

# Human Diversity of Killer Cell Immunoglobulin-Like Receptors and Human Leukocyte Antigen Class I Alleles and Ebola Virus Disease Outcomes

## Appendix

**Appendix Table 1.** Primer sequences of KIR genes and HLA class I alleles\*

Gene	Forward primer (5'-3')	Reverse primer (5'-3')	Size, bp
<b>KIR genes</b>			
<i>2DL1</i>	TTGGTCAGATGTCATGTTTGAA	TCCCTGCCAGGTCTTGCG	143
<i>2DL2</i>	AAACCTTCTCTCAGCCCA	GCCCTGCAGAGAACCTACA	142
<i>2DL3</i>	ACAAGACCCTCAGGAGGTGA	GCAGGAGACAACCTTGGATCA	160
<i>2DL4</i>	TCAGGACAAGCCCTTCTGC	GACAGGGACCCCATCTTTC	130
<i>2DL5</i>	GCGCTGTGGTGCCTCG	GACCACTCAATGGGGGAGC	214
<i>2DS1</i>	GTAGGCTCCCTGCAGGGA	ACAAGCAGTGGGTCACTTGAC	148
<i>2DS2</i>	CTGCACAGAGAGGGGAAGTA	CAGAGGGTCACTGGGAGC	177
<i>2DS3</i>	ACCTTGCTCCTGCAGCTCCT	AGCATCTGTAGGTTCTCCT	160
<i>2DS4-001</i>	CTGGCCCTCCCAGGTCA	TCTGTAGGTTCTGAAAGGACAG	204
<i>2DS4-003</i>	CTTGTCTCCTGCAGTCCATC	TGACGGAAACAAGCAGTGGA	202
<i>2DS5</i>	TGATGGGGTCTCCAAGGG	TCCAGAGGGTCACTGGGC	105
<i>3DL1</i>	TGAGCACTTCTTTCTGCACAA	TAGGTCCCTGCAAGGGCAA	129
<i>3DL2</i>	AAACCTTCTCTGTCTGCC	TGGAAGATGGGAACGTGGC	134
<i>3DL3</i>	GCAATGTTGGTCAGATGTCAG	AGCCGACAACCTCATAGGGTA	199
<i>3DS1</i>	TCCATCGGTTCCATGATGCG	GACCACGATGTCCAGGGGA	111
<i>2DP1</i>	ACATGTGATTCTTCGGTGTCTAT	GTGAACCCCGACATCTGTAC	167
<i>3DP1-001</i>	GGTGTGGTAGGAGCCTTAG	GAAAACGGTGTTTCGGAATAC	280
<i>3DP1-004</i>	CGTCACCCTCCATGATGTA	GAAAACGGTGTTTCGGAATAC	395
<b>HLA class I alleles</b>			
HLA-C1 <sup>Asn80</sup>	GAGGTGCCCGCCCGGCGA	CGCGCAGGTTCCGCAGGC	332
HLA-C2 <sup>Lys80</sup>	GAGGTGCCCGCCCGGCGA	CGCGCAGTTTCCGCAGGT	332
HLA-A-Bw4	TGGCGCCCGAACCCCTCG	GCTCTGGTTGTAGTAGCGGA	456
HLA-B-Bw4 <sup>Thr80</sup>	GGAGCGAGGGGACCCGAG	GTAGTAGCGGAGCGCGGTG	344
HLA-B-Bw4 <sup>Ile80</sup>	GAGCGAGGGGACCCGAG	GTAGTAGCGGAGCGCGATC	343

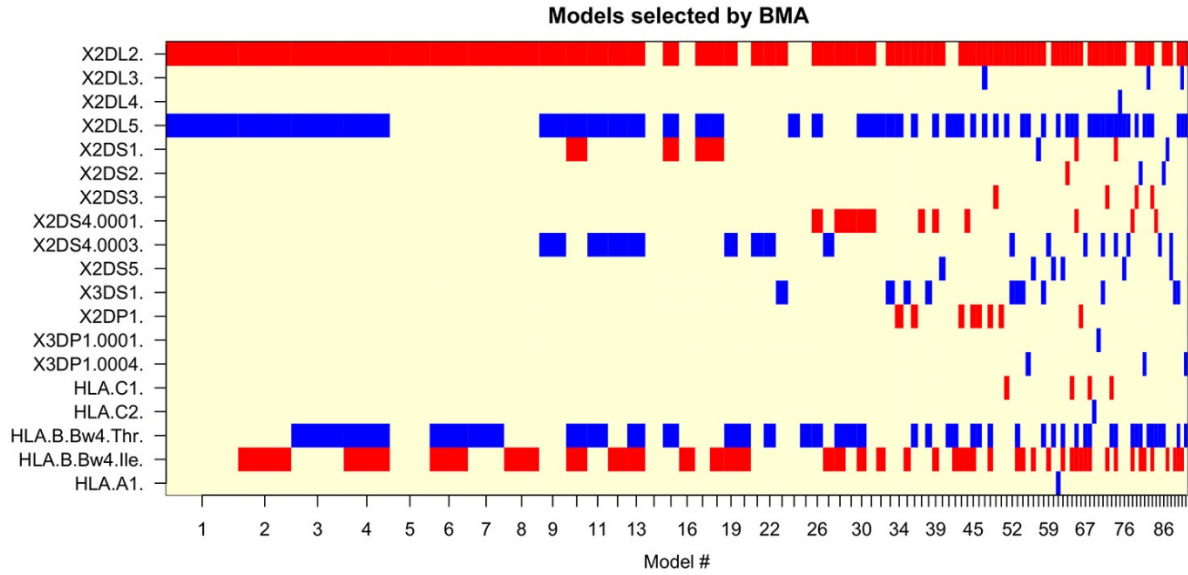
\*HLA, human leukocyte antigen; KIR, killer cell immunoglobulin-like receptor (1).

