conserved β -chain footprint

Petersen et al, NMSB 2014

DQ2-glia- α 2 recognition



Partial matches: Q/E-X1-P-X2 motif is present

PF**P**QP**Q**LPY and

AL**P**LT**Q**LPA

4 identical, two invisible, one conservative:
POTENTIAL HAZARD

PQP**Q**LPYPQ and

PLT**Q**LPASR

4 identical, one conservative BUT
Y > A, P > S and Q > R prohibit recognition:
NO HAZARD

Partial matches: Q/E-X1-P-X2 motif is NOT present

QGSFQPSQQ and

EGSIQAGQQ

5 identical, one conservative, one enhances
binding:

POTENTIAL HAZARD

QGSFQPSQQ and

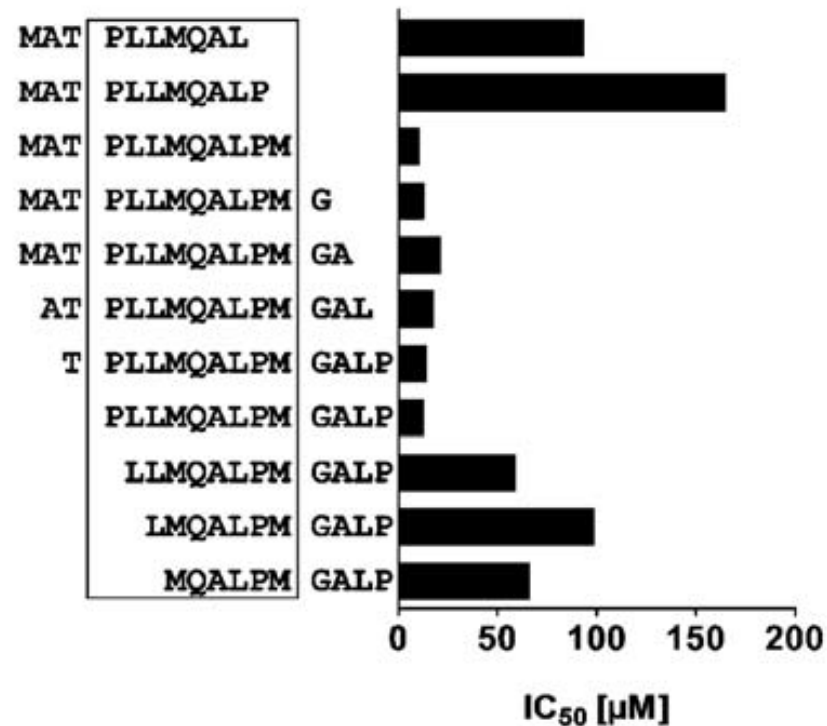
QGLFSPSAQ

6 identical BUT

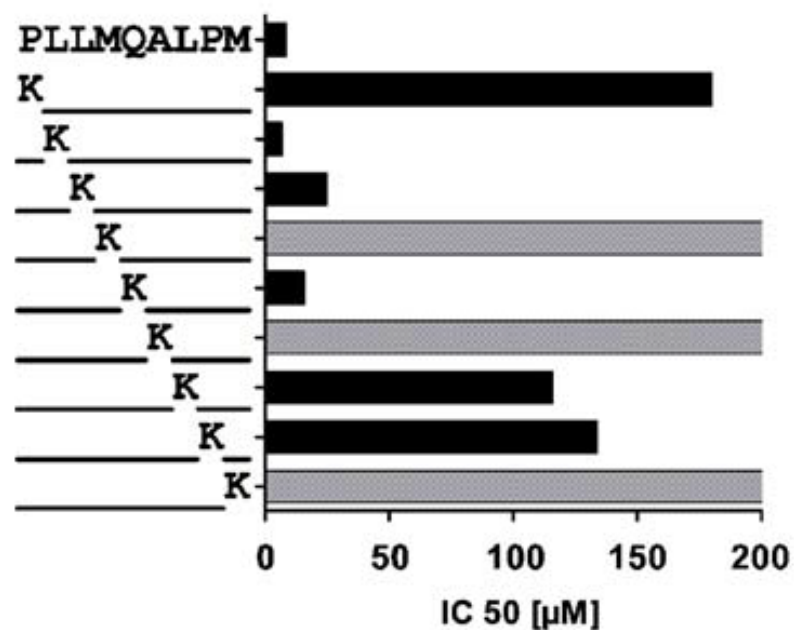
Critical T cell receptor contact residues differ:

