

REPORT OF THE 54th UCLA INTERNATIONAL KIR EXCHANGE

MAY 4, 2022

KIR 225-230

For the 54th KIR Exchange, 6 DNA samples (KDNA#225 - 230) were shipped to 64 laboratories worldwide. KIR typing results were received from 62 of the laboratories. The results for the 54th KIR Exchange are summarized in Table 1 and individual laboratory results reported for each DNA sample are provided in Tables 2 - 7.

We would like to thank the labs reporting subtyping results for the various KIR genes, including 2DS4 and 3DP1 (denoted as FULL or DEL). We would also like to acknowledge center 8114 for reporting NGS allele level typing results, and encourage other NGS labs to do so as well.

Discrepant results from consensus are italicized in tables 1 - 7. Discrepancies at the allele level are not italicized. For **sample # 229**, the results for

KIR3DL1 were not included in the grading analysis, as 68% of labs reported it as negative and 32% reported it as positive. Fuessel kindly shared a possible explanation for the discrepancy observed for 3DL1: "Using NGS we obtained exon 3 sequences for KIR3DS1 (3DS1 positive) which are identical to KIR3DL1 exon 3 sequences. If we look only at exon 3, we cannot distinguish between KIR3DL1 and KIR3DS1. Since the SSP primer targets exon 3 of KIR3DL1, this could be the reason for a false positive result."

Lastly, we would like to express our appreciation to Arnold, Falco, and Renac for sharing their predicated haplotypes for the samples examined in this study.

KDNA # 225: KIR2DL1-2DL2-2DL3-2DL4-2DL5A&B-3DL2-3DL3-3DS1-2DS1-2DS2-2DS3-2DS5-2DP1-3DP1DEL was the consensus type for this sample from a Hispanic donor.

Only 3 discrepancies were observed for this sample. One lab reported 3DL1 and 2DS4 as positive instead of negative, and 1 lab reported 3DL3 as negative instead of positive. Arnold commented on this sample as encoding "for both arginine (R) and cysteine (C) at KIR2DL1 codon 245."

Predicted haplotypes:

Arnold - AB and B

Falco - CenA/CenB1 + TelB/TelB

Renac - AB

KDNA # 226: KIR2DL1-2DL2-2DL3-2DL4-3DL1-3DL2-3DL3-2DS2-2DS4FULL&DEL-2DP1-3DP1DEL was the consensus type for this sample from a Black donor.

A single discrepancy was observed in this sample as 1 lab reported 3DS1 as positive instead of negative. Falco noted this sample "has one CenA, one CenB, and two TelA regions. Notably, the CenB region includes 2DS2-2DL2, lacks of 2DL5B and 2DS3/S5 but carries 3DP1 delta, being different from both CenB1 and CenB2." Arnold observed the sample "encodes for arginine (R) at KIR2DL1 codon 245."

Predicted haplotypes

Arnold - A and BA1

Falco - CenA/CenB + TelA/TelA

Renac - AB

KDNA # 227: KIR2DL1-2DL3-2DL4-2DL5A-3DL1-3DL2-3DL3-3DS1-2DS1-2DS3-2DS4DEL-2DP1-3DP1DEL was the consensus type for this sample from an Asian donor.

A single lab accounted for the discrepancies observed for this sample, as it reported 2DL2 and 2DS5 as positive instead of negative. Arnold noted this sample “encodes for arginine (R) at KIR2DL1 codon 245.”

Predicted haplotypes

Arnold - A and AB

Falco - CenA/CenA + TelA/TelB

Renac - AB

KDNA # 228: KIR2DL1-2DL3-2DL4-2DL5A-3DL2-3DL3-3DS1-2DS1-2DS3-2DS5-2DP1-3DP1DEL was the consensus type for this sample from a Hispanic donor.

A number (n = 7) of discrepancies were reported for this sample in which labs reported several genes as positive instead of negative. One lab reported 2DL2 as positive, 1 lab reported 2DS2 as positive, and 2 labs reported 2DS4 as positive. Lastly for 3DL1, 2 labs reported it as positive instead of negative. Gendzekhadze observed discrepant results for 3DL1, noting the gene was negative by SSP, but positive the qPCR. Arnold noted this sample “encodes for arginine (R) at KIR2DL1 codon 245.”

Predicted haplotypes

Arnold - AB and AB

Falco - CenA/CenA + TelB/TelB (one carrying 2DS3 and one carrying 2DS5)

Renac - AB

KDNA # 229: KIR2DL1-2DL3-2DL4-2DL5A-3DL1?-3DL2-3DL3-3DS1-2DS1-2DS5-2DP1-3DP1DEL was the consensus type for this sample from a Hispanic donor.

As noted earlier, no consensus was achieved for KIR3DL1 for this sample. As a result, 3DL1 was not included as part of the grading analysis. Forty-one labs reported 3DL1 as negative and 19 labs reported it as positive. Among the labs reporting 3DL1 as positive, 12 labs indicated using the CareDx® SSP kit, 6 labs used the LinkSēq™ RT-PCR kit, and 1 lab used the Immucor SSO kit.