**Appendix Table 2.** PCR conditions of human leukocyte antigen class I and killer cell immunoglobulin-like receptor primer set (except *2DS3*, *2DL5* and *3DP1-001*)\*

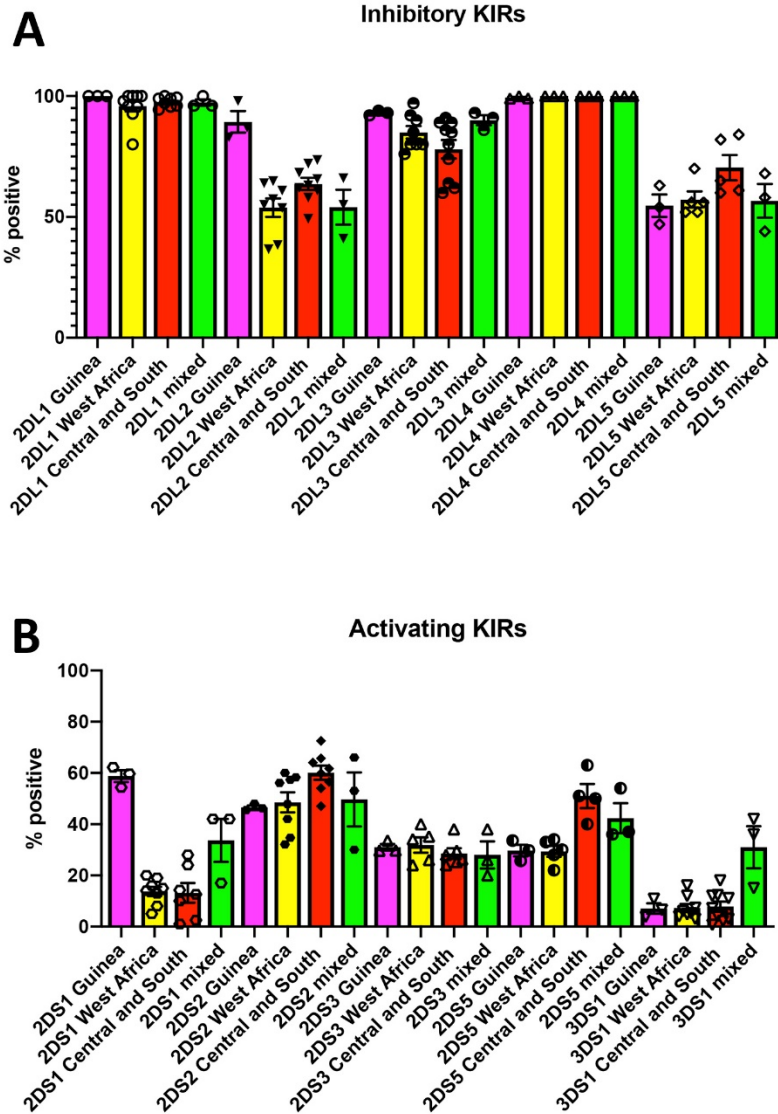
No. cycles	Stage	Temperature, °C	Time, min
NA	Initial denaturation	94	5.00
NA	Denaturation	94	0.50
10	Annealing	58	0.75
NA	Elongation	72	1.00
NA	Denaturation	94	0.50
20	Annealing	55	0.75
Not applicable	Elongation	72	1.00
Not applicable	Final extension	72	10.00

**Appendix Table 3.** PCR conditions of *2DS3*, *2DL5* and *3DP1-001* killer cell immunoglobulin-like receptor genes

No. cycles	Stage	Temperature, °C	Time, min
NA	Initial denaturation	94	5.00
NA	Denaturation	94	0.50
35	Annealing	55	0.75
Not applicable	Elongation	72	1.00
Not applicable	Final extension	72	10.00



**Appendix Figure 1.** BMA analysis for multinomial logistic regression of killer cell immunoglobulin-like receptors and human leukocyte antigen class I alleles. Red indicates models with a positive coefficient; blue indicates models with a negative coefficient. Selected variables (genes) shown on the vertical axis; BMA-selected models shown on the horizontal axis. BMA, Bayesian model averaging.



**Appendix Figure 2.** Comparison of KIR gene frequency in selected populations from countries in West Africa (Ivory coast, Nigeria, Ghana, Equatorial Guinea, and Senegal), Central Africa (the Democratic Republic of Congo, Gabon, and Uganda), South Africa (South Africa, and Zimbabwe), and a mixed population from Reunion, Comoros, and South Africa. A) Inhibitory KIRs. B) Activating KIRs. Data from <http://www.allelefreqencies.net>. KIR, killer cell immunoglobulin-like receptor.

**Reference**

1. Tajik N, Shahsavari F, Nasiri M, Radjabzadeh MF. Compound KIR-HLA genotype analyses in the Iranian population by a novel PCR-SSP assay. *Int J Immunogenet.* 2010;37:159–68. [PubMed](https://doi.org/10.1111/j.1744-313X.2010.00906.x) <https://doi.org/10.1111/j.1744-313X.2010.00906.x>