



AlloSeq Assign Motifs

CareDx Technical Support



Margot Duane
Stem Cell Transplant Recipient

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TEC747-S_AlloSeq Assign 1.0_Motifs version 2.0 Effective 02 Oct 23



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 - MICB98 Met/Ile

Overview

Reporting of sequence motifs from AlloSeq Assign enables efficient means of identifying potentially problematic donor/patient mismatches. The sequence motifs reported by AlloSeq Assign have been included as they are of clinical significance in patient outcomes. Review of the motifs may aid in selecting a donor that will reduce the risk of rejection or GVHD in the patient.

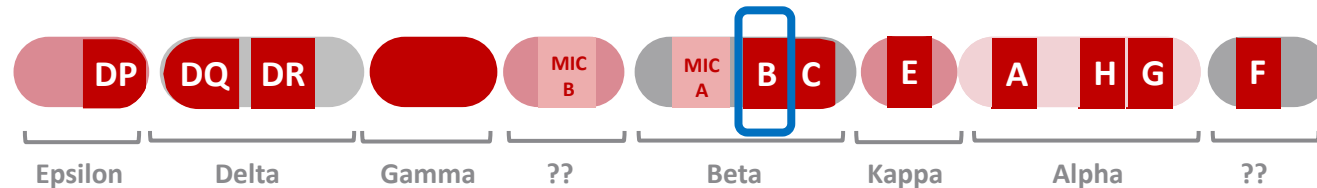
| Motif | Clinical Significance |
|-------------------------------------|---|
| HLA-B rs1050458C>T | This SNP located in exon 1 of HLA-B has been implicated in significantly higher risk of severe GVHD when it is mismatched. For donor patient pairs that are HLA-B genotype mismatched, selecting a donor that is matched at this marker reduces this risk. |
| HLA-G rs1610696C>G | Reports suggest elevated HLA-G expression is associated with reduced allograft rejection. Patient G + Donor C = reduced risk of rejection. Patient C + Donor C = best outcome. |
| HLA-DPB1 rs9277534A>G | This SNP is associated with level of DPB1 expression. The rs9277534-A allele is associated with low DPB1 expression, whereas the rs9277534-G allele is associated with high DPB1 expression. Among recipients of HLA-DPB1-mismatched transplants from donors with the low-expression allele, recipients with the high-expression allele had a high risk of GVHD. For donor patient pairs that are DPB1 mismatched, this marker can be used to select a DPB1-mismatched donors who generate a permissive DPB1 mismatch against low-expression patient DPB1 alleles. |
| MICA rs1051792G>A | This marker has been implicated in a higher risk of GVHD when it is mismatched. Donor + patient mismatched at rs1051792 = increased risk. Donor + patient matched at rs1051792 = reduced risk. |
| MICB98 Met/Ile | This marker has been implicated in a higher risk of GVHD when it is mismatched. Donor + Patient matched at HLA&MICA but mismatched at MICB98 = increased risk of GVHD, and higher rate of relapse. Donor + Patient matched at HLA&MICA AND matched at MICB98 = decreased risk of GVHD. |



HLA Class I Motifs

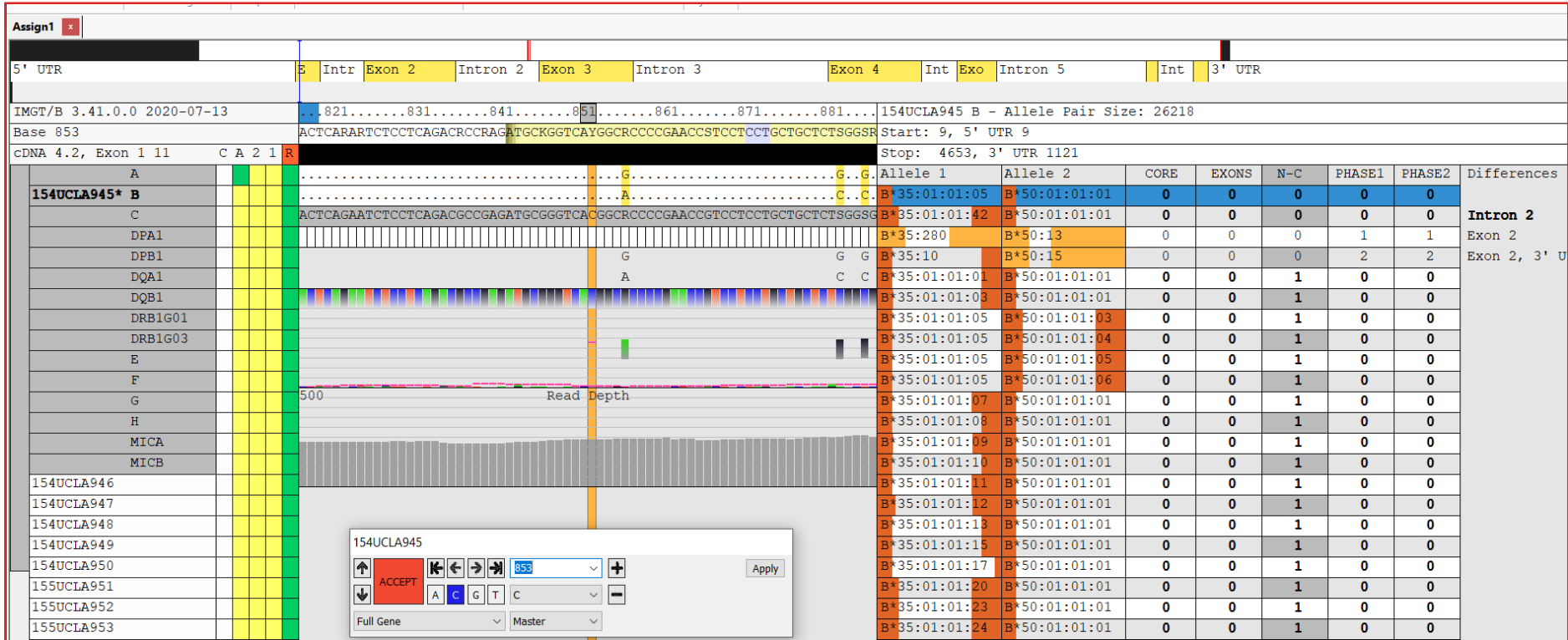


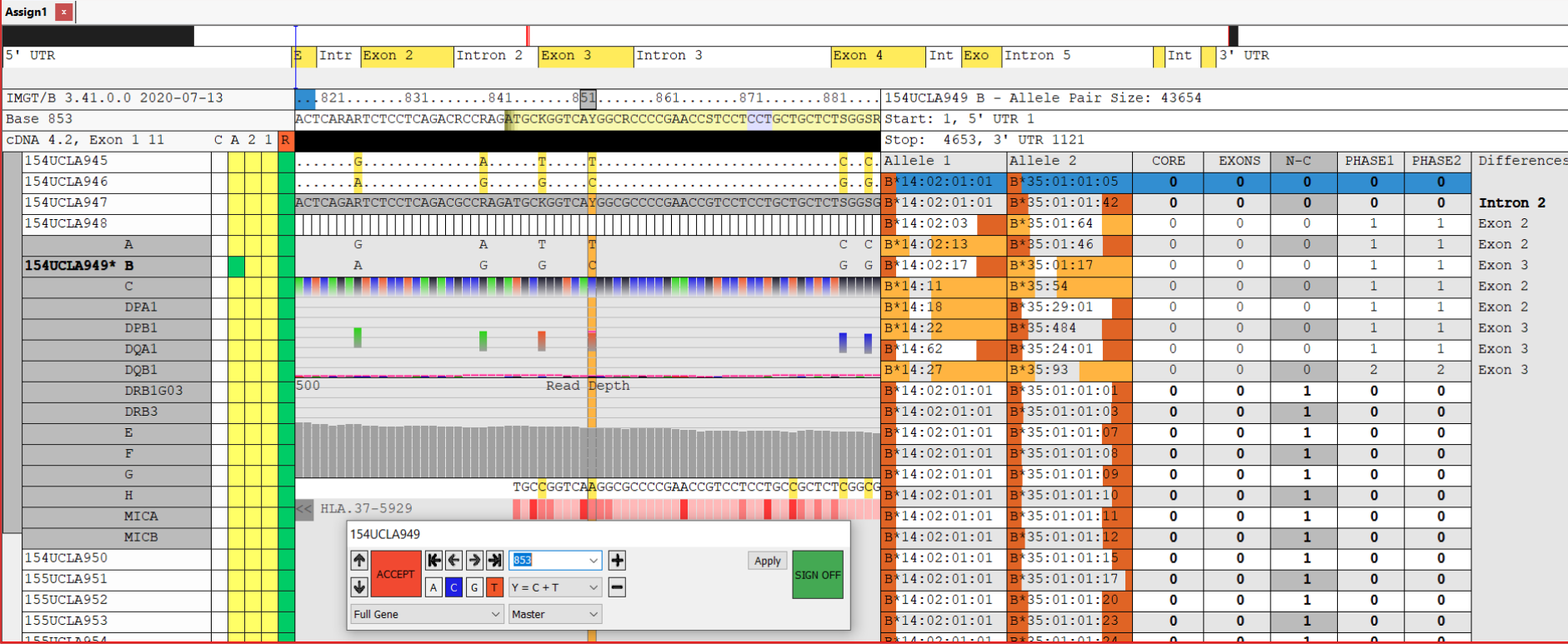
HLA-B rs1050458C>T



HLA-B rs1050458C>T

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|-------------------------|--|--------|-------|-------------------------------|------|
| Motif ID: | rs1050458C>T | Locus: | HLA-B | Implemented (Ref. Version #): | 3.41 |
| Supporting Publication: | Petersdorf EW, Carrington M, O'hUigin C, Bengtsson M, De Santis D, Dubois V, Gooley T, Horowitz M, Hsu K, Madrigal JA, Maiers MJ, Malkki M, McKallor C, Morishima Y, Oudshoorn M, Spellman SR, Villard J, Stevenson P; International Histocompatibility Working Group in Hematopoietic Cell Transplantation. Role of HLA-B exon 1 in graft-versus-host disease after unrelated haemopoietic cell transplantation: a retrospective cohort study. <i>Lancet Haematol.</i> 2020 Jan;7(1):e50-e60. | | | | |
| Impact of polymorphism: | <p>The mature HLA Class I molecule that is expressed on the cell surface is encoded by exons 2–7. Exon 1 of Class I genes encodes a separate leader peptide, which is not a structural moiety of the mature Class I molecule, but can be bound and presented by Class I, notably HLA-E. HLA-A and HLA-C leader sequences are largely invariant and encode methionine at the –21 position. A sequence dimorphism (rs1050458) in exon 1 of HLA-B gives rise to leader peptides containing methionine (Met; M) or threonine (Thr; T), which differentially influence natural killer and T-cell alloresponses. <i>Severe GVHD was significantly higher with HLA-B leader mismatching compared to leader matching, and when the shared HLA-B allotype had an M leader compared with a T leader.</i> The preferred HLA-B-mismatched donor is leader-matched and shares a T leader allotype.</p> <p>This mutation is common among HLA-B*07, 08, 14, 38, 39, 42, 48, 67, 73 and 81 allele groups.</p> | | | | |

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|------------------|--|--------|-------|-------------------------------|------|
| Motif ID: | rs1050458C>T | Locus: | HLA-B | Implemented (Ref. Version #): | 3.41 |
| Example Display: | Homozygous C <div>  </div> | | | | |

