

## 7 APPENDIX

**Figure 7-1: Native Total RNA from Individual Mice.** Ts: Ts65Dn; Eu: Euploid; Cb: cerebellum; Cx:cortex; Mb:midbrain; H: heart; Lu: lung; Li: liver; Sp: spleen; Kd: kidney; Te: testis. Each mouse has a unique number assigned.

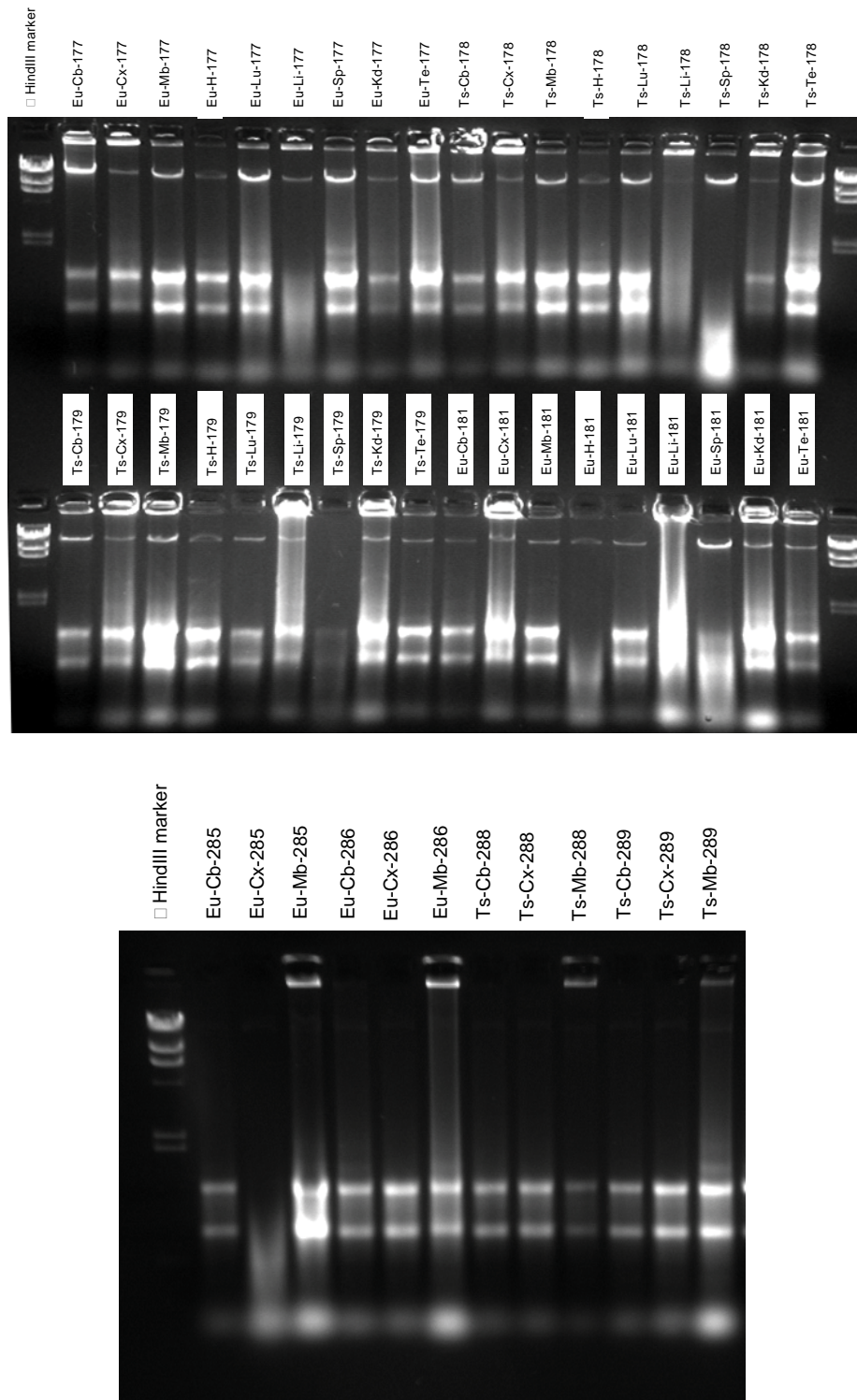


Figure 7-2: Workflow of Complex Hybridization on Nylon Arrays.

