SUPPLEMENTARY APPENDIX

# Comparative profiling of HLA-DR and HLA-DQ associated factor VIII peptides presented by monocyte-derived dendritic cells

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## Supplemental informations

### *Reagents*

The hybridoma producing the anti-HLA-DQ monoclonal antibody (SPV-L3, IgG2a)[21] was a kind gift from Prof. Dr. H. Spits (Academic Medical Center, Amsterdam). The hybridoma producing the HLA-DR-specific monoclonal antibody (L243, IgG2a) was purchased from ATCC (Wesel, Germany). Full-length recombinant FVIII was a kind gift from Dr. Birgit Reipert (Baxalta Innovations, Vienna, Austria). Antibodies were purified from hybridoma supernatant using protein A Sepharose (GE Healthcare) and coupled to CNBr-activated Sepharose 4B at a final concentration of 2 mg/ml according to manufacturer's recommendation (Amersham Biosciences, Buckinghamshire, UK).

### *Generation of monocyte-derived dendritic cells*

Buffy coat were obtained from healthy volunteers in accordance with Dutch regulations after approval from the Sanquin Ethical Advisory Board, in accordance with the Declaration of Helsinki. Peripheral blood mononuclear cells (PBMCs) were isolated using a Ficoll density gradient. Subsequently, centrifugal elutriation was performed to separate the monocytes, yielding 70-80% purity.[22] Monocyte derived dendritic cells (moDCs) were generated by incubating monocytes ($0.84\text{x}10^6$/ml) in 6-well plates in Cellgro medium in the presence of 1000 U/mL IL-4 and 800 U/mL GM-CSF (both from Cellgenix).

### *HLA typing*

DNA was extracted using Qiagen DNeasy Blood & Tissue isolation kit (Hilden, Germany) according to manufacturer's protocol. Sanger sequence-based typing for HLA-DR and HLA-DQB was performed in house using SBTessenz (GenDx, Utrecht, The Netherlands) according to manufacturer's protocol. For HLA-DQA, sequencing was performed by GenDX (Utrecht, The Netherlands) using the NGSgo system for amplification and library preparation. Sequencing was performed on Illumina with 2x 150 base pair chemistry. Results were analyzed with NGSengine (GenDX).

### *Endocytosis of FVIII by moDCs and purification of HLA-DR and HLA-DQ complexes*

After 5 days of differentiation, $5\text{x}10^6$ moDCs were re-plated in a 24-well plate in 1 mL of conditioned medium, supplemented with 100 nM full-length FVIII. After 5 hours of incubation at 37°C, 5% $CO_2$, 1µg/mL lipopolysaccharide (Sigma-Aldrich) was added together with 1% fetal calf serum (FCS) for additional 19 hours. The up-regulation of CD40, CD80, CD83, CD86 and HLA-II molecules was assessed by flow cytometry to confirm the mature phenotype of moDCs.

### Legend to Supplementary Figure 1

For each group of overlapping FVIII peptide, the NETMHCIIpan3.1prediction tool was run taking into account the two DRB1 alleles in the case of HLA-DR and the four DQA1/DQB1 combination (2 possible alpha and beta chains) in the case of HLA-DQ. Values corresponding to the highest affinity value are depicted in red.

## Donor A

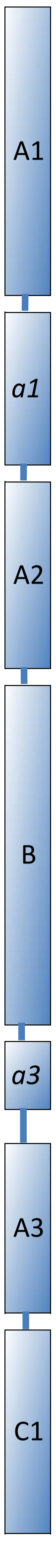
HLA-DRB1*07:01 - 14:54

| | Peptide | Predicted Affinity (nM) | | Start | Stop | Length |
|---|---|---|---|---|---|---|
| | | DRB1*07:01 | DRB1*14:54 | | | |
| A1 | KKTLFVEFTDHLF | | | 66 | 78 | 13 |
| | **---LFVEFTDHL-** | 445.67 | 869.08 | 69 | 77 | |
| | KASEGAEYDDQTSQREKEDDKVFPGGSHTY | | | 126 | 155 | 30 |
| | **---------------------VFPGGSHTY** | 6791.46 | 10945.36 | 147 | 155 | |
| a1 | KESVDQRGNQIMSDKRNVILF | | | 575 | 595 | 21 |
| | ------RGNQIMSDKRNVIL- | | | 581 | 594 | 14 |
| | **---------IMSDKRNVI---** | 1759.22 | 792.24 | 147 | 155 | |
| A2 | DSYEDISAYLLSKNNAIEPR | | | 740 | 759 | 20 |
| | ---EDISAYLLSKNNAIEPR | | | 743 | 759 | 17 |
| | ----DISAYLLSKNNAIEPR | | | 744 | 759 | 16 |
| | -----ISAYLLSKNNAIEPR | | | 745 | 759 | 15 |
| | **--------YLLSKNNAI---** | 22.04 | 142.46 | 583 | 591 | |
| B | KNLFLLSTRQNVEGS | | | 1244 | 1258 | 15 |
| | KNLFLLSTRQNVEG- | | | 1244 | 1257 | 14 |
| | **---FLLSTRQNV---** | 105.25 | 119.86 | 1246 | 1254 | |
| | GTSATNSVTYKKVENTVLPKPDLPK | | | 1482 | 1506 | 25 |
| | ----TNSVTYKKVENTVLPKPDLPK | | | 1486 | 1506 | 21 |
| | -----NSVTYKKVENTVLPKPD | | | 1487 | 1503 | 17 |
| | **---------YKKVENTVL-------** | 139.00 | 1010.38 | 1491 | 1499 | |
| | TSGKVELLPKVHIYQK | | | 1507 | 1522 | 16 |
| | -SGKVELLPKVHIYQK | | | 1508 | 1522 | 15 |
| | -SGKVELLPKVHIYQ- | | | 1508 | 1521 | 14 |
| | **----VELLPKVHI---** | 463.81 | 275.50 | 1511 | 1519 | |
| a3 | EITRTTLQSDQEEID | | | 1668 | 1682 | 15 |
| | **-ITRTTLQSD-----** | 7063.96 | 6386.65 | 1669 | 1677 | |
| A3 | AQDQRIRWY | | | 1954 | 1962 | 9 |
| | **AQDQRIRWY** | 18949.16 | 19761.59 | 1954 | 1962 | |
| C1 | HYSIRSTLRMEL | | | 2174 | 2185 | 12 |
| | **-YSIRSTLRM--** | 86.51 | 156.19 | 2175 | 2183 | |
| C2 | LRIHPQSW | | | 2325 | 2332 | 8 |
| | **ND** | ND | | | | |

HLA-DQA1*01:04 - 02:01 HLA-DQB1*03:03 - 05:03

| | Peptide | Predicted Affinity (nM) | | | | Start | Stop | Length |
|---|---|---|---|---|---|---|---|---|
| | | DQA1*01:04/DQB1*03:03 | DQA1*01:04/DQB1*05:03 | DQA1*02:01/DQB1*03:03 | DQA1*02:01/DQB1*05:03 | | | |
| A1 | KKTLFVEFTDHLF | | | | | 66 | 78 | 13 |
| | **---LFVEFTDHL-** | 3563.34 | 323.47 | 3100.65 | 339.58 | | | |
| | KASEGAEYDDQTSQREKEDDKVFPGGSHTY | | | | | 126 | 155 | 30 |
| | **--SEGAEYDDQ-----------------------------** | 5739.64 | 2697.56 | 1765.57 | 803.92 | | | |
| B | LSDLQEAKYETFSDD | | | | | 824 | 838 | 15 |
| | **---LQEAKYETF---** | 4777.13 | 2520.99 | 2824.35 | 1226.06 | | | |