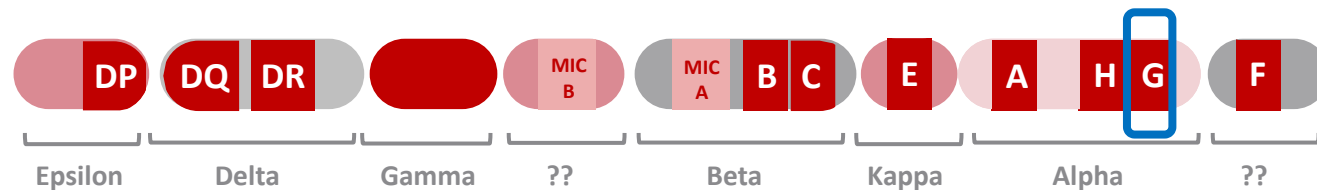
| | | | | | |
|------------------|---|--------|-------|-------------------------------|------|
| Motif ID: | rs1050458C>T | Locus: | HLA-B | Implemented (Ref. Version #): | 3.41 |
| Example Display: | <div> <div>Assign1</div>  </div> | | | | |

| Motif ID: | rs1050458C>T | Locus: | HLA-B | Implemented (Ref. Version #): | 3.41 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Example Display: | <div><div>Homozygous T</div><div><div><div>Assign1</div><div><div><div>5' UTR</div><div>Intr</div><div>Exon 2</div><div>Intron 2</div><div>Exon 3</div><div>Intron 3</div><div>Exon 4</div><div>Int</div><div>Exo</div><div>Intron 5</div><div>Int</div><div>3' UTR</div></div><div>IMGT/B 3.41.0.0 2020-07-13</div><div>Base 853</div><div>CDNA 4.2, Exon 1 11</div><div>ACTCARARTCTCCTCAGACRCCAGATGCKGGTCAYGGCRCCCGAACCTCCTCTGCTGCTCTSGGSR</div><div>Start: 1, 5' UTR 1</div><div>Stop: 4653, 3' UTR 1121</div></div><div><table><thead><tr><th></th><th>Allele 1</th><th>Allele 2</th><th>CORE</th><th>EXONS</th><th>N-C</th><th>Differences</th></tr></thead><tbody><tr><td>154UCLA945</td><td>ACTCAGAGTCTCCTCAGACGCCGAGATGCTGGTCATGGCGCCCCGAACCGTCTCTGCTGCTCTCGGG</td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>0</td><td></td></tr><tr><td>154UCLA946 A</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>154UCLA946* B</td><td></td><td>B*08:01:01:02</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>C</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>DPA1</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>DPB1</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>DQA1</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>DQB1</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>DRB1G03</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>DRB3</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>E</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>F</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>G</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>H</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>MICA</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>MICB</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>154UCLA947</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>154UCLA948</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>154UCLA949</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>154UCLA950</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>155UCLA951</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>155UCLA952</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>155UCLA953</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>155UCLA954</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>155UCLA955</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr><tr><td>155UCLA956</td><td></td><td>B*08:01:01:01</td><td>0</td><td>0</td><td>1</td><td></td></tr></tbody></table></div><div><div>Read Depth</div><div>500</div></div><div><div>HLA.37-356</div><div>HLA.37-4069</div><div>HLA.37-6047</div></div><div><div>154UCLA946</div><div><div>ACCEPT</div><div><div>853</div></div><div>Apply</div><div>SIGN OFF</div></div><div><div>Full Gene</div><div>Master</div></div></div></div></div></div> | | | | | | Allele 1 | Allele 2 | CORE | EXONS | N-C | Differences | 154UCLA945 | ACTCAGAGTCTCCTCAGACGCCGAGATGCTGGTCATGGCGCCCCGAACCGTCTCTGCTGCTCTCGGG | B*08:01:01:01 | 0 | 0 | 0 | | 154UCLA946 A | | B*08:01:01:01 | 0 | 0 | 1 | | 154UCLA946* B | | B*08:01:01:02 | 0 | 0 | 1 | | C | | B*08:01:01:01 | 0 | 0 | 1 | | DPA1 | | B*08:01:01:01 | 0 | 0 | 1 | | DPB1 | | B*08:01:01:01 | 0 | 0 | 1 | | DQA1 | | B*08:01:01:01 | 0 | 0 | 1 | | DQB1 | | B*08:01:01:01 | 0 | 0 | 1 | | DRB1G03 | | B*08:01:01:01 | 0 | 0 | 1 | | DRB3 | | B*08:01:01:01 | 0 | 0 | 1 | | E | | B*08:01:01:01 | 0 | 0 | 1 | | F | | B*08:01:01:01 | 0 | 0 | 1 | | G | | B*08:01:01:01 | 0 | 0 | 1 | | H | | B*08:01:01:01 | 0 | 0 | 1 | | MICA | | B*08:01:01:01 | 0 | 0 | 1 | | MICB | | B*08:01:01:01 | 0 | 0 | 1 | | 154UCLA947 | | B*08:01:01:01 | 0 | 0 | 1 | | 154UCLA948 | | B*08:01:01:01 | 0 | 0 | 1 | | 154UCLA949 | | B*08:01:01:01 | 0 | 0 | 1 | | 154UCLA950 | | B*08:01:01:01 | 0 | 0 | 1 | | 155UCLA951 | | B*08:01:01:01 | 0 | 0 | 1 | | 155UCLA952 | | B*08:01:01:01 | 0 | 0 | 1 | | 155UCLA953 | | B*08:01:01:01 | 0 | 0 | 1 | | 155UCLA954 | | B*08:01:01:01 | 0 | 0 | 1 | | 155UCLA955 | | B*08:01:01:01 | 0 | 0 | 1 | | 155UCLA956 | | B*08:01:01:01 | 0 | 0 | 1 | |
| | Allele 1 | Allele 2 | CORE | EXONS | N-C | Differences | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| DRB1G03 | | B*08:01:01:01 | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| G | | B*08:01:01:01 | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H | | B*08:01:01:01 | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MICA | | B*08:01:01:01 | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MICB | | B*08:01:01:01 | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 154UCLA947 | | B*08:01:01:01 | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 154UCLA948 | | B*08:01:01:01 | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 154UCLA949 | | B*08:01:01:01 | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 154UCLA950 | | B*08:01:01:01 | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 155UCLA951 | | B*08:01:01:01 | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 155UCLA952 | | B*08:01:01:01 | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 155UCLA953 | | B*08:01:01:01 | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 155UCLA954 | | B*08:01:01:01 | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 155UCLA955 | | B*08:01:01:01 | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 155UCLA956 | | B*08:01:01:01 | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Motif ID: | rs1050458C>T | Locus: | HLA-B | Implemented (Ref. Version #): | 3.41 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|--|--------------|--------------|-------------------------------|--------|--------|------------------------|-------------------|--------------------|--------------|--------|--------|--------|-----------|-----------|------------|--|------------|--|--|--|--|-------------------|--------------------|--|------------|--|--------------|--|--|--|-----|-------------------|--------|-------|------------|--|--------------|--|--|--|-----|-------------------|--------|--------------|------------|--|--------------|--|-----|--|-----|------------------------|--------|-------|------------|--|------------|--|-----|--|-----|-------------------|--------|-------|---------------|---------------|---------------|---------------|
| Example Display: | <div>Summary Table Report:</div> <div><div>Motifs.</div><table><thead><tr><th></th><th>IMGT/F</th><th>IMGT/G</th><th>IMGT/H</th><th>IMGT/A</th><th>IMGT/E</th><th>IMGT/C</th><th>IMGT/B</th><th>IMGT/MICA</th><th>IMGT/MICB</th></tr></thead><tbody><tr><td>154UCLA945</td><td></td><td>rs1610696:</td><td></td><td></td><td></td><td></td><td>Bw6, rs1050458:CC</td><td>129Met, 129\ 98Ile</td><td></td></tr><tr><td>154UCLA946</td><td></td><td>rs1610696:**</td><td></td><td></td><td></td><td>Bw6</td><td>Bw6, rs1050458:TT</td><td>129Val</td><td>98Met</td></tr><tr><td>154UCLA947</td><td></td><td>rs1610696:GC</td><td></td><td></td><td></td><td>Bw6</td><td>Bw6, rs1050458:TT</td><td>129Val</td><td>98Met, 98Ile</td></tr><tr><td>154UCLA948</td><td></td><td>rs1610696:**</td><td></td><td>Bw4</td><td></td><td>Bw6</td><td>Bw4, Bw6, rs1050458:CC</td><td>129Val</td><td>98Ile</td></tr><tr><td>154UCLA949</td><td></td><td>rs1610696:</td><td></td><td>Bw4</td><td></td><td>Bw6</td><td>Bw6, rs1050458:TC</td><td>129Met</td><td>98Ile</td></tr></tbody></table></div> <div>Genotyping Report:</div> <div><div>Reference: IMGT/B 3.41.0.0 2020-07-13</div><div><div>Summary</div><div>The allele pairs listed below are compatible with the consensus sequence.</div><table><tr><td>B*14:02:01:01</td><td>B*35:01:01:05</td></tr><tr><td>B*14:02:01:01</td><td>B*35:01:01:42</td></tr></table><div>Intron 2</div></div><div>Motifs: Bw6, rs1050458:TC Heterozygous</div></div> | | | | | | IMGT/F | IMGT/G | IMGT/H | IMGT/A | IMGT/E | IMGT/C | IMGT/B | IMGT/MICA | IMGT/MICB | 154UCLA945 | | rs1610696: | | | | | Bw6, rs1050458:CC | 129Met, 129\ 98Ile | | 154UCLA946 | | rs1610696:** | | | | Bw6 | Bw6, rs1050458:TT | 129Val | 98Met | 154UCLA947 | | rs1610696:GC | | | | Bw6 | Bw6, rs1050458:TT | 129Val | 98Met, 98Ile | 154UCLA948 | | rs1610696:** | | Bw4 | | Bw6 | Bw4, Bw6, rs1050458:CC | 129Val | 98Ile | 154UCLA949 | | rs1610696: | | Bw4 | | Bw6 | Bw6, rs1050458:TC | 129Met | 98Ile | B*14:02:01:01 | B*35:01:01:05 | B*14:02:01:01 | B*35:01:01:42 |
| | | IMGT/F | IMGT/G | IMGT/H | IMGT/A | IMGT/E | IMGT/C | IMGT/B | IMGT/MICA | IMGT/MICB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 154UCLA945 | | rs1610696: | | | | | Bw6, rs1050458:CC | 129Met, 129\ 98Ile | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 154UCLA946 | | rs1610696:** | | | | Bw6 | Bw6, rs1050458:TT | 129Val | 98Met | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 154UCLA947 | | rs1610696:GC | | | | Bw6 | Bw6, rs1050458:TT | 129Val | 98Met, 98Ile | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 154UCLA948 | | rs1610696:** | | Bw4 | | Bw6 | Bw4, Bw6, rs1050458:CC | 129Val | 98Ile | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 154UCLA949 | | rs1610696: | | Bw4 | | Bw6 | Bw6, rs1050458:TC | 129Met | 98Ile | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B*14:02:01:01 | B*35:01:01:05 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B*14:02:01:01 | B*35:01:01:42 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

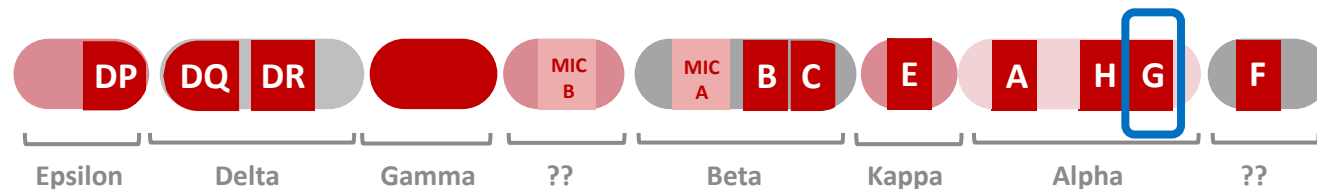


HLA-G rs1610696C>G



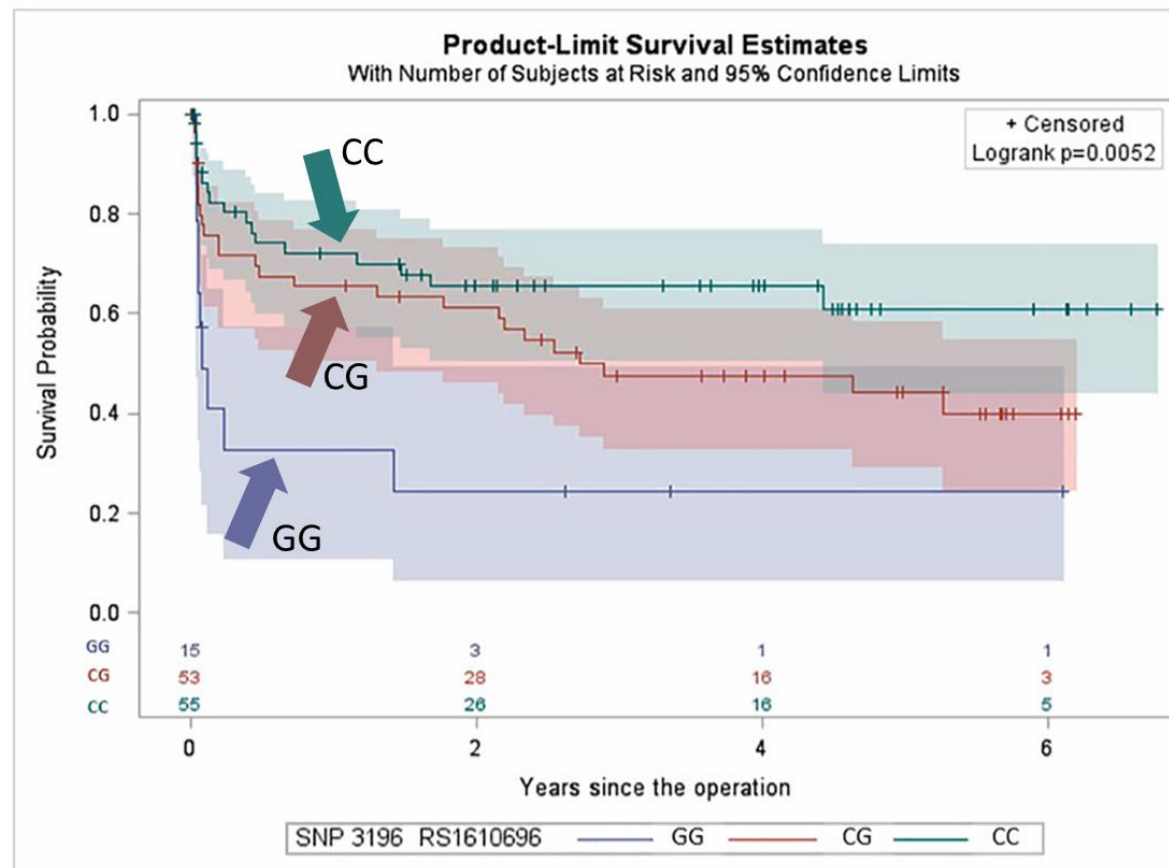
HLA-G rs1610696C>G

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|-------------------------|--|--------|-------|-------------------------------|------|
| Motif ID: | rs1610696C>G | Locus: | HLA-G | Implemented (Ref. Version #): | 3.41 |
| Supporting Publication: | Adamson MB, Di Giovanni B, Ribeiro RVP, Yu F, Lazarte J, Rao V, Delgado DH. HLA-G +3196 polymorphism as a risk factor for cell mediated rejection following heart transplant. <i>Hum Immunol.</i> 2020 Apr;81(4):134-140. | | | | |
| Impact of polymorphism: | <p>Human leukocyte antigen-G (HLA-G) is an immune checkpoint which dampens the immune response. Reports suggest elevated HLA-G expression is associated with reduced allograft rejection. The +3196C/G polymorphism is located within the 3'UTR of the HLA-G gene, 3196 base pairs downstream of the initiation sequence. The 3'UTR, specifically exon 8, is a vital component for HLA-G transcriptional regulation. The current study identified the +3196 G allele as a risk factor for cell mediated rejection (CMR). Compared to the minor GG genotype, CG had a 47.2% reduction in CMR risk while CC had a 66.9% reduction.</p> <p>Note: Equivalent to c.*287C>G (using standard HGVS nomenclature, which means 287 bp downstream of the T in the TGA stop codon). Currently this position is not included in IMGT /Unknown.</p> | | | | |