Arnold and Falco each commented on the uncommon haplotype present in this sample, noting the presence of 3DL1 in the absence of 2DS4. In addition, Arnold observed that sample “encodes for arginine (R) at KIR2DL1 codon 245.”

Predicted haplotypes:

Falco – CenA/CenA + TelB1(2DS5pos) /TelA

Renac - AB

KDNA # 230: KIR2DL1-2DL2-2DL3-2DL4-2DL5-3DL1-3DL2-3DL3-3DS1-2DS1-2DS2-2DS3-2DS4DEL-2DS5-2DP1-3DP1DEL was the consensus type for this sample from a Hispanic donor. Labs were split in the assignment of the KIR2DL5 gene present, as 4 labs assigned 2DL5A&B and 3 labs assigned 2DL5B. Only 1 discrepancy was observed in this sample in which 1 lab reported 2DS4 as negative instead of positive.

Arnold noted this sample encodes “for both arginine (R) and cysteine (C) at KIR2DL1 codon 245.”

Predicted haplotypes

Falco – CenA/CenB and TelA/TelB

Renac - AB

NEXT MAILING DATE: August 3, 2022

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Table 1. Summary of the 54th KIR Exchange (KDNA #225-230)

KIR Ex.	DNA	# Labs	2DL1	2DL2	2DL3	2DL4	2DL5	3DL1	3DL2	3DL3	3DS1	2DS1	2DS2	2DS3	2DS4	2DS5	2DP1	3DP1
#54	225	62	POS[62]	POS[62]	POS[61] *00101[1]	POS[59] NORM[1] *00501[1] NT[1]	POS[56] A,B[5] *00101+ *00501[1]	NEG[61] <i>POS[1]</i>	POS[61] *00701[1]	POS[60] <i>NEG[1]</i> NT[1]	POS[61] *01301[1]	POS[60] *002-*009[1] NT[1]	POS[61] *00101+ *00104[1]	POS[61] *00103+ *00201[1]	NEG[61] <i>POS[1]</i>	POS[62]	POS[59] *00101+ *00201[1] NT[2]	POS[47] DEL[12] *00301+ *004[1] NT[2]
	226	62	POS[61] *014[1]	POS[61] *00101[1]	POS[61] *00101[1]	POS[59] NORM[1] *00103- *01201[1] NT[1]	NEG[62]	POS[61] *001501+ 022[1]	POS[61] *00103+ *01301[1]	POS[61] NT[1]	NEG[61] <i>POS[1]</i>	NEG[61] NT[1]	POS[61] *00101[1]	NEG[62]	POS[46] FULL, DEL[16]	NEG[62]	POS[59] *00201[1] NT[2]	POS[47] DEL[13] NT[2]
	227	62	POS[61] *00302+ *020[1]	NEG[61] <i>POS[1]</i>	POS[61] *00101[1]	POS[59] NORM, DEL[1] *00501+ *01101[1] NT[1]	POS[53] A[7] *00501[1] NT[1]	POS[62]	POS[62]	POS[60] *00901+ *01001[1] NT[1]	POS[61] *01301[1]	POS[60] *002-*009[1] NT[1]	NEG[62]	POS[61] *00201[1]	POS[42] DEL[19] *00010[1]	NEG[61] <i>POS[1]</i>	POS[60] NT[2]	POS[47] DEL[13] NT[2]
	228	62	POS[61] *00302[1]	NEG[61] <i>POS[1]</i>	POS[61] *00101[1]	POS[59] NORM[1] *00501[1] NT[1]	POS[53] A[8] *00101+ *00501[1]	NEG[58] <i>POS[2]</i> NR[1] NT[1]	POS[61] *00701[1]	POS[61] NT[1]	POS[61] *01301[1]	POS[60] *002-*009[1] NT[1]	NEG[61] <i>POS[1]</i>	POS[62]	NEG[60] <i>POS[2]</i>	POS[62]	POS[59] *00201[1] NT[2]	POS[46] DEL[13] *004[1] NT[2]
	229	62	POS[61] *00302[1]	NEG[61] <i>POS[1]</i>	POS[61] *00101[1]	POS[59] NORM[1] *00501[1] NT[1]	POS[54] A[7] *00101[1]	NEG[41] POS[19] NR[1] NT[1]	POS[61] *00701	POS[60] *01001[1] NT[1]	POS[62]	POS[60] *002-*009[1] NT[1]	NEG[62]	NEG[62]	NEG[58] FULL[1] <i>POS[3]</i>	POS[62]	POS[60] NT[2]	POS[47] DEL[13] NT[2]
	230	62	POS[62]	POS[61] *00101+ *005[1]	POS[61] *00101[1]	POS[60] NORM[1] NT[1]	POS[54] A,B[4] B[3] *00101+ *00501[1]	POS[61] *00701[1]	POS[62]	POS[61] NT[1]	POS[62]	POS[60] *002-*009[1] NT[1]	POS[61] *00101[1]	POS[61] *00103[1]	POS[42] DEL[18] *00401[1] <i>NEG[1]</i>	POS[62]	POS[59] *00102+ *00201[1] NT[2]	POS[48] DEL[12] NT[2]