**Donor B**



HLA-DRB1*04:04 - 15:01

| Peptide | Predicted Affinity (nM) | | Start | Stop | Length |
|---|---|---|---|---|---|
| | DRB1*04:04 | DRB1*15:01 | | | |
| AEVYDTVVITLKNMASHPVS | | | 97 | 116 | 20 |
| -EVYDTVVITLKNMASHPVS | | | 98 | 116 | 19 |
| --VYDTVVITLKNMASHPVS | | | 99 | 116 | 18 |
| ---YDTVVITLKNMASHPVS | | | 100 | 116 | 17 |
| ---YDTVVITLKNMASHPV- | | | 100 | 115 | 16 |
| ----DTVVITLKNMASHPVS | | | 101 | 116 | 16 |
| ----DTVVITLKNMASHPV- | | | 101 | 115 | 15 |
| -----TVVITLKNMASHPVS | | | 102 | 116 | 15 |
| -----TVVITLKNMASHPV- | | | 102 | 115 | 14 |
| ------VVITLKNMASHPV- | | | 103 | 115 | 13 |
| **-------VITLKNMAS----** | **29.76** | **55.54** | | | |
| DDDNSPSFIQIRSVAKKHPK | | | 380 | 399 | 20 |
| -DDNSPSFIQIRSVAKKHPK | | | 381 | 399 | 19 |
| --DNSPSFIQIRSVAKKHPK | | | 382 | 399 | 18 |
| ---NSPSFIQIRSVAKKHPK | | | 383 | 399 | 17 |
| ----SPSFIQIRSVAKKHPK | | | 384 | 399 | 16 |
| ----SPSFIQIRSVAKKHP- | | | 384 | 398 | 15 |
| **-------FIQIRSVAK----** | **43.14** | **53.69** | | | |
| EVGDTLLIIFKNQASRPYNI | | | 475 | 494 | 20 |
| EVGDTLLIIFKNQASRPYN- | | | 475 | 493 | 19 |
| -VGDTLLIIFKNQASRPYN- | | | 476 | 493 | 18 |
| -VGDTLLIIFKNQASRPYNI | | | 476 | 494 | 19 |
| -VGDTLLIIFKNQASRPY-- | | | 476 | 492 | 17 |
| --GDTLLIIFKNQASRPY-- | | | 477 | 492 | 16 |
| ---DTLLIIFKNQASRPY-- | | | 478 | 492 | 15 |
| ---DTLLIIFKNQASRPYN- | | | 478 | 493 | 16 |
| **-----LIIFKNQAS------** | **30.89** | **39.06** | | | |
| GPSPKQLVSLGPEKSVEG | | | 1142 | 1159 | 18 |
| **------LVSLGPEKS---** | **547.55** | **1377.99** | | | |
| ETELEKRIIVDDTSTQWSK | | | 1343 | 1361 | 19 |
| ---LEKRIIVDDTSTQWSK | | | 1346 | 1361 | 16 |
| **-------IIVDDTSTQ---** | **1347.98** | **4244.58** | | | |
| TAFKKKDTILSLNACESNHAIA- | | | 1609 | 1630 | 22 |
| ---KKKDTILSLNACESNHAIA- | | | 1612 | 1630 | 19 |
| ---KKKDTILSLNACESNHA--- | | | 1612 | 1628 | 17 |
| ---KKKDTILSLNACESNHAI-- | | | 1612 | 1629 | 18 |
| ----KKDTILSLNACESNH---- | | | 1613 | 1627 | 15 |
| ----KKDTILSLNACESNHA--- | | | 1613 | 1628 | 16 |
| ----KKDTILSLNACESNHAIAA | | | 1613 | 1631 | 19 |
| ----KKDTILSLNACESNHAI-- | | | 1613 | 1629 | 17 |
| ----KKDTILSLNACESNHAIA- | | | 1613 | 1630 | 18 |
| -----KDTILSLNACESNH---- | | | 1614 | 1627 | 14 |
| **--------ILSLNACES------** | **91.27** | **302.99** | | | |
| EITRTTLQSDQEEID | | | 1668 | 1682 | 15 |
| **-ITRTTLQSD-----** | **5389.30** | **11549.92** | | | |
| VEDNIMVTFRNQASRPYS | | | 1786 | 1803 | 18 |
| VEDNIMVTFRNQASRP-- | | | 1786 | 1801 | 16 |
| VEDNIMVTFRNQASRPY- | | | 1786 | 1802 | 17 |
| -EDNIMVTFRNQASRPY- | | | 1787 | 1802 | 16 |
| -EDNIMVTFRNQASRPY- | | | 1787 | 1802 | 16 |
| -EDNIMVTFRNQASRPYS | | | 1787 | 1803 | 17 |
| --DNIMVTFRNQASRPY- | | | 1788 | 1802 | 15 |
| **-----MVTFRNQAS----** | **83.12** | **99.79** | | | |
| LLAPMIIHGIKTQGARQ- | | | 2094 | 2110 | 17 |
| -LAPMIIHGIKTQGARQ- | | | 2095 | 2110 | 16 |
| -LAPMIIHGIKTQGARQK | | | 2095 | 2111 | 17 |
| --APMIIHGIKTQGARQ- | | | 2096 | 2110 | 15 |
| --APMIIHGIKTQGARQK | | | 2096 | 2111 | 16 |
| --APMIIHGIKTQGAR-- | | | 2096 | 2109 | 14 |
| **------IHGIKTQGA---** | **196.82** | **199.23** | | | |
| ISQFIIMYSLDGKK | | | 2117 | 2130 | 14 |
| **---FIIMYSLDG--** | **39.57** | **70.22** | | | |

HLA-DQA1*01:02 - 03:01 HLA-DQB1*03:02 - 06:02

| Peptide | Predicted Affinity (nM) | | | | Start | Stop | Length |
|---|---|---|---|---|---|---|---|
| | DQA1*01:02/DQB1*03:02 | DQA1*01:02/DQB1*06:02 | DQA1*03:01/DQB1*03:02 | DQA1*03:01/DQB1*06:02 | | | |
| VYDTVVITLKNMASHPVS | | | | | 99 | 116 | 18 |
| -YDTVVITLKNMASHPVS | | | | | 100 | 116 | 17 |
| -YDTVVITLKNMASHPV- | | | | | 100 | 115 | 16 |
| --DTVVITLKNMASHPV- | | | | | 101 | 115 | 15 |
| --DTVVITLKNMASHPVS | | | | | 101 | 116 | 16 |
| --DTVVITLKNMASHP-- | | | | | 101 | 114 | 14 |
| ---TVVITLKNMASHPV- | | | | | 102 | 115 | 14 |
| **-----VITLKNMAS----** | **772.91** | **340.10** | **3725.3** | **985.22** | | | |
| KASEGAEYDDQTSQREKEDDKVFPGGSHTY | | | | | 126 | 155 | 30 |
| **-------YDDQTSQRE--------------** | **5177.02** | **6416.15** | **1659.83** | **1437.26** | | | |
| SPSFIQIRSVAKKHPK | | | | | 384 | 399 | 16 |
| **-PSFIQIRSV------** | **1495.49** | **588.29** | **7509.19** | **2079.44** | | | |
| DTLLIIFKNQASRPY | | | | | 478 | 492 | 15 |
| **--LIIFKNQAS----** | **1460.90** | **850.44** | **6127.86** | **1743.19** | | | |
| EITRTTLQSDQEEID | | | | | 1668 | 1682 | 15 |
| EITRTTLQSDQEE-- | | | | | 1668 | 1680 | 13 |
| EITRTTLQSDQEEI- | | | | | 1668 | 1681 | 14 |
| EITRTTLQSDQE--- | | | | | 1668 | 1679 | 12 |
| **----TTLQSDQEE--** | **1378.70** | **1820.63** | **1033.17** | **671.86** | | | |
| VEDNIMVTFRNQASRPY- | | | | | 1786 | 1802 | 17 |
| VEDNIMVTFRNQASRPYS | | | | | 1786 | 1803 | 18 |
| -EDNIMVTFRNQASRPY- | | | | | 1787 | 1802 | 16 |
| --DNIMVTFRNQASRPY- | | | | | 1788 | 1802 | 15 |
| **-----MVTFRNQAS----** | **1001.90** | **570.61** | **3428.55** | **930.04** | | | |
| LAPMIIHGIKTQGARQ- | | | | | 2095 | 2110 | 16 |
| -APMIIHGIKTQGARQ- | | | | | 2096 | 2110 | 15 |
| -APMIIHGIKTQGARQK | | | | | 2096 | 2111 | 16 |
| **-----IHGIKTQGA---** | **656.56** | **205.32** | **7275.10** | **1220.29** | | | |