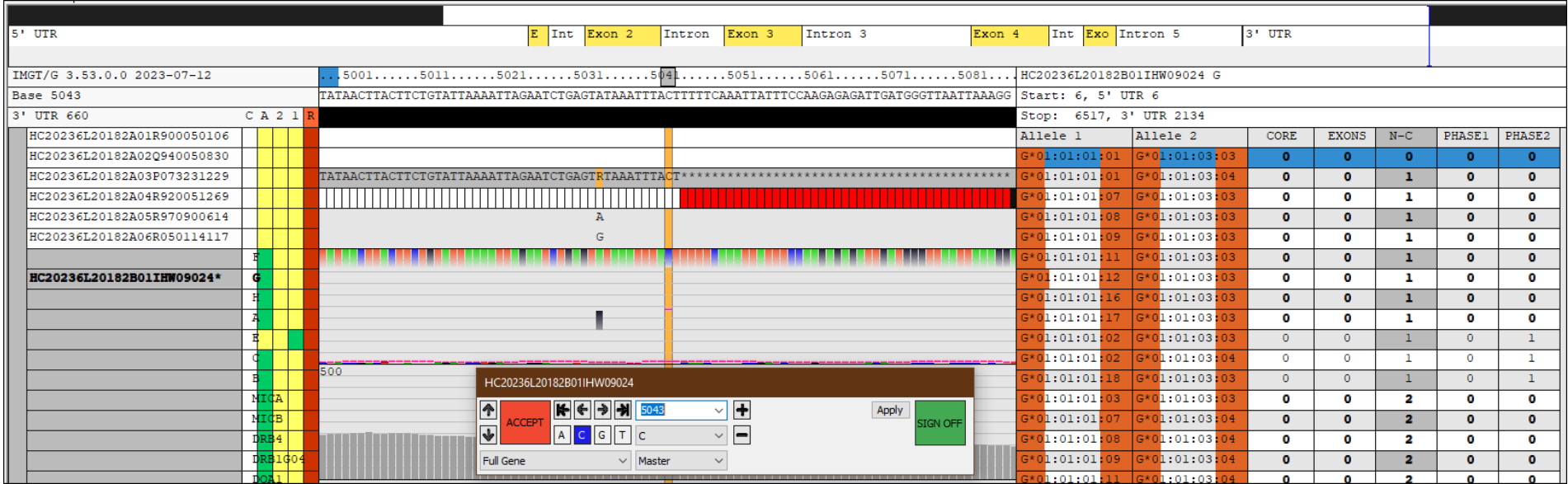


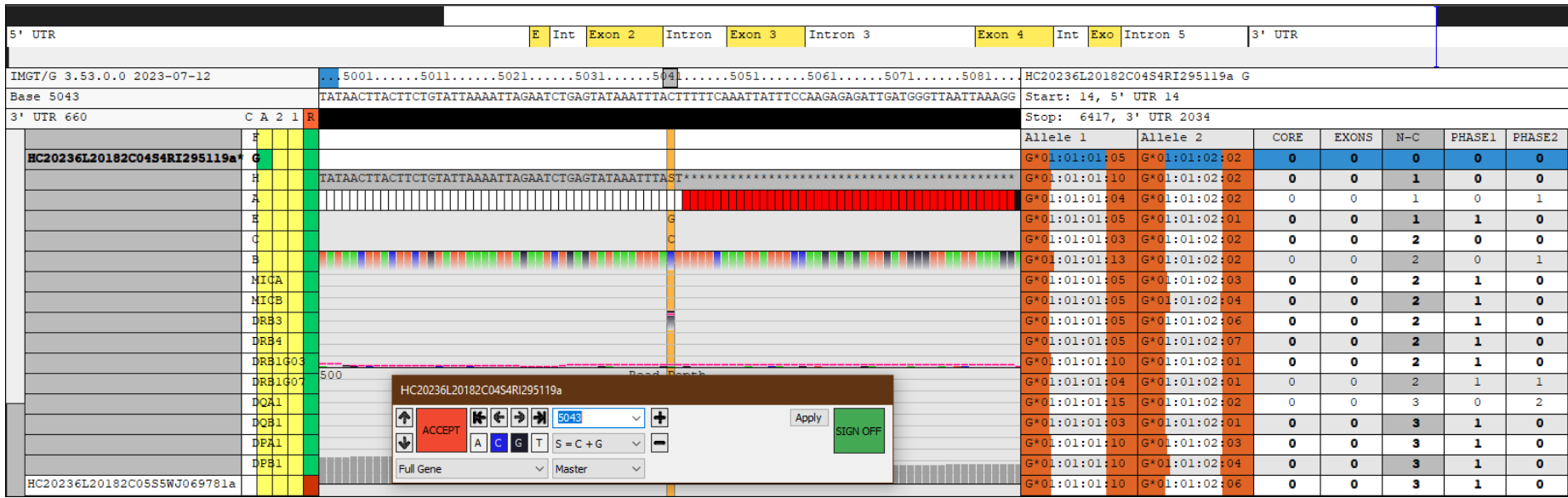
HLA-G rs1610696C>G

The freedom from cell mediated rejection (CMR) stratified by each +3196C/G genotype. Highest risk was observed in the group homozygous for the G risk allele, whereas the lowest risk was observed with the presence of the C allele. Risk of CMR increased proportionally with an increase in the number of risk allele G ($p = 0.0052$).



Adamson. et al. *Hum Immunol.* 2020 Apr;81(4):134-140

| | | | | | |
|------------------|--|--------|-------|----------------------------------|------|
| Motif ID: | rs1610696C>G | Locus: | HLA-G | Implemented (Ref. Version #): | 3.41 |
| Example Display: | Homozygous C <div>  </div> | | | | |

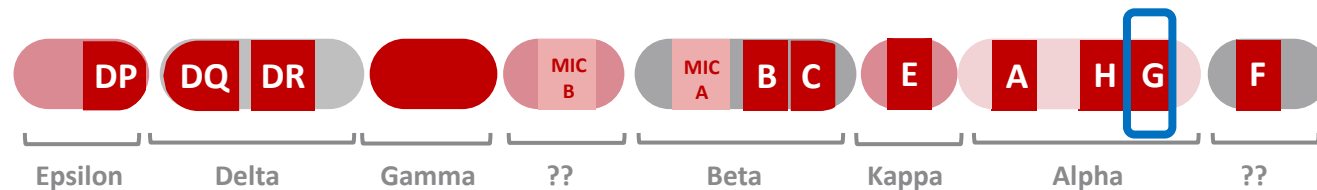
| | | | | | |
|------------------|--|--------|-------|-------------------------------|------|
| Motif ID: | rs1610696C>G | Locus: | HLA-G | Implemented (Ref. Version #): | 3.41 |
| Example Display: | <p>Heterozygous C/G</p>  | | | | |

