TOOLS BIOINFORMATICI E

RISORSE WEB IN

ISTOCOMPATIBILITÀ

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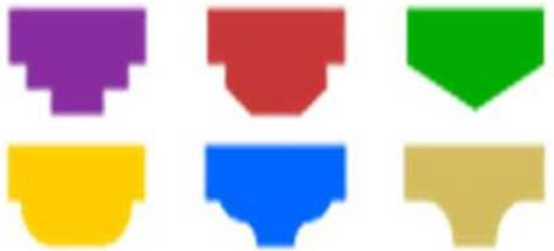
AOU Policlinico - Bari

Milano 17 Settembre 2018

Antigeni (Ag)

- Tutte le molecole in grado di attivare il sistema immunitario sono detti **antigeni**
- Normalmente gli **Ag** sono **sostanze estranee all'organismo ad alto peso molecolare** quali proteine e lipopolisaccaridi
- Non sono **antigeni molecole a basso peso molecolare**, anche se estranee, come per esempio alcuni farmaci disaccaridi ecc…

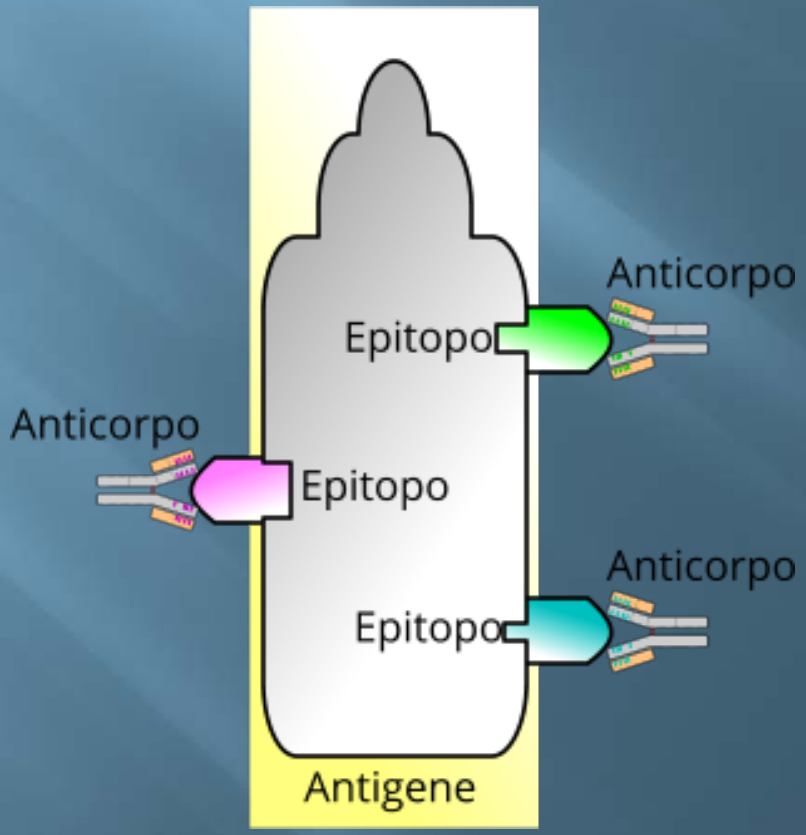


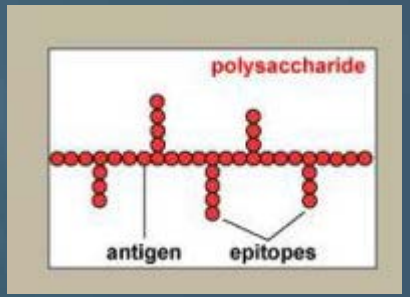
Essi si possono trovare sulla superficie delle cellule oppure si possono trovare liberi (**antigeni circolanti**)

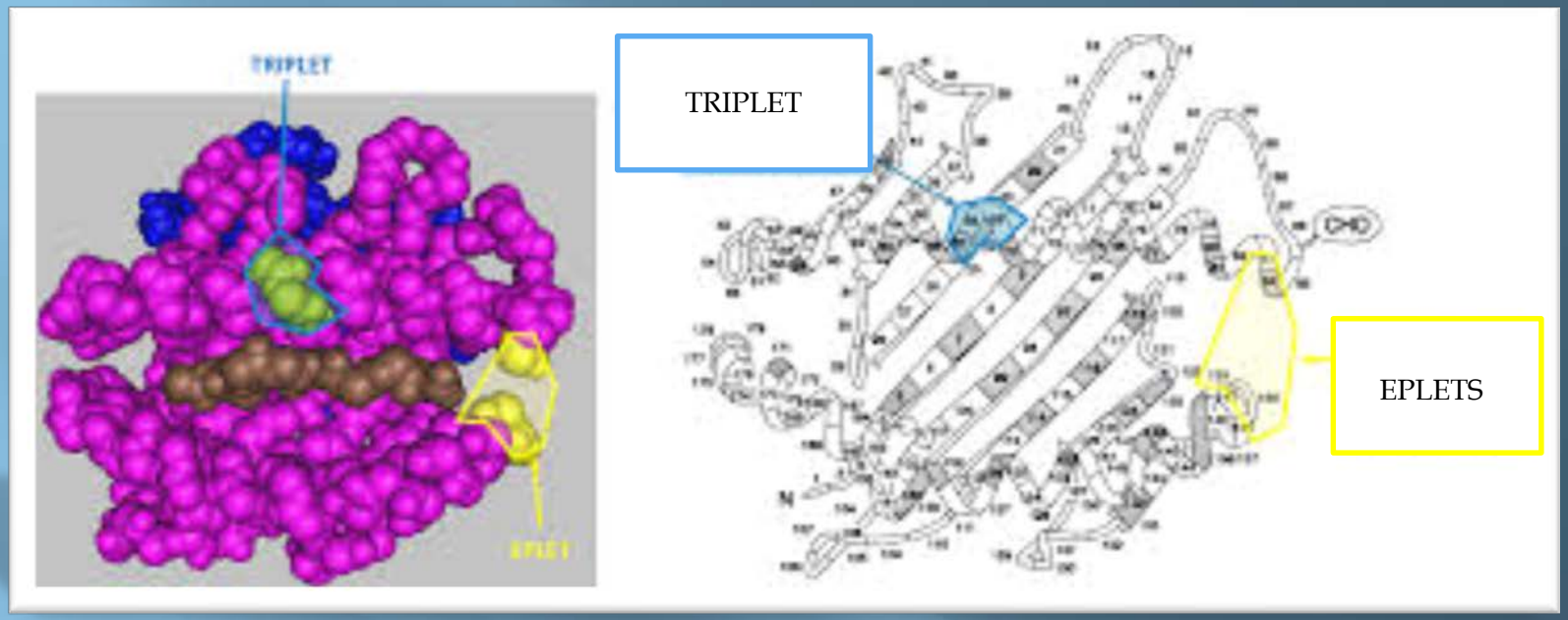
La capacità di un **Ag** di combinarsi con un Ab riflette la sua **antigenicità**

EPITOPO

Un **epitopo** o **determinante antigenico** è una frazione dell'antigene capace di scatenare una reazione immunitaria una volta che un anticorpo opera un riconoscimento su di esso. Gli epitopi sono specifici per un solo tipo di anticorpo anche se, in alcuni casi, è possibile la crossreazione tra un epitopo e più tipi di anticorpo.







L'immunogenicità degli antigeni HLA è determinata da brevi sequenze continue e discontinue di aa che formano le regioni accessibili dagli Ab all'interno di ciascun allele HLA noto come EPITOPO.

Ogni allele HLA è considerato come una combinazione di epitopi distinti noti come Triplets *(sequenze amminoacidiche continue*) o Eplets *(sequenze aminoacidiche contigue strettamente localizzate)*

Immunogenicità

Immunogenicità è la capacità di un Ag di indurre una risposta immune

Un Ag può essere **antigenico** ma non **immunogeno**, cioè si lega all'Ab ma non induce la produzione di Ab da parte della cellula B

Caratteri che condizionano l'immunogenicità di un antigene

PESO MOLECOLARE

SOLUBILITA'

CONFORMAZIONE SPAZIALE

NATURA CHIMICA

DISPONIBILITÀ DEGLI EPITOPI

Nella compatibilità HLA tra don/ric il disallineamento nelle molecole di Classe I e II determina la presenza del Mismatch (MM)

ESISTE UNA

GERARCHIA DEI MM

ANTIGENICI CHE

PROVOCANO

RIGETTO

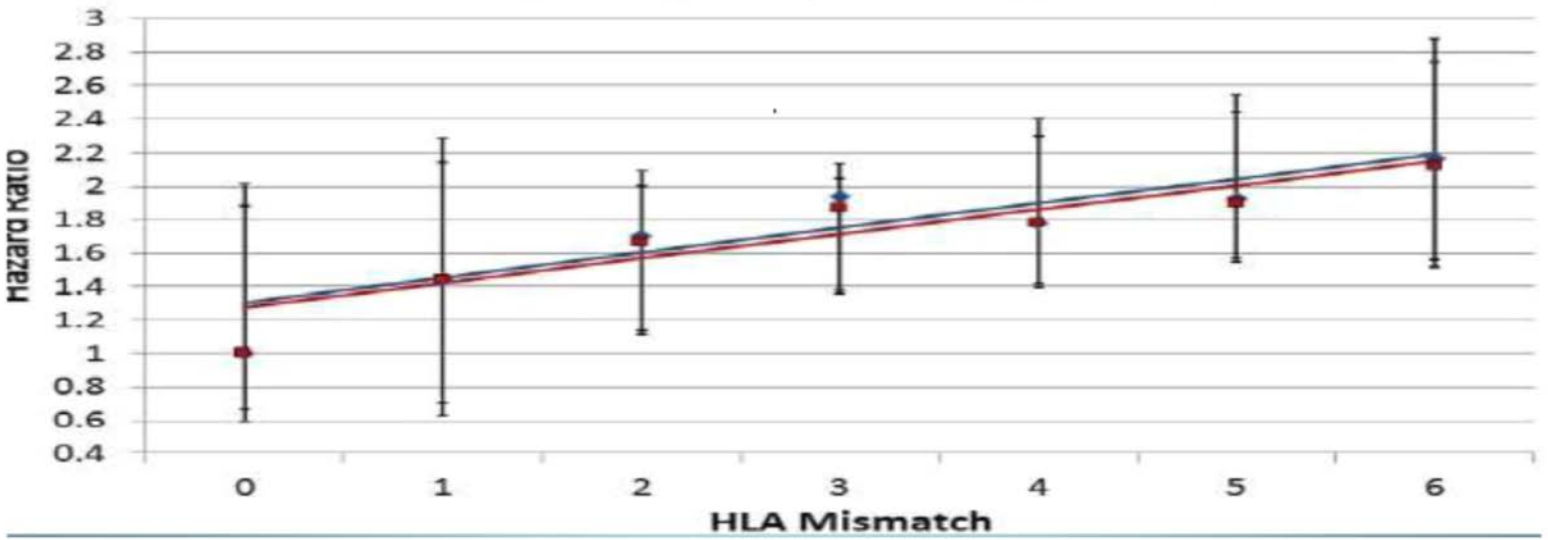
MM accettabile :Antigene HLA che non provoca reazione immunologica energica