**Donor C**

HLA-DRB1*01:01 - 15:01

| | Peptide | Predicted Affinity (nM) | | Start | Stop | Length |
|---|---|---|---|---|---|---|
| | | DRB1*01:01 | DRB1*15:01 | | | |
| A1 | DTVVITLKNMASHPVSLHA | | | 101 | 119 | 19 |
| | --VVITLKNMASHPVSLHA | | | 103 | 119 | 17 |
| | --VVITLKNMASHPVS--- | | | 103 | 116 | 14 |
| | **------LKNMASHPV----** | **4.66** | **47.86** | | | |
| a1 | DDDNSPSFIQIRSVAKKHPK | | | 380 | 399 | 20 |
| | -DDNSPSFIQIRSVAKKHPK | | | 381 | 399 | 19 |
| | --DNSPSFIQIRSVAKKHPK | | | 382 | 399 | 18 |
| | ---NSPSFIQIRSVAKKHPK | | | 383 | 399 | 17 |
| | ----SPSFIQIRSVAKKHPK | | | 384 | 399 | 16 |
| | ----SPSFIQIRSVAKKHP- | | | 384 | 398 | 15 |
| | **-------FIQIRSVAK----** | **7.02** | **53.69** | | | |
| A2 | VGDTLLIIFKNQASRPYNI | | | 476 | 494 | 19 |
| | VGDTLLIIFKNQASRPYN- | | | 476 | 493 | 18 |
| | VGDTLLIIFKNQASRPY-- | | | 476 | 492 | 17 |
| | -GDTLLIIFKNQASRPY-- | | | 477 | 492 | 16 |
| | -GDTLLIIFKNQASRPYN- | | | 477 | 493 | 17 |
| | --DTLLIIFKNQASRPY-- | | | 478 | 492 | 15 |
| | **--------FKNQASRPY--** | **13.19** | **39.06** | | | |
| a2 | | | | | | |
| B | SDTEFKKVTPLIHDR | | | 1054 | 1068 | 15 |
| | **----FKKVTPLIH--** | **29.55** | **186.14** | | | |
| | KMLFLPESARWIQRT | | | 1117 | 1131 | 15 |
| | KMLFLPESARWIQR- | | | 1117 | 1130 | 14 |
| | **---FLPESARWI---** | **13.86** | **147.88** | | | |
| | GPSPKQLVSLGPEKSVEG | | | 1142 | 1159 | 18 |
| | **------LVSLGPEKS---** | **30.15** | **1377.99** | | | |
| | KKKDTILSLNACESNHA | | | 1612 | 1628 | 17 |
| | -KKDTILSLNACESNHA | | | 1613 | 1628 | 16 |
| | -KKDTILSLNACESNH- | | | 1613 | 1627 | 15 |
| | -KDTILSLNACESNH-- | | | 1614 | 1627 | 14 |
| | **----ILSLNACES----** | **34.63** | **720.43** | | | |
| a3 | EITRTTLQSDQEEID | | | 1668 | 1682 | 15 |
| | **-ITRTTLQSD-----** | **5810.81** | **11549.92** | | | |
| A3 | KTRHYFIAAVERLWD-- | | | 1713 | 1727 | 15 |
| | KTRHYFIAAVERLWDYG | | | 1713 | 1729 | 17 |
| | -TRHYFIAAVERLWD-- | | | 1714 | 1727 | 14 |
| | **----YFIAAVERL----** | **9.58** | **104.21** | | | |
| | EVEDNIMVTFRNQASRPY- | | | 1785 | 1802 | 18 |
| | -VEDNIMVTFRNQASRPY- | | | 1786 | 1802 | 17 |
| | -VEDNIMVTFRNQASRP-- | | | 1786 | 1801 | 16 |
| | -VEDNIMVTFRNQASRPYS | | | 1786 | 1803 | 18 |
| | --EDNIMVTFRNQASRPY- | | | 1787 | 1802 | 16 |
| | --EDNIMVTFRNQASRPYS | | | 1787 | 1803 | 17 |
| | ---DNIMVTFRNQASRPY- | | | 1788 | 1802 | 15 |
| | **---------FRNQASRPY-** | **24.95** | **99.79** | | | |
| | IWRVECLIGEHLHAG | | | 2014 | 2028 | 15 |
| | **---VECLIGEHL---** | **65.12** | **314.18** | | | |
| C1 | ISQFIIMYSLDGKKW | | | 2117 | 2131 | 15 |
| | ISQFIIMYSLDGKK- | | | 2117 | 2130 | 14 |
| | **---FIIMYSLDG---** | **14.08** | **63.02** | | | |
| C2 | HPQSWVHQIALRMEVL | | | 2328 | 2343 | 16 |
| | HPQSWVHQIALRM--- | | | 2328 | 2340 | 13 |
| | HPQSWVHQIALRMEV- | | | 2328 | 2342 | 15 |
| | **----WVHQIALRM---** | **5.89** | **70.99** | | | |

HLA-DQA1*01:01 - 04:01 HLA-DQB1*05:01 - 06:02

| Peptide | Predicted Affinity (nM) | | | | Start | Stop | Length |
|---|---|---|---|---|---|---|---|
| | DQA1*01:01/DQB1*05:01 | DQA1*01:01/DQB1*06:02 | DQA1*04:01/DQB1*05:01 | DQA1*04:01/DQB1*06:02 | | | |
| NSPSFIQIRSVAKKHPK | | | | | 383 | 399 | 17 |
| -SPSFIQIRSVAKKHPK | | | | | 384 | 399 | 16 |
| **--PSFIQIRSV------** | **10016.53** | **483.28** | **5117.88** | **685.29** | | | |
| ISAYLLSKNNAIEPR | | | | | 745 | 759 | 15 |
| **---YLLSKNNAI---** | **6459.97** | **1079.43** | **3758.62** | **1150.22** | | | |
| EITRTTLQSDQEEI | | | | | 1668 | 1681 | 14 |
| **-ITRTTLQSD----** | **4190.55** | **1770.77** | **1088.90** | **996.42** | | | |
| APMIIHGIKTQGARQK | | | | | 2096 | 2111 | 16 |
| APMIIHGIKTQGARQ- | | | | | 2096 | 2110 | 15 |
| **----IHGIKTQGA---** | **13223.73** | **259.37** | **7849.72** | **448.59** | | | |