[] - number of labs reporting allele assignment/POS/NEG/NT
 POS - Presence of gene
 NEG - Absence of gene
 NT - Not typed; NR - Not reported
 italics - assignment different from consensus
 Subtypes of 2DS4 and 3DP1 are designated as FULL and/or DEL

Methods
 NGS - Next-generation sequencing
 RT-PCR - Real-time PCR
 SSO - Sequence-specific oligonucleotide probe based typing
 SSP - Sequence-specific primer-based typing
 SBT - Sequencing-based typing

Table 2. KDNA #225 (Hispanic)

CTR	2DL1	2DL2	2DL3	2DL4	2DL5	3DL1	3DL2	3DL3	3DS1	2DS1	2DS2	2DS3	2DS4	2DS5	2DP1	3DP1	Method
	POS[62]	POS[62]	POS[62]	POS[61]	POS[57]+ A,B[5]	NEG[61]	POS[62]	POS[60]	POS[62]	POS[61]	POS[62]	POS[62]	NEG[61]	POS[62]	POS[60]	POS[47]+ DEL[13]	
124	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	NT	NT	SSP
278	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSP
713	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	RT-PCR
733	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSP NGS
762	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	DEL	SSP
792	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSP
1108	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSO
1426	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	DEL	SSP RT-PCR
1466	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	RT-PCR
1694	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSP
1778	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSO
3224	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSO
3410	POS	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	POS	NEG	POS	POS	POS	SSP
3519	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSP
3632	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSP
3753	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSO
3798	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSP
3966	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSP
4021	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSP
4251	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSO
4337	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSP
4345	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSP
4985	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	RT-PCR
5000	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSO
5133	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	DEL	RT-PCR
5142	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	DEL	SSP
5219	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSO
5282	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSP
5451	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSO
5462	POS	POS	POS	POS	A, B	NEG	POS	POS	POS	*002-*009	POS	POS	NEG	POS	POS	DEL	SSP RT-PCR
5488	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSO
8022	POS	POS	POS	POS	A, B	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	DEL	SSP
8028	POS	POS	POS	NT	POS	NEG	POS	NT	POS	POS	POS	POS	NEG	POS	NT	NT	SSP
8030	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSO
8038	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSO
8047	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	NGS
8050	POS	POS	POS	POS	A, B	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	DEL	SSP
8053	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSO RT-PCR
8060	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSO
8069	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSO
8071	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSO
8073	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	DEL	RT-PCR
8079	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSO

Table 2. KDNA #225 (Hispanic)																	
CTR	2DL1	2DL2	2DL3	2DL4	2DL5	3DL1	3DL2	3DL3	3DS1	2DS1	2DS2	2DS3	2DS4	2DS5	2DP1	3DP1	Method
	POS[62]	POS[62]	POS[62]	POS[61]	POS[57]+ A,B[5]	NEG[61]	POS[62]	POS[60]	POS[62]	POS[61]	POS[62]	POS[62]	NEG[61]	POS[62]	POS[60]	POS[47]+ DEL[13]	
8080	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	DEL	RT-PCR
8083	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSO
8084	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	RT-PCR
8085	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	NGS
8090	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSP SSO
8092	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	RT-PCR
8094	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSO
8098	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	
8105	POS	POS	POS	POS	A, B	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	NGS
8106	POS	POS	POS	POS	A, B	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	DEL	SSP
8110	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	RT-PCR
8113	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSP
8114	POS	POS	*00101	*00501	*00101+ *00501	NEG	*00701	POS	*01301	NT	*00101+ *00104	*00103+ *00201	NEG	POS	*00101+ *00201	*00301+ *004	NGS
8118	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSO
8122	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	RT-PCR
8124	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSP SSO
8126	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	DEL	SSP
8127	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	RT-PCR
8129	POS	POS	POS	2DL4 NORM	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	3DP1NORM *003, *005, *006, ...	SSP

Table 3. KDNA #226 (Black)