MM inaccettabile (immunogenico) : **provoca reazione immunologica energica**

L'esito di un trapianto d'organo solido dipende anche dalla presenza o assenza di MM

Tx immunogenicity

Williams, Transplant direct,2017

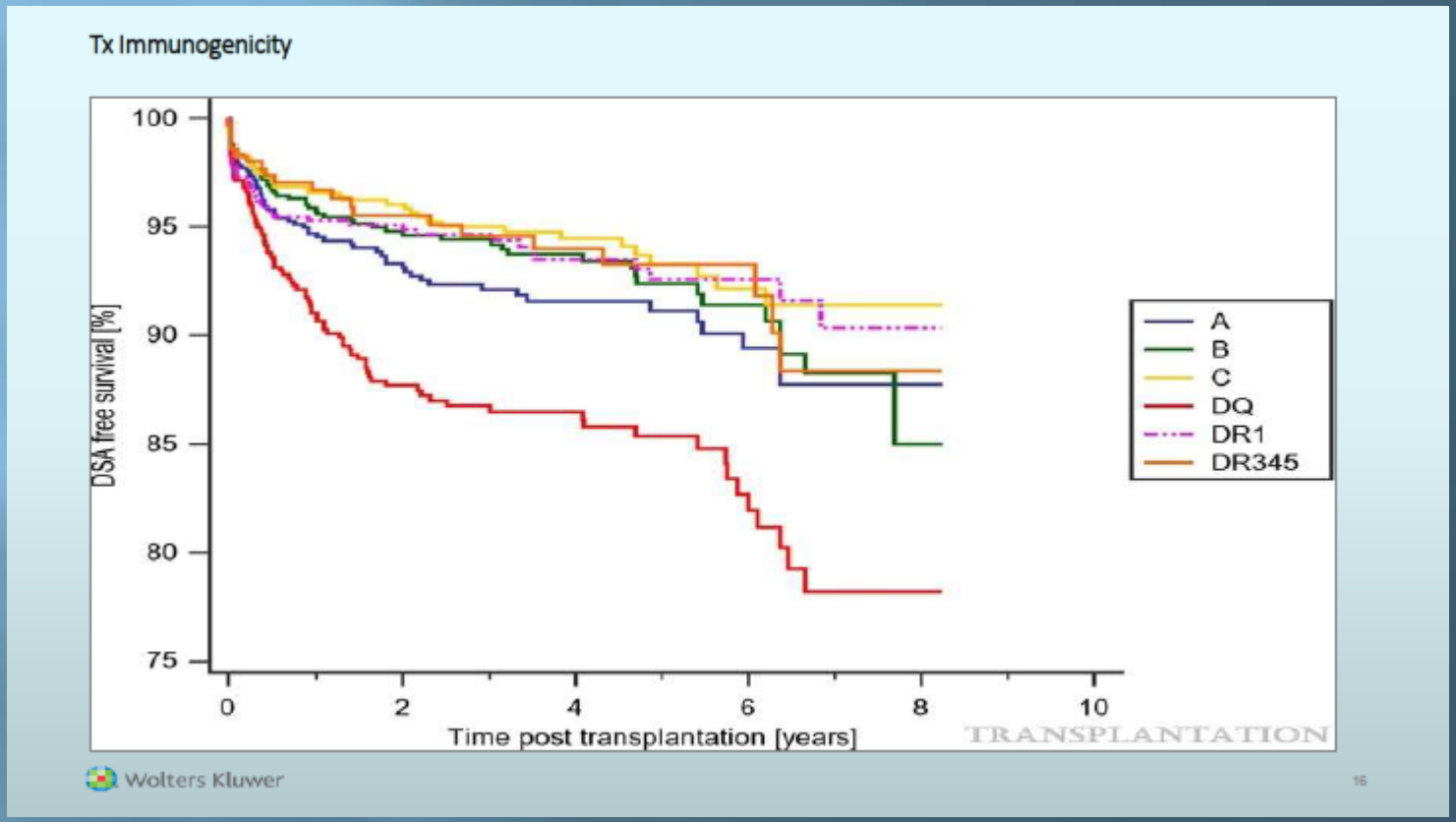


La forza di immunogenicità puo essere calcolata con la potenzialità di produrre HLA-Abs

DSA

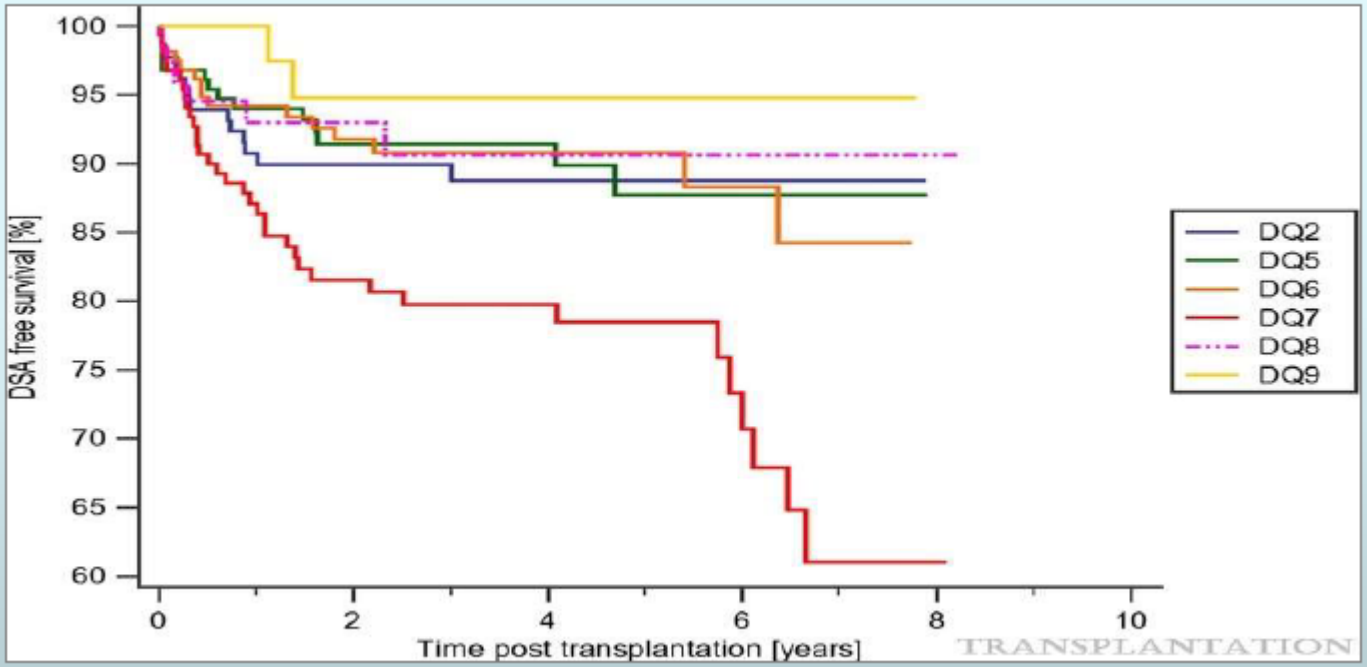
non-DSA

⊡differences in immunogenicity of HLA antigens ?

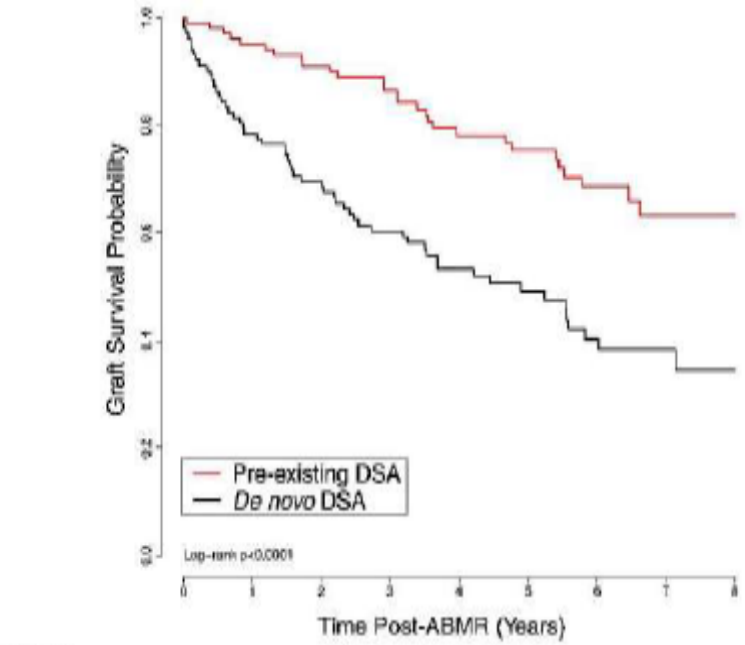


Willicombe M, Transplant,2018

Tx Immunogenicity



DSA consideration: inferior graft survival with de novo DSA



Aubert, JASN 2017

HIERARCHY OF HLA TYPES IN PROVOKING ANTIBODY PRODUCTION FOLLOWING KIDNEY TRANSPLANTATION.

David D. Gae[a], Haibo Sun[a], Owen Buenaventura[a], Kelly J. Cunniffe[a], Gil Da Gente[a], John Roberts[b], Raja Rajalingam[a]. [a]Immunogenetics and Transplantation Laboratory, Department of Surgery, University of California San Francisco, San Francisco, CA, United States; [b]Transplant Services, Department of Surgery, University of California San Francisco, San Francisco, CA, United States.

Aim: HLA antigens are diverse in cell surface expression, peptide presentation, binding immune receptors, and in eliciting immune responses. Here we examined the ability of distinct HLA types in inducing antibody (Ab) production following kidney transplantation (Ktx).

Methods: A cohort of 308 candidates (44% female) waiting for 2nd Ktx was studied. Prior to 1st Ktx, all were negative for HLA Abs by One Lambda single antigen bead (OL-SAB) assay. HLA Abs were measured in pre-2nd tx sera using OL-SAB. The strength (mean of MFIs) and frequency of each Abs in pre-2nd tx sera of 308 candidates were determined and plotted.