| | | | | | |
|------------------|---|--------|-------|----------------------------------|------|
| Motif ID: | rs1610696C>G | Locus: | HLA-G | Implemented (Ref. Version #): | 3.41 |
| Example Display: | <div><div><div><div>5' UTR</div><div>IMGT/G 3.53.0.0 2023-07-12</div><div>Base 5043</div><div>3' UTR 660</div></div><div><div>E</div><div>Int</div><div>Exon 2</div><div>Intron</div><div>Exon 3</div><div>Intron 3</div><div>Exon 4</div><div>Int</div><div>Exo</div><div>Intron 5</div><div>3' UTR</div></div><div><div>.....4991.....5001.....5011.....5021.....5031.....5041.....5051.....5061.....5071.....</div><div>GGTCCACTGAGCTATAACTTACTTCTGTATTAAAATTAGAATCTGAGTATAAAATTACTTTTCAAATTATTTCCAAGAGAGATTGATGG</div><div>Stop: 6517, 3' UTR 2134</div></div></div><div><div><div>HC20236L20182A01R900050106</div><div>HC20236L20182A02Q940050830</div><div>HC20236L20182A03P073231229</div><div>HC20236L20182A04R920051269*</div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><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| Motif ID: | rs1610696C>G | Locus: | HLA-G | Implemented (Ref. Version #): | 3.41 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|---|--------------|-------------------------------|--------|---------|---------------------|---|-----------|--------------|-----------|-----------|-----------|-----------|-----------|-----------|--------------|--------------|--|--|--|--|--|--|--------|--------|--------|--------|--------|--------|--------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------------------------|--|--------------|--|-----|--|-----|---------------------|--|-------|--|--|--|--|--|--|--|--------------|----------------------------|--|--------------|--|--|--|-----|---|--|--|--|--|--|--|--|--|--|--------------|----------------------------|--|--------------|--|--|--|-----|--------------------|--|-------|--|--|--|--|--|--|--|--------------|----------------------------|--|--------------|--|--|--|-----|---------------------|--|--------------|--|--|--|--|--|--|--|--------------|----------------------------|--|--------------|--|--|--|-----|--------------------|--|--------------|--|--|--|--|--|--|--|--------------|----------------------------|--|--------------|--|--|--|-----|--------------------|--|-------|--|--|--|--|--|--|--|--------------|--------------------------|--|--------------|--|--|--|-----|---|--|--|--|--|--|--|--|--|--|--------------|--------------------------|--|--------------|--|--|--|-----|---------------------|--|-------|--|--|--|--|--|--|--|--------------|--------------------------|--|--------------|--|--|--|-----|---------------------|--|-------|--|--|--|--|--|--|--|--------------|---------------------------------------|---------------------------------------|---------------------------------------|---------|---------|---------|---|---|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------------|---------------------------------------|-----------------------------------|
| Example Display: | <div>Summary Table Report:</div> <table><tr><th colspan="18">Motifs.</th></tr><tr><th></th><th>IMGT/F</th><th>IMGT/G</th><th>IMGT/H</th><th>IMGT/A</th><th>IMGT/E</th><th>IMGT/C</th><th>IMGT/B</th><th>IMGT/MICA</th><th>IMGT/MICB</th><th>IMGT/DRB3</th><th>IMGT/DRB4</th><th>IMGT/DRB5</th><th>IMGT/DRB1</th><th>IMGT/DQA1</th><th>IMGT/DQB1</th><th>IMGT/DPA1</th><th>IMGT/DPB1</th></tr><tr><td>HC20237L20182A01R900050106</td><td></td><td>rs1610696:CC</td><td></td><td>Bw4</td><td></td><td>Bw6</td><td>Bw6, rs1050: 129Val</td><td></td><td>98Ile</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>rs9277534:GG</td></tr><tr><td>HC20237L20182A02Q940050830</td><td></td><td>rs1610696:CC</td><td></td><td></td><td></td><td>Bw6</td><td>Bw4, rs1050: 129Met, 129⁹ 98Ile</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>rs9277534:GA</td></tr><tr><td>HC20237L20182A03P073231229</td><td></td><td>rs1610696:CG</td><td></td><td></td><td></td><td>Bw6</td><td>Bw4, Bw6, rs129Val</td><td></td><td>98Ile</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>rs9277534:GA</td></tr><tr><td>HC20237L20182A04R920051269</td><td></td><td>rs1610696:GG</td><td></td><td></td><td></td><td>Bw6</td><td>Bw6, rs1050: 129Val</td><td></td><td>98Met, 98Ile</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>rs9277534:AA</td></tr><tr><td>HC20237L20182A05R970900614</td><td></td><td>rs1610696:CG</td><td></td><td></td><td></td><td>Bw6</td><td>Bw4, Bw6, rs129Val</td><td></td><td>98Met, 98Ile</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>rs9277534:GG</td></tr><tr><td>HC20237L20182A06R050114117</td><td></td><td>rs1610696:CG</td><td></td><td></td><td></td><td>Bw6</td><td>Bw4, Bw6, rs129Val</td><td></td><td>98Ile</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>rs9277534:GA</td></tr><tr><td>HC20237L20182B01IHW09024</td><td></td><td>rs1610696:CC</td><td></td><td></td><td></td><td>Bw6</td><td>Bw6, rs1050: 129Met, 129⁹ 98Ile</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>rs9277534:GG</td></tr><tr><td>HC20237L20182B02IHW09050</td><td></td><td>rs1610696:CC</td><td></td><td></td><td></td><td>Bw6</td><td>Bw4, rs1050: 129Val</td><td></td><td>98Ile</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>rs9277534:AA</td></tr><tr><td>HC20237L20182B03IHW09058</td><td></td><td>rs1610696:CC</td><td></td><td></td><td></td><td>Bw6</td><td>Bw6, rs1050: 129Met</td><td></td><td>98Ile</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>rs9277534:GG</td></tr></table> <div>Genotyping Report:</div> <table><tr><td>Reference: IMGT/G 3.41.0.0 2020-07-13</td><td>Reference: IMGT/G 3.41.0.0 2020-07-13</td><td>Reference: IMGT/G 3.41.0.0 2020-07-13</td></tr><tr><td>Summary</td><td>Summary</td><td>Summary</td></tr><tr><td>The allele pairs listed below are compatible with the consensus sequence.</td><td>The allele pairs listed below are compatible with the consensus sequence.</td><td>The allele pairs listed below are compatible with the consensus sequence.</td></tr><tr><td>G*01:01:01:05 G*01:01:03:03</td><td>G*01:01:01:04 G*01:01:02:02</td><td>G*01:01:02:01 G*01:01:22:01</td></tr><tr><td>Motifs: rs1610696:CC Homozygous C</td><td>Motifs: rs1610696:CG Heterozygous C/G</td><td>Motifs: rs1610696:GG Homozygous G</td></tr></table> | | | | | Motifs. | | | | | | | | | | | | | | | | | | | IMGT/F | IMGT/G | IMGT/H | IMGT/A | IMGT/E | IMGT/C | IMGT/B | IMGT/MICA | IMGT/MICB | IMGT/DRB3 | IMGT/DRB4 | IMGT/DRB5 | IMGT/DRB1 | IMGT/DQA1 | IMGT/DQB1 | IMGT/DPA1 | IMGT/DPB1 | HC20237L20182A01R900050106 | | rs1610696:CC | | Bw4 | | Bw6 | Bw6, rs1050: 129Val | | 98Ile | | | | | | | | rs9277534:GG | HC20237L20182A02Q940050830 | | rs1610696:CC | | | | Bw6 | Bw4, rs1050: 129Met, 129 ⁹ 98Ile | | | | | | | | | | rs9277534:GA | HC20237L20182A03P073231229 | | rs1610696:CG | | | | Bw6 | Bw4, Bw6, rs129Val | | 98Ile | | | | | | | | rs9277534:GA | HC20237L20182A04R920051269 | | rs1610696:GG | | | | Bw6 | Bw6, rs1050: 129Val | | 98Met, 98Ile | | | | | | | | rs9277534:AA | HC20237L20182A05R970900614 | | rs1610696:CG | | | | Bw6 | Bw4, Bw6, rs129Val | | 98Met, 98Ile | | | | | | | | rs9277534:GG | HC20237L20182A06R050114117 | | rs1610696:CG | | | | Bw6 | Bw4, Bw6, rs129Val | | 98Ile | | | | | | | | rs9277534:GA | HC20237L20182B01IHW09024 | | rs1610696:CC | | | | Bw6 | Bw6, rs1050: 129Met, 129 ⁹ 98Ile | | | | | | | | | | rs9277534:GG | HC20237L20182B02IHW09050 | | rs1610696:CC | | | | Bw6 | Bw4, rs1050: 129Val | | 98Ile | | | | | | | | rs9277534:AA | HC20237L20182B03IHW09058 | | rs1610696:CC | | | | Bw6 | Bw6, rs1050: 129Met | | 98Ile | | | | | | | | rs9277534:GG | Reference: IMGT/G 3.41.0.0 2020-07-13 | Reference: IMGT/G 3.41.0.0 2020-07-13 | Reference: IMGT/G 3.41.0.0 2020-07-13 | Summary | Summary | Summary | The allele pairs listed below are compatible with the consensus sequence. | The allele pairs listed below are compatible with the consensus sequence. | The allele pairs listed below are compatible with the consensus sequence. | G*01:01:01:05 G*01:01:03:03 | G*01:01:01:04 G*01:01:02:02 | G*01:01:02:01 G*01:01:22:01 | Motifs: rs1610696:CC Homozygous C | Motifs: rs1610696:CG Heterozygous C/G | Motifs: rs1610696:GG Homozygous G |
| | Motifs. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | IMGT/F | IMGT/G | IMGT/H | IMGT/A | IMGT/E | IMGT/C | IMGT/B | IMGT/MICA | IMGT/MICB | IMGT/DRB3 | IMGT/DRB4 | IMGT/DRB5 | IMGT/DRB1 | IMGT/DQA1 | IMGT/DQB1 | IMGT/DPA1 | IMGT/DPB1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | HC20237L20182A01R900050106 | | rs1610696:CC | | Bw4 | | Bw6 | Bw6, rs1050: 129Val | | 98Ile | | | | | | | | rs9277534:GG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | HC20237L20182A02Q940050830 | | rs1610696:CC | | | | Bw6 | Bw4, rs1050: 129Met, 129 ⁹ 98Ile | | | | | | | | | | rs9277534:GA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | HC20237L20182A03P073231229 | | rs1610696:CG | | | | Bw6 | Bw4, Bw6, rs129Val | | 98Ile | | | | | | | | rs9277534:GA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | HC20237L20182A04R920051269 | | rs1610696:GG | | | | Bw6 | Bw6, rs1050: 129Val | | 98Met, 98Ile | | | | | | | | rs9277534:AA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | HC20237L20182A05R970900614 | | rs1610696:CG | | | | Bw6 | Bw4, Bw6, rs129Val | | 98Met, 98Ile | | | | | | | | rs9277534:GG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | HC20237L20182A06R050114117 | | rs1610696:CG | | | | Bw6 | Bw4, Bw6, rs129Val | | 98Ile | | | | | | | | rs9277534:GA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| HC20237L20182B02IHW09050 | | rs1610696:CC | | | | Bw6 | Bw4, rs1050: 129Val | | 98Ile | | | | | | | | rs9277534:AA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Reference: IMGT/G 3.41.0.0 2020-07-13 | Reference: IMGT/G 3.41.0.0 2020-07-13 | Reference: IMGT/G 3.41.0.0 2020-07-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Summary | Summary | Summary | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| The allele pairs listed below are compatible with the consensus sequence. | The allele pairs listed below are compatible with the consensus sequence. | The allele pairs listed below are compatible with the consensus sequence. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| G*01:01:01:05 G*01:01:03:03 | G*01:01:01:04 G*01:01:02:02 | G*01:01:02:01 G*01:01:22:01 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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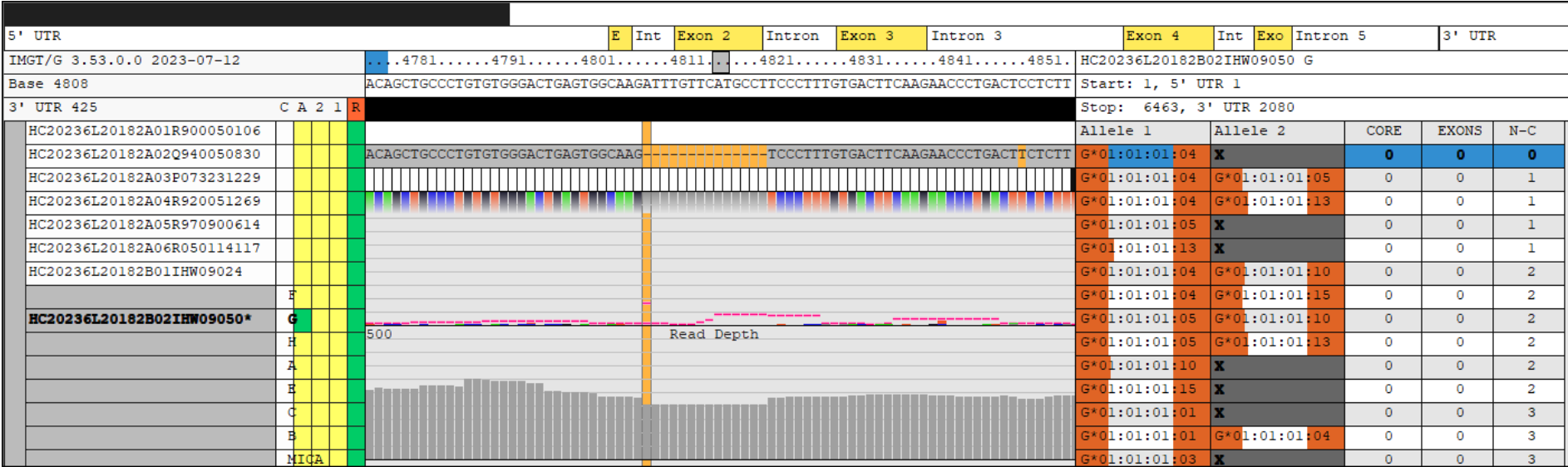


