

REPORT OF THE 18th UCLA INTERNATIONAL MICA EXCHANGE

December 3, 2012

MICA

69-72

We thank all participating laboratories in the UCLA International MICA Exchange Program. Four DNA samples were shipped to 23 laboratories, and MICA typing results were received from 22 laboratories (Tables 1-4). Seventeen laboratories used a reverse sequence-specific oligonucleotide (rSSO) hybridization method, 3 laboratories used sequencing-based testing (SBT), and 2 laboratories used sequence-specific primer (SSP) typing. Lacelle reported

the number of GCT-repeats in exon 5.

We encourage the participating laboratories to resolve any discrepancies so that the information can be shared to improve the reliability and resolution of MICA typing systems.

Thank you for your continued participation in this important program.

MICA#069 (Asian)

The reported type of this sample is MICA*010 (A5) and MICA*027 (A5). MICA*010 was assigned by 8 laboratories, with 2 SBT laboratories assigning MICA*010:01. Ten laboratories were unable to resolve MICA*010 from MICA*065 or MICA*066. MICA*065 differs from MICA*010 by a single amino acid substitution in exon 4 at codon 190 in which arginine in MICA*010 is replaced by cysteine in MICA*065 (CGC->TGC). MICA*066 differs from MICA*010 by a single amino acid substitution in exon 4 at codon 254, where glutamic acid in MICA*010 is replaced by alanine in MICA*066 (GAG->GCG). MICA*019 was assigned by two laboratories.

MICA*027 was assigned as the second MICA allele by a total of 6 laboratories (3 SBT, 2 SSP, 1 rSSO). Fifteen laboratories were unable to distinguish MICA*027 from MICA*008, MICA*048, MICA*063N, or MICA*064N. MICA*063N and MICA*064N differ from MICA*027 by single amino acid substitutions which results in premature stop codons; for MICA*063N, the substitution is in exon 2 at codon 39 (CAG->TAG), and for MICA*064N, the

substitution occurs in exon 4 at codon 244 (TGG->TGA). MICA*008, MICA*027, and MICA*048 have the same nucleotide sequence in exons 2, 3, and 4, which makes it difficult to differentiate these alleles from each other if only exons 2-4 are analyzed.

MICA#070 (Asian-Indian)

The reported type of this sample is MICA*016 (A5) and MICA*027 (A5). MICA*016 was well typed, assigned by all 22 laboratories.

MICA*027 was reported by 6 laboratories, including 3 SBT, 2 SSP, and 1 rSSO laboratories. Fourteen laboratories were unable to rule out MICA*008, MICA*048, MICA*063N, or MICA*064N. MICA*008 differs from MICA*027 in exon 5 where a single nucleotide insertion at codon 295 causes a shift in the reading frame in MICA*008. The difference between MICA*048 and MICA*027 is also found in exon 5, but with an amino acid substitution at codon 316 in which glutamic acid in MICA*027 is replaced by aspartic acid in MICA*048 (GAG->GAT).

NEXT MAILING DATE: February 6, 2013

Arlene Locke, Marie Lau, Qiuheng Zhang, Rajalingam Raja, J.Michael Cecka, and Elaine F. Reed

MICA#071 (Hispanic)

The reported type of this sample is MICA*002 (A9) and MICA*010 (A5). MICA*002 was reported by 8 laboratories, with a total of 4 laboratories (3 SBT, 1 rSSO) assigning MICA*002:01. Fourteen laboratories were unable to resolve MICA*002 from MICA*020 or MICA*055. MICA*002, MICA*020, and MICA*055 are distinguished by their transmembrane domains, where MICA*002 belongs to the A9 group, MICA*020 belongs to the A10 group, and MICA*055 belongs to the A8 group.

MICA*010 was reported by 6 laboratories, with 2 SBT laboratories assigning MICA*010:01. Ten laboratories using rSSO were unable to distinguish MICA*010 from MICA*065 or MICA*066. Additionally, 3 laboratories assigned MICA*019 and 2 others reported MICA*010/*019. MICA*010 differs from MICA*019 in exon 2 at codon 6 in the alpha 1 chain where MICA*010 has a proline while MICA*019

has an arginine. The substitution of proline in MICA*010 results in the loss of its cell surface expression.

MICA#072 (Hispanic)

The reported type of this sample is MICA*002 (A9) and MICA*007 (A4). MICA*002 was assigned by 7 laboratories, with 3 laboratories (2 SBT, 1 rSSO) assigning MICA*002:01. MICA*002/*020/*055 was assigned by over half (n=13) of the reporting laboratories.