CTR	2DL1	2DL2	2DL3	2DL4	2DL5	3DL1	3DL2	3DL3	3DS1	2DS1	2DS2	2DS3	2DS4	2DS5	2DP1	3DP1	Method
	POS[62]	POS[62]	POS[62]	POS[61]	NEG[62]	POS[62]	POS[62]	POS[61]	NEG[61]	NEG[61]	POS[62]	NEG[62]	POS[46]+ FULL, DEL[16]	NEG[62]	POS[60]	POS[47] DEL[13]+	
124	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	NT	NT	SSP
278	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	
713	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	RT-PCR
733	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSP NGS
762	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	DEL	SSP
792	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSP
1108	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	FULL, DEL	NEG	POS	POS	SSO
1426	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	FULL, DEL	NEG	POS	DEL	SSP RT-PCR
1466	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	RT-PCR
1694	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSP
1778	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSO
3224	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSO
3410	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSP
3519	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSP
3632	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	FULL, DEL	NEG	POS	DEL	SSP
3753	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSO
3798	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSP
3966	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSP
4021	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSP
4251	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSO
4337	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSP
4345	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSP
4985	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	RT-PCR
5000	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSO
5133	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	FULL, DEL	NEG	POS	DEL	RT-PCR
5142	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	FULL, DEL	NEG	POS	DEL	SSP
5219	POS	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	NEG	POS	POS	SSO
5282	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSP
5451	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSO
5462	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	FULL, DEL	NEG	POS	DEL	SSP RT-PCR
5488	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSO
8022	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	FULL, DEL	NEG	POS	DEL	SSP
8028	POS	POS	POS	NT	NEG	POS	POS	NT	NEG	NEG	POS	NEG	POS	NEG	NT	NT	SSP
8030	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSO
8038	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	FULL, DEL	NEG	POS	POS	SSO
8047	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	NGS
8050	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	FULL, DEL	NEG	POS	DEL	SSP
8053	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSO RT-PCR
8060	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	
8069	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	FULL, DEL	NEG	POS	POS	SSO
8071	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSO
8073	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	FULL, DEL	NEG	POS	DEL	RT-PCR

Table 3. KDNA #226 (Black)

CTR	2DL1	2DL2	2DL3	2DL4	2DL5	3DL1	3DL2	3DL3	3DS1	2DS1	2DS2	2DS3	2DS4	2DS5	2DP1	3DP1	Method
	POS[62]	POS[62]	POS[62]	POS[61]	NEG[62]	POS[62]	POS[62]	POS[61]	NEG[61]	NEG[61]	POS[62]	NEG[62]	POS[46]+ FULL, DEL[16]	NEG[62]	POS[60]	POS[47] DEL[13]+	
8079	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSO
8080	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	FULL, DEL	NEG	POS	DEL	RT-PCR
8083	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSO
8084	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	RT-PCR
8085	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	NGS
8090	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSP SSO
8092	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	RT-PCR
8094	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSO
8098	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	
8105	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	NGS
8106	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	FULL, DEL	NEG	POS	DEL	SSP
8110	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	RT-PCR
8113	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSP
8114	*014	*00101	*00101	*00103+ *01201	NEG	*01501+ *022	*00103+ *01301	POS	NEG	NT	*00101	NEG	POS	NEG	*00201	POS	NGS
8118	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	SSO
8122	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	RT-PCR
8124	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	FULL, DEL	NEG	POS	POS	SSP SSO
8126	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	FULL, DEL	NEG	POS	DEL	SSP
8127	POS	POS	POS	POS	NEG	POS	POS	POS	NEG	NEG	POS	NEG	POS	NEG	POS	POS	RT-PCR
8129	POS	POS	POS	2DL4 NORM	NEG	POS	POS	POS	NEG	NEG	POS	NEG	2DS4 NORM/ 2DS4 (DEL- 22BP)	NEG	POS	3DP1NORM *003, *005, *006, ...	SSP

Table 4. KDNA #227 (Asian)

CTR	2DL1	2DL2	2DL3	2DL4	2DL5	3DL1	3DL2	3DL3	3DS1	2DS1	2DS2	2DS3	2DS4	2DS5	2DP1	3DP1	Method
	POS[62]	NEG[61]	POS[62]	POS[61]	POS[54]+ A[7]	POS[62]	POS[62]	POS[61]	POS[62]	POS[61]	NEG[62]	POS[62]	POS[43]+ DEL[19]	NEG[61]	POS[60]	POS[47]+ DEL[13]	
124	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	NT	NT	SSP
278	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	
713	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	RT-PCR
733	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSP NGS
762	POS	NEG	POS	POS	A	POS	POS	POS	POS	POS	NEG	POS	DEL	NEG	POS	DEL	SSP
792	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSP
1108	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	DEL	NEG	POS	POS	SSO
1426	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	DEL	NEG	POS	DEL	SSP RT-PCR
1466	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	RT-PCR
1694	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSP
1778	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSO
3224	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSO
3410	POS	NEG	POS	POS	A	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSP
3519	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSP
3632	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	DEL	NEG	POS	DEL	SSP
3753	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSO
3798	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSP
3966	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSP
4021	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSP
4251	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSO
4337	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSP
4345	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	DEL-22BP	NEG	POS	POS	SSP
4985	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	RT-PCR
5000	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSO
5133	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	DEL	NEG	POS	DEL	RT-PCR
5142	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	DEL	NEG	POS	DEL	SSP
5219	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	SSO
5282	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSP
5451	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSO
5462	POS	NEG	POS	POS	A	POS	POS	POS	POS	*002-*009	NEG	POS	DEL	NEG	POS	DEL	SSP RT-PCR
5488	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSO
8022	POS	NEG	POS	NT	POS	POS	POS	NT	POS	POS	NEG	POS	POS	NEG	NT	NT	SSP
8030	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSO
8038	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	DEL	NEG	POS	POS	SSO
8047	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	NGS
8050	POS	NEG	POS	POS	A	POS	POS	POS	POS	POS	NEG	POS	DEL	NEG	POS	DEL	SSP
8053	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSO RT-PCR
8060	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	
8069	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	DEL	NEG	POS	POS	SSO
8071	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSO
8073	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	DEL	NEG	POS	DEL	RT-PCR
8079	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSO

Table 4. KDNA #227 (Asian)

CTR	2DL1	2DL2	2DL3	2DL4	2DL5	3DL1	3DL2	3DL3	3DS1	2DS1	2DS2	2DS3	2DS4	2DS5	2DP1	3DP1	Method
	POS[62]	NEG[61]	POS[62]	POS[61]	POS[54]+ A[7]	POS[62]	POS[62]	POS[61]	POS[62]	POS[61]	NEG[62]	POS[62]	POS[43]+ DEL[19]	NEG[61]	POS[60]	POS[47]+ DEL[13]	
8080	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	DEL	NEG	POS	DEL	RT-PCR
8083	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSO
8084	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	RT-PCR
8085	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	NGS
8090	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSP SSO
8092	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	RT-PCR
8094	POS	NEG	POS	POS	NT	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSO
8098	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	ALL EX.4 DEL EX.5	NEG	POS	POS	
8105	POS	NEG	POS	POS	A	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	NGS
8106	POS	NEG	POS	POS	A	POS	POS	POS	POS	POS	NEG	POS	DEL	NEG	POS	DEL	SSP
8110	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	RT-PCR
8113	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSP
8114	*00302+ *020	NEG	*00101	*00501+ *01101	*00501	POS	POS	*00901+ *01001	*01301	NT	NEG	*00201	*00010	NEG	POS	POS	NGS
8118	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	SSO
8122	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	RT-PCR
8124	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	DEL	NEG	POS	POS	SSP SSO
8126	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	DEL	NEG	POS	DEL	SSP
8127	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	NEG	POS	POS	RT-PCR
8129	POS	NEG	POS	2DL4 NORM / 2DL4 DEL	POS	POS	POS	POS	POS	POS	NEG	POS	DEL-22BP	NEG	POS	3DP1NORM *003 ,005 ,006, ...	SSP

Table 5. KDNA #228 (Hispanic)

CTR	2DL1	2DL2	2DL3	2DL4	2DL5	3DL1	3DL2	3DL3	3DS1	2DS1	2DS2	2DS3	2DS4	2DS5	2DP1	3DP1	Method
	POS[62]	NEG[61]	POS[62]	POS[61]	POS[54]+ A[8]	NEG[58]	POS[62]	POS[61]	POS[62]	POS[61]	NEG[61]	POS[62]	NEG[60]	POS[62]	POS[60]	POS[47]+ DEL[13]	
124	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	NT	NT	SSP
278	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	
713	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	RT-PCR
733	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSP NGS
762	POS	NEG	POS	POS	A	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	DEL	SSP
792	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSP
1108	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSO
1426	POS	NEG	POS	POS	POS	Not Reported	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	DEL	SSP RT-PCR
1466	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	RT-PCR
1694	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSP
1778	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSO
3224	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSO
3410	POS	NEG	POS	POS	A	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSP
3519	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSP
3632	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	DEL	SSP
3753	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSO
3798	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSP
3966	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSP
4021	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSP
4251	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSO
4337	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSP
4345	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSP
4985	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	RT-PCR
5000	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSO
5133	POS	NEG	POS	POS	POS	NT	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	DEL	RT-PCR
5142	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	DEL	SSP
5219	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	POS	POS	SSO
5282	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSP
5451	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSO
5462	POS	NEG	POS	POS	A	NEG	POS	POS	POS	*002-*009	NEG	POS	NEG	POS	POS	DEL	SSP RT-PCR
5488	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSO
8022	POS	NEG	POS	POS	A	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	DEL	SSP
8028	POS	NEG	POS	NT	POS	NEG	POS	NT	POS	POS	NEG	POS	NEG	POS	NT	NT	SSP
8030	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSO
8038	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSO
8047	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	NGS
8050	POS	NEG	POS	POS	A	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	DEL	SSP
8053	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSO RT-PCR
8060	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	
8069	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSO
8071	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSO
8073	POS	NEG	POS	POS	A	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	DEL	RT-PCR

Table 5. KDNA #228 (Hispanic)