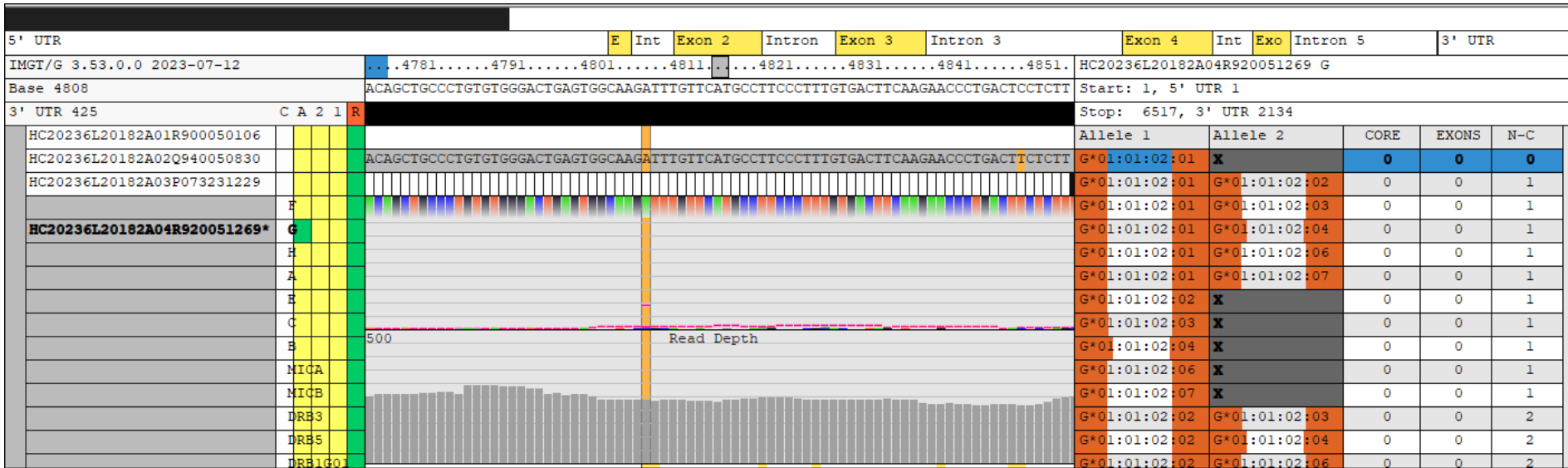
HLA-G rs371194629 3'UTR 14bp indel

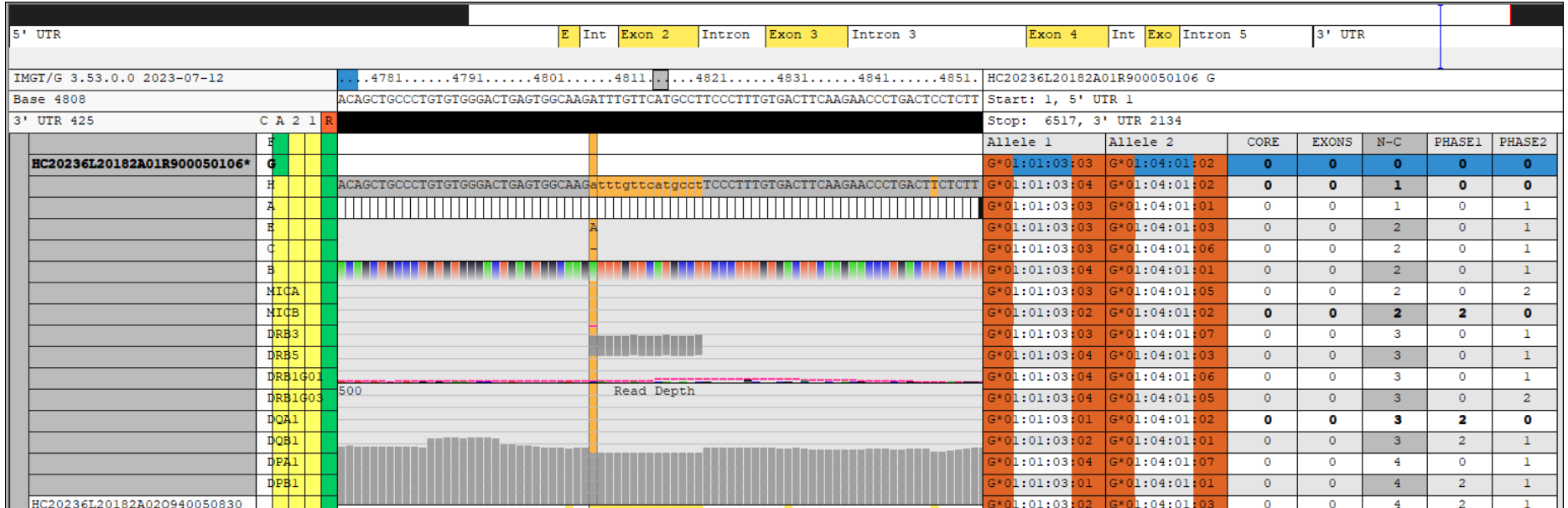


HLA-G rs371194629 3'UTR 14bp indel

| | | | | | |
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| Motif ID: | rs371194629 | Locus: | HLA-G | Implemented (Ref. Version #): | 3.53 |
| Supporting Publication: | <p>La Nasa, G. The human leucocyte antigen-G 14-basepair polymorphism correlates with graft-versus-host disease in unrelated bone marrow transplantation for thalassaemia. BJH. 2007 May.</p> <p>Chen, D.P. The association between genetic variants at 3'-UTR and 5'-URR of HLA-G gene and the clinical outcomes of patients with leukemia receiving hematopoietic stem cell transplantation. Frontiers Immunol. 2023 Feb.</p> <p>Boukouaci, W. Association of HLA-G low expressor genotype with severe acute graft-versus-host disease after sibling bone marrow transplantation. Frontiers Immunol. 2011 Dec.</p> <p>Zhan-Kui Jin. Impact of HLA-G 14-bp polymorphism on acute rejection and cytomegalovirus infection in kidney transplant recipients from north-western China. Transplant Immunology. 2012 Jun.</p> | | | | |
| Impact of polymorphism: | <ul style="list-style-type: none"> Studies have demonstrated that patients with low expression of HLA-G have an increased risk of severe aGVHD after HSCT The 14bp indel in the 3'UTR of HLA-G has been shown in multiple studies to have an association with the risk of a HCST patient developing GVHD. The 14bp insertion genotype is associated with low expression of HLA-G DEL allele provides a higher stability of the mRNA, associated with a high expression of HLA-G Patients with the 14bp insertion have increased risk of GVHD Likely donors indel status doesn't have any effect on the patients GVHD risk Some studies have confirmed that high levels of soluble HLA-G (sHLA-G) are correlated with better acceptance of the allograft. | | | | |

| | | | | | |
|------------------|--|--------|-------|----------------------------------|------|
| Motif ID: | rs371194629 | Locus: | HLA-G | Implemented (Ref. Version #): | 3.53 |
| Example Display: | Homozygous del <div>  </div> | | | | |

| | | | | | |
|------------------|--|--------|-------|----------------------------------|------|
| Motif ID: | rs371194629 | Locus: | HLA-G | Implemented (Ref. Version #): | 3.53 |
| Example Display: | Homozygous ins <div>  </div> | | | | |

| | | | | | |
|------------------|--|--------|-------|-------------------------------|------|
| Motif ID: | rs371194629 | Locus: | HLA-G | Implemented (Ref. Version #): | 3.53 |
| Example Display: | Heterozygous <div>  </div> | | | | |

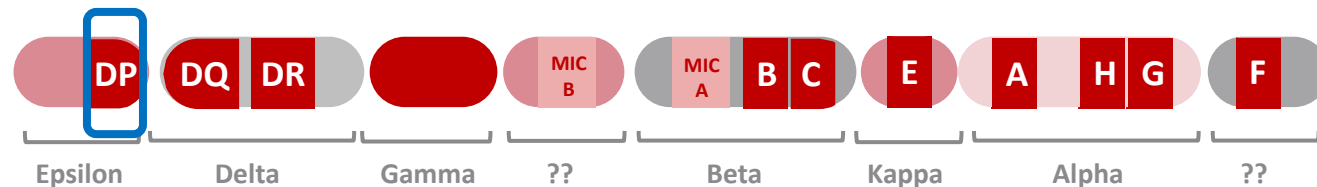
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| Motif ID: | rs371194629 | Locus: | HLA-G | Implemented (Ref. Version #): | 3.53 | | | | | | | | | | |
| Example Display: | <div><div>Summary Table Report:</div><div><div>Motifs.</div><table><tr><td>HC20236L20182A01R900050106</td><td>IMGT/G rs1610696:CC,</td><td>rs371194629:Atttgtcatgcct-tttgtcatgcct</td><td rowspan="3">Heterozygous Homozygous ins Homozygous del</td></tr><tr><td>HC20236L20182A04R920051269</td><td>rs1610696:GG</td><td>rs371194629:ATTTGTTTCATGCCTATTTGTTTCATGCCT</td></tr><tr><td>HC20236L20182B02IHW09050</td><td>rs1610696:CC,</td><td>rs371194629:-----</td></tr></table></div><div><div>Genotyping Report:</div><div><div><div>Sample: HC20236L20182A01R900050106 Reference: IMGT/G 3.53.0.0 2023-07-12</div><div>Summary</div><div>The allele pairs listed below are compatible with the consensus sequence.</div><div><div>G*01:01:03:03</div><div>G*01:04:01:02</div></div><div>Motifs: rs1610696:CC, rs371194629:Atttgtcatgcct-tttgtcatgcct</div></div><div><div>Sample: HC20236L20182A04R920051269 Summary</div><div>The allele pairs listed below are compatible with the consensus sequence.</div><div><div>G*01:01:02:01</div><div>X</div></div><div>Motifs: rs1610696:GG, rs371194629:ATTTGTTTCATGCCTATTTGTTTCATGCCT</div></div><div><div>Sample: HC20236L20182B02IHW09050 Summary</div><div>The allele pairs listed below are compatible with the consensus sequence.</div><div><div>G*01:01:01:04</div><div>X</div></div><div>Motifs: rs1610696:CC, rs371194629:-----</div></div></div><div><div>Heterozygous</div><div>Homozygous ins</div><div>Homozygous del</div></div></div></div> | | | | | HC20236L20182A01R900050106 | IMGT/G rs1610696:CC, | rs371194629:Atttgtcatgcct-tttgtcatgcct | Heterozygous Homozygous ins Homozygous del | HC20236L20182A04R920051269 | rs1610696:GG | rs371194629:ATTTGTTTCATGCCTATTTGTTTCATGCCT | HC20236L20182B02IHW09050 | rs1610696:CC, | rs371194629:----- |
| HC20236L20182A01R900050106 | IMGT/G rs1610696:CC, | rs371194629:Atttgtcatgcct-tttgtcatgcct | Heterozygous Homozygous ins Homozygous del | | | | | | | | | | | | |
| HC20236L20182A04R920051269 | rs1610696:GG | rs371194629:ATTTGTTTCATGCCTATTTGTTTCATGCCT | | | | | | | | | | | | | |
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HLA Class II Motifs

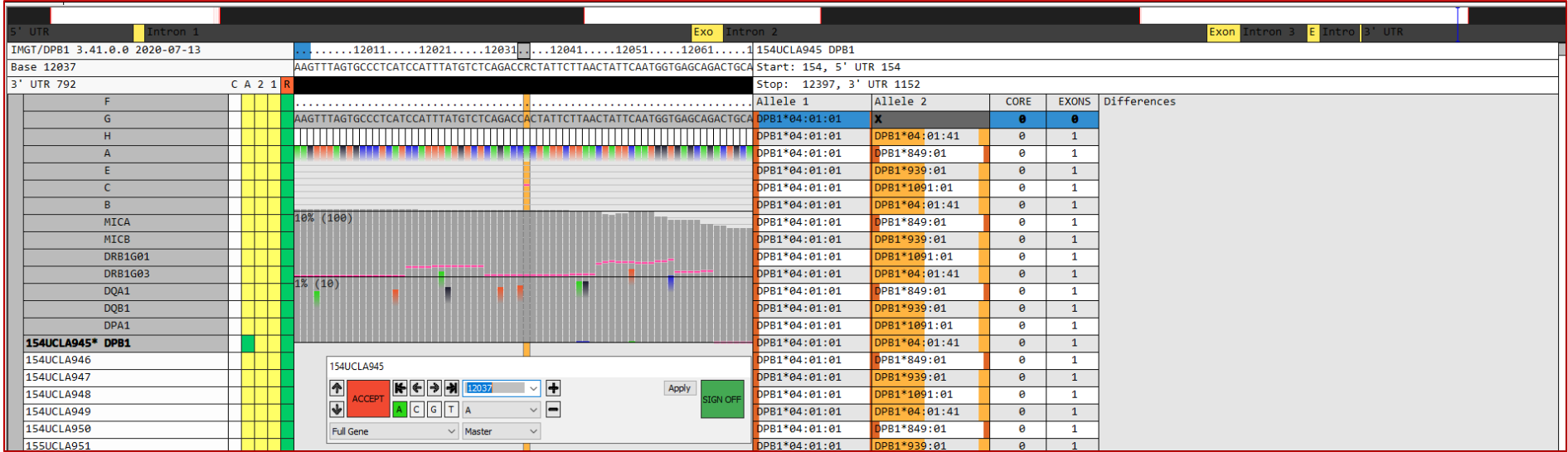


HLA-DPB1 rs9277534A>G

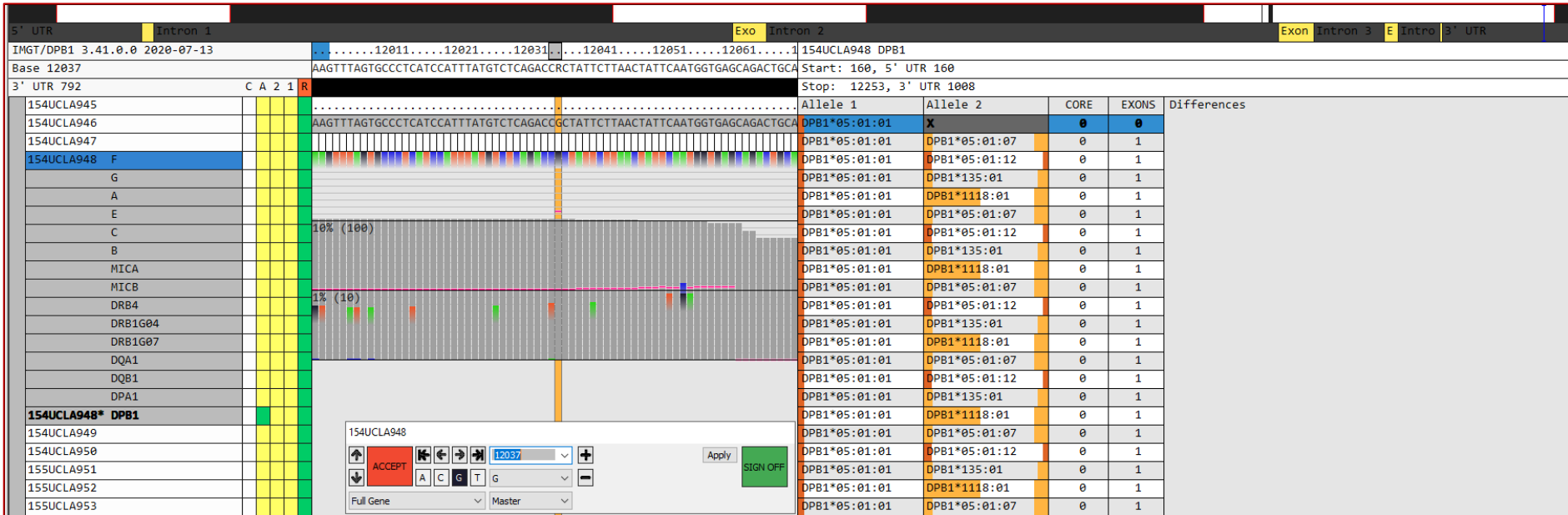


HLA-DPB1 rs9277534A>G

| | | | | | |
|-------------------------|---|--------|----------|-------------------------------|--------|
| Motif ID: | rs9277534A>G | Locus: | HLA-DPB1 | Implemented (Ref. Version #): | 3.37.0 |
| Supporting Publication: | <ul style="list-style-type: none"> Petersdorf EW, Malkki M, O'hUigin C, Carrington M, Gooley T, Haagenson MD, Horowitz MM, Spellman SR, Wang T, Stevenson P. High HLA-DP Expression and Graft-versus-Host Disease. <i>N Engl J Med.</i> 2015 Aug 13;373(7):599-609 Schöne B, Bergmann S, Lang K, Wagner I, Schmidt AH, Petersdorf EW, Lange V. Predicting an HLA-DPB1 expression marker based on standard DPB1 genotyping: Linkage analysis of over 32,000 samples. <i>Hum Immunol.</i> 2018 Jan;79(1):20-27. | | | | |
| Impact of polymorphism: | <p>HLA-DPB1 expression is associated with the rs9277534 A/G polymorphism located in the 3'UTR of the HLA-DPB1 gene. The rs9277534-A allele is associated with low DPB1 expression, whereas the rs9277534-G allele is associated with high DPB1 expression. Among recipients of HLA-DPB1-mismatched transplants from donors with the low-expression allele, recipients with the high-expression allele had a high risk of GVHD. When DPB1-matched donors are not available, this expression marker can be used to prospectively identify DPB1-mismatched donors who generate a permissive DPB1 mismatch against low-expression patient DPB1 alleles.</p> | | | | |

| | | | | | |
|------------------|---|--------|----------|-------------------------------|--------|
| Motif ID: | rs9277534A>G | Locus: | HLA-DPB1 | Implemented (Ref. Version #): | 3.37.0 |
| Example Display: | Homozygous A  | | | | |