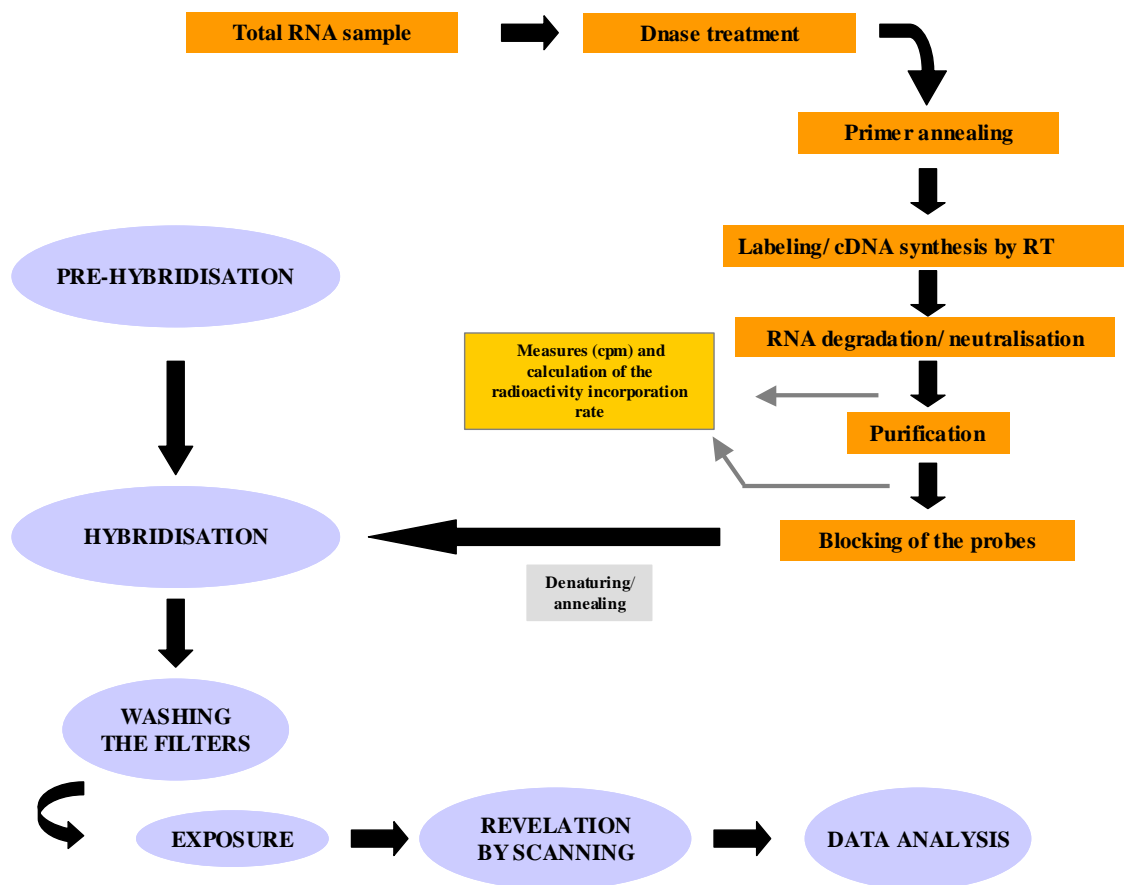


Table 7-1: Mmu21 Clones Used for cDNA Arrays.

Reporter ID	Accession Number	Reporter Name	Chromosome location
mouse_003A1	W13695	Agpat3	10
mouse_003A10	AA289499	5830404 H04Rik	16
mouse_003A11	AA277906	Synj1	16
mouse_003A12	AA414610	Piqp	16
mouse_003A13	AA792222	Nrip1	16
mouse_003A17	AA762851	D10Jhu81 e	10
mouse_003A19	AI664407	D16Ertd472 e	16
mouse_003A2	W29889	Tmem1	10
mouse_003A20	AW322327	1810007M14 Rik	16
mouse_003A21	RT-PCR	Cbr1	16
mouse_003A22	RT-PCR	C21orf18	16
mouse_003A23	RT-PCR	Cbr1	16
mouse_003A24	RT-PCR	Dscr3	16
mouse_003A3	AI604895	Olig2	16
mouse_003A4	AA008395	Sfrs15	16
mouse_003A5	AA064184	1190017 O12Rik	16
mouse_003A6	AA062323	1700027 D21Rik	10
mouse_003A8	AA162070	AA162070	16
mouse_003B1	BE138259	Tff3	17
mouse_003B10	AA866905	Gabpa	16
mouse_003B11	AA870206	Pfkl	10
mouse_003B12	AI451781	Il10rb	16
mouse_003B13	AI462458	Dscr2	16
mouse_003B14	AI552580	Aire	10
mouse_003B15	AI605601	Bace2	16
mouse_003B16	AI893383	Tff1	17
mouse_003B17	AW701738	Atp5o	16
mouse_003B18	AW911243	Col18a1	10
mouse_003B19	AW412617	Pwp2h	10
mouse_003B20	BE333766	Sim2	16
mouse_003B21	AW907525	Gart	16
mouse_003B22	AW990468	Jam4	16
mouse_003B23	W70374	Cxadr	16
mouse_003B24	W90910	Cryaa	17
mouse_003B4	AA118287	Abcg1	17
mouse_003B5	AA153253	Ifnar1	16
mouse_003B6	AA285733	Cstb	10
mouse_003B7	AA290162	Wrb	16
mouse_003B8	AA560016	Samsn1	16
mouse_003B9	AA667395	ORF63	16
mouse_003C10	AJ507054	1810043 G02Rik	10
mouse_003C11	AJ507049	Runx1	16
mouse_003C14	AJ507050	Morc3	16
mouse_003C16	AJ507051	B3galt5	16
mouse_003C17	AJ507037	Rbm11	16
mouse_003C18	BE135671	ORF9	16
mouse_003C19	BE292548	Morc3	16
mouse_003C2	AJ507042	Bach1	16
mouse_003C20	BE628136	Adarb1	10
mouse_003C21	BE627812	Ubash3a	17
mouse_003C22	BE850939	Agpat3	10
mouse_003C23	BE854007	Ets2	16
mouse_003C24	BE371792	D10Jhu81 e	10
mouse_003C3	AJ507048	Kcne1	16
mouse_003C4	AJ507046	Son	16
mouse_003C5	AJ507052	Pcp4	16
mouse_003C6	AJ507044	Cldn8	16
mouse_003C7	AJ507053	Dscam	16
mouse_003C8	AJ507041	Jam2	16
mouse_003C9	AJ507040	Ncam2	16
mouse_003D1	AA170935	Dscam	16
mouse_003D11	AI467561	Tmprss2	16
mouse_003D13	AI527485	Clic6	16
mouse_003D14	AI573385	Tiam1	16
mouse_003D15	AI594919	Itsn1	16
mouse_003D16	AW320557	Tiam1	16
mouse_003D17	AW762789	Ripk4	16
mouse_003D18	AW990432	Sh3bgr	16
mouse_003D2	AA242309	Wdr4	17
mouse_003D20	AW908808	1810007M14 Rik	16
mouse_003D21	W83354	Wdr4	17
mouse_003D22	BE629286	Mx2	16