Results: A positive linear correlation was observed between Ab strengths to frequency with an $r^2 = 0.6$ and $p < 2 \times 10^{-29}$ (see figure). DQ3 is the most frequently and strongly encountered Abs and thus DQ3 is the most aggressive antibody inducer following Ktx. DR53 group of antigens (except DR4) and A2 CREG are the next most aggressive Ab inducers. The hierarchy from the strongest inducer is DQ9 > DQ8 > DQ7 > B76 > DR9 > DQ4 > B45 > DQ6 > B57 > DQ2 > A1 > DQ5 > DR7 > B57 > B58 > A24 > B49 > DR53 > A2 > B82 > B44 > A96 > A23 > A11 > A68. All HLA-Cw antigens and a subset of DPB antigens (DP15, DP13, DP5, DP1, DP23, DP4) induce Ab production at low levels and low frequency. Within Cw types, the most poorly immunogenic represents to be those carrying C1 epitope that binds to KIR2DL2/L3. The moderate inducer includes most HLA-B, HLA-A and DR antigens, and the hierarchy from the strongest inducer within this group is B7 > A10 > B5 > DR52 > DR51 CREG. The B5 CREG was diverse and observed to have four outliers from the linear fit. The strongest to weakest to trigger Abs in B5 CREG is ordered as follows: B76 > B63 > B73 > B62 > B75 > B78 > B46.

Conclusions: Our findings categorize 121 HLA types into three hierarchical sets based on their ability in eliciting Ab production following Ktx – strongly immunogenic, moderately immunogenic, and poorly immunogenic. The strongly immunogenic HLA types should be considered for matching in Ktx, while the poorly immunogenic HLA antigens are tolerable.

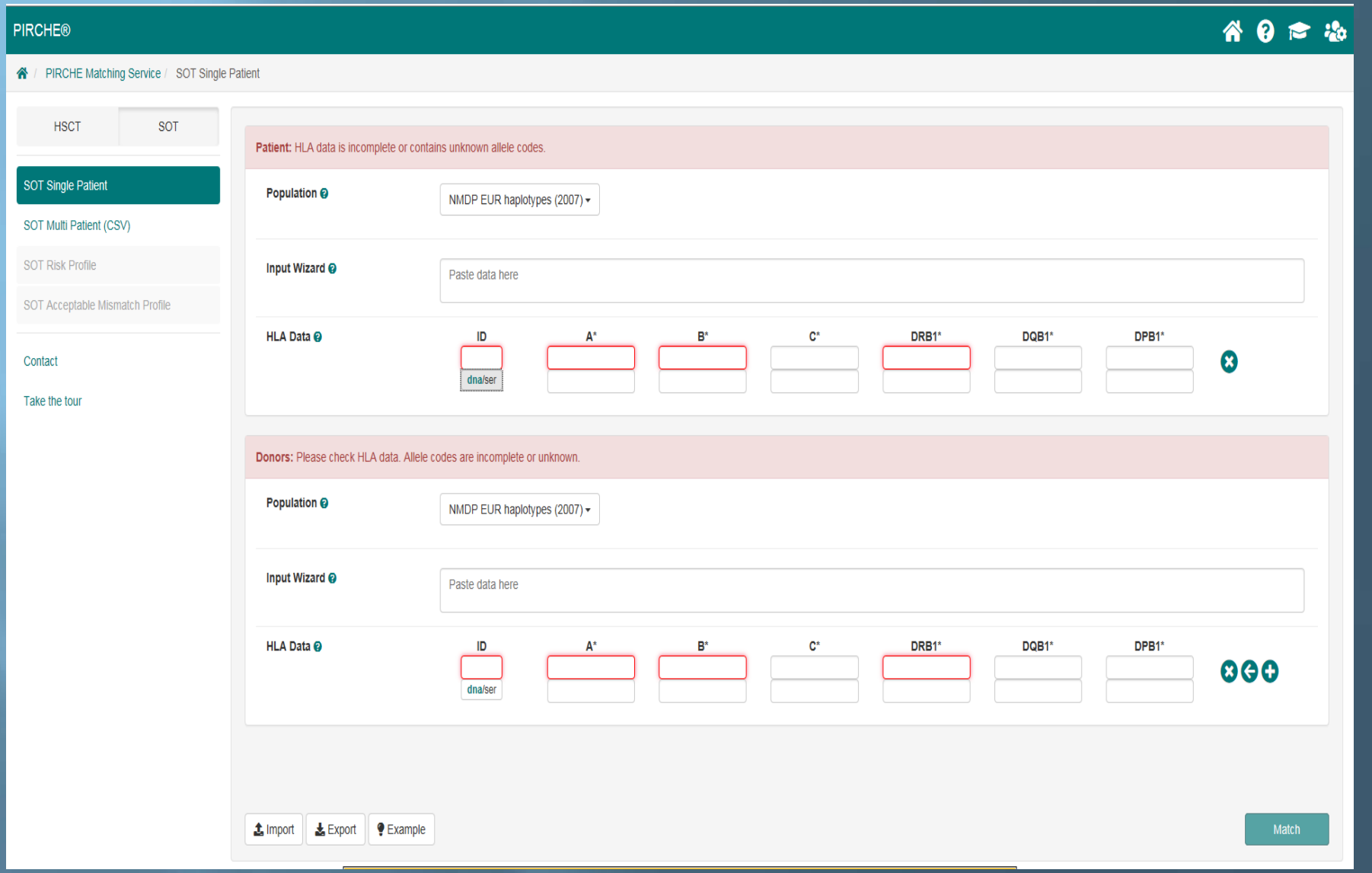
- **HLA antigen mismatches with highest immunogenicity are called "Taboo" mismatches**

  - Doxiadis II, lancet,1996;348
    - Rene J. Duquesnoy
      - Geneugelijk
    - J Immunol Res,201
      - Slavcev,A
    - International J Immunogenetics,2013

- Tx Immunogenicity
- **Examples of Taboo Donor/ Recipient combinations**
- **A2/B44**
- **A3/DR6**
- **B7/A1**
- **B60/DR2**
- **B60/DR2**
- **DR5/A2 (worst)**
- **B44:02/B44:03**

RISORSE WEB IN ISTOCOMPATIBILITÀ:

- HLA Matchmaker
- PIRCHE II


PIRCHE®
PIRCHE Matching Service / SOT Single Patient
HSCT
SOT
SOT Single Patient
SOT Multi Patient (CSV)
SOT Risk Profile
SOT Acceptable Mismatch Profile
Contact
Take the tour
Patient: HLA data is incomplete or contains unknown allele codes.
Population
NMDP EUR haplotypes (2007)
Input Wizard
Paste data here
HLA Data
ID
A*
B*
C*
DRB1*
DQB1*
DPB1*
dna/ser
Donors: Please check HLA data. Allele codes are incomplete or unknown.
Population
NMDP EUR haplotypes (2007)
Input Wizard
Paste data here
HLA Data
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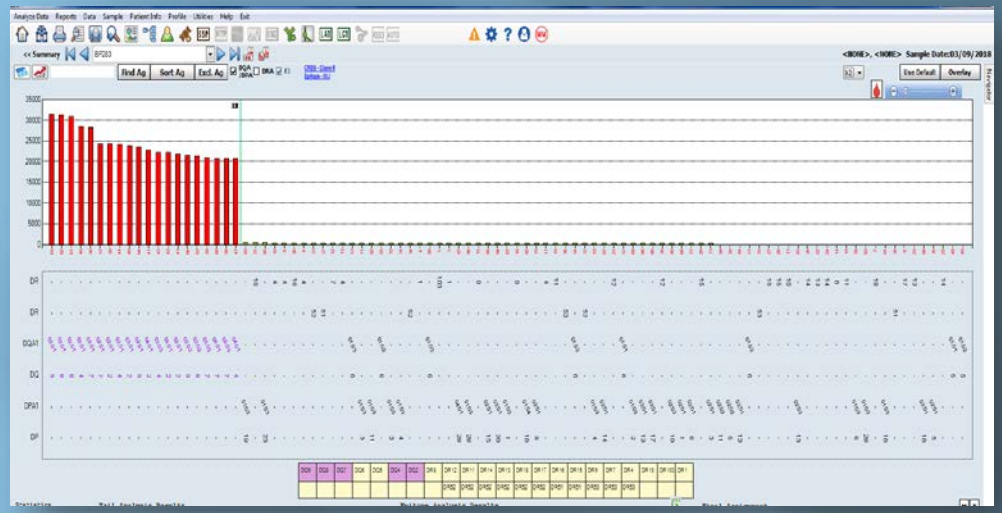
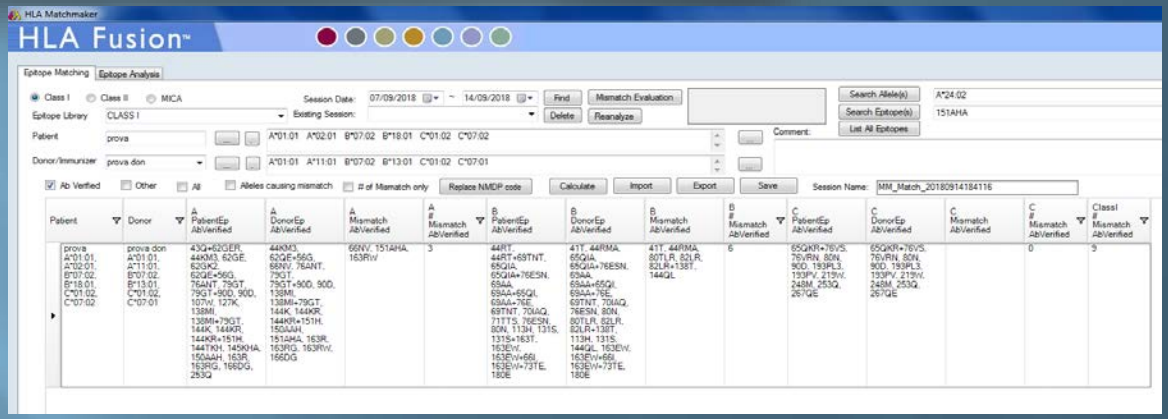
A*
B*
C*
DRB1*
DQB1*
DPB1*
dna/ser
Import
Export
Example
Match





