

## **Sub-Committee on CD Molecules**

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Website: [www.HCDM.org](http://www.HCDM.org)

List of current committee members

Pablo Engel

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Armand Bensussan (France)

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Fabio Malavasi (Italy)

Frank Mortari (USA)

Hannes Stockinger (Austria)

Menno C. van Zelm (The Netherlands)

### **I. Objective**

To establish the nomenclature and validation of monoclonal antibodies against leukocyte cell-surface molecules and other cell-surface molecules of the immune system

### **II. Recent Accomplishments**

#### **Establishing and revising nomenclature of CD85 family mAbs.**

A study about the cross-reactivity of CD85 family mAbs was performed. 24 commercial antibodies were tested. About half of the commercially available mAb against these receptors cross-react between several receptors of the same family. Consequently, the use of these cross-reactive antibodies has been generating high number of incorrect data during the two decades. This represents a paradigmatic example of the urgent need of accurate validation of mAbs to improve the quality and reproducibility of the research based on the use of mAbs. These studies have allowed to redefine the nomenclature of this family.

## Propose a new nomenclature of CD85 mAbs.

- Nomenclature of CD85 mAbs.

CD Number	Gene Name	Alternate Names	Gene Family
<b>CD85ab</b>	LILRB3/LIRA6	ILT-5, LIR-3/ILT-8	Immunoglobulin SF
CD85d	LILRB2	ILT-4, LIR-4	Immunoglobulin SF
<b>CD85f</b>	LILRA5	ILT-11, LIR-9	Immunoglobulin SF
<b>CD85g</b>	LILRA4	ILT-7	Immunoglobulin SF
<b>CD85h</b>	LILRA2	ILT-1	Immunoglobulin SF
CD85j	LILRA1	ILT-2, LIR-1	Immunoglobulin SF
CD85k	LILRB4	ILT-3, LIR-5	Immunoglobulin SF

**In bold new CD85s**

No mAb specific against CD85a, CD85b, CD85c, and CD85i. The homology of CD85a and CD85b extracellular domain is higher than 99%, thus all studied antibodies were cross-reactive between these two receptors.

The study was presented as a communication to a meeting:

Engel P. Validation of monoclonal antibodies against leukocyte immunoglobulin-like receptors (CD85/LILR) and nomenclature  
9<sup>th</sup> EuroMAbNet Meeting. Pecs 5<sup>th</sup> October, 2017

-A paper showing this study and nomenclature proposal is under preparation.

### **-The CD Maps project.**

The first phase of this project has been complete. The results corresponding to CD1 to CD100 have been tested and analyzed. A database has been constructed that will be opened to the public after publication of the results of the study. This project consists of the analysis of the expression of all CD molecules using 8 colour-flow cytometry, and will allow the quantitative determination of the expression of these cell markers in leukocyte and lymphocyte subsets of the blood, tonsil and thymus (40 different population). This project is done in collaboration with members of *EuroFlow* Consortium ([www.euroflow.org/](http://www.euroflow.org/)) and the support BD Bioscience, Biogend and ExBio companies.

Preliminary data of this project have been presented in several meetings:

Kaiina T, Kuzilkova D, Cuenca M, Blanco E, Bartol SJW, Andres-Perez M, van Zelm M, Engel P. CD Maps-antigen density measurements of Cd1-CD100 on human lymphocytes. 26th Annual Conference of the German Society for Cytometry. Berlin (Germany) October 2016

Kalina T, Kuzilkova D, Cuenca M, Blanco E, Bartol SJW, Andres-Perez M, van Zelm M, Engel P. CD Maps-antigen density measurements of CD1-CD100 on human lymphocytes. CYTO 2016. Seattle (USA) June 2016

### **-HCDM web**

The HCDM/HLDA web [www.hcdm.org](http://www.hcdm.org) has been improved. The contribution of the IUIS is acknowledged at the web page.

### **III. Education**

The following talks have been presented in different international meeting.

Engel P. The problems arising from poor antibody validation.  
2<sup>nd</sup> EuroMAbNet Ab Validation Workshop. Madrid, May 26<sup>th</sup>, 2017

Engel P. Monoclonal antibodies for studying leukocyte cell-surface molecules.  
Euromedlab. Athens 21<sup>st</sup> June 2017.

### **III. Ongoing Projects**

- In 2018, we will start the organization of HLDA11 Workshop focused on Seven-span receptors and ion channels. During 2018 the panel of mAb to be studies will be collected. The aim of this workshop is to study and validated new monoclonal antibodies.

- Publishing the results of the CDMaps project.
- Publishing the new nomenclature of the CD85 family.

### **IV. Future Directions**

- Continue ascribing CD names to molecules recognized by well validated monoclonal antibodies.

- Publish a data base of actual expression profiles by FACS analysis of CD molecules on all known leukocyte and lymphocyte subsets. Make this data base freely available to academic groups.

-Continue with the CDMaps project and complete the analysis of the expression of CD101 to CD371.

-Prepare guidelines for monoclonal antibody standardization and validation.