Table 7-1: Mmu21 Clones Used for cDNA Arrays (Next).

Reporter ID	Accession Number	Reporter Name	Chromosome location
mouse_003 D23	BE624366	Atp5j	16
mouse_003 D24	BE852026	not in unigene	16
mouse_003 D3	AA492811	Tsga2	17
mouse_003 D4	AA511213	1190017 O12Rik	16
mouse_003 D6	AA611976	Cbr3	16
mouse_003 D7	AA638524	Son	16
mouse_003 D8	AA709926	Tmem50b	16
mouse_003 D9	AI326736	Itgb2	10
mouse_003 E1	BE286595	ORF5	16
mouse_003 E10	AA200984	Dscr1	16
mouse_003 E12	AA462264	S100b	10
mouse_003 E13	AA521837	Cbr1	16
mouse_003 E14	AA588968	Hmgn1	16
mouse_003 E15	AA646137	2600005 C20Rik	17
mouse_003 E16	AA670781	4921511 H13Rik	16
mouse_003 E17	AA710444	Donson	16
mouse_003 E18	AA712001	Sod1	16
mouse_003 E19	AI323795	Bach1	16
mouse_003 E2	BE290848	Abcc1	16
mouse_003 E20	AI427376	Mcm3ap	10
mouse_003 E21	AI466884	Setd4	16
mouse_003 E22	AI504737	Prmt2	10
mouse_003 E23	AI505296	Dyrk1a	16
mouse_003 E24	AI550073	Hunk	16
mouse_003 E3	BE572844	App	16
mouse_003 E4	BE286595	ORF5	16
mouse_003 E8	BF100487	Chaf1b	16
mouse_003 E9	BF162901	Dscr3	16
mouse_003 F10	BE626856	Ube2q2	10
mouse_003 F11	BF168443	5830404 H04Rik	16
mouse_003 F12	AW909528	Cryz1	16
mouse_003 F13	BF178549	Brwd1	16
mouse_003 F14	AJ507038	Chodl	16
mouse_003 F15	AW519627	1700064 N11Rik	17
mouse_003 F16	BE852394	Ifnar2	16
mouse_003 F17	AI614841	Dopey2	16
mouse_003 F18	RT-PCR	Pttq1p	10
mouse_003 F19	AA120173	Zdhc14	17
mouse_003 F2	AW823883	Btg3	16
mouse_003 F20	RT-PCR	Erg	16
mouse_003 F21	AI466988	Lrrc3	10
mouse_003 F22	BE864913	Kcne2	16
mouse_003 F23	AW494400	Kcni6	16
mouse_003 F3	AW913227	Mrpl39	16
mouse_003 F4	AW987959	Slc19a1	10
mouse_003 F5	BE136418	Ttc3	16
mouse_003 F6	BE333381	Dscr2	16
mouse_003 F7	BE381921	Nnp1	10
mouse_003 F8	BE457800	Nup85	11
mouse_003 F9	BE626444	Sumo3	10
mouse_003 G1	AJ507045	4931408 A02Rik	16
mouse_003 G10	AI894032	Tff2	17
mouse_003 G11	BE456255	Pde9a	17
mouse_003 G12	AA174819	Nrip1	16
mouse_003 G13	BE133799	Usp25	16
mouse_003 G14	BE692080	Pdxk	10
mouse_003 G15	AA895770	Dnmt3l	10
mouse_003 G16	BG084441	Mrps6	16
mouse_003 G17	RT-PCR	Prss7	16
mouse_003 G18	RT-PCR	Slc5a3	16
mouse_003 G19	RT-PCR	Tmprss3	17
mouse_003 G2	AA537134	Dip2a	10
mouse_003 G20	RT-PCR	Tpte	8
mouse_003 G3	AI596471	Pcbp3	10
mouse_003 G4	BF225430	Sim2	16
mouse_003 G5	AA023967	Ifnqr2	16
mouse_003 G6	AA039173	Pofut2	10
mouse_003 G7	AA170547	Usp16	16
mouse_003 G8	AI466282	Zfp294	16
mouse_003 G9	AI614124	Hlcs	16
mouse_003 H1	AI099117	Ftcd	10
mouse_003 H10	AI956381	Kcne1	16
mouse_003 H11	AI528387	Snf1lk	17
mouse_003 H12	AI528387	Snf1lk	17
mouse_003 H13	AI956660	Kcni15	16