c	RecInfo	RecInfo	Rec1stA	Rec2ndA	Rec1stB	Rec2ndB	Rec1stC	Rec2ndC	DonorInfo	DonorInfo	Don1stA	Don2ndA	Don1stB	Don2ndB	Don1stC	Don2ndC	Outcome 1	Outcome 2
z	z	1	A*01:01	A*03:01	B*07:02	B*08:01	C*07:01	C*07:02	101	z	A*02:01	A*11:01	B*44:02	B*54:01	C*03:01	C*05:01	z	z
z	z	2	A*01:01	A*03:01	B*07:02	B*08:01	C*07:01	C*07:02	102	z	A*11:01	A*26:01	B*14:01	B*42:01	C*03:02	C*03:03	z	z
z	z	3	A*01:01	A*02:01	B*35:01	B*56:01	C*04:01	C*12:03	103	z	A*02:01	A*11:01	B*44:02	B*54:01	C*03:01	C*05:01	z	z
z	z	4	A*01:01	A*02:01	B*35:01	B*56:01	C*04:01	C*12:03	104	z	A*02:05	A*03:01	B*55:01	B*53:01	C*03:01	C*05:01	z	z
z	z	5	A*01:01	A*02:01	B*35:01	B*56:01	C*04:01	C*12:03	105	z	A*02:05	A*69:01	B*55:01	B*53:01	C*03:01	C*08:01	z	z
z	z	6	A*02:01	A*68:01	B*35:01	B*57:01	C*06:02	C*07:02	106	z	A*02:05	A*68:02	B*53:01	B*58:01	C*03:01	C*03:02	z	z
z	z	7	A*26*01	A*32:01	B*38:01	B*67:01	C*07:02	C*15:01	107	z	A*25:01	A*34:02	B*14:01	B*39:05	C*06:02	C*12:03	z	z
z	z	8	A*66*01	A*30:01	B*08:01	B*67:01	C*07:01	C*17:01	108	z	A*31:01	A*34:01	B*14:02	B*39:01	C*12:03	C*14:01	z	z
z	z	9	A*01:01	A*24:02	B*51:01	B*35:01	C*07:01	C*01:02	109	z	A*23:01	A*36:01	B*52:01	B*53:01	C*15:02	C*18:01	z	z
z	z	10	A*02:01	A*24:03	B*07:02	B*44:03	C*03:02	C*07:01	110	z	A*02:38	A*24:04	B*07:03	B*44:08	C*03:10	C*07:03	z	z

•Paziente: donna con GN a depositi mesangiali da IgA

•Stato immunologico pre-TX: PRA pos I e II classe (78%//68%)

• I° TX : 43aa da donatore cadavere

•I° TX match: A*02, DRB1*07, DRB1*14

•PRA 90%//97% numerose specificità , NO DSA TX

•Espianto rapido

•Rientro in lista d'attesa

•Stato di Iperimmune ⟶ possibilità di offerta donatore da PNI

•Cicli di immunofiltrazione

• II TX : 50 aa da donatore maschio , 31aa

•II° TX match: A*02, B*07, C*15, DRB1*14, DQB1*05
MM: B*15, DRB1*13, DQB1*06

•Presenza di Ab di specificità DPB1* non evidenziabili come DSA

• Post-TX, valutazione Typing donatore per locus DPB1 :

" DPB1*03:01, DPB1*10:01 "

• Riscontro delle stesse specificità tra gli A

↓

DSA preesistenti

• Formazione di DSA de-Novo : B*15:01, DRB1*13:01, DQB1*06:03 oltre a tante altre specificità con MFI elevato

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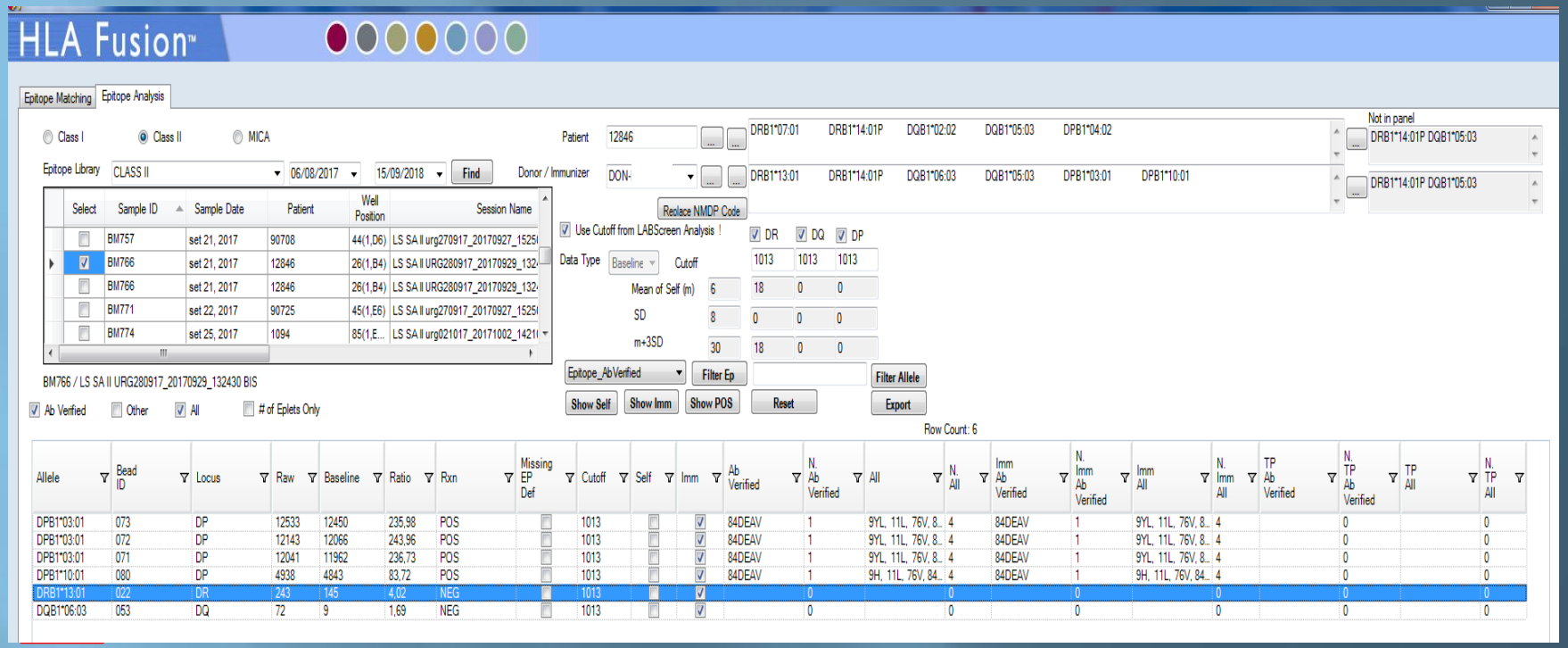
HLA Fusion™
Epitope Matching
Epitope Analysis
Class I
Class II
MICA
Epitope Library
CLASS II
06/08/2017
15/09/2018
Find
Patient
12846
DRB1*07:01 DRB1*14:01P DQB1*02:02 DQB1*05:03 DPB1*04:02
Not in panel
DRB1*14:01P DQB1*05:03
Donor / Immunizer
DON-
DRB1*13:01 DRB1*14:01P DQB1*06:03 DQB1*05:03 DPB1*03:01 DPB1*10:01
DRB1*14:01P DQB1*05:03
Replace NMDP Code
Use Cutoff from LABScreen Analysis !
DR
DQ
DP
Data Type
Baseline
Cutoff
1013 1013 1013
Mean of Self (m)
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SD
8 0 0 0
m+3SD
30 18 0 0
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Sample ID
Sample Date
Patient
Well Position
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Filter Allele
Show Self
Show Imm
Show POS
Reset
Export
Ab Verified
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Bead ID
Locus
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Rxn
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Cutoff
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Imm
Ab Verified
N. Ab Verified
All
N. All
Imm Ab Verified
N. Imm Ab Verified
Imm All
N. Imm All
TP Ab Verified
N. TP Ab Verified
TP All
N. TP All
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DPB1*03:01 072 DP 12143 12066 243,96 POS 1013 84DEAV 1 9YL, 11L, 76V, 8... 4 84DEAV 1 9YL, 11L, 76V, 8... 4 0 0
DPB1*03:01 071 DP 12041 11962 236,73 POS 1013 84DEAV 1 9YL, 11L, 76V, 8... 4 84DEAV 1 9YL, 11L, 76V, 8... 4 0 0
DPB1*10:01 080 DP 4938 4843 83,72 POS 1013 84DEAV 1 9H, 11L, 76V, 84... 4 84DEAV 1 9H, 11L, 76V, 84... 4 0 0
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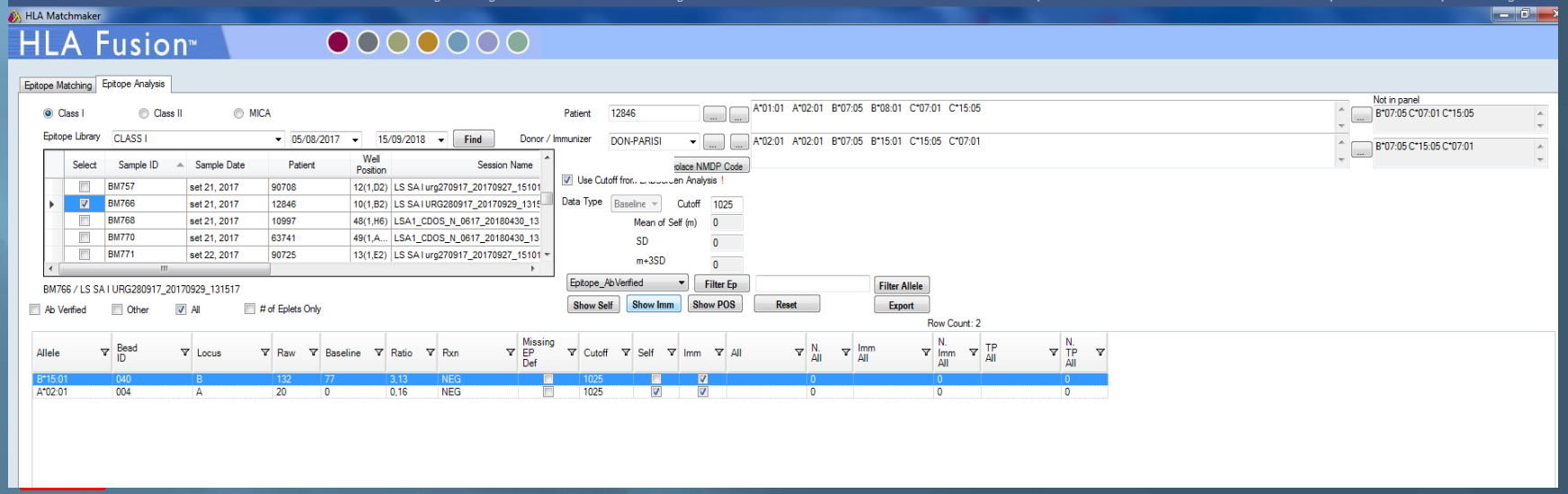
DQB1*06:03 053 DQ 72 9 1,69 NEG 1013 0 0 0 0 0 0


