Serology 2026 project for the 19th International HLA and Immunogenetics Workshop

Kazutoyo Osoegawa , Deepti Sharma , Wei Mo , Marcelo Fernández-Viña and 19th IHIW Serology 2026 Consortium

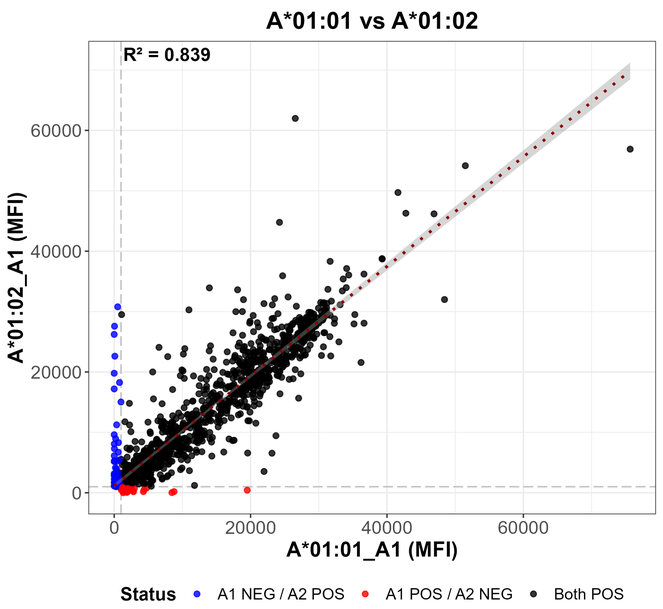


Figure 1: Distinctive serological specificity was observed between A*01:01 and A*01:02

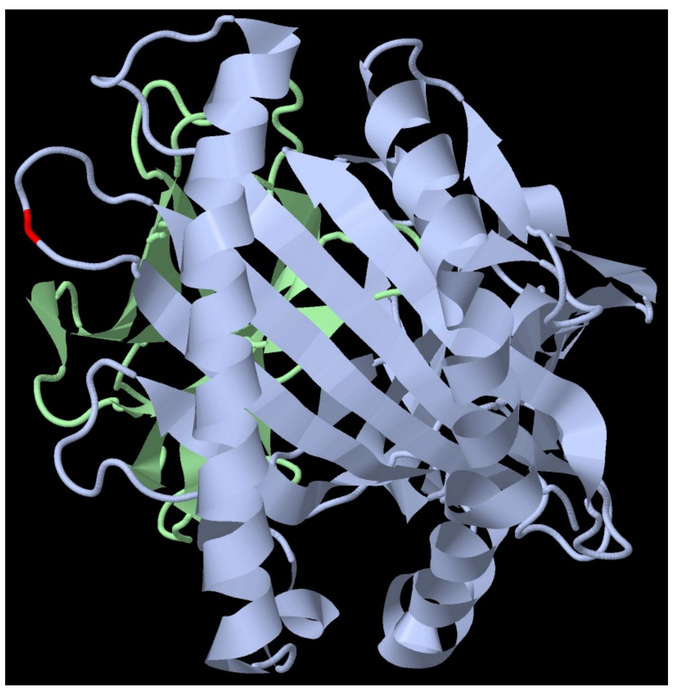


Figure 2: HLA-A molecule: Residue 17 (Red) is located on the connecting loop

Table 1: Newly recognized “Serotypes”

Antigen	Associated Antigen / Serotype	Newly Recognized Serotype	Residues Determining Epitope (DEP)
A1	A-0101	A-0102	17
A3	A0305	A-1104 (Under A11)	90
A30	A3002	A-3004	151
B38	B3801	B-3802	80
B27	B2705	B-2703	59
	B2705	B-2704	77
	B2705	B-2702	77, 80
B39	B3901	B-3904	11
B62	B1501	B-1506	113
DR17	DR-0301	DR-0315	77#
DR11	DR1101	DR-1115	37, 38
DR13	DR1301	DR-1304	37
DR51	DR5101	DR-5112	37, 38
DQA01	DQA-0101	DQA-0103	41
DQ2	DQB-0201	DQB-0202	135
DQ5	DQB-0501	DQB-0523	51
DQ6	DQB-0601	DQB-0602	70
	DQB-0602	DQB-0604	70, 130
DQ7	DQB-0301	DQB-0313	67
	DQB-0301	DQB-0316	55
	DQB-0301	DQB-0319	185

#DEP 77 in DR Antigen was also confirmed by DRB1*07:01 vs. DRB1*07:04

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AA Pos.          10        20        30        40        50        60        70        80        90        100
A*01:01  GSHSMRYFFT SVSRPGRGEP RFIAVGYVDD TQFVRFDSDA ASQKMEPRAP WIEQEGPEYW DQETRNMKAH SQTDRANLGT LRGYYNQSED GSHTIQIMYG
A*01:02  --------S- ------S--- ---------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
A*30:01  --------S- ------S--- ---------- ---------- ---R------ -----R---- ------V--Q -----VD--- ---------A ----------
A*30:02  --------S- ------S--- ---------- ---------- ---R------ -----R---- ------V--- -----E---- ---------A ----------
A*31:01  --------T- ---------- ---------- ---------- ---R------ -----R---- ------V--- --I--VD--- ---------A ------M---
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HLA Antigens were recently updated by the WHO Nomenclature Committee for Factors of the HLA System; 54 HLA-A, 89 -B, 30 -C, 48 -DRB Associated Antigens, and -DQA1, -DPA1 and -DPB1 Antigens are officially included. The “Serology 2026” project was initiated to further confirm and update Residue Determining Epitopes (DEPs) and the HLA Antigen definitions. New single antigen bead (SAB) panels with expanded antigen coverage were manufactured by the vendors and distributed to project participants. The antibody screening results were collected from >3500 sera in the 19th IHIW database system. Pairwise comparisons and linear regression analyses were performed using normalized MFI values between 2 SABs.

Conclusion: Implementation of the updated HLA WHO Serological Nomenclature 2026 system

1. should dramatically improve the accuracy of VXM and at the same time would optimize deceased donor organ allocation and placement processes for solid organ transplantation
2. should facilitate identifying anti-HLA antibody compatible unrelated donors avoiding incompatible donors at the time of the donor searches for bone marrow transplantation
3. Novel serotypes identified through the 19th IHIW will further improve these applications