CTR	2DL1	2DL2	2DL3	2DL4	2DL5	3DL1	3DL2	3DL3	3DS1	2DS1	2DS2	2DS3	2DS4	2DS5	2DP1	3DP1	Method
	POS[62]	NEG[61]	POS[62]	POS[61]	POS[54]+ A[8]	NEG[58]	POS[62]	POS[61]	POS[62]	POS[61]	NEG[61]	POS[62]	NEG[60]	POS[62]	POS[60]	POS[47]+ DEL[13]	
8079	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSO
8080	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	DEL	RT-PCR
8083	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSO
8084	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	RT-PCR
8085	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	NGS
8090	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSP SSO
8092	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	RT-PCR
8094	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSO
8098	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	
8110	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	RT-PCR
8105	POS	NEG	POS	POS	A	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	NGS
8106	POS	NEG	POS	POS	A	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	DEL	SSP
8113	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSP
8114	*00302	NEG	*00101	*00501	*00101+ *00501	NEG	*00701	POS	*01301	NT	NEG	POS	NEG	POS	*00201	*004	NGS
8118	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSO
8122	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	RT-PCR
8124	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	SSP SSO
8126	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	DEL	SSP
8127	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	POS	RT-PCR
8129	POS	NEG	POS	2DL4 NORM	POS	NEG	POS	POS	POS	POS	NEG	POS	NEG	POS	POS	3DP1NORM *003, 005, 006, ...	SSP

Table 6. KDNA #229 (Hispanic)

CTR	2DL1	2DL2	2DL3	2DL4	2DL5	3DL1	3DL2	3DL3	3DS1	2DS1	2DS2	2DS3	2DS4	2DS5	2DP1	3DP1	Method
	POS[62]	NEG[61]	POS[62]	POS[61]	POS[55]+ A[7]	NEG[41] POS[19]	POS[62]	POS[61]	POS[62]	POS[61]	NEG[62]	NEG[62]	NEG[58]	POS[62]	POS[60]	POS[47]+ DEL[13]	
124	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	NT	NT	SSP
278	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	
713	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	RT-PCR
733	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSP NGS
762	POS	NEG	POS	POS	A	POS	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	DEL	SSP
792	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSP
1108	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSO
1426	POS	NEG	POS	POS	POS	Not Reported	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	DEL	SSP RT-PCR
1466	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	RT-PCR
1694	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSP
1778	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSO
3224	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSO
3410	POS	NEG	POS	POS	A	POS	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSP
3519	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSP
3632	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	NEG	2DS4- FULL	POS	POS	DEL	SSP
3753	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSO
3798	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSP
3966	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSP
4021	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSP
4251	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSO
4337	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSP
4345	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSP
4985	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	NEG	POS	POS	POS	POS	RT-PCR
5000	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSO
5133	POS	NEG	POS	POS	POS	NT	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	DEL	RT-PCR
5142	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	DEL	SSP
5219	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	NEG	NEG	POS	POS	POS	POS	SSO
5282	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSP
5451	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSO
5462	POS	NEG	POS	POS	A	POS	POS	POS	POS	*002- *009	NEG	NEG	NEG	POS	POS	DEL	SSP RT-PCR
5488	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSO
8022	POS	NEG	POS	POS	A	POS	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	DEL	SSP
8028	POS	NEG	POS	NT	POS	NEG	POS	NT	POS	POS	NEG	NEG	NEG	POS	NT	NT	SSP
8030	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSO
8038	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSO
8047	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	NGS
8050	POS	NEG	POS	POS	A	POS	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	DEL	SSP
8053	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSO RT-PCR
8060	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	
8069	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSO

Table 6. KDNA #229 (Hispanic)

CTR	2DL1	2DL2	2DL3	2DL4	2DL5	3DL1	3DL2	3DL3	3DS1	2DS1	2DS2	2DS3	2DS4	2DS5	2DP1	3DP1	Method
	POS[62]	NEG[61]	POS[62]	POS[61]	POS[55]+ A[7]	NEG[41] POS[19]	POS[62]	POS[61]	POS[62]	POS[61]	NEG[62]	NEG[62]	NEG[58]	POS[62]	POS[60]	POS[47]+ DEL[13]	
8071	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSO
8073	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	DEL	RT-PCR
8079	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSO
8080	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	DEL	RT-PCR
8083	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSO
8084	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	RT-PCR
8085	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	NGS
8090	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSP SSO
8092	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	POS	POS	POS	POS	RT-PCR
8094	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSO
8098	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	
8105	POS	NEG	POS	POS	A	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	NGS
8106	POS	NEG	POS	POS	A	POS	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	DEL	SSP
8110	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	RT-PCR
8113	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSP
8114	*00302	NEG	*00101	*00501	*00101	NEG	*00701	*01001	POS	NT	NEG	NEG	NEG	POS	POS	POS	NGS
8118	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSO
8122	POS	NEG	POS	POS	POS	POS	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	RT-PCR
8124	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	SSP SSO
8126	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	DEL	SSP
8127	POS	NEG	POS	POS	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	POS	RT-PCR
8129	POS	NEG	POS	2DL4 NORM	POS	NEG	POS	POS	POS	POS	NEG	NEG	NEG	POS	POS	3DP1NORM *003, *005, *006, ...	SSP

Table 7. KDNA #230 (Hispanic)