Table 7-2: Mouse Unigene Clones Used cDNA Arrays.

Reporter ID	Accession Number	Reporter Name	Chromosome location
unigen mouse_005 A1	AA25415 5	Picl2	17
unigen mouse_005 A10	AA28617 9	6230424 C14Rik	13
unigen mouse_005 A11	AA26056 8	H2-Ob	17
unigen mouse_005 A12	AA25981 0	H19	7
unigen mouse_005 A13	AA25417 0	Kif26a	12
unigen mouse_005 A14	AA28618 5	GuayWoodford Beier mouse kidney day 7 Mus musculus cDNA clone IMAGE:73259 1	
unigen mouse_005 A15	AA26056 9	Soares mouse lymph node NbMLN Mus musculus cDNA clone IMAGE:72257 5	
unigen mouse_005 A16	AA28622 6	GuayWoodford Beier mouse kidney day 7 Mus musculus cDNA clone IMAGE:73259 3	
unigen mouse_005 A17	AA25400 3	2310007 D09Rik	13
unigen mouse_005 A18	AA28621 4	Timp3	10
unigen mouse_005 A19	AA25431 8	4930522L14 Rik	5
unigen mouse_005 A2	AA25958 6	Tmem167	13
unigen mouse_005 A20	AA27319 1	Avpr1a	10
unigen mouse_005 A21	AA25400 5	Mxd1	6
unigen mouse_005 A22	AA40402 5	Abcf1	17
unigen mouse_005 A23	AA26044 5	Rpe	1
unigen mouse_005 A24	AA25957 7	Ap2s1	7
unigen mouse_005 A3	AA26057 0	Parg	14
unigen mouse_005 A4	AA25958 1	Pcdh12	18
unigen mouse_005 A5	AA25403 6	Klra7	6
unigen mouse_005 A6	AA26132 8	Pold3	7
unigen mouse_005 A7	AA25426 9	B330003 H21	13
unigen mouse_005 A8	AA25957 6	Hfe2	3
unigen mouse_005 A9	AA25417 3	Rbm26	14
unigen mouse_005 B1	AA27290 5	Rin2	2
unigen mouse_005 B10	AA26165 1	Rad23a	8
unigen mouse_005 B11	AA26862 9	Ncoa2	1
unigen mouse_005 B12	AA26165 3	Rabqqt1	14
unigen mouse_005 B13	AA26889 2	Abhd8	8
unigen mouse_005 B14	AA25986 3	Soares mouse 3NME12 5 Mus musculus cDNA clone IMAGE:73448 4	
unigen mouse_005 B15	AA26865 0	Sfpq	4
unigen mouse_005 B16	AA25939 4	Asb6	2
unigen mouse_005 B17	AA26888 9	Acot4	12
unigen mouse_005 B18	AA26975 0	Itga3	11
unigen mouse_005 B19	AA26833 3	Trib2	12
unigen mouse_005 B2	AA25938 8	1810022 K09Rik	3
unigen mouse_005 B20	AA26975 1	Clpp	17
unigen mouse_005 B21	AA26833 0	Cugbp1	2
unigen mouse_005 B22	AA25972 6	Yipf5	18
unigen mouse_005 B23	AA26836 4	Ctdp1	18
unigen mouse_005 B24	AA26977 6	Inhbb	1
unigen mouse_005 B3	AA27290 6	Zfp593	4
unigen mouse_005 B4	AA25976 5	Prdx5	19
unigen mouse_005 B5	AA27287 5	Zfp535	11
unigen mouse_005 B6	AA25940 0	Skp2	15
unigen mouse_005 B7	AA27288 7	Megf8	7
unigen mouse_005 B8	AA26165 0	Slc25a26	6
unigen mouse_005 B9	AA26859 1	Lsm14a	7
unigen mouse_005 C1	AA26779 9	2310076 G13Rik	1
unigen mouse_005 C10	AA40372 1	Rnf146	4
unigen mouse_005 C11	AA25408 5	Xlr4c	X
unigen mouse_005 C12	AA26129 3	Rab10	12
unigen mouse_005 C13	AA26043 7	Metap2	10
unigen mouse_005 C14	AA40372 3	Rabepk	2
unigen mouse_005 C15	AA26044 4	4930558 N01Rik	7
unigen mouse_005 C16	AA25968 4	2700038 C09Rik	2
unigen mouse_005 C17	AA26043 9	Socs2	10
unigen mouse_005 C18	AA25959 6	2510006 D16Rik	4
unigen mouse_005 C19	AA25408 3	Comm d6	14
unigen mouse_005 C2	AA27377 7	Rfc3	5
unigen mouse_005 C20	AA27402 5	Arid5a	1

