GENOTYPING BY PCR PROTOCOL

MUTANT MOUSE REGIONAL RESOURCE CENTER: UC DAVIS

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530-754-MMRRC

NAME OF PCR: **STOCK *Itgb8*^{tm1Lfr}/Mmucd** **MMRRC #** **000194-UCD**

Protocol:

Reagent/ Constituent	Volume (µL)
Water	11.275
10x Buffer (contains 15mM $MgCl_2$)	2.5
$MgCl_2$ (stock concentration is 25mM)	1.7
Betaine (stock concentration is 5M) *Optional*	6.5
dNTPs (stock concentration is 10mM)	0.5
DMSO *Optional*	0.325
Primer 1 (stock concentration is 20µM) 14108mut56	0.5
Primer 2 (stock concentration is 20µM) 14108mut94	0.5
Primer 3 (stock concentration is 20µM) 14108wt74	0.5
Primer 4 (stock concentration is 20µM) 14108wt53	0.5
Taq Polymerase 5Units/µL	0.2
DNA extracted with ☐ NaOH ☒ Proteinase K ☐ Other:	1.0
TOTAL VOLUME OF REACTION:	**25µL**

Comments on protocol:

- Use Touch-Down cycling protocol-first 10 cycles anneal at 65^{o} C decreasing in temperature by 1.0 ^{o} C; next 30 cycles anneal at 55^{o} C.
- Betaine/DMSO is standardized due to high GC content in promoter regions and protocol may be tested without. Also, may adjust $MgCl_2$ to increase reaction or decrease non specific amplifications.

Strategy:

Steps		Temp (^{o}C)	Time (m:ss)	# of Cycles
1. Initiation/Melting HOT START? ☐		95	1:00	**1**
2. Denaturation		94	0:30	
3. Annealing	steps 2-3-4 will cycle in sequence	62	0:35	**35x**
4. Elongation		72	1:20	
5. Amplification		72	5:00	**1**
6. Finish		4	∞	n/a

Primers:

Name	Nucleotide Sequence (5' - 3')
1: 14108mut56:	AGAGGCCACTTGTGTAGCGCCAAG
2: 14108mut94	GGAGGCATACAGTCTAAATTGT
3: 14108wt74	ATTATCTGGTTGATGTGTCAGC
4: 14108wt53	AGAGAGGAACAAATATCCTTCCC

Electrophoresis Protocol:

Agarose: 2% **V:** 80 **Estimated Running Time:** 90 **min**

Expected Bands	Genotype
200 bp	WT +/+
280 bp	Neo +

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MUTANT MOUSE REGIONAL RESOURCE CENTER: UC DAVIS

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530-754-MMRRC

NAME OF PCR: STOCK *Itgb8*^{tm1Lfr}/Mmcd **MMRRC #** 000194-UCD

Protocol: (Neo Tcrd Duplex)

Reagent/ Constituent	Volume (µL)
Water	17.675
10x Buffer (contains / without 15mM $MgCl_2$)	2.5
$MgCl_2$ (stock concentration is 25mM)	1.7
Betaine (stock concentration is 5M) *Optional*	6.5
dNTPs (stock concentration is 10mM)	0.5
DMSO *Optional*	0.325
Primer 1 (stock concentration is 20µM) Neo TD F	1.0
Primer 2 (stock concentration is 20µM) Neo TD R	1.0
Primer 3 (stock concentration is 20µM) Tcrd F	0.6
Primer 4 (stock concentration is 20µM) Tcrd R	0.6
Taq Polymerase 5Units/µL	0.125
DNA extracted with ☐ NaOH ☒ Proteinase K ☐ Other:	1.0
TOTAL VOLUME OF REACTION:	**25µL**

Comments on protocol:

- This protocol only indicates the presence or absence of internal Neo vector; it does not distinguish heterozygous vs. knockout, nor is it specific to any single construct. TCRD is an internal control to verify DNA is present.
- Betaine/DMSO is standardized due to high GC content in promoter regions and protocol may be tested without. Also, may adjust $MgCl_2$ to increase reaction or decrease non specific amplifications.

Strategy:

Steps		Temp (°C)	Time (m:ss)	# of Cycles
1. Initiation/Melting	HOT START? ☐	94	3:00	**1**
2. Denaturation		94	0:20	
3. Annealing	steps 2-3-4 will cycle in sequence	64	0:30	**12x**
4. Elongation		72	0:35	
5. Denaturation		94	0:20	
6. Annealing	steps 5-6-7 will cycle in sequence	58	0:30	**25x**
7. Elongation		72	0:35	
8. Amplification		72	2:00	**1**
9. Finish		10	∞	n/a

Primers:

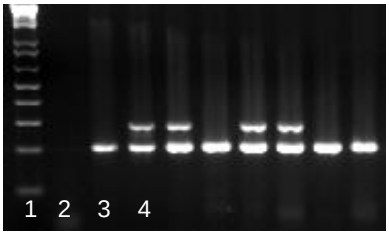
Name	Nucleotide Sequence (5' - 3')
1: Neo TD F	CTT GGG TGG AGA GGC TAT TC
2: Neo TD R	AGG TGA GAT GAC AGG AGA TC
3: Tcrd F	CAA ATG TTG CTT GTC TGG TG
4: Tcrd R	GTC AGT CGA GTG CAC AGT TT

Electrophoresis Protocol:

Agarose: 2% **mV:** 80

Estimated Running Time (min): 90

Expected Bands	Genotype
200 bp	WT +/+
280 bp	Neo +



Lanes:
1. 1Kb+ ladder
2. H_2O
3. Wild-type +/+
4. Neo +