HLA Matchmaker
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Epitope Matching
Epitope Analysis
Class I
Class II
MICA
Epitope Library
CLASS I
05/08/2017
15/09/2018
Find
Patient
12846
A*01:01 A*02:01 B*07:05 B*08:01 C*07:01 C*15:05
Not in panel
B*07:05 C*07:01 C*15:05
Donor / Immunizer
DON-PARISI
A*02:01 A*02:01 B*07:05 B*15:01 C*15:05 C*07:01
B*07:05 C*15:05 C*07:01
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Filter Allele
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Show Imm
Show POS
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Ab Verified
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# of Eplets Only
Row Count: 2
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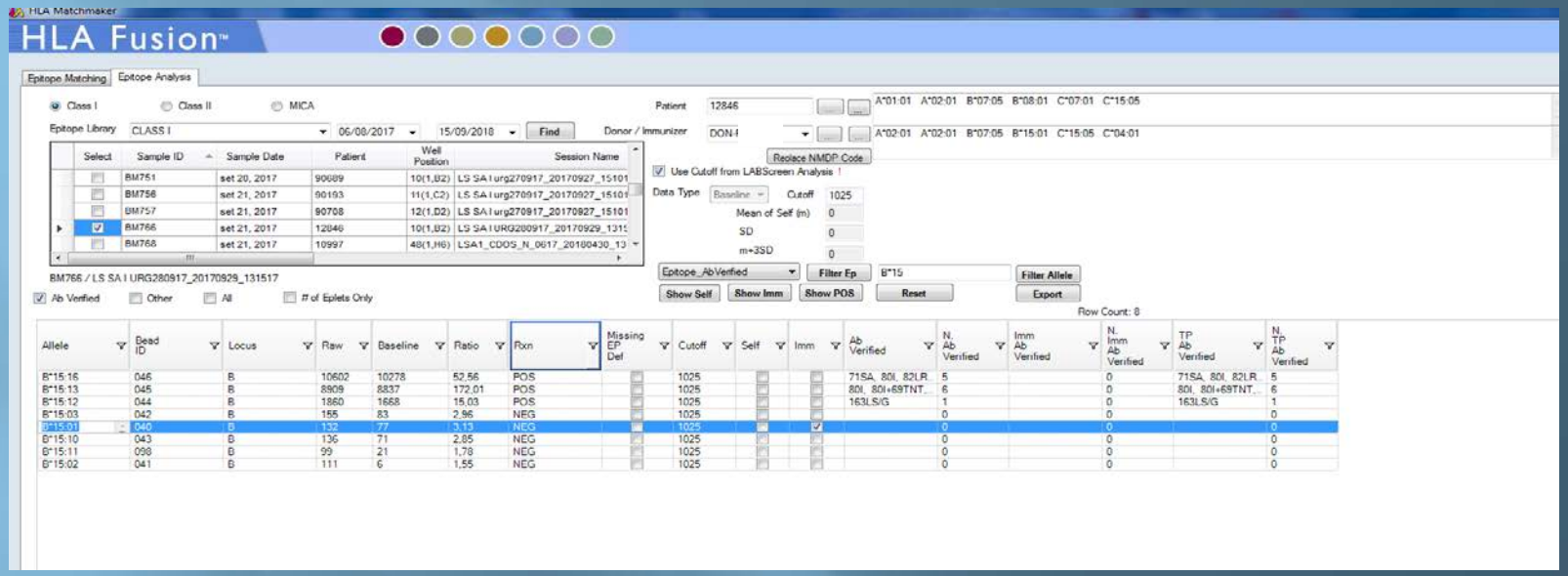
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Class I
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06/08/2017
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Patient
12846
A*01:01 A*02:01 B*07:05 B*08:01 C*07:01 C*15:05
Donor / Immunizer
A*02:01 A*02:01 B*07:05 B*15:01 C*15:05 C*04:01
Replace NMDP Code
Use Cutoff from LABScreen Analysis !
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Baseline
Cutoff
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m+3SD
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Sample Date
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Show POS
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Export
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# of Eplets Only
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Bead ID
Locus
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Ratio
Rxn
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Ab Verified
N. Ab Verified
Imm Ab Verified
N. Imm Ab Verified
TP Ab Verified
N. TP Ab Verified
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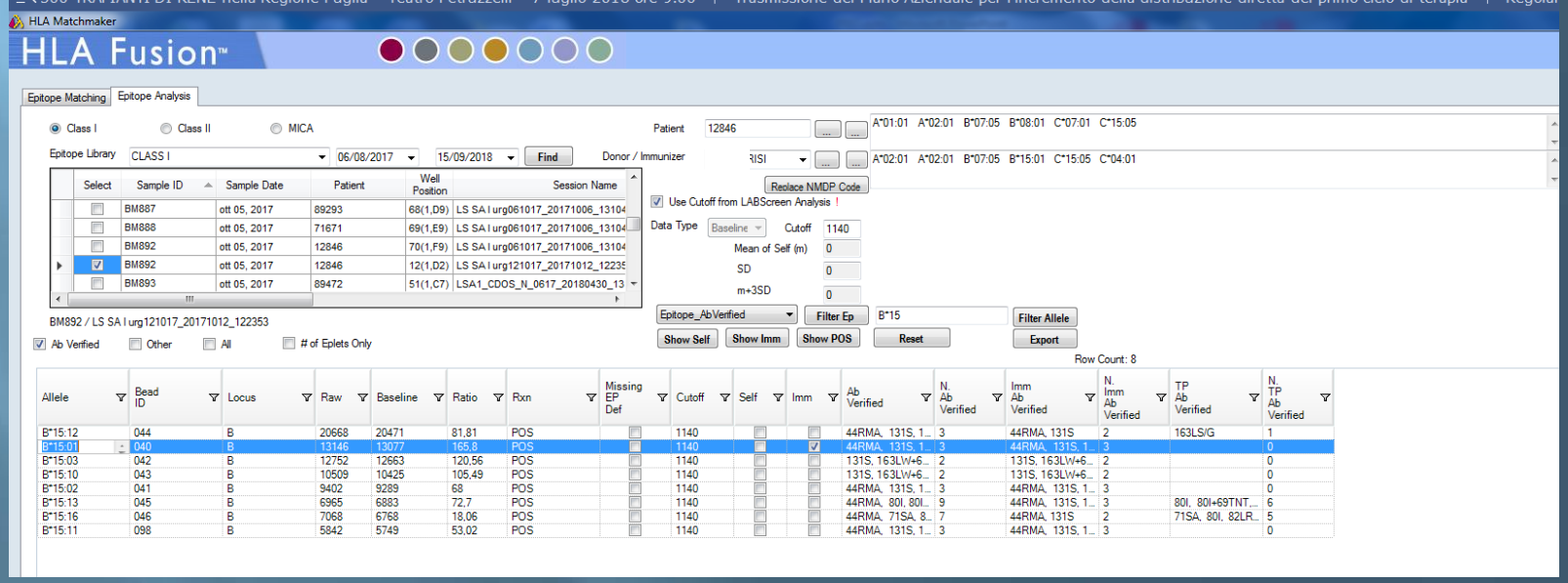
B*15:13 045 B 8909 8837 172,01 POS 1025 80I, 80I+69TNT... 6 0 80I, 80I+69TNT... 6
B*15:12 044 B 1860 1658 15,03 POS 1025 163LS/G 1 0 163LS/G 1
B*15:03 042 B 155 83 2,96 NEG 1025 0 0 0
B*15:01 040 B 132 77 3,13 NEG 1025 0 0 0
B*15:10 043 B 136 71 2,85 NEG 1025 0 0 0
B*15:11 098 B 99 21 1,78 NEG 1025 0 0 0
B*15:02 041 B 111 6 1,55 NEG 1025 0 0 0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Donor / Immunizer
A*02:01 A*02:01 B*07:05 B*15:01 C*15:05 C*04:01
Replace NMDP Code
Use Cutoff from LABScreen Analysis !
Data Type
Baseline
Cutoff
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SD
m+3SD
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BM892 / LS SA I urg121017_20171012_122353
Epitope_AbVerified
Filter Ep
B*15
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Export
Ab Verified
Other
All
# of Eplets Only
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Bead ID
Locus
Raw
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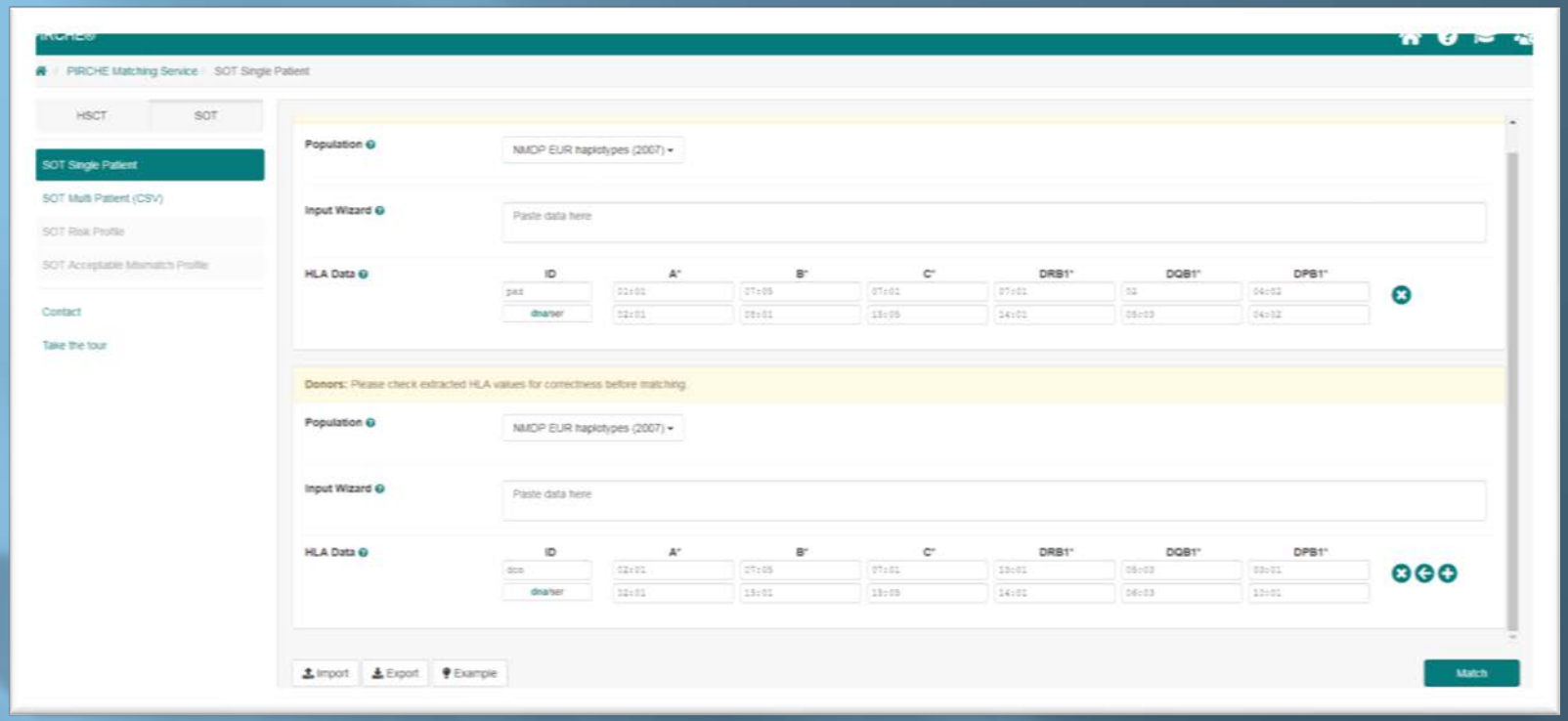
Ratio
Rxn
Missing EP Def
Cutoff
Self
Imm
Ab Verified
N. Ab Verified
Imm Ab Verified
N. Imm Ab Verified
TP Ab Verified
N. TP Ab Verified
B*15:12 044 B 20668 20471 81,81 POS 1140 44RMA, 131S, 1... 3 44RMA, 131S 2 163LS/G 1
B*15:01 040 B 13146 13077 165,8 POS 1140 44RMA, 131S, 1... 3 44RMA, 131S, 1... 3 0
B*15:03 042 B 12752 12663 120,56 POS 1140 131S, 163LW+6... 2 131S, 163LW+6... 2 0
B*15:10 043 B 10509 10425 105,49 POS 1140 131S, 163LW+6... 2 131S, 163LW+6... 2 0
B*15:02 041 B 9402 9289 68 POS 1140 44RMA, 131S, 1... 3 44RMA, 131S, 1... 3 0
B*15:13 045 B 6965 6883 72,7 POS 1140 44RMA, 80I, 80I... 9 44RMA, 131S, 1... 3 80I, 80I+69TNT,... 6
B*15:16 046 B 7068 6768 78,06 POS 1140 44RMA, 71SA, 8... 7 44RMA, 131S 2 71SA, 80I, 82LR... 5
B*15:11 098 B 5842 5749 53,02 POS 1140 44RMA, 131S, 1... 3 44RMA, 131S, 1... 3 0