## Donor D

### HLA-DRB1*01:01 - 08:01

| | Peptide | Predicted Affinity (nM) | | Start | | Stop | Length |
|---|---|---|---|---|---|---|---|
| | | DRB1*01:01 | DRB1*08:01 | | | | |
| A1 | | | | | | | |
| a1 | SPSFIQIRSVAKKHPK | | | 384 | - | 399 | 16 |
| | **---FIQIRSVAK----** | 7.17 | 16.63 | | | | |
| | HPKTWVHYIAAEEEDW | | | 397 | - | 412 | 16 |
| | HPKTWVHYIAAEEE-- | | | 397 | - | 410 | 14 |
| | **----WVHYIAAEE---** | 440.10 | 541.47 | | | | |
| A2 | SGYTFKHKMVYEDTLT | | | 673 | - | 688 | 16 |
| | SGYTFKHKMVYEDT-- | | | 673 | - | 686 | 14 |
| | -GYTFKHKMVYEDT-- | | | 674 | - | 686 | 13 |
| | **--YTFKHKMVY-----** | 489.99 | 230.44 | | | | |
| a2 | DISAYLLSKNNAIEPRS | | | 744 | - | 760 | 17 |
| | DISAYLLSKNNAIEPR- | | | 744 | - | 759 | 16 |
| | -ISAYLLSKNNAIEPR- | | | 745 | - | 759 | 15 |
| | -ISAYLLSKNNAIEPRS | | | 745 | - | 760 | 16 |
| | --SAYLLSKNNAIEPR- | | | 746 | - | 759 | 14 |
| | ---AYLLSKNNAIEPR- | | | 747 | - | 759 | 13 |
| | **----YLLSKNNAI----** | 7.74 | 128.99 | | | | |
| B | SDTEFKKVTPLIHDRML | | | 1054 | - | 1070 | 17 |
| | SDTEFKKVTPLIHDR-- | | | 1054 | - | 1068 | 15 |
| | SDTEFKKVTPLIHD--- | | | 1054 | - | 1067 | 14 |
| | SDTEFKKVTPLIHDRM- | | | 1054 | - | 1069 | 16 |
| | SDTEFKKVTPLIH---- | | | 1054 | - | 1066 | 13 |
| | **----FKKVTPLIH----** | 26.09 | 38.12 | | | | |
| | KMLFLPESARWIQRTH | | | 1117 | - | 1132 | 16 |
| | KMLFLPESARWIQR-- | | | 1117 | - | 1130 | 14 |
| | **---FLPESARWI----** | 13.97 | 143.71 | | | | |
| | GPSPKQLVSLGPEKSVEG | | | 1142 | - | 1159 | 18 |
| | **------LVSLGPEKS---** | 30.15 | 530.95 | | | | |
| | IPKEEWKSQEKSPEK | | | 1594 | - | 1608 | 15 |
| | **-----WKSQEKSPE-** | 10172.05 | 6845.46 | | | | |
| | SPEKTAFKKKDTILSLN | | | 1605 | - | 1621 | 17 |
| | **------FKKKDTILS--** | 64.30 | 142.82 | | | | |
| | KKKDTILSLNACESNHA- | | | 1612 | - | 1628 | 17 |
| | -KKDTILSLNACESNH- | | | 1613 | - | 1627 | 15 |
| | -KKDTILSLNACESNHAI | | | 1613 | - | 1629 | 17 |
| | --KDTILSLNACESNHA- | | | 1614 | - | 1628 | 15 |
| | --KDTILSLNACESNH-- | | | 1614 | - | 1627 | 14 |
| | **-----ILSLNACES----** | 32.83 | 358.57 | | | | |
| a3 | EITRTTLQSDQEEID | | | 1668 | - | 1682 | 15 |
| | **-ITRTTLQSD-----** | 5810.81 | 2555.92 | | | | |
| A3 | KKTRHYFIAAVERLWD | | | 1712 | - | 1727 | 16 |
| | -KTRHYFIAAVERLWD | | | 1713 | - | 1727 | 15 |
| | --TRHYFIAAVERLWD | | | 1714 | - | 1727 | 14 |
| | **-----YFIAAVERL--** | 9.78 | 119.71 | | | | |
| | KPNETKTYFWKVQHHMAPT | | | 1827 | - | 1845 | 19 |
| | **--------FWKVQHHMA--** | 41.6 | 36.59 | | | | |
| C1 | ISQFIIMYSLDGKKW | | | 2117 | - | 2131 | 15 |
| | ISQFIIMYSLDGKK- | | | 2117 | - | 2130 | 14 |
| | **---FIIMYSLDG---** | 14.08 | 125.95 | | | | |
| | ASSYFTNMFATWSPSK | | | 2211 | - | 2226 | 16 |
| | **----FTNMFATWS---** | 43.84 | 308.78 | | | | |
| C2 | HPQSWVHQIALRMEVL | | | 2328 | - | 2343 | 16 |
| | HPQSWVHQIALRM--- | | | 2328 | - | 2340 | 13 |
| | HPQSWVHQIALRMEV- | | | 2328 | - | 2342 | 15 |
| | **----WVHQIALRM---** | 5.89 | 66.19 | | | | |

### HLA-DQA1*01:01 - 04:01 HLA-DQB1*04:02 - 05:01

| | Peptide | Predicted Affinity (nM) | | | | Start | | Stop | Length |
|---|---|---|---|---|---|---|---|---|---|
| | | DQA1*01:01/DQB1*04:02 | DQA1*01:01/DQB1*05:01 | DQA1*04:01/DQB1*04:02 | DQA1*04:01/DQB1*05:01 | | | | |
| A1 | VVITLKNMASHPVS | | | | | 103 | - | 116 | 14 |
| | **----LKNMASHPV-** | 6083.99 | 14141.70 | 11565.18 | 9331.33 | | | | |
| a2 | ISAYLLSKNNAIEPR | | | | | 745 | - | 759 | 15 |
| | **---YLLSKNNAI---** | 3416.59 | 6459.97 | 6174.05 | 3758.62 | | | | |
| a3 | EITRTTLQSDQEEID | | | | | 1668 | - | 1682 | 15 |
| | **----TTLQSDQEE--** | 1066.28 | 3153.29 | 956.72 | 766.04 | | | | |
| C2 | SFTPVVNSLD | | | | | 2308 | - | 2317 | 10 |
| | **-FTPVVNSLD** | 7535.97 | 19955.18 | 6718.08 | 9559.53 | | | | |

**Donor E**

HLA-DRB1*01:01 - 07:01

| Domain | Peptide | Predicted Affinity (nM) | | Start | | Stop | Length |
|---|---|---|---|---|---|---|---|
| | | DRB1*01:01 | DRB1*07:01 | | | | |
| *a2* | EDISAYLLSKNNAIEPR | | | 743 | - | 759 | 17 |
| | -DISAYLLSKNNAIEPR | | | 744 | - | 759 | 16 |
| | --ISAYLLSKNNAIEPR | | | 745 | - | 759 | 15 |
| | **-----YLLSKNNAI---** | **7.74** | **22.04** | | | | |
| *B* | KKDTILSLNACESNHA | | | 1613 | - | 1628 | 16 |
| | **----ILSLNACES---** | **34.63** | **529.02** | | | | |
| *a3* | EITRTTLQSDQEEID | | | 1668 | - | 1682 | 15 |
| | **-ITRTTLQSD-----** | **5810.81** | **7063.96** | | | | |
| C1 | HIRDFQITASGQYG | | | 2050 | - | 2063 | 14 |
| | **----FQITASGQY-** | **126.60** | **131.61** | | | | |
| C2 | HPQSWVHQIALRMEVL | | | 2328 | - | 2343 | 16 |
| | HPQSWVHQIALRMEV- | | | 2328 | - | 2342 | 15 |
| | **----WVHQIALRM---** | **5.89** | **31.12** | | | | |