CTR	2DL1	2DL2	2DL3	2DL4	2DL5	3DL1	3DL2	3DL3	3DS1	2DS1	2DS2	2DS3	2DS4	2DS5	2DP1	3DP1	Method
	POS[62]	POS[62]	POS[62]	POS[61]	POS[55]+ A,B[4]/ B[3]	POS[62]	POS[62]	POS[61]	POS[62]	POS[61]	POS[62]	POS[62]	POS[43]+ DEL[18]	POS[62]	POS[60]	POS[48]+ DEL[12]	
124	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	NT	NT	SSP
278	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSP
713	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	RT-PCR
733	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSP NGS
762	POS	POS	POS	POS	B	POS	POS	POS	POS	POS	POS	POS	DEL	POS	POS	DEL	SSP
792	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSP
1108	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	DEL	POS	POS	POS	SSO
1426	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	DEL	POS	POS	DEL	SSP RT-PCR
1466	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	RT-PCR
1694	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSP
1778	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSO
3224	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSO
3410	POS	POS	POS	POS	B	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSP
3519	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	NEG	POS	POS	POS	SSP
3632	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	DEL	POS	POS	POS	SSP
3753	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSO
3798	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSP
3966	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSP
4021	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSP
4251	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSO
4337	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSP
4345	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSP
4985	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	RT-PCR
5000	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSO
5133	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	DEL	POS	POS	DEL	RT-PCR
5142	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	DEL	POS	POS	DEL	SSP
5219	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSO
5282	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSP
5451	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSO
5462	POS	POS	POS	POS	A, B	POS	POS	POS	POS	*002- *009	POS	POS	DEL	POS	POS	DEL	SSP RT-PCR
5488	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSO
8022	POS	POS	POS	POS	B	POS	POS	POS	POS	POS	POS	POS	DEL	POS	POS	DEL	SSP
8028	POS	POS	POS	NT	POS	POS	POS	NT	POS	POS	POS	POS	POS	POS	NT	NT	SSP
8030	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSO
8038	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	DEL	POS	POS	POS	SSO
8047	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	NGS
8050	POS	POS	POS	POS	A, B	POS	POS	POS	POS	POS	POS	POS	DEL	POS	POS	DEL	SSP
8053	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSO RT-PCR
8060	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	
8069	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	DEL	POS	POS	POS	SSO
8071	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSO

Table 7. KDNA #230 (Hispanic)

CTR	2DL1	2DL2	2DL3	2DL4	2DL5	3DL1	3DL2	3DL3	3DS1	2DS1	2DS2	2DS3	2DS4	2DS5	2DP1	3DP1	Method
	POS[62]	POS[62]	POS[62]	POS[61]	POS[55]+ A,B[4]/ B[3]	POS[62]	POS[62]	POS[61]	POS[62]	POS[61]	POS[62]	POS[62]	POS[43]+ DEL[18]	POS[62]	POS[60]	POS[48]+ DEL[12]	
8073	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	DEL	POS	POS	DEL	RT-PCR
8079	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSO
8080	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	DEL	POS	POS	DEL	RT-PCR
8083	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSO
8084	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	RT-PCR
8085	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	NGS
8090	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSP SSO
8092	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	RT-PCR
8094	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSO
8098	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	ALL EX.4 DELEX.5	POS	POS	POS	
8105	POS	POS	POS	POS	A, B	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	NGS
8106	POS	POS	POS	POS	A, B	POS	POS	POS	POS	POS	POS	POS	DEL	POS	POS	DEL	SSP
8110	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	RT-PCR
8113	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSP
8114	POS	*00101+ *005	00101	POS	*00101+ *00501	*00701	POS	POS	POS	NT	*00101	*00103	*00401	POS	*00102+ *00201	POS	NGS
8118	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	SSO
8122	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	RT-PCR
8124	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	DEL	POS	POS	POS	SSP SSO
8126	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	2DS4- DEL	POS	POS	DEL	SSP
8127	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	POS	RT-PCR
8129	POS	POS	POS	2DL4 NORM	POS	POS	POS	POS	POS	POS	POS	POS	2DS4 (DEL- 22BP)	POS	POS	3DP1NORM *003, *005, *006, ...	SSP