Table 7-2: Mouse Unigene Clones Used cDNA Arrays (Next).

Reporter ID	Accession Number	Reporter Name	Chromosome location
unigen mouse_005 C21	AA25404 2	Cd3g	9
unigen mouse_005 C22	AA25970 7	Cbx3	14
unigen mouse_005 C23	AA25427 9	Rnmt	18
unigen mouse_005 C24	AA26132 4	Tubb5	17
unigen mouse_005 C3	AA25445 6	Ppp1 cb	5
unigen mouse_005 C4	AA40371 8	C8014 0	5
unigen mouse_005 C5	AA25420 5	Ppm 1a	12
unigen mouse_005 C6	AA40337 4	Ripk2	4
unigen mouse_005 C7	AA26065 7	Zfp260	7
unigen mouse_005 C8	AA28594 3	Clcnkb	4
unigen mouse_005 C9	AA25428 5	Zfp28	7
unigen mouse_005 D1	AA27289 1	3110043 O21 Rik	4
unigen mouse_005 D10	AA26124 5	Ccnk	12
unigen mouse_005 D11	AA27294 5	Pdcl3	1
unigen mouse_005 D12	AA26172 9	Cd248	19
unigen mouse_005 D13	AA27271 7	1810011 H11 Rik	14
unigen mouse_005 D14	AA26950 0	Sv2a	3
unigen mouse_005 D15	AA26859 6	Tmem55a	4
unigen mouse_005 D16	AA26122 2	Kbtbd11	8
unigen mouse_005 D17	AA27271 9	Gnai2	9
unigen mouse_005 D18	AA26173 8	Chn1	2
unigen mouse_005 D19	AA26837 8	2810453 I06 Rik	5
unigen mouse_005 D2	AA26954 7	Nfkbiz	6
unigen mouse_005 D20	AA26174 3	E2f2	4
unigen mouse_005 D21	AA26837 9	Umps	16
unigen mouse_005 D22	AA26122 7	Nlgn2	11
unigen mouse_005 D23	AA25927 4	Ankrd12	17
unigen mouse_005 D24	AA26173 4	Smad4	18
unigen mouse_005 D3	AA26887 7	Mcl1	3
unigen mouse_005 D4	AA25940 3	Rab34	11
unigen mouse_005 D5	AA27294 2	Fgd1	X
unigen mouse_005 D6	AA26170 8	3632451 O06 Rik	14
unigen mouse_005 D7	AA26863 1	Sumf1	6
unigen mouse_005 D8	AA26124 4	Top3 a	11
unigen mouse_005 D9	AA26860 6	AA53674 3	5
unigen mouse_005 E1	AA25424 4	Msi2	11
unigen mouse_005 E10	AA25981 2	Slc35e 1	8
unigen mouse_005 E11	AA25410 0	Cpne3	4
unigen mouse_005 E12	AA25968 8	Egr1	18
unigen mouse_005 E13	AA26070 5	Jak2	19
unigen mouse_005 E14	AA26010 1	AV31208 6	19
unigen mouse_005 E15	AA25409 5	3110056 K07 Rik	12
unigen mouse_005 E16	AA27658 9	Mep1a	17
unigen mouse_005 E17	AA25442 0	LOC63139 0	13
unigen mouse_005 E18	AA25966 1	Ggh	4
unigen mouse_005 E19	AA26076 7	AU02077 2	7
unigen mouse_005 E2	AA27654 9	GuayWoodford Beier mouse kidney day 7 Mus musculus cDNA clone IMAGE:73226 5	
unigen mouse_005 E20	AA25969 4	Suv420h 2	7
unigen mouse_005 E21	AA26777 3	Cnot6l	5
unigen mouse_005 E22	AA28647 5	3110023 E09 Rik	7
unigen mouse_005 E23	AA25434 2	Ube2j1	4
unigen mouse_005 E24	AA28647 2	1700011 H14 Rik	14
unigen mouse_005 E3	AA25448 4	Ncoa7	10
unigen mouse_005 E4	AA26133 7	Impad1	4
unigen mouse_005 E5	AA25423 7	Tm9sf3	19
unigen mouse_005 E6	AA40395 0	BC03086 3	6
unigen mouse_005 E7	AA25423 2	Armc1	3
unigen mouse_005 E8	AA27655 2	Heca	10
unigen mouse_005 E9	AA25423 9	Aaas	15
unigen mouse_005 F1	AA27270 4	Ppp3r1	11
unigen mouse_005 F10	AA26007 7	Rfesd	13
unigen mouse_005 F11	AA26815 5	Dek	13
unigen mouse_005 F12	AA27000 5	Calr	8
unigen mouse_005 F13	AA26816 0	Lbh	17
unigen mouse_005 F14	AA25996 2	Bat2	17
unigen mouse_005 F15	AA26816 1	Rheb	5
unigen mouse_005 F16	AA26002 7	Tnrc5	17
unigen mouse_005 F17	AA26887 0	Tspan3 2	7