[illegible]

| | | | | | |
|------------------|---|--------|----------|-------------------------------|--------|
| Motif ID: | rs9277534A>G | Locus: | HLA-DPB1 | Implemented (Ref. Version #): | 3.37.0 |
| Example Display: | Homozygous G  | | | | |

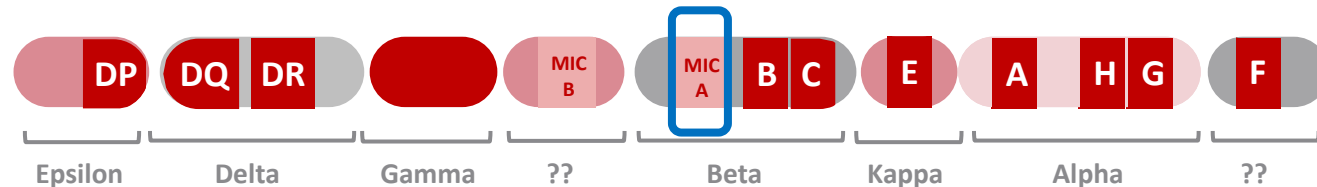
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|------------------|---|--------|----------|-------------------------------|--------|
| Motif ID: | rs9277534A>G | Locus: | HLA-DPB1 | Implemented (Ref. Version #): | 3.37.0 |
| Example Display: | <div>Summary Table Report:</div> <div><div><div>Motifs.</div><div><div>154UCLA945</div><div>IMGT/DPB1 rs9277534:AA</div><div>Homozygous A</div></div><div><div>154UCLA946</div><div>rs9277534:GG</div><div>Homozygous G</div></div><div><div>154UCLA947</div><div>rs9277534:GA</div><div>Heterozygous A/G</div></div></div></div> <div>Genotyping Report:</div> <div><div><div>Sample: 154UCLA945 Reference: IMGT/DPB1 3.41.0.0 2020-07-13</div><div>Summary</div><div>The allele pairs listed below are compatible with the consensus sequence.</div><div><div>DPB1*04:01:01</div><div>X</div></div><div>Motifs: rs9277534:AA Homozygous A</div></div><div><div>Sample: 154UCLA947 Summary</div><div>The allele pairs listed below are compatible with the consensus sequence.</div><div><div>DPB1*03:01:01</div><div>DPB1*04:01:01</div></div><div><div>DPB1*124:01:01</div><div>DPB1*350:01</div></div><div>Motifs: rs9277534:GA Heterozygous A/G</div></div><div><div>Sample: 154UCLA948 Summary</div><div>The allele pairs listed below are compatible with the consensus sequence.</div><div><div>DPB1*05:01:01</div><div>X</div></div><div>Motifs: rs9277534:GG Homozygous G</div></div></div> | | | | |



Additional MHC Motifs

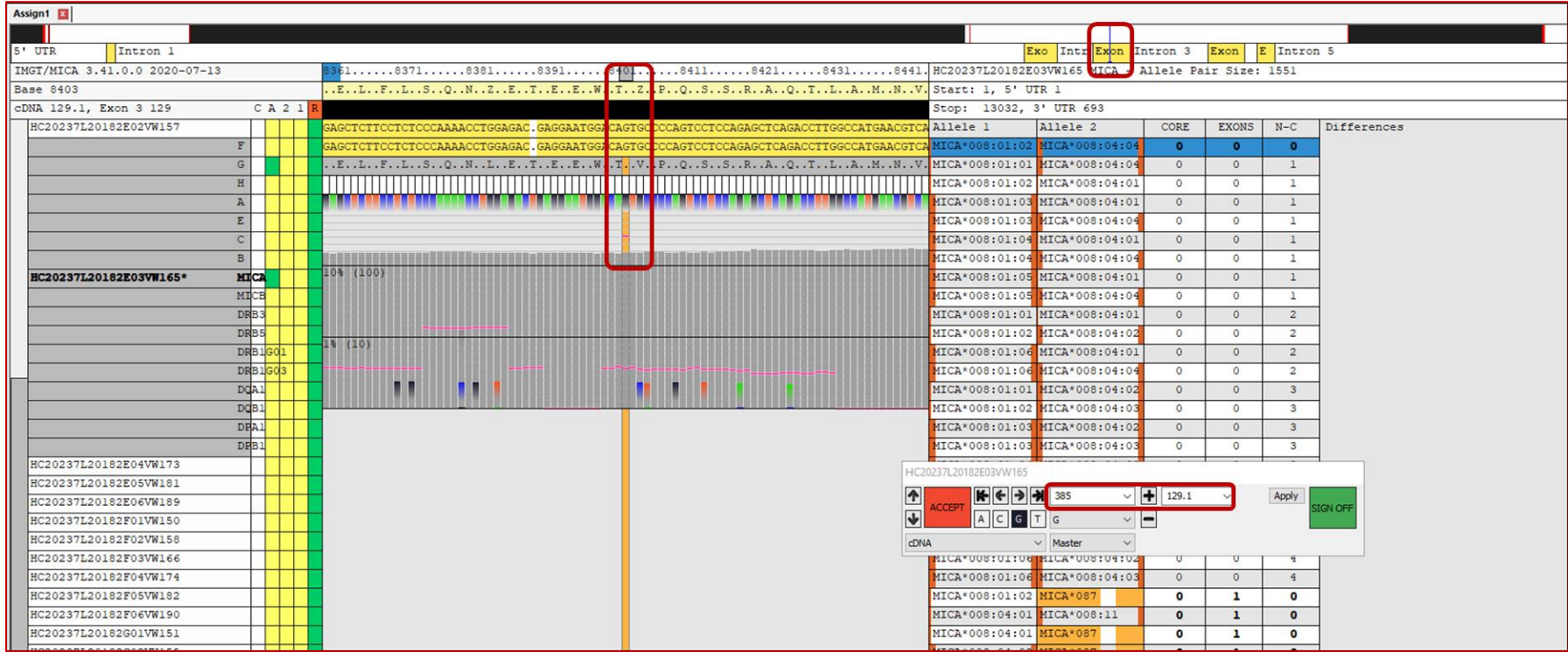


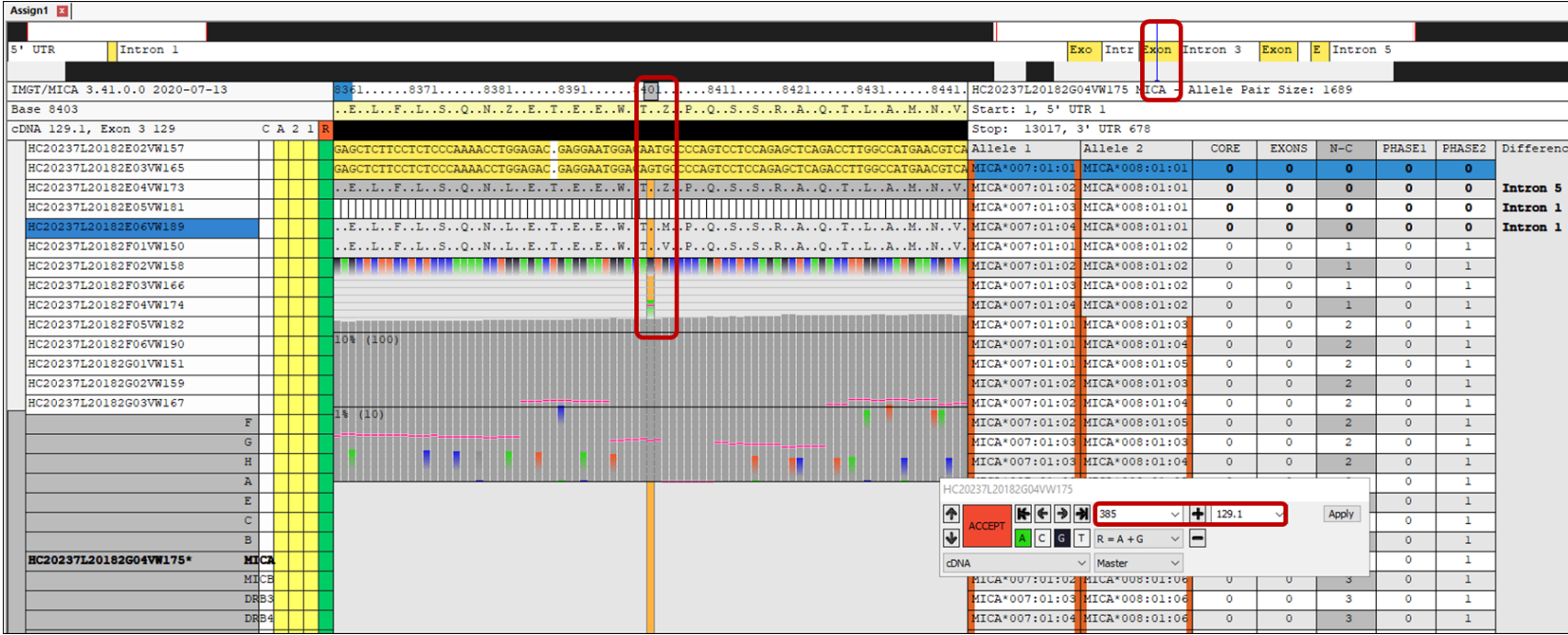
MICA rs1051792G>A; MICA-129Val/Met



MICA rs1051792G>A; MICA-129Val/Met

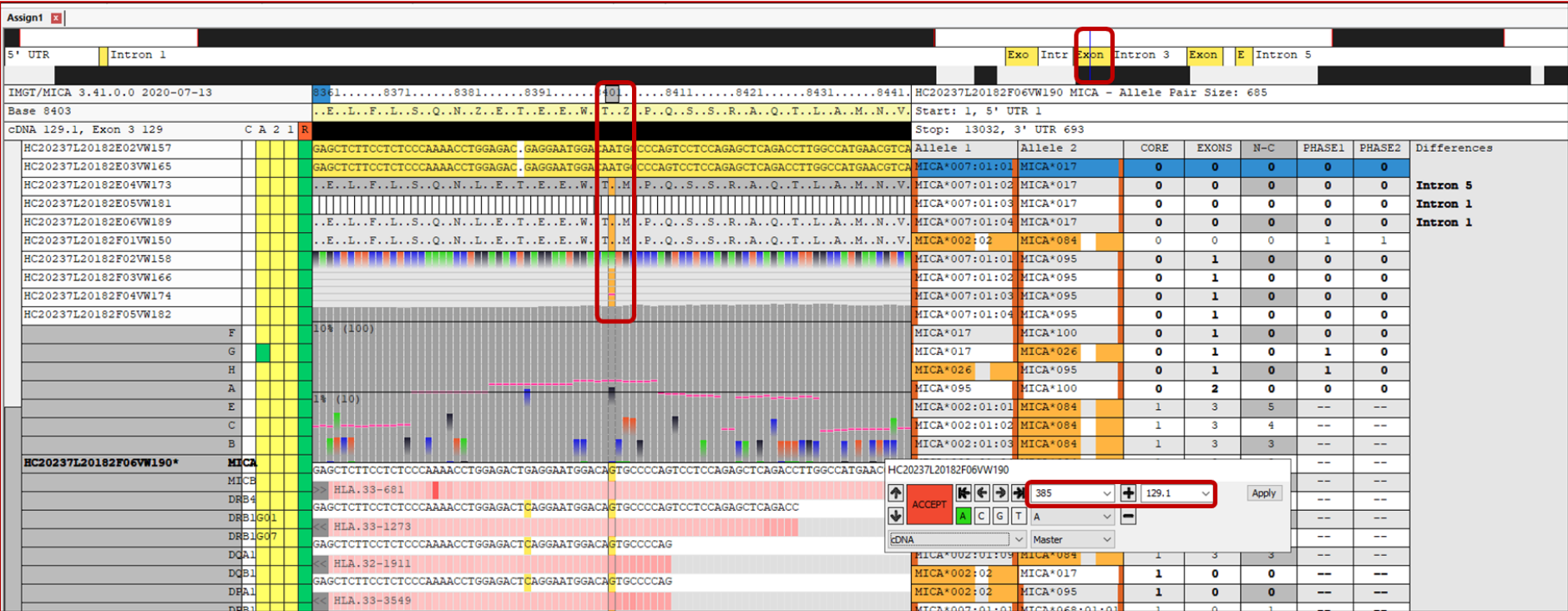
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| Motif ID: | rs1051792G>A; MICA-129Val/Met | Locus: | MICA | Implemented (Ref. Version #): | 3.37.0.1 |
| Supporting Publication: | <ul style="list-style-type: none"> Isernhagen A, Malzahn D, Bickeböller H, Dressel R. Impact of the MICA-129Met/Val Dimorphism on NKG2D-Mediated Biological Functions and Disease Risks. <i>Front Immunol.</i> 2016 Dec 12;7:588 Fuerst D, Neuchel C, Niederwieser D, Bunjes D, Gramatzki M, Wagner E, Wulf G, Glass B, Pfreundschuh M, Einsele H, Arnold R, Stuhler G, Schaefer-Eckart K, Freitag S, Casper J, Kaufmann M, Wattad M, Hertenstein B, Klein S, Ringhoffer M, Mytilineos D, Tsamadou C, Mueller C, Schrezenmeier H, Mytilineos J. Matching for the MICA-129 polymorphism is beneficial in unrelated hematopoietic stem cell transplantation. <i>Blood.</i> 2016 Dec 29;128(26):3169-3176. | | | | |
| Impact of polymorphism: | <p>The MICA-129Val/Met dimorphism, caused by SNP rs1051792 at nucleotide position 454 (G>A) of the MICA gene causes a valine (Val) to methionine (Met) exchange at position 129 of the MICA protein, separating MICA into isoforms that bind NKG2D with high (Met) and low affinities (Val).</p> <p>Adverse overall survival and worse outcome for disease-free survival was observed in the 10/10 match group if MICA-129 was mismatched (10/10, hazard ratio, 1.77). Higher rates of acute GVHD were seen in MICA-129 mismatched cases.</p> <p>Exon 3, Position 8403 in AlloSeq Assign</p> | | | | |