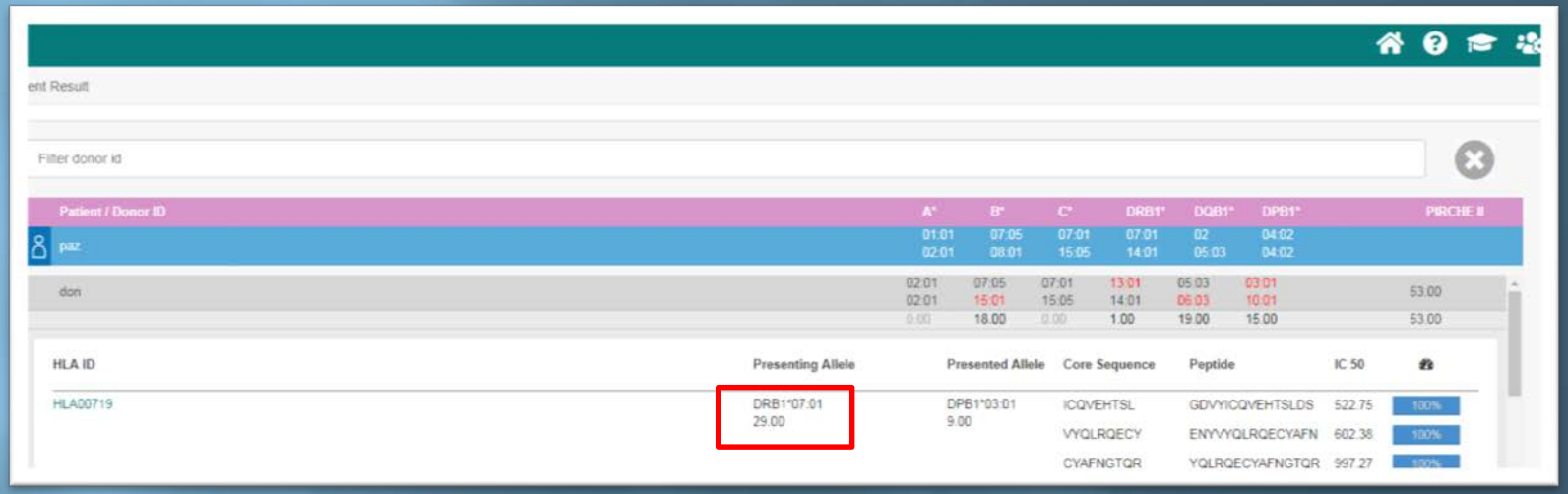


PIRCHE® organ transplant report for patient ID: paz

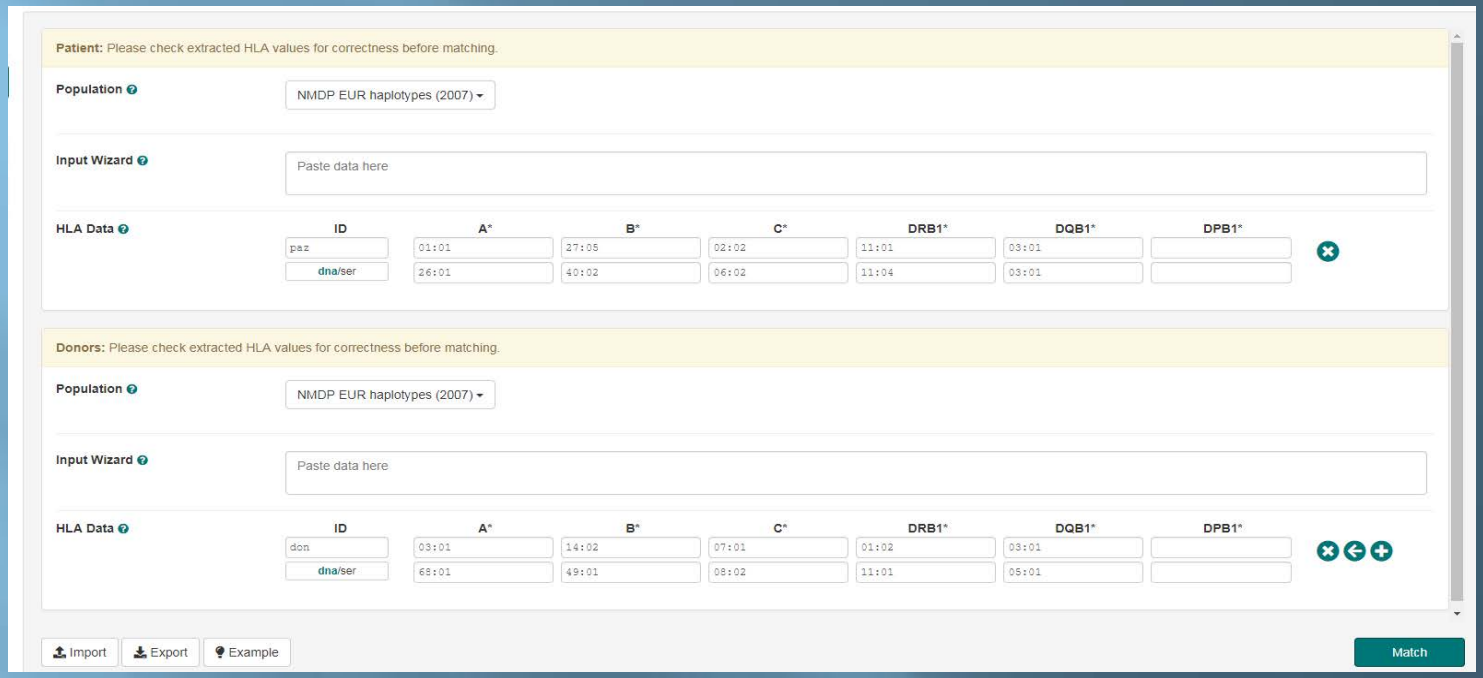
Created by mininnidonata@gmail.com

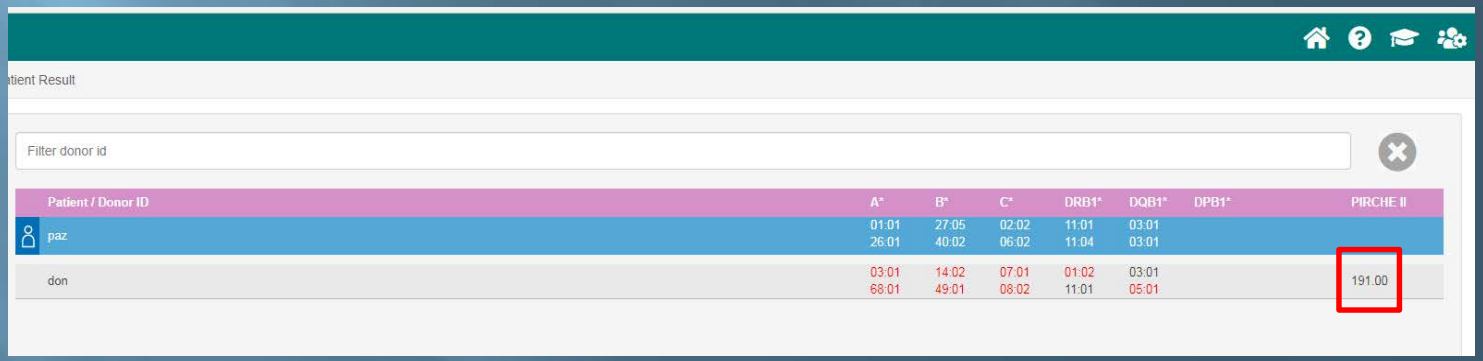
PIRCHE

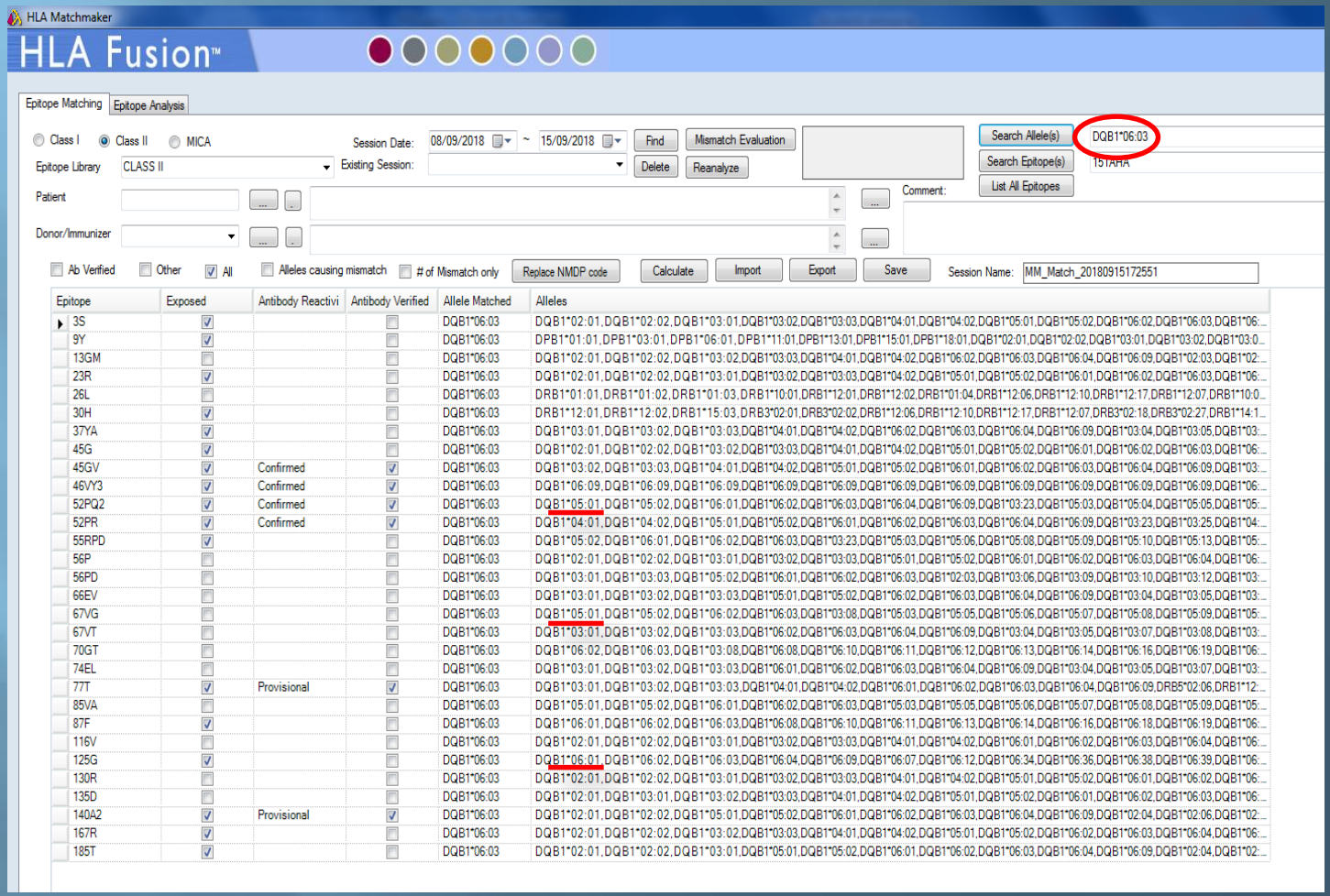
Patient / Donor ID	A*	B*	C*	DRB1*	DQB1*	DPB1*	PIRCHE II
paz	01:01 02:01	07:05 08:01	07:01 15:05	07:01 14:01	02 05:03	04:02 04:02	
don	02:01 02:01	07:05 15:01	07:01 15:05	13:01 14:01	05:03 06:03	03:01 10:01	53.00

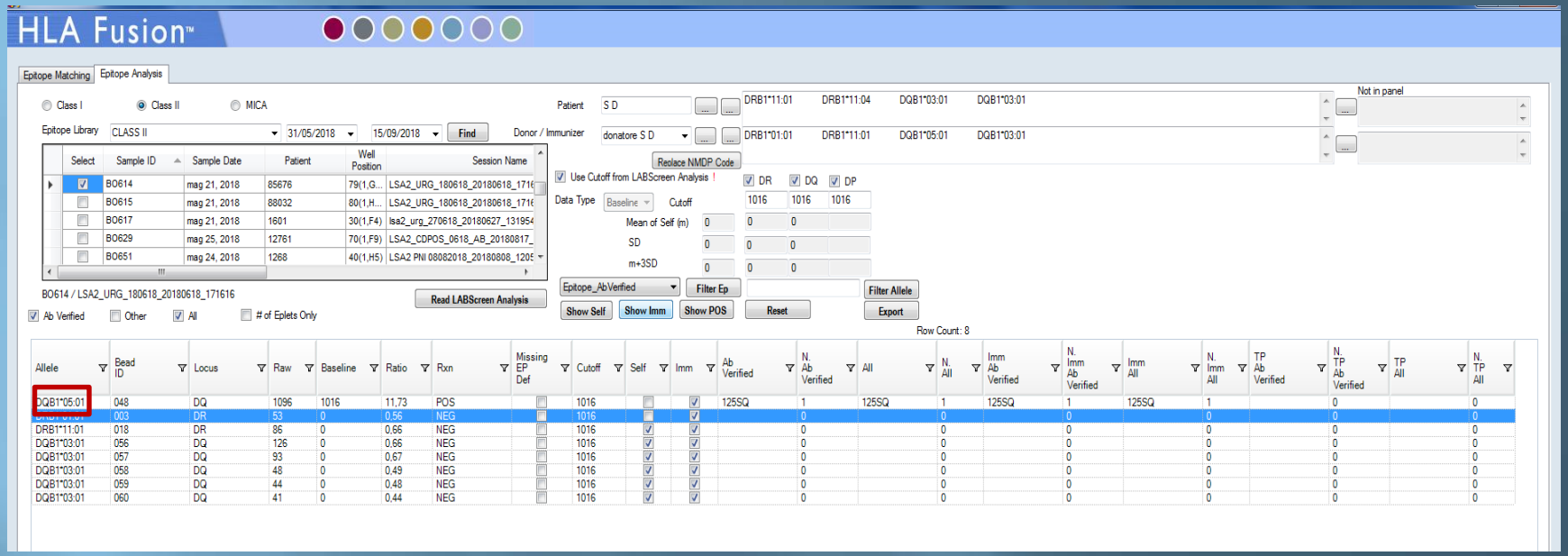

ent Result
Filter donor id
Patient / Donor ID
A*
B*
C*
DRB1*
DQB1*
DPB1*
PIRCHE II
paz
01:01
02:01
07:05
08:01
07:01
15:05
07:01
14:01
02
05:03
04:02
04:02
don
02:01
02:01
07:05
15:01
07:01
15:05
13:01
14:01
05:03
06:03
03:01
10:01
53.00
0.00
18.00
0.00
1.00
19.00
15.00
53.00
HLA ID
Presenting Allele
Presented Allele
Core Sequence
Peptide
IC 50
HLA00719
DRB1*07:01
29.00
DPB1*03:01
9.00
ICQVEHTSL
GDVYICQVEHTSLDS
522.75
100%
VYQLRQECY
ENYVYQLRQECYAFN
602.38
100%
CYAFNGTQR
YQLRQECYAFNGTQR
997.27
100%

- Paziente maschio con nefropatia
