

Supplemental data 2

In general, the first step for designing probe sets to mRNAs and introns was using NCBI BLASTN to search the *Mus musculus* genomic and transcript data base (word size = 7 and filter off) and eliminating all sequences from the queries that exhibited similarity to the query. Probe sets for the remaining sequences in the EGFP coding region, *Ldhc* mRNA and *Smcp* coding region were then designed with the Stellaris probe designer using masking level 5 (maximum specificity). The sequences of the oligos and fluorescent tags are listed below.

Egfp coding region (U55761.1), 24 oligos, Quasar 570

```
accccggtgaacagctcctc
gtccagctcgaccaggatgg
ctgaacttgtggccgtttac
agcttgccgtaggtggcatc
gtggtgcagatgaacttcag
cactgcacgccgtaggtcag
gtgctgcttcatgtggtcgg
gcatggcggacttgaagaag
ttgaagaagatggtgcgctc
ggtctttagttagtccgctcgt
cctcgaacttcacctcggcg
atgcggttcaccaggggtgc
gaagtcgatgcccttcagct
ccaggatgttgccgctcctcc
gacgttgtggctgttgtagt
tctgcttgtcggccatgata
ttgaagttcaccttgatgcc
ctgccgctcctcgatgttgtg
gtgttctgctggtagtggtc
gtgctcaggtagtggttgtc
ttgggggtctttgctcagggc
gaccatgtgatcgcgcttct
cggcggtcacgaactccagc
tacttgtacagctcgtccat
```

Mus musculus Smcp coding region (NM_008574.3), 27 oligos, Quasar 570

```
caaagtcttctgaccaagt
tagtgagtccatggctatca
gaatagatgctgggtcttcc
```

tttcctggatgtttcagcag
ccatacttgattctcgggtg
ggctccttcttagttcagcat
tctggcaacacagttcttcc
tcttagagttggagttcct
ggttttggatggatcactca
caaggtggtttctgtggaca
gttccagcggacaaggacag
cagcacgaacacttctgtgg
ggcagcaggtgcactttttg
ctctgaagagcagcaggtag
tcagaatctgactcagtctt
ctccagagtttggccagatg
actgtggtgattgagagccc
gttgccttgagcacctggtg
tgtttgacttcttctgggtc
atggtgtcagggacagtcta
cctataccctttgaaaaagg
agtcttagcctgacctgtag
attgtgaaaacagcatctt
gcctacagttaggtcgaaat
tccatttccagttgcaatag
agacaagatgtttctatcct
ttgctatctaaatgtcagga

Mus musculus Ldhc mRNA (NM_013580.4), 41 oligos, Quasar 670
gcacaggaagaaaccagga
ttgacggtggacatggtgag
actagggttctgaatcagctg
accgggaaagtttatcttcc
caactccgaccacagtaatc
actaatagcacacgccatgc
cagccaaacccttcagtaaa
aaagactgccgtgcagaaga
agacgatttttggagtgcta
ggcagatacattgtaatctt
gctgtgataataaccagttt
tccagacaccattcttgcac
ttggagcaggtcaaggcgag
gctttcatgatagcgacatt
ttggacaatgcccggaacia

ttatTTTtacagtccggactg
atatccactgggttagtgac
atcttccaaaccacgtatgt
atcacacggcctacagggaa
gtgctgagtctaggttacag
tccccaatcaggtaacgaaa
gcagcttgtagggttgacac
catgttctccaagaaccag
aacgTTTtacaccactccata
cagtgacttcagagttacgc
gagtcagttcctattgctgg
atTTTtccagtgttccttat
cagatcagtcacagacagcc
gattcttcaagatggatcgc
cttaaccagcgtggtaacag
cttctTTtatcccatggaag
gacacaagggatactgagga
tctgtgataccactttgtcc
ggtcatgTTgactttcacia
cttctgcatattccagagtg
ggcaggttataactgcaga
catctgtcacacggtcgaag
ccgtgatcagtgatgtgatc
gtggaaacactTTcagtggg
agcTTtgagattgatcttaa
tgctTTTggcattaatctt

The *Smcp* and *Ldhc* intron probe sets were designed with several additional steps to reduce the chance of non-specific hybridization.