| | | | | | |
|------------------|---|--------|------|-------------------------------|----------|
| Motif ID: | rs1051792G>A; MICA-129Val/Met | Locus: | MICA | Implemented (Ref. Version #): | 3.37.0.1 |
| Example Display: | <div> Homozygous G - 129Val/Val  </div> | | | | |

| | | | | | |
|------------------|--|--------|------|-------------------------------|----------|
| Motif ID: | rs1051792G>A; MICA-129Val/Met | Locus: | MICA | Implemented (Ref. Version #): | 3.37.0.1 |
| Example Display: | Heterozygous G/A- 129Met/Val <div>  </div> | | | | |

| | | | | | |
|------------------|-------------------------------|--------|------|-------------------------------|----------|
| Motif ID: | rs1051792G>A; MICA-129Val/Met | Locus: | MICA | Implemented (Ref. Version #): | 3.37.0.1 |
| Example Display: | Homozygous A – 129Met/Met | | | | |

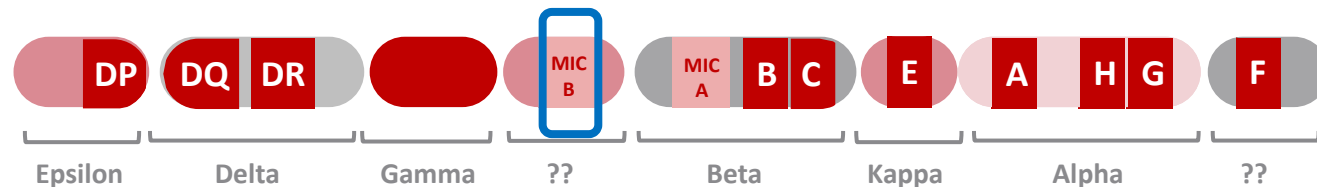
Assign1



| Motif ID: | rs1051792G>A; MICA-129Val/Met | Locus: | MICA | Implemented (Ref. Version #): | 3.37.0.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|---|--------------|--------------|-------------------------------|----------|---------|-----------------------------|-----------------------------|-----------|--|--|--|--|--|--|--------|--------|--------|--------|--------|--------|--------|-----------|----------------------------|--|--------------|--|-----|--|-----|---------------------|--|----------------------------|--|--------------|--|--|--|-----|-----------------------------|--|----------------------------|--|--------------|--|--|--|-----|---------------------|--|----------------------------|--|--------------|--|--|--|-----|---------------------|--|----------------------------|--|--------------|--|--|--|-----|---------------------|--|----------------------------|--|--------------|--|--|--|-----|---------------------|--|--------------------------|--|--------------|--|--|--|-----|-----------------------------|--|--------------------------|--|--------------|--|--|--|-----|---------------------|--|--------------------------|--|--------------|--|--|--|-----|---------------------|--|
| Example Display: | <div>Summary Table Report:</div> <table><thead><tr><th colspan="9">Motifs.</th></tr><tr><th></th><th>IMGT/F</th><th>IMGT/G</th><th>IMGT/H</th><th>IMGT/A</th><th>IMGT/E</th><th>IMGT/C</th><th>IMGT/B</th><th>IMGT/MICA</th></tr></thead><tbody><tr><td>HC20237L20182A01R900050106</td><td></td><td>rs1610696:CC</td><td></td><td>Bw4</td><td></td><td>Bw6</td><td>Bw6, rs1050: 129Val</td><td></td></tr><tr><td>HC20237L20182A02Q940050830</td><td></td><td>rs1610696:CC</td><td></td><td></td><td></td><td>Bw6</td><td>Bw4, rs1050: 129Met, 129Val</td><td></td></tr><tr><td>HC20237L20182A03P073231229</td><td></td><td>rs1610696:CG</td><td></td><td></td><td></td><td>Bw6</td><td>Bw4, Bw6, rs 129Val</td><td></td></tr><tr><td>HC20237L20182A04R920051269</td><td></td><td>rs1610696:GG</td><td></td><td></td><td></td><td>Bw6</td><td>Bw6, rs1050: 129Val</td><td></td></tr><tr><td>HC20237L20182A05R970900614</td><td></td><td>rs1610696:CG</td><td></td><td></td><td></td><td>Bw6</td><td>Bw4, Bw6, rs 129Val</td><td></td></tr><tr><td>HC20237L20182A06R050114117</td><td></td><td>rs1610696:CG</td><td></td><td></td><td></td><td>Bw6</td><td>Bw4, Bw6, rs 129Val</td><td></td></tr><tr><td>HC20237L20182B01IHW09024</td><td></td><td>rs1610696:CC</td><td></td><td></td><td></td><td>Bw6</td><td>Bw6, rs1050: 129Met, 129Val</td><td></td></tr><tr><td>HC20237L20182B02IHW09050</td><td></td><td>rs1610696:CC</td><td></td><td></td><td></td><td>Bw6</td><td>Bw4, rs1050: 129Val</td><td></td></tr><tr><td>HC20237L20182B03IHW09058</td><td></td><td>rs1610696:CC</td><td></td><td></td><td></td><td>Bw6</td><td>Bw6, rs1050: 129Met</td><td></td></tr></tbody></table> <div>Homozygous G Heterozygous G/A </div> | | | | | Motifs. | | | | | | | | | | IMGT/F | IMGT/G | IMGT/H | IMGT/A | IMGT/E | IMGT/C | IMGT/B | IMGT/MICA | HC20237L20182A01R900050106 | | rs1610696:CC | | Bw4 | | Bw6 | Bw6, rs1050: 129Val | | HC20237L20182A02Q940050830 | | rs1610696:CC | | | | Bw6 | Bw4, rs1050: 129Met, 129Val | | HC20237L20182A03P073231229 | | rs1610696:CG | | | | Bw6 | Bw4, Bw6, rs 129Val | | HC20237L20182A04R920051269 | | rs1610696:GG | | | | Bw6 | Bw6, rs1050: 129Val | | HC20237L20182A05R970900614 | | rs1610696:CG | | | | Bw6 | Bw4, Bw6, rs 129Val | | HC20237L20182A06R050114117 | | rs1610696:CG | | | | Bw6 | Bw4, Bw6, rs 129Val | | HC20237L20182B01IHW09024 | | rs1610696:CC | | | | Bw6 | Bw6, rs1050: 129Met, 129Val | | HC20237L20182B02IHW09050 | | rs1610696:CC | | | | Bw6 | Bw4, rs1050: 129Val | | HC20237L20182B03IHW09058 | | rs1610696:CC | | | | Bw6 | Bw6, rs1050: 129Met | |
| | Motifs. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | IMGT/F | IMGT/G | IMGT/H | IMGT/A | IMGT/E | IMGT/C | IMGT/B | IMGT/MICA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | HC20237L20182A01R900050106 | | rs1610696:CC | | Bw4 | | Bw6 | Bw6, rs1050: 129Val | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | HC20237L20182A02Q940050830 | | rs1610696:CC | | | | Bw6 | Bw4, rs1050: 129Met, 129Val | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HC20237L20182A03P073231229 | | rs1610696:CG | | | | Bw6 | Bw4, Bw6, rs 129Val | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HC20237L20182A04R920051269 | | rs1610696:GG | | | | Bw6 | Bw6, rs1050: 129Val | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HC20237L20182A05R970900614 | | rs1610696:CG | | | | Bw6 | Bw4, Bw6, rs 129Val | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HC20237L20182A06R050114117 | | rs1610696:CG | | | | Bw6 | Bw4, Bw6, rs 129Val | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HC20237L20182B01IHW09024 | | rs1610696:CC | | | | Bw6 | Bw6, rs1050: 129Met, 129Val | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HC20237L20182B02IHW09050 | | rs1610696:CC | | | | Bw6 | Bw4, rs1050: 129Val | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HC20237L20182B03IHW09058 | | rs1610696:CC | | | | Bw6 | Bw6, rs1050: 129Met | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