MICA*007 was reported by a total of 7 laboratories (3 rSSO, 2 SBT, 2 SSP), with 5 laboratories assigning MICA*007:01. Twelve laboratories using rSSO were unable to distinguish MICA*007 from MICA*026. MICA*026 differs from MICA*007 in exon 5 by the number of GCT-repeats. MICA*026 has 6 GCT repeats whereas MICA*007 has only 4 GCT-repeats.

Table 1: MICA typing results reported by participating laboratories.						
MICA#069 (Asian)	Ctr	Investigator	MICA* allele-1	MICA* allele-2	Others	Method
	234	Amador,Alexandra	*010:01/*010:02/*065/*066/ *027/*048/*064N	*008:01/*010:01/*010:02/*027/ *048/*064N		rSSO
	16	Askar,Medhat	*010/*065/*066	*008:01/*027/*048/*064N		rSSO
	3224	Chen,Dong-Feng	*010/*065/*066	*008/*027/*048/*063N/*064N		rSSO
	2549	Fagoaga,Omar	*019	*008:01/*027/*048/*063N/*064N		rSSO
	762	Fischer&Mayr	*010:01	*027		SBT
	1647	Gautreaux,Micha	*010	*027/*048/*063N		rSSO
	8040	Gladman/Pellet/P	*010	*027/*048		rSSO
	4337	Kim,Tai-Gyu	*010	*027		SSP
	836	KuKuruga,Debra	*010/*064N/*065/*066	*008/*027/*048/*064N		rSSO
	791	Lacelle, Chantale	*010:01 (A5)/*069	*027 (A5)		SBT
	278	Lee,Jar-How	*010/*065/*066	*008/*027/*048/*064N		rSSO
	759	Lopez-Cepero,My	*010/*019	*027/*048		rSSO
	733	Mytilineos,Joannis	*010:01	*027	*069	SBT
	5231	Nelson,Karen	*010/*065/*066	*008/*027/*048/*063N/*064N		rSSO
	3966	Permpikul&Vejbae	*010	*027		SSP
	8030	Poulton,Kay V.	*019	*027	*048/*063N	rSSO
	3753	Reed,Elaine F.	*010	*027/*048/*063N		rSSO
	3798	Reinsmoen,Nancy	*010/*065/*066	*008/*027/*048/*064N		rSSO
	2518	Tambur,Anat	*010	*008	*065/*066/*027/*048/*063N/*064	rSSO
	8053	Tyan,Dolly	*010/*065/*066	*008/*027/*048/*064N		rSSO
	3775	Vidan-Jeras,Blank	*010/*065/*066	*008/*027/*048/*064N		rSSO
	1466	Yu,Neng	*010/*065/*066	*008/*027/*048/*063N/*064N		rSSO

The number of GCT-repeats (A4, A5, A6, A7, A9, A10) or five GCT-repeats with an additional G (A5.1) in exon 5 (trans-membrane region) are indicated in parenthesis (PNAS 1997, 94:1298-1303).

rSSO - Luminex-based reverse sequence-specific oligonucleotide hybridization method

SBT - sequencing-based testing

SSP- sequence-specific priming typing

Table 2: MICA typing results reported by participating laboratories.						
MICA#070 (Asian- Indian)	Ctr	Investigator	MICA* allele-1	MICA* allele-2	Others	Method
	234	Amador,Alexandra	*016/*027/*048/*064N	*008:01/*016		rSSO
	16	Askar,Medhat	*016	*008:01/*027/*048/*064N		rSSO
	3224	Chen,Dong-Feng	*016	*008/*027/*048/*063N/*064N		rSSO
	2549	Fagoaga,Omar	*016	*008:01/*027/*048/*063N/*064N		rSSO
	762	Fischer&Mayr	*016	*027		SBT
	1647	Gautreaux,Micha	*016	*027/*048/*063N		rSSO
	8040	Gladman/Pellet/P	*016	*027/*048		rSSO
	4337	Kim,Tai-Gyu	*016	*027		SSP
	836	KuKuruga,Debra	*016	*008/*027/*048/*064N		rSSO
	791	Lacelle, Chantale	*016 (A5)	*027 (A5)		SBT
	278	Lee,Jar-How	*016	*008/*027/*048/*064N		rSSO
	759	Lopez-Cepero,My	*016	*027/*048		rSSO
	733	Mytilineos,Joannis	*016	*027		SBT
	5231	Nelson,Karen	*016	*008/*027/*048/*064N		rSSO
	3966	Permpikul&Vejbæ	*016	*027		SSP
	8030	Poulton,Kay V.	*016	*027	*048/*063N	rSSO
	3753	Reed,Elaine F.	*016	*027/*048/*063N		rSSO
	3798	Reinsmoen,Nancy	*016	*008/*027/*048/*064N		rSSO
	2518	Tambur,Anat	*016	*008	*027/*048/*063N/*064N	rSSO
	8053	Tyan,Dolly	*016	*008/*027/*048/*064N		rSSO
	3775	Vidan-Jeras,Blank	*016	*008/*027/*048/*064N		rSSO
	1466	Yu,Neng	*016	*008/*027/*048/*063N/*064N		rSSO

