

# IMGT, the international ImMunoGeneTics information system®

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<http://imgt.cines.fr>

- IMGT is a high-quality integrated knowledge resource specialized in the immunoglobulins (IG), T cell receptors (TR) and major histocompatibility complex (MHC) of human and other vertebrate species, and in the immunoglobulin superfamily (IgSF), MHC superfamily (MhcSF) and related proteins of the immune system (RPI)
- created in 1989 by Marie-Paule Lefranc (Université Montpellier II, CNRS), a European project since 1992
- provides a common access to all Immunogenetics data
- is the international reference in Immunogenetics and Immunoinformatics
- based on the concepts of IMGT-ONTOLOGY and on the IMGT Scientific chart rules
- consists of databases, interactive tools and Web resources

## IMGT tools

### Sequence analysis



#### IMGT/V-QUEST

LIGM

Giudicelli, V. et al., *Nucl. Acids Res.*, 32, W435-W440 (2004)



#### IMGT/JunctionAnalysis

LIGM

Yousfi Monod, M. et al., *Bioinformatics* 20 Supplement, 1, I379-I385 (2004)



#### IMGT/Allele-Align

LIGM

Lefranc, M.-P., *Molecular Immunology*, 40, 647-660 (2004)



#### IMGT/PhyloGene

LIGM

Elemento, O. and Lefranc, M.-P., *Dev. Comp. Immunol.*, 27, 763-779 (2003)

### Genome analysis



#### IMGT/LocusView...

LIGM

Lefranc, M.-P., *Molecular Immunology*, 40, 647-660 (2004)



#### IMGT/GeneInfo

TIMC and ICH (Grenoble)

Baum, P. et al., *BMC Bioinformatics*, 7, 224 (2006)



#### IMGT/GeneFrequency

LIGM

Lefranc, M.-P. et al., *In Silico Biology*, 5, 45-60, *Epub 2005*, 5, 0006 (2004)

### 3D structure analysis



#### IMGT/DomainGapAlign

#### IMGT/Collier-de-Perles

#### IMGT/StructuralQuery

LIGM

Kaas, Q. and Lefranc, M.-P., *In Silico Biology*, 5, 505-528, *Epub 2005*, 5 0046 (2005)

### Books



Lefranc, M.-P. and Lefranc, G., *The Immunoglobulin FactsBook*, Academic Press, 458 pages (2001)



Lefranc, M.-P. and Lefranc, G., *The T cell receptor FactsBook*, Academic Press, 398 pages (2001)

## IMGT databases

### Sequences



#### IMGT/LIGM-DB

IG and TR from human and 150 other vertebrate species

LIGM

Lefranc, M.-P., *Nucl. Acids Res.*, 33, D781-D784 (2006)



#### IMGT/PRIMER-DB

IG and TR oligonucleotides

LIGM and EUROGENETC

Lefranc, M.-P., *Nucl. Acids Res.*, 33, D593-D597 (2005)



#### IMGT/MHC-DB

HLA and MHC/NHP

ANRI, BPRC and EBI

Robinson, J. et al., *Nucl. Acids Res.*, 31, 311-314 (2003)

### Genome



#### IMGT/GENE-DB

The international reference for IG and TR gene and allele nomenclature

LIGM

Lefranc, M.-P., *Nucl. Acids Res.*, 33, D256-D261 (2005)

Lefranc, M.-P. In: *Antibody engineering: methods and protocols* (Lo B.K.C. ed), 248, 27-49 (2003)

Lefranc, M.-P. and Lefranc, G. In: *Molecular Biology of B cells* (Honjo, T., Alt F.W. and Neuberger M.S., eds) pp. 37-59 (2004)

### 2D and 3D structures



#### IMGT/3Dstructure-DB

IG, TR, MHC and RPI structures

LIGM

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

## IMGT/LIGM-DB Other accesses

- **SRS:** EBI (UK), Institut Pasteur (France), CEINGE (Italy), CU (USA), DDBJ (Japan), DIC (India), IUBio (USA)

- **FTP:** weekly releases: CINES (Montpellier, France) and EBI (UK)

- **BLAST:** CINES (France), EBI (UK), Institut Pasteur (France)

- **LinkOut** (nucleotides) at NCBI (USA)

## IMGT Repertoire

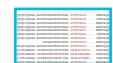
### Sequences



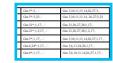
#### Alignments of alleles



#### Tables of alleles



#### Protein displays



#### Allotypes, Isotypes...



#### Chromosomal localizations



#### Locus representations



#### Gene tables...



### 2D and 3D structures



#### 2D Colliers de Perles

#### 3D representations

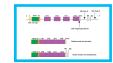
#### FR-IMGT and

#### CDR-IMGT lengths...



Pommie, C. et al., *J. Mol. Recognit.*, 17, 17-32 (2004)

## IMGT Other Web resources



#### IMGT Index

#### IMGT Scientific chart

#### IMGT Education



#### IMGT Medical page



#### IMGT Veterinary page



#### IMGT Bloc-notes

Lefranc, M.-P., *Nucl. Acids Res.*, 33, D593-D597 (2005)