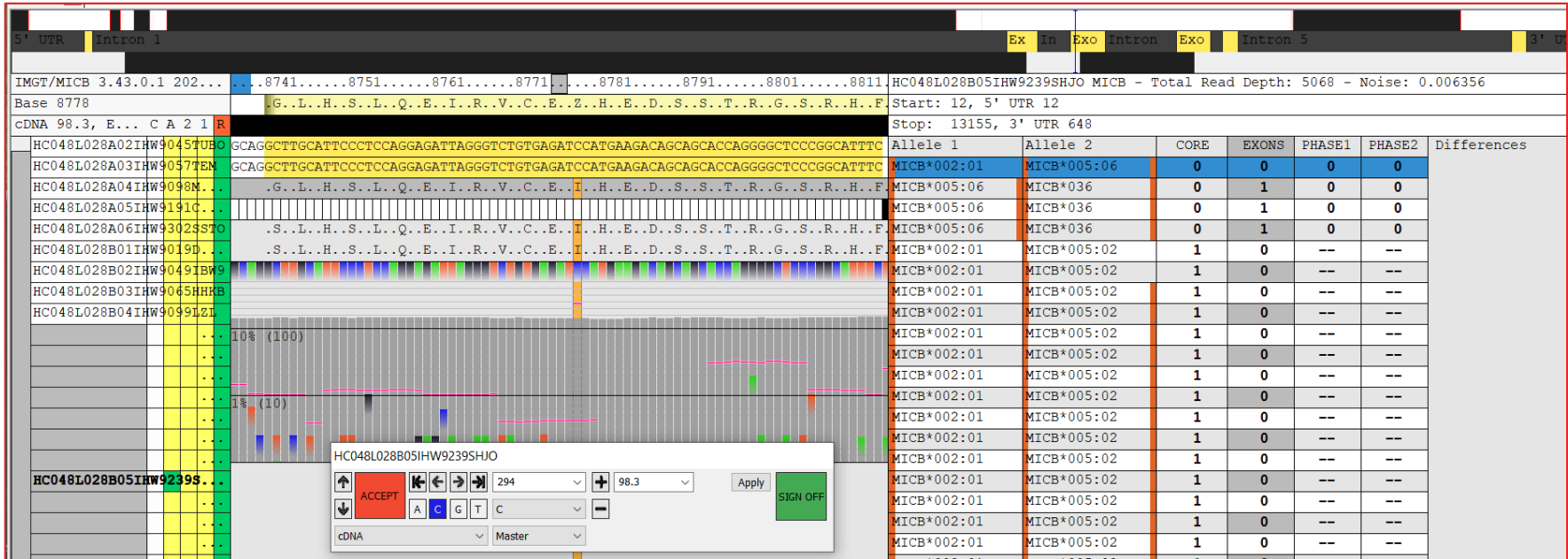


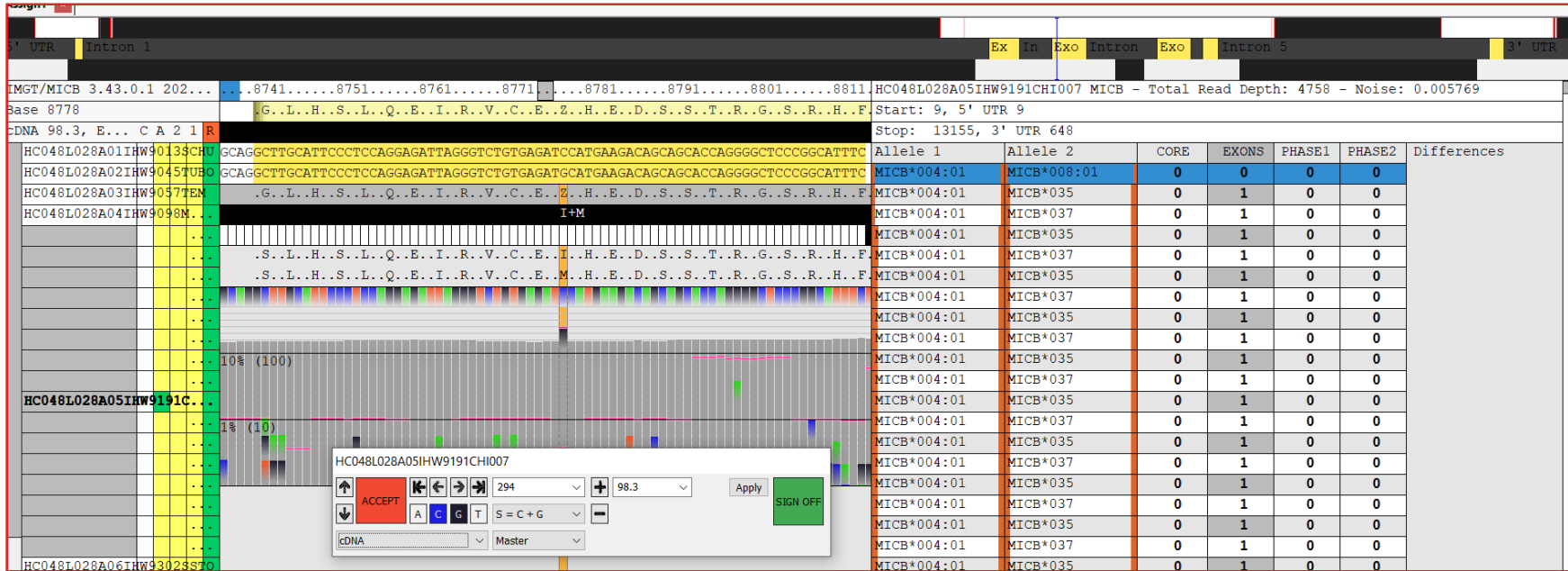
MICB98 Met/Ile, rs3134900

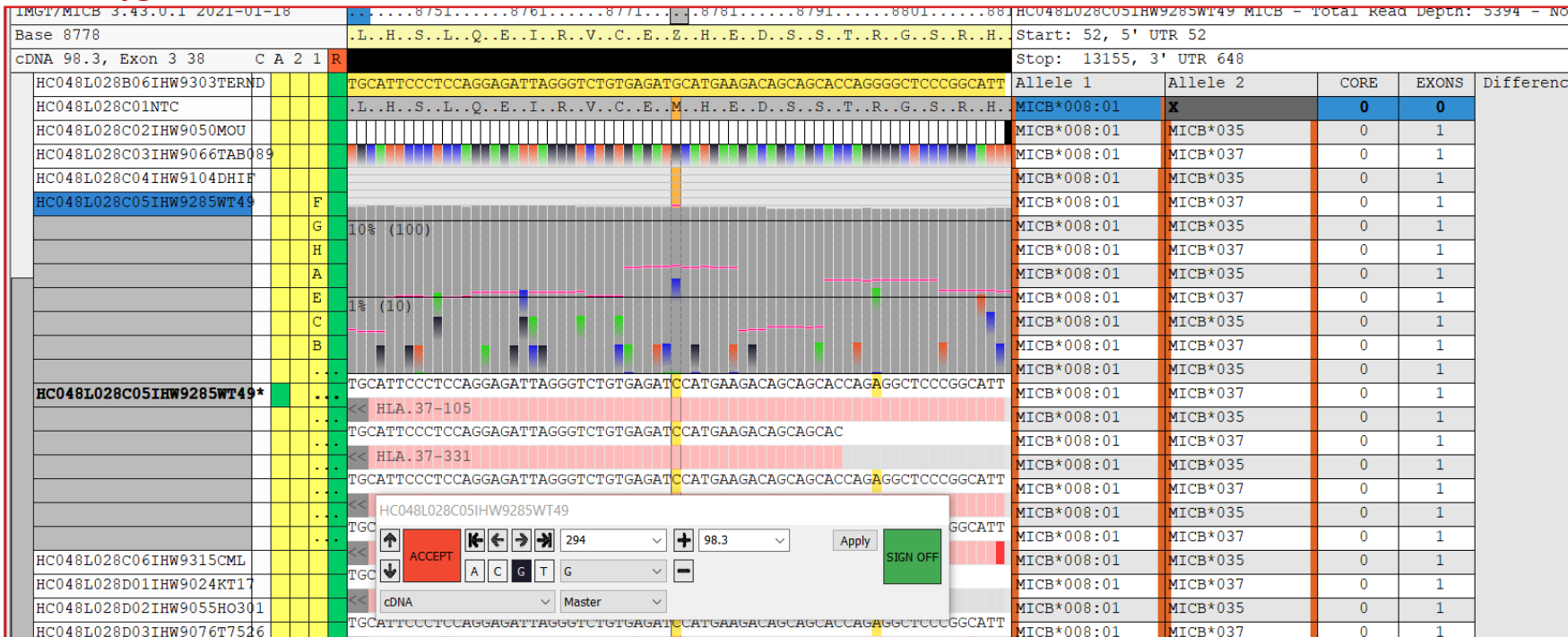


MICB98 Met/Ile, rs3134900

| | | | | | |
|-------------------------|--|--------|------|-------------------------------|----------|
| Motif ID: | MICB98 Met/Ile | Locus: | MICB | Implemented (Ref. Version #): | 3.37.0.1 |
| Supporting Publication: | <p>Carapito R, Aouadi I, Pichot A, Spinnhirny P, Morlon A, Kotova I, Macquin C, Rolli V, Cesbron A, Gagne K, Oudshoorn M, van der Holt B, Labalette M, Spierings E, Picard C, Loiseau P, Tamouza R, Toubert A, Parissiadis A, Dubois V, Paillard C, Maumy-Bertrand M, Bertrand F, von dem Borne PA, Kuball JHE, Michallet M, Lioure B, Peffault de Latour R, Blaise D, Cornelissen JJ, Yakoub-Agha I, Claas F, Moreau P, Charron D, Mohty M, Morishima Y, Socié G, Bahram S. Compatibility at amino acid position 98 of MICB reduces the incidence of graft-versus-host disease in conjunction with the CMV status. <i>Bone Marrow Transplant.</i> 2020 Jul;55(7):1367-1378.</p> <p>Kanya Klumkrathok. Allelic MHC Class I Chain Related B (MICB) Molecules Affect the Binding to the Human Cytomegalovirus (HCMV) Unique Long 16 (UL16) Protein: Implications for Immune Surveillance. <i>Journal of Microbiology.</i> 2013</p> | | | | |
| Impact of polymorphism: | <p>The isoleucine (Ile) to methionine (Met) substitution in MICB amino acid position 98 is a key polymorphic residue involved in UL16 binding. A MICB98 mismatched but otherwise fully HLA and MICA matched donor increases risk of both acute and chronic GvHD development. MICB98 mismatches showed a GvHD-independent association with a higher incidence of CMV infection/reactivation. In addition, MICB98 mismatches were associated with a higher rate of relapse.</p> <p>The variation Ile > Met is exclusively present in MICB*008. Mismatch occurs in approximately 6% of transplantations.</p> | | | | |

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|------------------|---|--------|------|-------------------------------|----------|
| Motif ID: | MICB98 Met/Ile | Locus: | MICB | Implemented (Ref. Version #): | 3.37.0.1 |
| Example Display: | <div> <p>Homozygous C Ile/Ile</p>  </div> | | | | |

| | | | | | |
|------------------|---|--------|------|-------------------------------|----------|
| Motif ID: | MICB98 Met/Ile | Locus: | MICB | Implemented (Ref. Version #): | 3.37.0.1 |
| Example Display: | Heterozygous C/G Ile/Met  | | | | |

| | | | | | |
|------------------|--|--------|------|-------------------------------|----------|
| Motif ID: | MICB98 Met/Ile | Locus: | MICB | Implemented (Ref. Version #): | 3.37.0.1 |
| Example Display: | <p>Homozygous G Met/Met</p>  | | | | |

| Motif ID: | MICB98 Met/Ile | Locus: | MICB | Implemented (Ref. Version #): | 3.37.0.1 | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|------------------|-------------------------------|---|--|---|--|-------------------------|-----------------|--------------|------------------------|--------------|-------------------------|-------|------------------|--------------------------|-------|--------------------------|-------|--------------|-----------------------------|-------|------------------------|-------|---------------------------|-------|
| Example Display: | <div>Summary Table Report:</div> <table><thead><tr><th colspan="3">Motifs.</th></tr></thead><tbody><tr><td>HC048L028C05IHW9285WT49</td><td>IMGT/MICB 98Met</td><td rowspan="2">Homozygous G</td></tr><tr><td>HC048L028C06IHW9315CML</td><td>98Met, 98Ile</td></tr><tr><td>HC048L028D01IHW9024KT17</td><td>98Ile</td><td rowspan="2">Heterozygous C/G</td></tr><tr><td>HC048L028D02IHW9055HO301</td><td>98Ile</td></tr><tr><td>HC048L028D03IHW9076T7526</td><td>98Ile</td><td rowspan="4">Homozygous C</td></tr><tr><td>HC048L028D04IHW9134WHONP199</td><td>98Ile</td></tr><tr><td>HC048L028D05IHW9297HAG</td><td>98Ile</td></tr><tr><td>HC048L028D06IHW9320BEL5GB</td><td>98Ile</td></tr></tbody></table> | | | | | Motifs. | | | HC048L028C05IHW9285WT49 | IMGT/MICB 98Met | Homozygous G | HC048L028C06IHW9315CML | 98Met, 98Ile | HC048L028D01IHW9024KT17 | 98Ile | Heterozygous C/G | HC048L028D02IHW9055HO301 | 98Ile | HC048L028D03IHW9076T7526 | 98Ile | Homozygous C | HC048L028D04IHW9134WHONP199 | 98Ile | HC048L028D05IHW9297HAG | 98Ile | HC048L028D06IHW9320BEL5GB | 98Ile |
| | Motifs. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | HC048L028C05IHW9285WT49 | IMGT/MICB 98Met | Homozygous G | | | | | | | | | | | | | | | | | | | | | | | | |
| | HC048L028C06IHW9315CML | 98Met, 98Ile | | | | | | | | | | | | | | | | | | | | | | | | | |
| | HC048L028D01IHW9024KT17 | 98Ile | Heterozygous C/G | | | | | | | | | | | | | | | | | | | | | | | | |
| | HC048L028D02IHW9055HO301 | 98Ile | | | | | | | | | | | | | | | | | | | | | | | | | |
| | HC048L028D03IHW9076T7526 | 98Ile | Homozygous C | | | | | | | | | | | | | | | | | | | | | | | | |
| | HC048L028D04IHW9134WHONP199 | 98Ile | | | | | | | | | | | | | | | | | | | | | | | | | |
| | HC048L028D05IHW9297HAG | 98Ile | | | | | | | | | | | | | | | | | | | | | | | | | |
| | HC048L028D06IHW9320BEL5GB | 98Ile | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div>Genotyping Report:</div> <table><tr><td><div>Sample: HC048L028A02IHW9045TUBO</div><div>Summary</div><div>The allele pairs listed below are compatible with the consensus sequence.</div><div>MICB*002:01MICB*005:02</div><div>Motifs: 98IleHomozygous C</div></td><td><div>Sample: HC048L028A05IHW9191CHI007</div><div>Summary</div><div>The allele pairs listed below are compatible with the consensus sequence.</div><div>MICB*004:01MICB*008:01</div><div>Motifs: 98Met, 98IleHeterozygous C/G</div></td><td><div>Sample: HC048L028C05IHW9285WT49</div><div>Summary</div><div>The allele pairs listed below are compatible with the consensus sequence.</div><div>MICB*008:01X</div><div>Motifs: 98MetHomozygous G</div></td></tr></table> | | | | | <div>Sample: HC048L028A02IHW9045TUBO</div> <div>Summary</div> <div>The allele pairs listed below are compatible with the consensus sequence.</div> <div>MICB*002:01MICB*005:02</div> <div>Motifs: 98IleHomozygous C</div> | <div>Sample: HC048L028A05IHW9191CHI007</div> <div>Summary</div> <div>The allele pairs listed below are compatible with the consensus sequence.</div> <div>MICB*004:01MICB*008:01</div> <div>Motifs: 98Met, 98IleHeterozygous C/G</div> | <div>Sample: HC048L028C05IHW9285WT49</div> <div>Summary</div> <div>The allele pairs listed below are compatible with the consensus sequence.</div> <div>MICB*008:01X</div> <div>Motifs: 98MetHomozygous G</div> | | | | | | | | | | | | | | | | | | | | |
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Revision History

| Version | Date | Modification | Reference/Justification |
|---------|-----------|--|-------------------------|
| 1.0 | 17-Jan-22 | Drafted by J.Edwards and E.Carr. Issued by L. Langley 14 Jun 22 | N/A |
| 2.0 | 02-Oct-23 | J.Edwards added header slides for each motif. Added rs# to MICB Met/Ile motif slide. Added slides for new motif HLA-G rs371194629 3'UTR 14bp indel. Updated the location of HLA-G rs1610696C>G motif. A. Bereza-Jarocinska updated the disclaimer on first slide | N/A |