Table 7-2: Mouse Unigene Clones Used cDNA Arrays (Next).

Reporter ID	Accession Number	Reporter Name	Chromosome location
		Soares mouse 3NM E12 5	
unigen mouse_005 F18	AA260102	Mus musculus cDNA clone IMAGE:734968	
unigen mouse_005 F19	AA268634	Ptch1	13
unigen mouse_005 F2	AA270001	Plod3	5
unigen mouse_005 F20	AA269870	Csnk1q2	10
unigen mouse_005 F21	AA268263	C5300 44N13R ik	16
unigen mouse_005 F22	AA259966	Nudt2	4
unigen mouse_005 F23	AA268283	Jup	11
unigen mouse_005 F24	AA269495	Asph	4
unigen mouse_005 F3	AA268035	Bat3	17
unigen mouse_005 F4	AA272827	Wnt11	7
unigen mouse_005 F5	AA268927	B3gat3	19
unigen mouse_005 F6	AA259643	Unc5c	3
unigen mouse_005 F7	AA268646	Isl1	13
unigen mouse_005 F8	AA272741	Dpt	1
unigen mouse_005 F9	AA268150	Gpr137	19
unigen mouse_005 G1	AA254434	Adhfe1	1
unigen mouse_005 G10	AA260144	B230208H17R ik	2
unigen mouse_005 G11	AA254109	C2300 52112R ik	7
unigen mouse_005 G12	AA260145	2600001M11R ik	2
unigen mouse_005 G13	AA254450	1700020D05R ik	19
unigen mouse_005 G14	AA403766	Fxyd2	9
unigen mouse_005 G15	AA254547	Rhoh	5
unigen mouse_005 G16	AA403767	Cpn1	19
unigen mouse_005 G17	AA254194	LOC434156	7
unigen mouse_005 G18	AA259357	Serf2	2
unigen mouse_005 G19	AA253964	LOC626578	5
unigen mouse_005 G2	AA286217	D3300 50123R ik	15
unigen mouse_005 G20	AA259358	Bri3	5
unigen mouse_005 G21	AA267798	Cep350	1
unigen mouse_005 G22	AA415769	Decr1	4
unigen mouse_005 G23	AA267844	Phtf2	5
unigen mouse_005 G24	AA259710	3321401 G04R ik	6
unigen mouse_005 G3	AA254254	Edg1	3
unigen mouse_005 G4	AA276562	Zcd1	10
unigen mouse_005 G5	AA267833	Qser1	2
unigen mouse_005 G6	AA403763	Atp5a1	18
unigen mouse_005 G7	AA254256	Xrn2	2
unigen mouse_005 G8	AA260017	1110014 J01R ik	15
unigen mouse_005 G9	AA254177	Arfip1	3
unigen mouse_005 H1	AA267922	Ralb	1
unigen mouse_005 H10	AA260033	1500005 P14R ik	7
unigen mouse_005 H11	AA268174	BC061253	12
unigen mouse_005 H12	AA272705	Tgm4	9
unigen mouse_005 H13	AA268694	Rasl12	9
unigen mouse_005 H14	AA260035	Rragc	4
unigen mouse_005 H15	AA268614	Cugbp1	2
unigen mouse_005 H16	AA261241	Prpf40a	2
unigen mouse_005 H17	AA268897	Msto1	3
unigen mouse_005 H18	AA260108	Bclaf1	10
unigen mouse_005 H19	AA259534	1700017 B05R ik	9
unigen mouse_005 H2	AA261217	Skil	3
unigen mouse_005 H20	AA260109	Elac1	18
unigen mouse_005 H21	AA268743	Anapc11	11
unigen mouse_005 H22	AA260160	Ift80	3
unigen mouse_005 H23	AA268753	Pdap1	5
unigen mouse_005 H24	AA269499	BC057079	4
unigen mouse_005 H3	AA268988	Smox	2
unigen mouse_005 H4	AA269959	1500032D16R ik	17
		Soares mouse 3NM E12 5	
unigen mouse_005 H5	AA268944	Mus musculus cDNA clone IMAGE:734284	
unigen mouse_005 H6	AA260085	Ubp1	9
unigen mouse_005 H7	AA268048	Pthr2	11
unigen mouse_005 H8	AA261220	Cbx5	15
unigen mouse_005 H9	AA268660	Clcn4-2	7
unigen mouse_005 I1	AA254485	Dnajc10	2
unigen mouse_005 I10	AA254517	Zc3hav1	6
unigen mouse_005 I11	AA254289	3830406C13R ik	14
unigen mouse_005 I12	AA259874	A730011L01R ik	11
unigen mouse_005 I13	AA254562	Cks2	13
unigen mouse_005 I14	AA403462	Myo5b	18
unigen mouse_005 I15	AA254549	Ube2j2	4
unigen mouse_005 I16	AA259607	Surf5	2