NO HAZARD

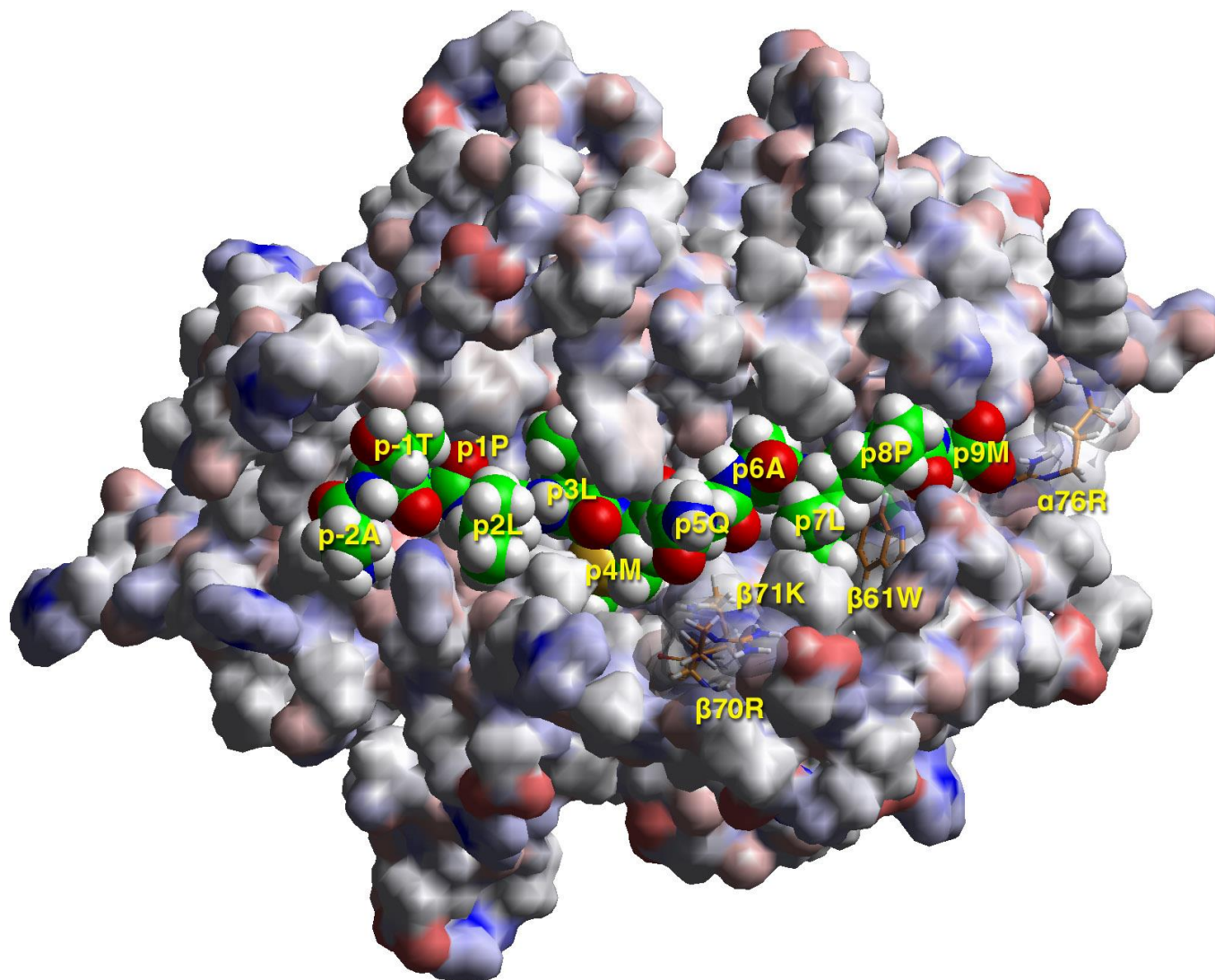
Peptide binding and Modelling

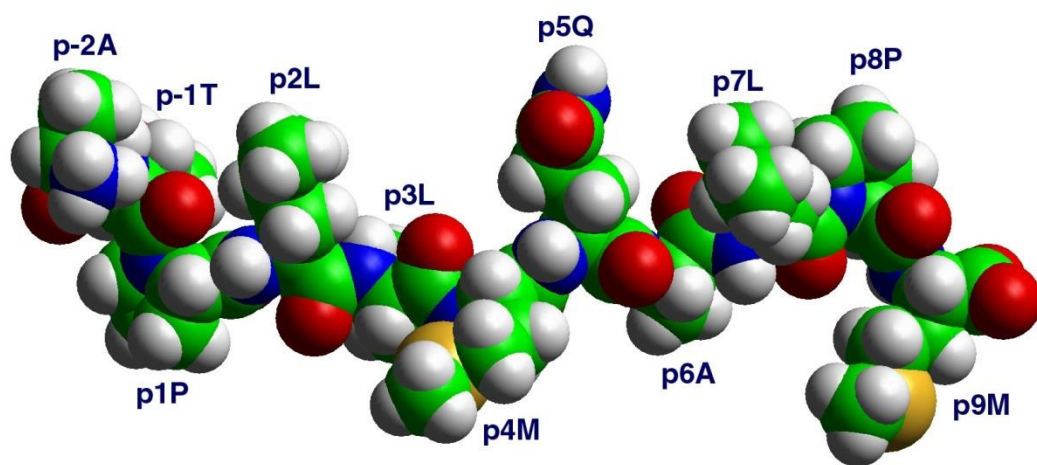


C



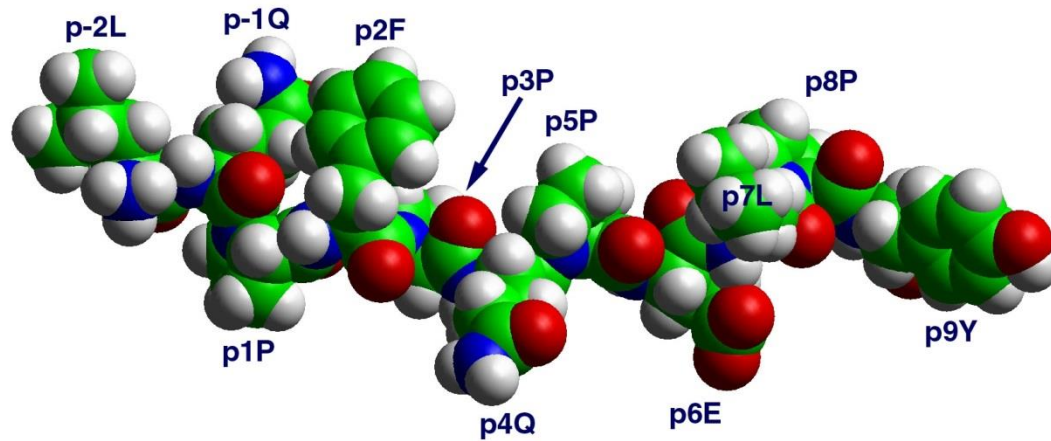