- Età al trapianto da vivente : 49aa
- Donatore : donna 48 aa
- Stato immunologico pre-TX : PRA I Classe Neg
  PRA II Classe 5% (Ab anti-DQB1*06) no DSA
- Match TX : DRB1*11:01, DQB1*03:01
- PRA post-TX (1 mese) : I Classe neg
  II Classe 14%
- Ab II Classe : DQB1*05:01 (MFI 1100) de novo-DSA
  DQA1*01:03 (MFI 2500) non-DSA


Patient: Please check extracted HLA values for correctness before matching.
Population
NMDP EUR haplotypes (2007)
Input Wizard
Paste data here
HLA Data
ID A* B* C* DRB1* DQB1* DPB1*
paz 01:01 27:05 02:02 11:01 03:01
dna/ser 26:01 40:02 06:02 11:04 03:01
Donors: Please check extracted HLA values for correctness before matching.
Population
NMDP EUR haplotypes (2007)
Input Wizard
Paste data here
HLA Data
ID A* B* C* DRB1* DQB1* DPB1*
don 03:01 14:02 07:01 01:02 03:01
dna/ser 68:01 49:01 08:02 11:01 05:01
Import
Export
Example
Match


tient Result
Filter donor id
Patient / Donor ID A* B* C* DRB1* DQB1* DPB1* PIRCHE II
paz 01:01 27:05 02:02 11:01 03:01
26:01 40:02 06:02 11:04 03:01
don 03:01 14:02 07:01 01:02 03:01 191.00
68:01 49:01 08:02 11:01 05:01