Table 7-2: Mouse Unigene Clones Used cDNA Arrays (next).

Reporter ID	Accession Number	Reporter Name	Chromosome location
unigen mouse_005I1 7	AA 254565	Slc45a 4	15
unigen mouse_005I1 8	AA 403547	Lpp	16
unigen mouse_005I1 9	AA 253969	Zfp236	18
unigen mouse_005I 2	AA 260146	Saal1	7
unigen mouse_005I2 0	AA 403544	Itpa	2
unigen mouse_005I2 1	AA 254513	Depd c1a	3
unigen mouse_005I2 2	AA 286361	Cog8	8
unigen mouse_005I2 3	AA 254546	Pdia2	17
unigen mouse_005I2 4	AA 259711	CaId1	6
unigen mouse_005I 3	AA 254182	Tbl1xr1	3
unigen mouse_005I 4	AA 260898	6330578 E17R ik	1
unigen mouse_005I 5	AA 254497	Vezf1	11
unigen mouse_005I 6	AA 260902	Pcx	11
unigen mouse_005I 7	AA 254226	Mbn11	3
unigen mouse_005I 8	AA 260100	Mgst3	1
unigen mouse_005I 9	AA 254147	Dhx40	11
unigen mouse_005 J1	AA 268854	Soares mouse 3NM E12 5 Mus musculus cDNA clone IMAGE:734209	
unigen mouse_005 J10	AA 259921	Mea1	17
unigen mouse_005 J11	AA 268666	Atpif1	4
unigen mouse_005 J12	AA 259894	Kif1b	4
unigen mouse_005 J13	AA 268667	2310065 K24R ik	8
unigen mouse_005 J14	AA 259941	0610037L13R ik	4
unigen mouse_005 J15	AA 268389	Mtap	4
unigen mouse_005 J16	AA 259924	Kpna1	16
unigen mouse_005 J17	AA 268342	5930434 B04R ik	2
unigen mouse_005 J18	AA 259925	Wsb2	5
unigen mouse_005 J19	AA 268867	Tnik	3
unigen mouse_005 J2	AA 261160	Mcam	9
unigen mouse_005 J20	AA 269981	Timm 8b	9
unigen mouse_005 J21	AA 268387	Arl15	13
unigen mouse_005 J22	AA 259927	Ttc1	11
unigen mouse_005 J23	AA 268327	Ltbp4	7
unigen mouse_005 J24	AA 269761	BC038286	1
unigen mouse_005 J3	AA 268780	Klc4	17
unigen mouse_005 J4	AA 259890	Soares mouse 3NM E12 5 Mus musculus cDNA clone IMAGE:735050	
unigen mouse_005 J5	AA 268881	Centd2	7
unigen mouse_005 J6	AA 259937	Col3a1	1
unigen mouse_005 J7	AA 269336	Rab21	10
unigen mouse_005 J8	AA 259931	H6pd	4
unigen mouse_005 J9	AA 268883	Reln	5
unigen mouse_005 K1	AA 254245	Ncbp2	16
unigen mouse_005 K10	AA 260037	2010315L10R ik	8
unigen mouse_005 K11	AA 254340	Sifn1	11
unigen mouse_005 K12	AA 268569	Smarca5	8
unigen mouse_005 K13	AA 254299	Mllt10	2
unigen mouse_005 K14	AA 260059	Soares mouse 3NM E12 5 Mus musculus cDNA clone IMAGE:733649	
unigen mouse_005 K15	AA 254603	Psd3	8
unigen mouse_005 K16	AA 259416	Mkrn2	6
unigen mouse_005 K17	AA 253974	Hells	19
unigen mouse_005 K18	AA 259983	Ube2t	1
unigen mouse_005 K19	AA 254500	Gpr65	12
unigen mouse_005 K2	AA 260793	Sifn3	11
unigen mouse_005 K20	AA 259978	Rala	13
unigen mouse_005 K21	AA 254606	Mbn13	X
unigen mouse_005 K22	AA 259412	Hsd11	8
unigen mouse_005 K23	AA 254607	Stch	16
unigen mouse_005 K24	AA 259873	Unc5b	10
unigen mouse_005 K3	AA 253981	Ifi203	1
unigen mouse_005 K4	AA 259605	Gnb1	4
unigen mouse_005 K5	AA 254250	Run x3	4
unigen mouse_005 K6	AA 260909	Rps6kb1	11
unigen mouse_005 K7	AA 254251	Egln1	8
unigen mouse_005 K8	AA 260792	Apaf1	10
unigen mouse_005 K9	AA 254478	Pcgf1	6
unigen mouse_005L1	AA 259906	Etf1	18
unigen mouse_005L10	AA 259832	Atic	1
unigen mouse_005L11	AA 268963	3300001 G02R ik	11
unigen mouse_005L12	AA 259290	Baiap212	15
unigen mouse_005L13	AA 268669	D10 Erttd610e	10