HLA-DQA1*01:01 - 02:01 HLA-DQB1*02:02 - 05:01

| Domain | Peptide | Predicted Affinity (nM) | | | | Start | | Stop | Length |
|---|---|---|---|---|---|---|---|---|---|
| | | DQA1*01:01/DQB1*02:02 | DQA1*01:01/DQB1*05:01 | DQA1*02:01/DQB1*02:02 | DQA1*02:01/DQB1*05:01 | | | | |
| *a2* | ISAYLLSKNNAIEPR | | | | | 745 | - | 759 | 15 |
| | ---YLLSKNNAIEPR | | | | | 748 | - | 759 | 12 |
| | **---YLLSKNNAI---** | **5270.85** | **6459.97** | **9950.10** | **4633.02** | | | | |
| *a3* | EITRTTLQSDQEEID | | | | | 1668 | - | 1682 | 15 |
| | **----TTLQSDQEE--** | **2787.04** | **3153.29** | **1699.90** | **1199.89** | | | | |

## Donor F

### HLA-DRB1*01:01 - 11:01

| | Peptide | Predicted Affinity (nM) | | Start | Stop | Length |
|---|---|---|---|---|---|---|
| | | DRB1*01:01 | DRB1*11:01 | | | |
| A1 | DTVVITLKNMASHPVSLHA | | | 101 | 119 | 19 |
| | DTVVITLKNMASHPVS--- | | | 101 | 116 | 16 |
| | --VVITLKNMASHPVSLHA | | | 103 | 119 | 17 |
| | **------LKNMASHPV----** | **4.66** | **34.47** | | | |
| | TLHKFILLFAVFDEGK- | | | 210 | 225 | 16 |
| | TLHKFILLFAVFDEGKS | | | 210 | 226 | 17 |
| | **----FILLFAVFD----** | **274.95** | **1010.31** | | | |
| A2 | YGEVGDTLLIIFKNQASRPYNIYPHG | | | 473 | 498 | 26 |
| | -GEVGDTLLIIFKNQASRPYN----- | | | 474 | 493 | 20 |
| | --EVGDTLLIIFKNQASRPYN----- | | | 475 | 493 | 19 |
| | --EVGDTLLIIFKNQASRPY------ | | | 475 | 492 | 18 |
| | ---VGDTLLIIFKNQASRPY------ | | | 476 | 492 | 17 |
| | ---VGDTLLIIFKNQASRPYN----- | | | 476 | 493 | 18 |
| | -----DTLLIIFKNQASRPYN----- | | | 478 | 493 | 16 |
| | **--------LIIFKNQAS---------** | **10.89** | **29.76** | | | |
| | YSSFVNMERDLASG--- | | | 552 | 565 | 14 |
| | YSSFVNMERDLASGLIG | | | 552 | 568 | 17 |
| | YSSFVNMERDLASG--- | | | 552 | 565 | 14 |
| | **---FVNMERDLA-----** | **79.74** | **218.31** | | | |
| | ENIQRFLPNPAGVQLEDPE | | | 608 | 626 | 19 |
| | -NIQRFLPNPAGVQLEDPE | | | 609 | 626 | 18 |
| | -NIQRFLPNPAGVQLE--- | | | 609 | 623 | 15 |
| | -NIQRFLPNPAGVQLED-- | | | 609 | 624 | 16 |
| | **--IQRFLPNPA--------** | **16.52** | **101.01** | | | |
| B | HSGDMVFTPESGLQLRLNEK | | | 862 | 881 | 20 |
| | **------FTPESGLQL-----** | **37.88** | **1446.59** | | | |
| | SDTEFKKVTPLIHDR | | | 1054 | 1068 | 15 |
| | **----FKKVTPLIH--** | **29.55** | **34.57** | | | |
| | KMLFLPESARWIQRTH | | | 1117 | 1132 | 16 |
| | KMLFLPESARWIQRT- | | | 1117 | 1131 | 15 |
| | KMLFLPESARWIQR-- | | | 1117 | 1130 | 14 |
| | **---FLPESARWI----** | **13.86** | **139.38** | | | |
| | GPSPKQLVSLGPEKSVEG----- | | | 1142 | 1159 | 18 |
| | GPEKSVEGQNFLSEKNKVVVGKG | | | 1152 | 1174 | 23 |
| | GPEKSVEGQNFLSEKNKVVVG-- | | | 1152 | 1172 | 21 |
| | **----------FLSEKNKVV----** | **29.87** | **249.2** | | | |
| | KKKDTILSLNACESNHAI | | | 1612 | 1629 | 18 |
| | KKKDTILSLNACESNHA- | | | 1612 | 1628 | 17 |
| | -KKDTILSLNACESNH-- | | | 1613 | 1627 | 15 |
| | -KKDTILSLNACESNHA- | | | 1613 | 1628 | 16 |
| | --KDTILSLNACESNHA- | | | 1614 | 1628 | 15 |
| | --KDTILSLNACESNH-- | | | 1614 | 1627 | 14 |
| | **-----ILSLNACES----** | **32.83** | **906.6** | | | |
| A3 | SFQKKTRHYFIAAVERLWDYGMSSSPHVLRN | | | 1709 | 1739 | 31 |
| | -FQKKTRHYFIAAVERLWD------------ | | | 1710 | 1727 | 18 |
| | ---KKTRHYFIAAVERLWD------------ | | | 1712 | 1727 | 16 |
| | ---KKTRHYFIAAVERLWDYG---------- | | | 1712 | 1729 | 18 |
| | ----KTRHYFIAAVERLWDYG---------- | | | 1713 | 1729 | 17 |
| | ----KTRHYFIAAVERLWD------------ | | | 1713 | 1727 | 15 |
| | ----KTRHYFIAAVERLWDY----------- | | | 1713 | 1728 | 16 |
| | -----TRHYFIAAVERLWD------------ | | | 1714 | 1727 | 14 |
| | -----TRHYFIAAVERLWDYG---------- | | | 1714 | 1729 | 16 |
| | ------RHYFIAAVERLWDYG---------- | | | 1715 | 1729 | 15 |
| | **--------YFIAAVERL-------------** | **6.75** | **43.32** | | | |
| | KPNETKTYFWKVQHHMAPT | | | 1827 | 1845 | 19 |
| | **--------FWKVQHHMA--** | **41.60** | **28.37** | | | |
| | AGIWRVECLIGEHLHA- | | | 2012 | 2027 | 16 |
| | -GIWRVECLIGEHLH-- | | | 2013 | 2026 | 14 |
| | -GIWRVECLIGEHLHAG | | | 2013 | 2028 | 16 |
| | --IWRVECLIGEHLHA- | | | 2014 | 2027 | 14 |
| | **-----VECLIGEHL---** | **61.68** | **709.38** | | | |
| C1 | KEPFSWIKVDLLAPMIIHGIKT | | | 2084 | 2105 | 22 |
| | **--------VDLLAPMII-----** | **17.25** | **220.43** | | | |
| | YISQFIIMYSLDGKKW- | | | 2116 | 2131 | 16 |
| | YISQFIIMYSLDGKKW- | | | 2116 | 2131 | 16 |
| | -ISQFIIMYSLDGKKW- | | | 2117 | 2131 | 15 |
| | -ISQFIIMYSLDGKKW- | | | 2117 | 2131 | 15 |
| | -ISQFIIMYSLDGKKWQ | | | 2117 | 2132 | 16 |
| | -ISQFIIMYSLDGKK-- | | | 2117 | 2130 | 14 |
| | -ISQFIIMYSLDGKKWQ | | | 2117 | 2132 | 16 |
| | **----FIIMYSLDG----** | **14.08** | **82.99** | | | |
| C2 | ASSYFTNMFATWSPSK- | | | 2211 | 2226 | 16 |
| | ASSYFTNMFATWSPSKA | | | 2211 | 2227 | 17 |
| | **----FTNMFATWS----** | **33.43** | **161.12** | | | |
| | SPSKARLHLQGRSNAWRPQ | | | 2223 | 2241 | 19 |
| | **------LHLQGRSNA----** | **170.60** | **160.56** | | | |
| | IHPQSWVHQIALRMEVL- | | | 2327 | 2343 | 17 |
| | IHPQSWVHQIALRMEV-- | | | 2327 | 2342 | 16 |
| | -HPQSWVHQIALRME--- | | | 2328 | 2341 | 14 |
| | -HPQSWVHQIALRMEV-- | | | 2328 | 2342 | 15 |
| | -HPQSWVHQIALRMEVL- | | | 2328 | 2343 | 16 |
| | -HPQSWVHQIALRM---- | | | 2328 | 2340 | 13 |
| | -HPQSWVHQIALRMEVL- | | | 2328 | 2343 | 16 |
| | -HPQSWVHQIALRMEV-- | | | 2328 | 2342 | 15 |
| | -HPQSWVHQIALRMEVLG | | | 2328 | 2344 | 17 |
| | **-----WVHQIALRM----** | **5.89** | **49.88** | | | |