HLA Matchmaker
HLA Fusion™
Epitope Matching
Epitope Analysis
Class I
Class II
MICA
Session Date:
08/09/2018
15/09/2018
Find
Mismatch Evaluation
Epitope Library
CLASS II
Existing Session:
Delete
Reanalyze
Search Allele(s)
DQB1*06:03
Search Epitope(s)
151ARA
List All Epitopes
Patient
Comment:
Donor/Immunizer
Ab Verified
Other
All
Alleles causing mismatch
# of Mismatch only
Replace NMDP code
Calculate
Import
Export
Save
Session Name:
MM_Match_20180915172551
Epitope
Exposed
Antibody Reactivi
Antibody Verified
Allele Matched
Alleles
3S DQB1*06:03 DQB1*02:01,DQB1*02:02,DQB1*03:01,DQB1*03:02,DQB1*03:03,DQB1*04:01,DQB1*04:02,DQB1*05:01,DQB1*05:02,DQB1*06:02,DQB1*06:03,DQB1*06:...
9Y DQB1*06:03 DPB1*01:01,DPB1*03:01,DPB1*06:01,DPB1*11:01,DPB1*13:01,DPB1*15:01,DPB1*18:01,DQB1*02:01,DQB1*02:02,DQB1*03:01,DQB1*03:02,DQB1*03:0...
13GM DQB1*06:03 DQB1*02:01,DQB1*02:02,DQB1*03:02,DQB1*03:03,DQB1*04:01,DQB1*04:02,DQB1*06:02,DQB1*06:03,DQB1*06:04,DQB1*06:09,DQB1*02:03,DQB1*02:...
23R DQB1*06:03 DQB1*02:01,DQB1*02:02,DQB1*03:01,DQB1*03:02,DQB1*03:03,DQB1*04:02,DQB1*05:01,DQB1*05:02,DQB1*06:01,DQB1*06:02,DQB1*06:03,DQB1*06:...
26L DQB1*06:03 DRB1*01:01,DRB1*01:02,DRB1*01:03,DRB1*10:01,DRB1*12:01,DRB1*12:02,DRB1*01:04,DRB1*12:06,DRB1*12:10,DRB1*12:17,DRB1*12:07,DRB1*10:0...
30H DQB1*06:03 DRB1*12:01,DRB1*12:02,DRB1*15:03,DRB3*02:01,DRB3*02:02,DRB1*12:06,DRB1*12:10,DRB1*12:17,DRB1*12:07,DRB3*02:18,DRB3*02:27,DRB1*14:1...
37YA DQB1*06:03 DQB1*03:01,DQB1*03:02,DQB1*03:03,DQB1*04:01,DQB1*04:02,DQB1*06:02,DQB1*06:03,DQB1*06:04,DQB1*06:09,DQB1*03:04,DQB1*03:05,DQB1*03:...
45G DQB1*06:03 DQB1*02:01,DQB1*02:02,DQB1*03:02,DQB1*03:03,DQB1*04:01,DQB1*04:02,DQB1*05:01,DQB1*05:02,DQB1*06:01,DQB1*06:02,DQB1*06:03,DQB1*06:...
45GV DQB1*06:03 Confirmed DQB1*03:02,DQB1*03:03,DQB1*04:01,DQB1*04:02,DQB1*05:01,DQB1*05:02,DQB1*06:01,DQB1*06:02,DQB1*06:03,DQB1*06:04,DQB1*06:09,DQB1*03:...
46VY3 DQB1*06:03 Confirmed DQB1*06:09,DQB1*06:09,DQB1*06:09,DQB1*06:09,DQB1*06:09,DQB1*06:09,DQB1*06:09,DQB1*06:09,DQB1*06:09,DQB1*06:09,DQB1*06:...
52PQ2 DQB1*06:03 Confirmed DQB1*05:01,DQB1*05:02,DQB1*06:01,DQB1*06:02,DQB1*06:03,DQB1*06:04,DQB1*06:09,DQB1*03:23,DQB1*05:03,DQB1*05:04,DQB1*05:05,DQB1*05:...
52PR DQB1*06:03 Confirmed DQB1*04:01,DQB1*04:02,DQB1*05:01,DQB1*05:02,DQB1*06:01,DQB1*06:02,DQB1*06:03,DQB1*06:04,DQB1*06:09,DQB1*03:23,DQB1*03:25,DQB1*04:...
55RPD DQB1*06:03 DQB1*05:02,DQB1*06:01,DQB1*06:02,DQB1*06:03,DQB1*03:23,DQB1*05:03,DQB1*05:06,DQB1*05:08,DQB1*05:09,DQB1*05:10,DQB1*05:13,DQB1*05:...
56P DQB1*06:03 DQB1*02:01,DQB1*02:02,DQB1*03:01,DQB1*03:02,DQB1*03:03,DQB1*05:01,DQB1*05:02,DQB1*06:01,DQB1*06:02,DQB1*06:03,DQB1*06:04,DQB1*06:...
56PD DQB1*06:03 DQB1*03:01,DQB1*03:03,DQB1*05:02,DQB1*06:01,DQB1*06:02,DQB1*06:03,DQB1*02:03,DQB1*03:06,DQB1*03:09,DQB1*03:10,DQB1*03:12,DQB1*03:...
66EV DQB1*06:03 DQB1*03:01,DQB1*03:02,DQB1*03:03,DQB1*05:01,DQB1*05:02,DQB1*06:02,DQB1*06:03,DQB1*06:04,DQB1*06:09,DQB1*03:04,DQB1*03:05,DQB1*03:...
67VG DQB1*06:03 DQB1*05:01,DQB1*05:02,DQB1*06:02,DQB1*06:03,DQB1*03:08,DQB1*05:03,DQB1*05:05,DQB1*05:06,DQB1*05:07,DQB1*05:08,DQB1*05:09,DQB1*05:...
67VT DQB1*06:03 DQB1*03:01,DQB1*03:02,DQB1*03:03,DQB1*06:02,DQB1*06:03,DQB1*06:04,DQB1*06:09,DQB1*03:04,DQB1*03:05,DQB1*03:07,DQB1*03:08,DQB1*03:...
70GT DQB1*06:03 DQB1*06:02,DQB1*06:03,DQB1*03:08,DQB1*06:08,DQB1*06:10,DQB1*06:11,DQB1*06:12,DQB1*06:13,DQB1*06:14,DQB1*06:16,DQB1*06:19,DQB1*06:...
74EL DQB1*06:03 DQB1*03:01,DQB1*03:02,DQB1*03:03,DQB1*06:01,DQB1*06:02,DQB1*06:03,DQB1*06:04,DQB1*06:09,DQB1*03:04,DQB1*03:05,DQB1*03:07,DQB1*03:...
77T DQB1*06:03 Provisional DQB1*03:01,DQB1*03:02,DQB1*03:03,DQB1*04:01,DQB1*04:02,DQB1*06:01,DQB1*06:02,DQB1*06:03,DQB1*06:04,DQB1*06:09,DRB5*02:06,DRB1*12:...
85VA DQB1*06:03 DQB1*05:01,DQB1*05:02,DQB1*06:01,DQB1*06:02,DQB1*06:03,DQB1*05:03,DQB1*05:05,DQB1*05:06,DQB1*05:07,DQB1*05:08,DQB1*05:09,DQB1*05:...
87F DQB1*06:03 DQB1*06:01,DQB1*06:02,DQB1*06:03,DQB1*06:08,DQB1*06:10,DQB1*06:11,DQB1*06:13,DQB1*06:14,DQB1*06:16,DQB1*06:18,DQB1*06:19,DQB1*06:...
116V DQB1*06:03 DQB1*02:01,DQB1*02:02,DQB1*03:01,DQB1*03:02,DQB1*03:03,DQB1*04:01,DQB1*04:02,DQB1*06:01,DQB1*06:02,DQB1*06:03,DQB1*06:04,DQB1*06:...
125G DQB1*06:03 DQB1*06:01,DQB1*06:02,DQB1*06:03,DQB1*06:04,DQB1*06:09,DQB1*06:07,DQB1*06:12,DQB1*06:34,DQB1*06:36,DQB1*06:38,DQB1*06:39,DQB1*06:...
130R DQB1*06:03 DQB1*02:01,DQB1*02:02,DQB1*03:01,DQB1*03:02,DQB1*03:03,DQB1*04:01,DQB1*04:02,DQB1*05:01,DQB1*05:02,DQB1*06:01,DQB1*06:02,DQB1*06:...
135D DQB1*06:03 DQB1*02:01,DQB1*03:01,DQB1*03:02,DQB1*03:03,DQB1*04:01,DQB1*04:02,DQB1*05:01,DQB1*05:02,DQB1*06:01,DQB1*06:02,DQB1*06:03,DQB1*06:...
140A2 DQB1*06:03 Provisional DQB1*02:01,DQB1*02:02,DQB1*05:01,DQB1*05:02,DQB1*06:01,DQB1*06:02,DQB1*06:03,DQB1*06:04,DQB1*06:09,DQB1*02:04,DQB1*02:06,DQB1*02:...
167R DQB1*06:03 DQB1*02:01,DQB1*02:02,DQB1*03:02,DQB1*03:03,DQB1*04:01,DQB1*04:02,DQB1*05:01,DQB1*05:02,DQB1*06:02,DQB1*06:03,DQB1*06:04,DQB1*06:...
185T DQB1*06:03 DQB1*02:01,DQB1*02:02,DQB1*03:01,DQB1*05:01,DQB1*05:02,DQB1*06:01,DQB1*06:02,DQB1*06:03,DQB1*06:04,DQB1*06:09,DQB1*02:04,DQB1*02:...


HLA Fusion™
Epitope Matching
Epitope Analysis
Class I
Class II
MICA
Epitope Library
CLASS II
31/05/2018
15/09/2018
Find
Patient
S D
DRB1*11:01
DRB1*11:04
DQB1*03:01
DQB1*03:01
Donor / Immunizer
donatore S D
DRB1*01:01
DRB1*11:01
DQB1*05:01
DQB1*03:01
Not in panel
Reolace NMDP Code
Use Cutoff from LABScreen Analysis !
DR
DQ
DP
Data Type
Baseline
Cutoff
1016
Mean of Self (m)
SD
m+3SD
Select
Sample ID
Sample Date
Patient
Well Position
Session Name
BO614
mag 21, 2018
85676
LSA2_URG_180618_20180618_1716
BO615
mag 21, 2018
88032
LSA2_URG_180618_20180618_1716
BO617
mag 21, 2018
1601
lsa2_urg_270618_20180627_131954
BO629
mag 25, 2018
12761
LSA2_CDPOS_0618_AB_20180817_
BO651
mag 24, 2018
1268
LSA2 PNI 08082018_20180808_1205
BO614 / LSA2_URG_180618_20180618_171616
Read LABScreen Analysis
Epitope_AbVerified
Filter Ep
Filter Allele
Show Self
Show Imm
Show POS
Reset
Export
Ab Verified
Other
All
# of Eplets Only
Row Count: 8
Allele
Bead ID
Locus
Raw
Baseline
Ratio
Rxn
Missing EP Def
Cutoff
Self
Imm
Ab Verified
N. Ab Verified
All
N. All
Imm Ab Verified
N. Imm Ab Verified
Imm All
N. Imm All
TP Ab Verified
N. TP Ab Verified
TP All
N. TP All
DQB1*05:01 048 DQ 1096 1016 11,73 POS 1016 125SQ 1 125SQ 1 125SQ 1 125SQ 1 0 0 0
003 DR 53 0 0,56 NEG 1016 0 0 0 0 0 0
DRB1*11:01 018 DR 86 0 0,66 NEG 1016 0 0 0 0 0 0
DQB1*03:01 056 DQ 126 0 0,66 NEG 1016 0 0 0 0 0 0
DQB1*03:01 057 DQ 93 0 0,67 NEG 1016 0 0 0 0 0 0
DQB1*03:01 058 DQ 48 0 0,49 NEG 1016 0 0 0 0 0 0
DQB1*03:01 059 DQ 44 0 0,48 NEG 1016 0 0 0 0 0 0
DQB1*03:01 060 DQ 41 0 0,44 NEG 1016 0 0 0 0 0 0

INTERPRETAZIONE DEL NUMERO DI PIRCHE :

N° PIRCHE
200
76
65
53
66
58
83
52
81
55
90
77
29
41
43
33
191
34
34
75
121
138
0

Milano 17 Settembre 2018