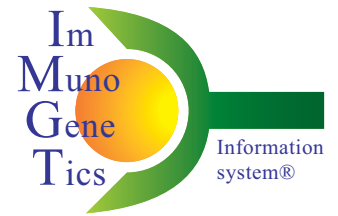


IG, TR and IgSF, MHC and MhcSF:

what do we learn from the IMGT Collier de Perles?

Giudicelli V., Brochet X., Ehrenman F., Kaas Q. and Lefranc M.-P.

IMGT the international ImMunoGeneTics information system®, LIGM, UM2, CNRS UPR1142, IGH
141 rue de la Cardonille, 34396 Montpellier Cedex 05, France - Marie-Paule.Lefranc@igh.cnrs.fr

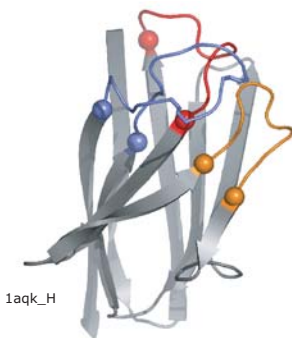


<http://imgt.cines.fr>

- IMGT®, the international ImMunoGeneTics information system®, <http://imgt.cines.fr>, is a high-quality integrated knowledge resource, specialized in the immunoglobulins (IG), T cell receptors (TR), major histocompatibility complex (MHC), and related proteins of the immune system (RPI) belonging to the IgSF and MhcSF.
- The data coherence in IMGT is based on IMGT-ONTOLOGY, the first ontology in immunogenetics and immunoinformatics. One of the breakthrough was the implementation of the IMGT unique numbering for V-DOMAIN and C-DOMAIN (IG and TR) and for G-DOMAIN (MHC), based on the IMGT-ONTOLOGY concepts of numerotation.
- Standardized 2D graphical representations or IMGT Colliers de Perles have been extended to the V-LIKE-DOMAIN and C-LIKE-DOMAIN of the IgSF other than IG and TR, and to the G-LIKE-DOMAIN of the MhcSF other than MHC. IMGT Colliers de Perles are particularly useful for sequence-structure analysis, visualization and comparison of positions for mutations, polymorphisms, antibody engineering, antibody/antigen interactions and TR/pMHC contact analysis. They are crucial for the evolution study of the IgSF and MhcSF proteins.

3D structures

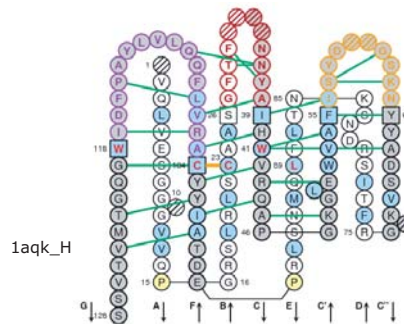
IgSF domain of V type



Lefranc, M.-P. et al *Dev. Comp. Immunol.* 27, 55-77 (2003)

IMGT Colliers de Perles

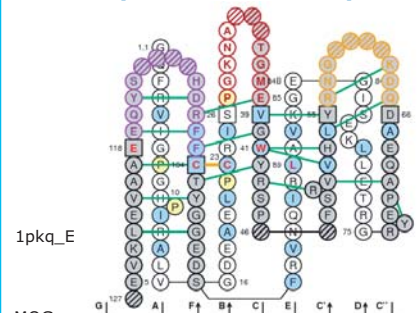
V-DOMAIN (IG, TR)



IGHV-D-J
Kaas Q et al, *Nucl. Acids Res.* 32, D208-D210 (2004)

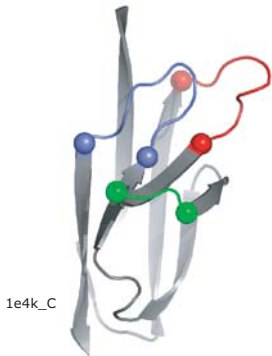
IMGT Colliers de Perles

V-LIKE-DOMAIN (other than IG, TR)



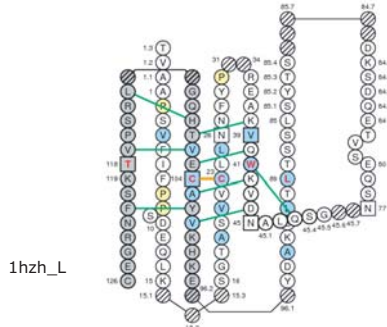
MOG
Duprat, E. et al., *Recent Res. Develop. Human Genet.*, 2, 111-136 (2004)

IgSF domain of C type



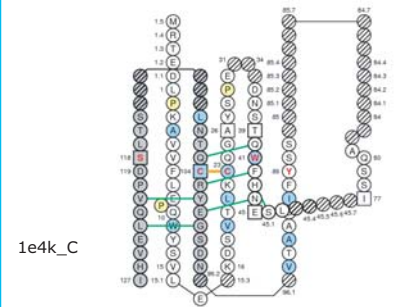
Lefranc, M.-P. et al *Dev. Comp. Immunol.* 29, 185-203 (2005)

C-DOMAIN (IG, TR)



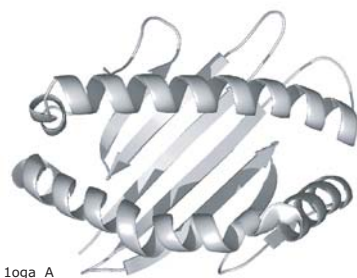
IGKC
Kaas Q et al, *Nucl. Acids Res.* 32, D208-D210 (2004)

C-LIKE-DOMAIN (other than IG, TR)



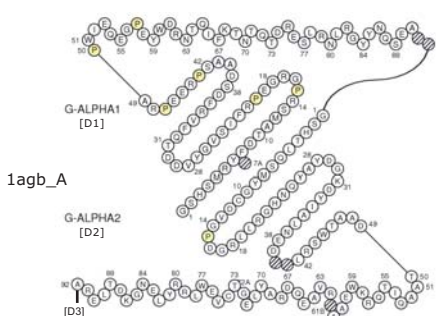
FCGR3B
Bertrand, G. et al., *Tissue Antigens*, 64, 119-131 (2004)

MhcSF domain of G type



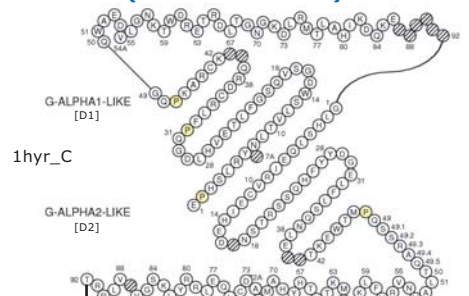
Lefranc, M.-P. et al *Dev. Comp. Immunol.* 29, 917-938 (2005)

G-DOMAIN (MHC)



MHC class I
Kaas, Q. and Lefranc, M.-P., *In Silico Biology* 5, 505-528 (2005)

G-LIKE-DOMAIN (other than MHC)



MICA
Frigoul, A. et al., *Recent Res. Develop. Human Genet.*, 3, 95-145 (2005)