### HLA-DQA1*01:01 - 05:05 HLA-DQB1*03:01 - 05:01

| Peptide | Predicted Affinity (nM) | | | | Start | Stop | Length |
|---|---|---|---|---|---|---|---|
| | DQA1*01:01/DQB1*03:01 | DQA1*01:01/DQB1*05:01 | DQA1*05:05/DQB1*03:01 | DQA1*05:05/DQB1*05:01 | | | |
| TLHKFILLFAVFDEGK | | | | | 210 | 225 | 16 |
| **-----ILLFAVFDE--** | **2628.73** | **182.3** | **2031.65** | **89.34** | | | |
| DTLLIIFKNQASRPYN | | | | | 478 | 493 | 16 |
| **---LIIFKNQAS-----** | **1229.03** | **2944.14** | **624.25** | **553.01** | | | |
| ISQFIIMYSLDGKKW | | | | | 2117 | 2131 | 15 |
| ISQFIIMYSLDGKKW | | | | | 2117 | 2131 | 15 |
| ISQFIIMYSLDGKK- | | | | | 2117 | 2130 | 14 |
| ISQFIIMYSLDGKK- | | | | | 2117 | 2130 | 14 |
| **--QFIIMYSLD----** | **1570.67** | **668.02** | **1192.95** | **171.26** | | | |
| HPQSWVHQIALRMEV- | | | | | 2328 | 2342 | 15 |
| HPQSWVHQIALRMEVL | | | | | 2328 | 2343 | 16 |
| **----VHQIALRME---** | **278.11** | **1422.51** | **333.23** | **207.5** | | | |

**Donor G**

HLA-DRB1*01:01 - 11:01

| | Peptide | Predicted Affinity (nM) | | Start | Stop | Length |
|---|---|---|---|---|---|---|
| | | DRB1*01:01 | DRB1*11:01 | | | |
| A1 | DTVVITLKNMASHPVS | | | 101 | 116 | 16 |
| | **------LKNMASHPV-** | 5.81 | 34.47 | | | |
| | TLHKFILLFAVFDEGK | | | 210 | 225 | 16 |
| | **----FILLFAVFD---** | 274.95 | 1185.56 | | | |
| A2 | EVGDTLLIIFKNQASRPYN | | | 475 | 493 | 19 |
| | -VGDTLLIIFKNQASRPYN | | | 476 | 493 | 18 |
| | -VGDTLLIIFKNQASRPY- | | | 476 | 492 | 17 |
| | **----LIIFKNQAS-----** | 16.73 | 41.19 | | | |
| | YSSFVNMERDLASG | | | 552 | 565 | 14 |
| | **---FVNMERDLA--** | 142.54 | 218.31 | | | |
| | ENIQRFLPNPAGVQLEDPE | | | 608 | 626 | 19 |
| | -NIQRFLPNPAGVQLEDPE | | | 609 | 626 | 18 |
| | -NIQRFLPNPAGVQLED-- | | | 609 | 624 | 16 |
| | **--IQRFLPNPA--------** | 18.44 | 112.51 | | | |
| a2 | ISAYLLSKNNAIEPR | | | 745 | 759 | 15 |
| | **---YLLSKNNAI---** | 7.74 | 82.32 | | | |
| B | SDTEFKKVTPLIHDR | | | 1054 | 1068 | 15 |
| | **----FKKVTPLIH--** | 29.55 | 34.57 | | | |
| | KKDTILSLNACESNH- | | | 1613 | 1627 | 15 |
| | KKDTILSLNACESNHA | | | 1613 | 1628 | 16 |
| | KDTILSLNACESNH-- | | | 1614 | 1627 | 14 |
| | **---ILSLNACES----** | 34.63 | 1034.52 | | | |
| A3 | KTRHYFIAAVERLWDYG | | | 1713 | 1729 | 17 |
| | KTRHYFIAAVERLWD-- | | | 1713 | 1727 | 15 |
| | -TRHYFIAAVERLWD-- | | | 1714 | 1727 | 14 |
| | **----YFIAAVERL----** | 9.58 | 67.77 | | | |
| C1 | ISQFIIMYSLDGKKW | | | 2117 | 2131 | 15 |
| | ISQFIIMYSLDGKK- | | | 2117 | 2130 | 14 |
| | **---FIIMYSLDG---** | 14.08 | 85.91 | | | |
| C2 | ASSYFTNMFATWSPSK | | | 2211 | 2226 | 16 |
| | -SSYFTNMFATWSPSK | | | 2212 | 2226 | 15 |
| | **----FTNMFATWS---** | 40.43 | 295.73 | | | |
| | HPQSWVHQIALRM-- | | | 2328 | 2340 | 13 |
| | HPQSWVHQIALRMEV | | | 2328 | 2342 | 15 |
| | HPQSWVHQIALRME- | | | 2328 | 2341 | 14 |
| | **----WVHQIALRM--** | 6.61 | 57.29 | | | |

HLA-DQA1*01:01 - 05:05 HLA-DQB1*03:01 - 05:01

| | Peptide | Predicted Affinity (nM) | | | | Start | Stop | Length |
|---|---|---|---|---|---|---|---|---|
| | | DQA1*01:01/DQB1*03:01 | DQA1*01:01/DQB1*05:01 | DQA1*05:05/DQB1*03:01 | DQA1*05:05/DQB1*05:01 | | | |
| C1 | ISQFIIMYSLDGKKW | | | | | 2117 | 2131 | 15 |
| | **--QFIIMYSLD----** | 1570.67 | 668.02 | 1192.95 | 171.26 | | | |
| C2 | HPQSWVHQIALRMEVL | | | | | 2328 | 2343 | 16 |
| | HPQSWVHQIALRM--- | | | | | 2328 | 2340 | 13 |
| | **-----VHQIALRME--** | 278.11 | 1422.51 | 333.23 | 207.5 | | | |