Table 3: MICA typing results reported by participating laboratories.						
MICA#071 (Hispanic)	Ctr	Investigator	MICA* allele-1	MICA* allele-2	Others	Method
	234	Amador,Alexandr	*002:01/*002:02/*010:01/*010:03/*020/*055	*010:01/*010:02/*065/*066/*020/*055		rSSO
	16	Askar,Medhat	*002/*020/*055	*010/*065/*066		rSSO
	3224	Chen,Dong-Feng	*002/*020/*055	*010/*065/*066		rSSO
	2549	Fagoaga,Omar	*002/*020/*055	*019		rSSO
	762	Fischer&Mayr	*002:01	*010:01		SBT
	1647	Gautreaux,Micha	*002:01/*002:04/*020/*055	*019		rSSO
	8040	Gladman/Pellet/F	*002:01	*010		rSSO
	4337	Kim,Tai-Gyu	*002	*010		SSP
	836	KuKuruga,Debra	*002/*020/*055	*010/*065/*066		rSSO
	791	Lacelle, Chantale	*002:01 (A9)	*010:01 (A5)/*069	*022/*025	SBT
	278	Lee,Jar-How	*002/*020/*055	*010/*065/*066		rSSO
	759	Lopez-Cepero,M	*002/*020/*055	*010/*019		rSSO
	733	Mytilineos,Joann	*002:01	*010:01	*069	SBT
	5231	Nelson,Karen	*002/*020/*055	*010/*065/*066		rSSO
	3966	Permpikul&Vejba	*002	*010		SSP
	8030	Poulton,Kay V.	*002:01/*002:04	*019	*020/*055	rSSO
	3753	Reed,Elaine F.	*002/*020/*055	*010/*019		rSSO
	3798	Reinsmoen,Nan	*002/*020/*055	*010/*065/*066		rSSO
	2518	Tambur,Anat	*002	*010	*065/*066/*020/*055	rSSO
	8053	Tyan,Dolly	*002/*020/*055	*010/*065/*066		rSSO
	3775	Vidan-Jeras,Blan	*002/*020/*055	*010/*065/*066		rSSO
	1466	Yu,Neng	*002/*020/*055	*010/*065/*066		rSSO

Table 4: MICA typing results reported by participating laboratories.						
MICA#072 (Hispanic)	Ctr	Investigator	MICA* allele-1	MICA* allele-2	Others	Method
	234	Amador,Alexandra	*002:01/*002:03/*007:01/*020/*026	*007:01/*026/*020/*055		rSSO
	16	Askar,Medhat	*002/*020/*055	*007:01/*026		rSSO
	3224	Chen,Dong-Feng	*002/*020/*055	*007/*026		rSSO
	2549	Fagoaga,Omar	*002/*020/*055	*007/*026		rSSO
	762	Fischer&Mayr	NT	NT		SBT
	1647	Gautreaux,Micha	*002:01/*002:04/*020/*055	*007:01/*026		rSSO
	8040	Gladman/Pellet/P	*002:01	*007:01		rSSO
	4337	Kim,Tai-Gyu	*002	*007		SSP
	836	KuKuruga,Debra	*002/*020/*055	*007/*026		rSSO
	791	Lacelle, Chantale	*002:01 (A9)	*007:01 (A4)	*002:02/*007:02	SBT
	278	Lee,Jar-How	*002/*020/*055	*007/*026		rSSO
	759	Lopez-Cepero,My	*002/*020/*055	*007/*026		rSSO
	733	Mytilineos,Joannis	*002:01	*007:01	*002:02/*007:02/*068	SBT
	5231	Nelson,Karen	*002/*020/*055	*007/*026		rSSO
	3966	Permpikul&Vejbae	*002	*007:01		SSP
	8030	Poulton,Kay V.	*002:01/*002:04	*007:01	*020/*026/*055	rSSO
	3753	Reed,Elaine F.	*002/*020/*055	*007/*018/*026		rSSO
	3798	Reinsmoen,Nancy	*002/*020/*055	*007/*026		rSSO
	2518	Tambur,Anat	*002	*007	*026/*020/*055	rSSO
	8053	Tyan,Dolly	*002/*020/*055	*007/*026		rSSO
	3775	Vidan-Jeras,Blank	*002/*020/*055	*007/*026		rSSO
	1466	Yu,Neng	*002/*020/*055	*007/*026		rSSO