Comparison Between Two Commercially Available Luminex Non-HLA Antibody Assays

Idoia Gimferrer[1], Elaine Chou-Wu[1] Bogdan Obrisca[2], Nicolae Leca[3]

1- Immunogenetics/HLA laboratory, BloodworksNW, Seattle, WA. 2-Department of Nephrology, Fundeni Clinical Institute, Bucharest, Romania. 3- Renal and Pancreas transplant, University of Washington Medical Center, Seattle, WA

Aim:

- There are two commercially available Luminex assays for the detection of antibodies (Abs) against non-HLA antigens (Ags).
- These assays have different panels of non-HLA Ags, 25 of them are present on both.
- The aim of our study was to compare the pattern of reactivities against these 25 common Ags using the same sample cohort.

Methods:

- Sera from 29 potential living kidney donors were run on the two different Luminex non-HLA beads assays (Immucor/Werfen (IC) and One Lambda (OL)).
- Vendor suggested cutoffs (95% for OL) were used for the analysis. All the analysis is restricted to the 25 common Ags.

Results:

1- Comparison of the reactivity **strength** that each **serum** had with each assay

➢The Mean MFI values of each serum against the 25 common beads was calculated. The results (Fig 1) showed a poor correlation (CC 0.309) between sera's Mean MFIs between both assays.

2- Comparison of the reactivity **strength** between the **same Ags beads** in each assay

➢The Mean MFI value of each bead with the 29 sera was calculated. Values between beads carrying the same Ags were compared and only a 0.667 correlation was found (Fig. 2).

Fig 1: Sera Mean MFI Correlation

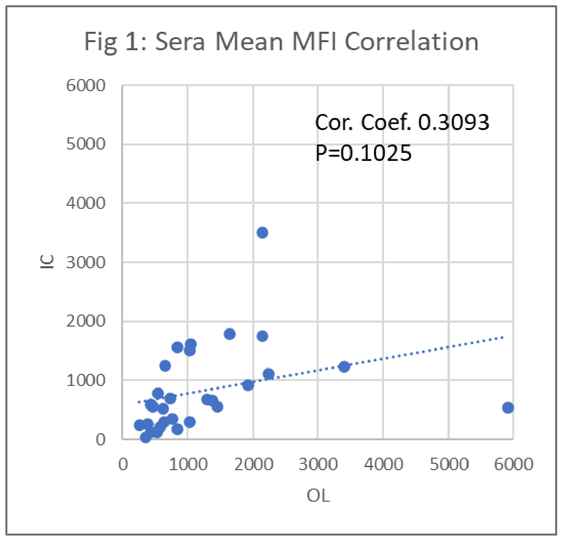
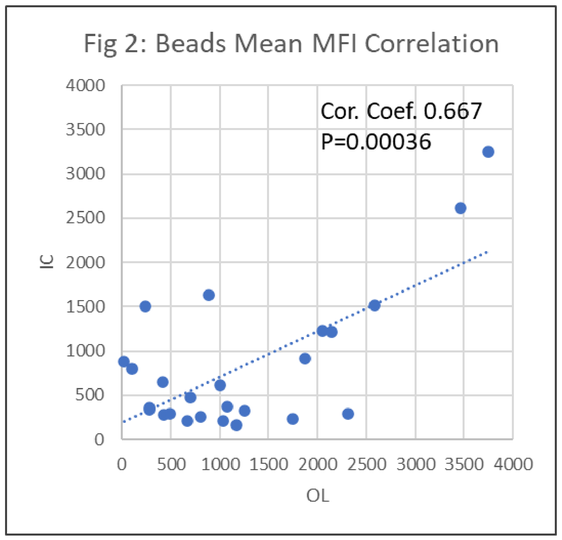


Fig 2: Beads Mean MFI Correlation



3- Comparison of the **number of positive reactions** using vendor suggested cut offs.

➢Per each **serum** the number of positive beads was depending on the assay used (CC 0.42).

➢Per each **Ag (bead)** the number of positive sera was depending on the assay used (CC -0.08).

➢Importantly, each **serum** had **a different pattern** of reacting beads (Abs identified), and each **bead** had a **different set** of reacting sera, depending on the assay used.

➢There were 133 positive reactions with the OL assay and 135 with the IC assay, for a total of 268 positive reactions, but only 40 (14.9%) reactions were shared by both assays.

Serum	AGRIN	ARHGDIB	COL I	COL II	COL III	COL IV	COL V	CXCL11	CXCL9	ENO1	FIBRONEC	FLRT2	GAPDH	GDNF	GSTT1	IFNG	LMNA	MYOSIN	NUCLEOLI	PECR	PLA2R	PRKCH	PRKCZ	TUBA1B	VM	OL B+/S	IC B+/S	Both B+/S
1																										9	11	4
2																										4	1	0
3																										4	1	0
4																										1	0	0
5																										6	3	1
6																										4	8	4
7																										7	10	3
8																										2	7	2
9																										5	11	4
10																										6	1	0
11																										1	2	1
12																										3	2	0
13																										7	10	4
14																										1	3	1
15																										5	15	3
16																										4	1	0
17																										1	4	0
18																										12	3	2
19																										1	1	0
20																										7	3	1
21																										1	1	0
22																										1	1	0
23																										1	2	0
24																										11	1	0
25																										1	1	0
26																										1	2	0
27																										8	3	2
28																										10	7	4
29																										10	17	4
OLS+/B	3	2	4	15	9	5	2	10	7	4	2	9	5	7	0	8	1	1	0	3	0	20	3	4	10	Cor B+/S		0.42868
IC S+/B	4	2	4	4	5	3	5	5	7	5	8	8	2	6	7	8	5	4	5	2	10	5	10	4	4			
Both S+/B	1	0	1	4	5	1	0	3	3	0	2	4	2	3	0	3	0	1	0	0	0	4	1	0	2	Cor S+/B		-0.0819

Conclusion:

✓There was a **low correlation** in terms of strength of reactivity (MFI) and pattern of positive reactions for both sera and beads between the two assays.

✓The fact that the non-HLA Abs identified for each serum is **assay dependent,** is concerning and underscore the need to validate these assays before to be used in the clinical laboratory.