## Donor H

HLA-DRB1*04:01 - 11:01

| | Peptide | Predicted Affinity (nM) | | Start | | Stop | Length |
|---|---|---|---|---|---|---|---|
| | | DRB1*04:01 | DRB1*11:01 | | | | |
| A1 | DTVVITLKNMASHPVS | | | 101 | - | 116 | 16 |
| | **---VITLKNMAS----** | **41.45** | **34.47** | | | | |
| | TKNSLMQDRDAASARA-- | | | 231 | - | 246 | 16 |
| | TKNSLMQDRDAASARAWP | | | 231 | - | 248 | 18 |
| | **----LMQDRDAAS-----** | **650.65** | **3552.60** | | | | |
| A2 | GEVGDTLLIIFKNQASRPYN | | | 474 | - | 493 | 20 |
| | -EVGDTLLIIFKNQASRPYN | | | 475 | - | 493 | 19 |
| | -EVGDTLLIIFKNQASRPY- | | | 475 | - | 492 | 18 |
| | --VGDTLLIIFKNQASRPYN | | | 476 | - | 493 | 18 |
| | --VGDTLLIIFKNQASRPY- | | | 476 | - | 492 | 17 |
| | ---GDTLLIIFKNQASRPYN | | | 477 | - | 493 | 17 |
| | **-------LIIFKNQAS----** | **42.37** | **41.19** | | | | |
| | YSSFVNMERDLASG | | | 552 | - | 565 | 14 |
| | **---FVNMERDLA--** | **388.22** | **218.31** | | | | |
| | ENIQRFLPNPAGVQLEDPE | | | 608 | - | 626 | 19 |
| | ENIQRFLPNPAGVQLED-- | | | 608 | - | 624 | 17 |
| | -NIQRFLPNPAGVQLEDPE | | | 609 | - | 626 | 18 |
| | -NIQRFLPNPAGVQLE--- | | | 609 | - | 623 | 15 |
| | **--IQRFLPNPA--------** | **77.99** | **101.01** | | | | |
| B | LSDLQEAKYETFSDD | | | 824 | - | 838 | 15 |
| | **-SDLQEAKYE-----** | **7142.28** | **8730.43** | | | | |
| | ESDTEFKKVTPLIHDRM | | | 1053 | - | 1069 | 17 |
| | -SDTEFKKVTPLIHDR- | | | 1054 | - | 1068 | 15 |
| | **-----FKKVTPLIH---** | **142.17** | **33.21** | | | | |
| | ELEKRIIVDDTSTQWSKN | | | 1345 | - | 1362 | 18 |
| | -LEKRIIVDDTSTQWSKN | | | 1346 | - | 1362 | 17 |
| | ---KRIIVDDTSTQWSK- | | | 1348 | - | 1361 | 14 |
| | **-----IIVDDTSTQ----** | **626.93** | **4929.66** | | | | |
| | KVPFLRVATESSAK | | | 1562 | - | 1575 | 14 |
| | **---FLRVATESS--** | **27.52** | **62.03** | | | | |
| a3 | | | | | | | |
| A3 | KTRHYFIAAVERLWDYG | | | 1713 | - | 1729 | 17 |
| | **----YFIAAVERL----** | **125.64** | **75.32** | | | | |
| | DNIMVTFRNQASRPYS | | | 1788 | - | 1803 | 16 |
| | **------FRNQASRPY-** | **62.00** | **52.28** | | | | |
| C1 | APMIIHGIKTQGARQ | | | 2096 | - | 2110 | 15 |
| | **----IHGIKTQGA--** | **185.00** | **198.88** | | | | |
| | YISQFIIMYSLDGKKW-- | | | 2116 | - | 2131 | 16 |
| | YISQFIIMYSLDGKKWQT | | | 2116 | - | 2133 | 18 |
| | -ISQFIIMYSLDGKKW-- | | | 2117 | - | 2131 | 15 |
| | -ISQFIIMYSLDGKKWQ- | | | 2117 | - | 2132 | 16 |
| | -ISQFIIMYSLDGKK--- | | | 2117 | - | 2130 | 14 |
| | **----FIIMYSLDG-----** | **136.62** | **82.99** | | | | |
| C2 | SPSKARLHLQGRSNAWRPQ | | | 2223 | - | 2241 | 19 |
| | **------LHLQGRSNA----** | **1019.80** | **160.56** | | | | |
| | YVKEFLISSSQDGHQWT | | | 2275 | - | 2291 | 17 |
| | YVKEFLISSSQDGHQ-- | | | 2275 | - | 2289 | 15 |
| | YVKEFLISSSQDGHQW- | | | 2275 | - | 2290 | 16 |
| | --KEFLISSSQDGHQ-- | | | 2277 | - | 2289 | 13 |
| | --KEFLISSSQDGHQW- | | | 2277 | - | 2290 | 14 |
| | **----FLISSSQDG----** | **87.13** | **482.04** | | | | |

HLA-DQA1*03:01 - 05:05 HLA-DQB1*03:01 - 03:02

| | Peptide | Predicted Affinity (nM) | | | | Start | | Stop | Length |
|---|---|---|---|---|---|---|---|---|---|
| | | DQA1*03:01/DQB1*03:01 | DQA1*03:01/DQB1*03:02 | DQA1*05:05/DQB1*03:01 | DQA1*05:05/DQB1*03:02 | | | | |
| a3 | EITRTTLQSDQEE | | | | | 1668 | - | 1680 | 13 |
| | **----TTLQSDQEE** | **3885.56** | **1625.18** | **5669.03** | **1696.01** | | | | |
| C1 | ISQFIIMYSLDGKKW | | | | | 2117 | - | 2131 | 15 |
| | ISQFIIMYSLDGKK- | | | | | 2117 | - | 2130 | 14 |
| | **-SQFIIMYSL-----** | **1749.71** | **1807.85** | **1192.95** | **854.14** | | | | |