PLLMQALPM

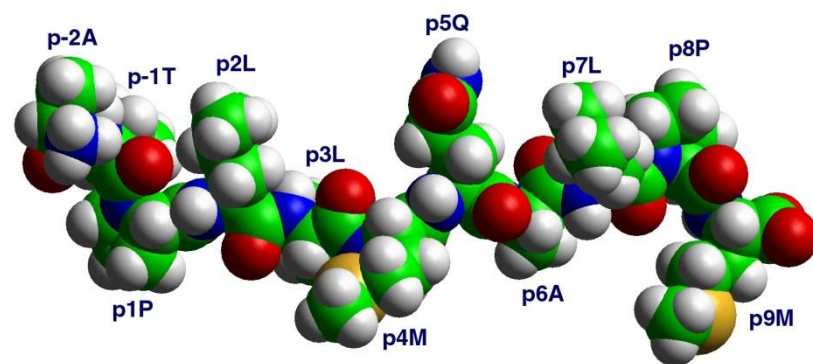
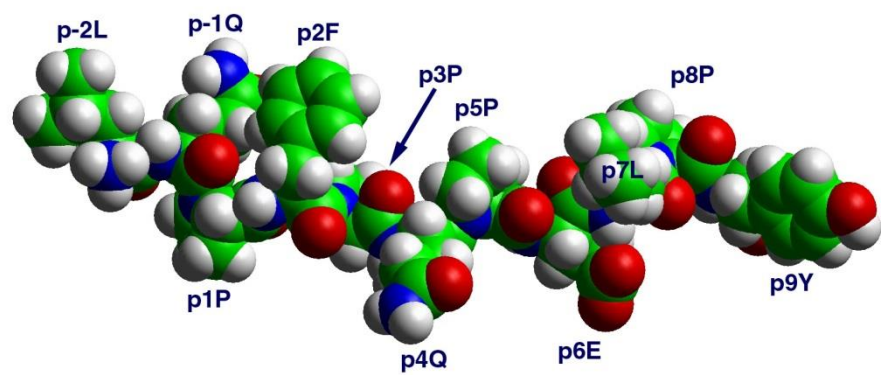




PFPQP ELPY

PLLMQ ALPM





Conclusion

Potential antigenicity can be predicted