First, repeated and low complexity sequences were eliminated at Repeat Masker (repeatmasker.org)

Second, the remaining sequences were used to identify probe sets with the Stellaris probe designer.

Third, individual oligos with 40%, 45% and 50% G+C were blasted against the *Mus musculus* genome at the ENSEMBL website with the following search parameters: distant homologies, word size = 4, E-value = 100, filter = none, do not mask query, M (matches) = +1, N (mismatches) = -2, Q (gap open) = -2, R

(gap extension) = -1. The oligos to the *Ldhc* and *Smcp* intron targets produced scores of 20, oligos producing off-target scores of 18, 19 or 20 were discarded, and oligos producing off-target scores of 17 or lower were retained.

Mus musculus Ldhc intron probe set: 48 oligos, introns 1-7, Quasar 670.

tagaagggaccgtcagtgaa
atcaggatctgagagtgtct
tctgaaattgagctggctca
agttaaccatccactgcaaa
acagaccacatccttaa
agcgtagcaatggctagaac
aagttggaggctagaagcga
acatcactctgtctacactc
aactccacacagggatagaa
gtgtatgctaacaccgacta
ttcaciaaagctctggaagta
gttcatgataaactcagtcc
gccaatttggtaaaattgcc
agtgttaattaccagtctgca
ctgataacttccatgtctct
acccaaatgaattagcagct
caacactctggcttttcaga
ccacagttctatattgtcaga
agtcaaacaaggcttggtgc
tcctatcctggatttgga
tgcatcctgactctgtaagc
aagatggctctttccattagc
cttatggcatggcagactta
actgtgatggcatctatcaa
aactgcactataatggggct
ccagacatggatgaatcaa
aggagcaaatccaagacata
acatgtatgatcacaggcgt
aacatattacctggccagat
tagaattgcctgtggacaca
atcctcacctaagctatcaa
aagctatgcagctctattgg
caagtgtcctctccatctac
aaatgcatcaagtcacctcg
atgtgatccctatgtcacat

gagaaatgatgcgtttgtga
ccaggtttcactattccttag
tatagtcaagtacgggctct
aggctatgcagattatcagg
acataaactgtccctaaggg
gctacgtagtcacagaaact
gttgatgacaagcttgtgt
cgagtcagttactgtgagtt
ccggtgatcaggcataataa
gcctcattctgaaatcactt
ttcatgctcccaggaacttt
atcccaaaccctcatacatg
agctttgactgtagacacat

Mus musculus Smcp intron probe set, 48 oligos, Quasar 670

aataaacttccttgaccctg
ttcactctaaccctctcacta
ttaaaccctagtagggctg
gaggattgacctcaatccaa
actgtcttaacccaagggtg
atatctccccttcttaaggc
caggatatagttaaccctctt
tagttggattctgactacc
agccatcatcttatggactg
tacaagtccatcccaaatca
aatccctgagcagtcttac
ttcactatagcatggggaga
ggcaaataggctaagagaca
acagacctctctagctatac
tgttgcttctctatagcttc
cagtctcagaggacgatcaa
cagccttatgcagtgagtta
gcacaaagttcatgttctgg
cccttagtgatgaagctgaa
ccatagtagcaatagtgacg
ccaaggatggtctgaatccc
tccatgtaggaagaatcgct
ctccactcaactttgtgatc
tgactgtcaagctaattgcc
ctaggaagaaagccctggaa
gttgtccagaagattcagga

tttagtctcctggagtggac
cta atgggtgtctgctctgct
gttgagacctgggtgaagaa
cctgtgagctagatcaagtt
tgactgcctaagtgtacagc
catccatgttgggtaggtag
agggttgtcatgtaactgga
gaggaaggaacttgacctg
cttaggaagcagcatcaagg
cattcacatctgctagctgt
tctataagccatagcctgag
caagggctaaagtgcaaggt
agacactgataagtcagggc
cattagccttgtaacatggg
ggctttatgaaagaccaga
aataggattctcagagccac
ctgtcttacctagatcatgt
tagtcaagggtaaagagacc
cgggtgtttacatgtctgat
tctcaaaggccacacagata
aagacctgggttgagtaggg
ctggaagtcgactttcatca