## Donor I

HLA-DRB1*03:01 - 13:01

| | Peptide | Predicted Affinity (nM) | | Start | | Stop | Length |
|---|---|---|---|---|---|---|---|
| | | DRB1*03:01 | DRB1*13:01 | | | | |
| A1 | DAASARAWPKMHTVNG- | | | 240 | - | 255 | 16 |
| | DAASARAWPKMHTVNGY | | | 240 | - | 256 | 17 |
| | **----ARAWPKMHT----** | 3444.48 | 1851.48 | | | | |
| | RSLPGLIGCHRKSVYWHVIG | | | 259 | - | 278 | 20 |
| | -SLPGLIGCHRKSVYWH--- | | | 260 | - | 275 | 16 |
| | --LPGLIGCHRKSVYWHVI- | | | 261 | - | 277 | 17 |
| | --LPGLIGCHRKSVYWH--- | | | 261 | - | 275 | 15 |
| | --LPGLIGCHRKSVYWHVIG | | | 261 | - | 278 | 18 |
| | **-----LIGCHRKSV------** | 647.39 | 474.36 | | | | |
| A2 | EVGDTLLIIFKNQASRPY-- | | | 475 | - | 492 | 18 |
| | EVGDTLLIIFKNQASRPYNI | | | 475 | - | 494 | 20 |
| | EVGDTLLIIFKNQASRPYN- | | | 475 | - | 493 | 19 |
| | -VGDTLLIIFKNQASRPYN- | | | 476 | - | 493 | 18 |
| | -VGDTLLIIFKNQASRPYNI | | | 476 | - | 494 | 19 |
| | -VGDTLLIIFKNQASRP--- | | | 476 | - | 491 | 16 |
| | -VGDTLLIIFKNQASRPY-- | | | 476 | - | 492 | 17 |
| | --GDTLLIIFKNQASRPYN- | | | 477 | - | 493 | 17 |
| | --GDTLLIIFKNQASRPY-- | | | 477 | - | 492 | 16 |
| | ---DTLLIIFKNQASRPY-- | | | 478 | - | 492 | 15 |
| | ---DTLLIIFKNQASRPYN- | | | 478 | - | 493 | 16 |
| | ---DTLLIIFKNQASRP--- | | | 478 | - | 491 | 14 |
| | ---DTLLIIFKNQASRPYNI | | | 478 | - | 494 | 17 |
| | **--------IFKNQASRP---** | 129.09 | 45.25 | | | | |
| | ESVDQRGNQIMSDKRNVIL-- | | | 576 | - | 594 | 19 |
| | -----RGNQIMSDKRNVIL-- | | | 581 | - | 594 | 14 |
| | -----RGNQIMSDKRNVILF- | | | 581 | - | 595 | 15 |
| | ------GNQIMSDKRNVILFS | | | 582 | - | 596 | 15 |
| | **---------IMSDKRNVI---** | 36.80 | 118.03 | | | | |
| B | YETFSDDPSPGAIDSNNSLSEMTHFRPQLHHSGDMVFTPE | | | 832 | - | 871 | 40 |
| | **--------------------MTHFRPQLH----------** | 258.68 | 190.88 | | | | |
| A3 | DEDENQSPRSFQKKTRHYFI---------------- | | | 1700 | - | 1719 | 20 |
| | DEDENQSPRSFQKKTRHYFIAAVE------------ | | | 1700 | - | 1723 | 24 |
| | ------SPRSFQKKTRHYFI---------------- | | | 1706 | - | 1719 | 14 |
| | ------SPRSFQKKTRHYFIAAVE------------ | | | 1706 | - | 1723 | 18 |
| | ------SFQKKTRHYFIAAVERLWDYGMSSSPHVLR | | | 1709 | - | 1738 | 30 |
| | **-------------------------YGMSSSPHV--** | 159.23 | 140.54 | | | | |
| | EVEDNIMVTFRNQASRPY- | | | 1785 | - | 1802 | 18 |
| | -VEDNIMVTFRNQASRPY- | | | 1786 | - | 1802 | 17 |
| | EVEDNIMVTFRNQASRPYS | | | 1786 | - | 1803 | 18 |
| | -VEDNIMVTFRNQASRP-- | | | 1786 | - | 1801 | 16 |
| | --EDNIMVTFRNQASRPY- | | | 1787 | - | 1802 | 16 |
| | --EDNIMVTFRNQASRPYS | | | 1787 | - | 1803 | 17 |
| | ---DNIMVTFRNQASRPY- | | | 1788 | - | 1802 | 15 |
| | ---DNIMVTFRNQASRPYS | | | 1788 | - | 1803 | 16 |
| | **------MVTFRNQAS----** | 171.48 | 130.57 | | | | |
| | EPRKNFVKPNETKTYFWK | | | 1820 | - | 1837 | 18 |
| | ---KNFVKPNETKTYFWK | | | 1823 | - | 1837 | 15 |
| | **------VKPNETKTY---** | 1384.01 | 1171.72 | | | | |
| | GPLLVCHTNTLNPAHG | | | 1872 | - | 1887 | 16 |
| | **--LLVCHTNTL-----** | 2231.17 | 300.42 | | | | |
| | SGHVFTVRKKEEYKMAL | | | 1978 | - | 1994 | 17 |
| | **------VRKKEEYKM--** | 1445.51 | 2001.74 | | | | |
| C1 | KEPFSWIKVDLLAPMIIH---- | | | 2084 | - | 2101 | 18 |
| | KEPFSWIKVDLLAPMIIHG--- | | | 2084 | - | 2102 | 19 |
| | KEPFSWIKVDLLAPMIIHGIKT | | | 2084 | - | 2105 | 22 |
| | -EPFSWIKVDLLAPMIIH---- | | | 2085 | - | 2101 | 17 |
| | -EPFSWIKVDLLAPMIIHG--- | | | 2085 | - | 2102 | 18 |
| | -EPFSWIKVDLLAPMIIHG--- | | | 2085 | - | 2102 | 18 |
| | **------IKVDLLAPM-------** | 99.15 | 48.11 | | | | |
| | SPSKARLHLQGRSNAWRPQ | | | 2223 | - | 2241 | 19 |
| | SKARLHLQGRSNAWRPQ-- | | | 2225 | - | 2241 | 17 |
| | **----LHLQGRSNA------** | 816.35 | 635.92 | | | | |
| | NPKEWLQVDFQKTMKVTG | | | 2244 | - | 2261 | 18 |
| | NPKEWLQVDFQKTMK--- | | | 2244 | - | 2258 | 15 |
| | NPKEWLQVDFQKTMKVTG | | | 2244 | - | 2261 | 18 |
| | **-----LQVDFQKTM----** | 252.30 | 177.21 | | | | |
| | TRYLRIHPQSWVHQ | | | 2322 | - | 2335 | 14 |
| | **---LRIHPQSWV--** | 1188.11 | 181.87 | | | | |

HLA-DQA1*01:03 - 05:01 HLA-DQB1*02:01 - 06:03

| | Peptide | Predicted Affinity (nM) | | | | Start | | Stop | Length |
|---|---|---|---|---|---|---|---|---|---|
| | | DQA1*01:03/DQB1*02:01 | DQA1*01:03/DQB1*06:03 | DQA1*05:01/DQB1*02:01 | DQA1*05:01/DQB1*06:03 | | | | |
| A2 | HPKTWVHYIAAEEEDW | | | | | 397 | - | 412 | 16 |
| | **-----VHYIAAEEE--** | 690.57 | 144.19 | 34.13 | 63.81 | | | | |
| | YKWTVTVEDGPTKSD-- | | | | | 530 | - | 544 | 15 |
| | YKWTVTVEDGPTKSDPR | | | | | 530 | - | 546 | 17 |
| | **---TVTVEDGPT-----** | 5858.92 | 2971.60 | 1886.05 | 839.3 | | | | |
| | RGNQIMSDKRNVIL | | | | | 581 | - | 594 | 14 |
| | **----IMSDKRNVI-** | 10021.30 | 2582.33 | 12915.74 | 1882.5 | | | | |
| A3 | KKTRHYFIAAVER | | | | | 1712 | - | 1724 | 13 |
| | **---RHYFIAAVE-** | 2580.34 | 168.33 | 911.46 | 82.42 | | | | |
| | YGMSSSPHVLRN | | | | | 1728 | - | 1739 | 12 |
| | **-GMSSSPHVL--** | 14943.17 | 1465.97 | 12795.43 | 348.36 | | | | |
| | VEDNIMVTFRNQASRPY- | | | | | 1786 | - | 1802 | 17 |
| | -EDNIMVTFRNQASRPY- | | | | | 1787 | - | 1802 | 16 |
| | --DNIMVTFRNQASRPYS | | | | | 1788 | - | 1803 | 16 |
| | --DNIMVTFRNQASRPY- | | | | | 1788 | - | 1802 | 15 |
| | **-----MVTFRNQAS----** | 2479.94 | 252.52 | 2898.43 | 196.82 | | | | |
| | LIGPLLVCHTNTLNPAHGRQ | | | | | 1870 | - | 1889 | 20 |
| | -IGPLLVCHTNTLNPAHG-- | | | | | 1871 | - | 1887 | 17 |
| | --GPLLVCHTNTLNPAHGR- | | | | | 1872 | - | 1888 | 17 |
| | --GPLLVCHTNTLNPAH--- | | | | | 1872 | - | 1886 | 15 |
| | --GPLLVCHTNTLNPAHG-- | | | | | 1872 | - | 1887 | 16 |
| | --GPLLVCHTNTLNPAHGRQ | | | | | 1872 | - | 1889 | 18 |
| | -----LVCHTNTLNPAHGR- | | | | | 1875 | - | 1888 | 14 |
| | -----LVCHTNTLNPAHG-- | | | | | 1875 | - | 1887 | 13 |
| | **-IGPLLVCHT ---------** | 4628.11 | 337.57 | 5897.20 | 240.12 | | | | |
| | YPGVFETVEMLPSK-- | | | | | 1998 | - | 2011 | 14 |
| | YPGVFETVEMLPSKA- | | | | | 1998 | - | 2012 | 15 |
| | YPGVFETVEMLPSKAG | | | | | 1998 | - | 2013 | 16 |
| | **----FETVEMLPS---** | 892.20 | 181.30 | 308.34 | 161.92 | | | | |