Table 8. Participating Centers

Last	First	Honor	Institution	City	State	Country
Alquist	Caroline	Dr	Hoxworth Blood Center	Cincinnati	OH	
Ameen	Reem	Dr	Health Science Center, Kuwait University	Jabriya		Kuwait
Arnold	Paula	PhD	St Jude Children's Research Hosp	Memphis	TN	
Askar	Medhat	MD, PhD	Baylor University Medical Center	Dallas	TX	
Azzaro	Maria	Dr.ssa	AOU "Policlinico-Vitt. Emanuele"	Catania		Italy
Baj-Krzyworzeka	Monika		University Children's Hospital	Krakow		Poland
Bengtsson	Mats	MD	Uppsala University Hospital	Uppsala		Sweden
Bettinotti	Maria	PhD	Johns Hopkins University	Baltimore	MD	
Blasczyk	Rainer	Prof Dr	Transplantationsimmunologie OE 8350	Hannover		Germany
Blouin	Amanda	MD, PhD	Memorial Sloan Kettering Cancer Center	New York	NY	
Cao	Kai	Dr	UT MD Anderson Cancer Center	Houston	TX	
Cereb	Nezih	MD	HistoGenetics	Ossining	NY	
Chan	Marieta	Dr	Health Sciences Authority			Singapore
Chang	Yenhui		Beijing BoFuRui Medical Laboratory Co. Ltd.	Beijing		China
Chang	Yenhui	Dr	TBG Biotechnology Corp.	New Taipei City		Taiwan, Province of
Charlton	Ronald	PhD	Cancer Care Manitoba	Winnipeg	MB	Canada
Chen	Dong Feng	PhD	Duke	Durham	NC	
Czerwinski	Pawel		Gyncentrum Fertility Clinic	Sosnowiec		Poland
Daniel	Dolly	Prof Dr	Christian Medical College & Hospital	Tamil Nadu		India
D'Orsogna	Lloyd	Dr	Fiona Stanley Hospital	Murdoch		Australia
Du	Keming		Shanghai Tissuebank Medical Laboratory	Shanghai		China
Falco	Michela	PhD	IRCCS Istituto Giannina Gaslini	Genoa		Italy
Fernandez-Vina	Marcelo	PhD	Stanford Blood Center	Palo Alto	CA	
Fischer	Gottfried	Dr	AKH-Blood Group Serology & Transfusion Medicine	Vienna		Austria
Freed	Brian M.	PhD, D(ABHI)	ClinImmune Labs	Aurora	CO	
Fuessel	Monika	PhD	DKMS Life Science Lab gGmbH	Dresden		Germany
Furst	Daniel	PD Dr med	IKT Und Immunogenetik Ulm	Ulm	Baden-	Germany
Gandhi	Manish	MD	Mayo Clinic	Rochester	MN	
Gebhart	Catherine	Dr	American Red Cross	Dedham	MA	
Gendzekhadze	Keteven	PhD	City of Hope Medical Center	Duarte	CA	
Hedlund	Anna		CareDx AB	Stockholm		Sweden
Hirv	Kaimo		MVZ Martinsried GmbH	Martinsried		Germany
Huang	Yanping	MD, PhD	Jefferson University Hospital	Philadelphia	PA	
Kashi	Zahra	Dr	Kashi Clinical Laboratories	Portland	OR	
Keck	Alexander		inno-train Diagnostik GmbH	Kronberg		Germany
Kim	Tai-Gyu	Prof	The Catholic University of Korea College of Med	Seoul		Republic of Korea

Table 8. Participating Centers

Last	First	Honor	Institution	City	State	Country
Kimball	Pam	PhD	VCU Health Systems	Richmond	VA	
Kwok	Janette	Dr	Queen Mary Hospital	Attn: Lydia Tang		Hong Kong
Lowe	Dave	Dr	Thermo Fisher Scientific	West Hills	CA	
Maha	George	PhD	LabCorp	Burlington	NC	
Marsh	Steven Ge	Prof	Anthony Nolan Research Institute	London		United Kingdom
Monos	Dimitri	PhD	Children's Hospital of Philadelphia	Philadelphia	PA	
Morris	Gerald	MD, PhD	UCSD	San Diego		
Newbound	Chris		CareDX Pty Ltd	Fremantle		Australia
Nikaein	Afzal	PhD, HCLD	Texas Medical Specialty, Inc.	Dallas	TX	
Pando	Marcelo	PhD	Saint Louis University Hospital	St Louis	MO	
Pereira	Shalini		Scisco Genetics, Inc.	Seattle	WA	
Permpikul	Vejbaesya &	Drs	Mahidol University	Bangkok		Thailand
Philogene	Mary Carmelle	Dr	American Red Cross	Philadelphia	PA	
Pollack	Marilyn S.	PhD	UCSF Benioff Children's Hospital-Oakland	Oakland	CA	
Poulton	Kay	Dr	Manchester Royal Infirmary	Manchester		United Kingdom
Raja	Rajalingam	PhD	University of California, San Francisco	San Francisco	CA	
Reed	Elaine F.	PhD	UCLA Immunogenetics Center	Los Angeles	CA	
Renac	Virginie	MD	Etablissement Francais du Sang Bretagne	Rennes Cedex		France
Rossi	Angela	Dr	Ospedale Guglielmo Da Saliceto	Piacenza		Italy
Sachsenberg	Nicolas	Dr	BAG Diagnostics GmbH	Lich, Hesse		Germany
Schiller	Jennifer	PhD	Versiti Wisconsin, Inc.	Milwaukee	WI	
Schlenke	Peter	Prof Dr	LKH Univ. Klinikum Graz	Graz		Austria
Thiel	Jennifer		Immucor	Waukesha	WI	
Uhrberg	Markus	Dr	Universitätsklinikum Dusseldorf	Dusseldorf		Germany
Ward	William	PhD, D(ACHI)	National Institutes of Health	Bethesda	MD	
Wieten	Lotte	Dr	Maastricht University Medical Center	Maastricht		Netherlands
Yu	Neng	Dr	UMass Memorial Health	Worcester	MA	
Zhang	Xiaohai	PhD	Cedars-Sinai Medical Center	Los Angeles	CA	