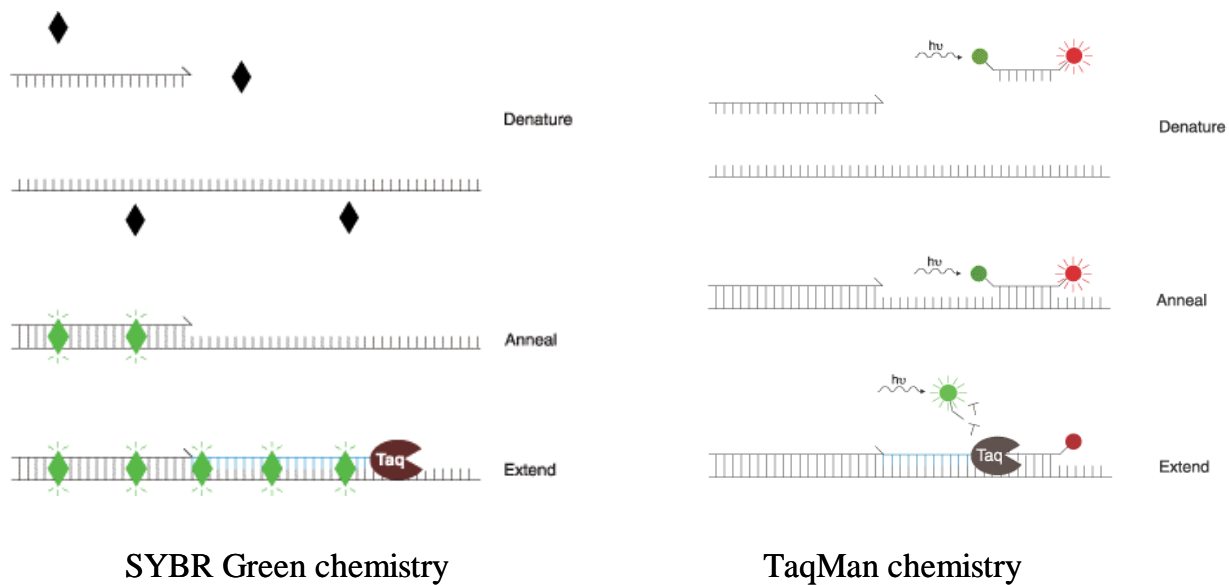
Table 7-2: Mouse Unigene Clones Used cDNA Arrays (Next).

Reporter ID	Accession Number	Reporter Name	Chromosome location
unigen mouse_005L14	AA259949	Fn1	1
unigen mouse_005L15	AA272750	Zfp664	5
unigen mouse_005L16	AA259834	Nrn1	13
unigen mouse_005L17	AA268671	Csnk1a1	18
unigen mouse_005L18	AA259317	Ctps2	X
unigen mouse_005L19	AA268366	1190002N15R ik	9
unigen mouse_005L2	AA269647	Pde4a	9
unigen mouse_005L20	AA259974	St13	15
unigen mouse_005L21	AA268400	Soares mouse 3NM E12 5 Mus musculus cDNA clone IMAGE:733989	
unigen mouse_005L22	AA259775	Magee1	X
unigen mouse_005L23	AA270699	Pfn2	3
unigen mouse_005L24	AA270013	Msra	14
unigen mouse_005L3	AA268684	C80913	7
unigen mouse_005L4	AA269548	2310021 P13R ik	14
unigen mouse_005L5	AA268950	Mettl9	7
unigen mouse_005L6	AA259829	Armet	9
unigen mouse_005L7	AA261719	Zrsr2	X
unigen mouse_005L8	AA259946	Soares mouse 3NM E12 5 Mus musculus cDNA clone IMAGE:735124	
unigen mouse_005L9	AA272747	Nfe2	15
unigen mouse_005M1	AA254533	Rpl13	8
unigen mouse_005M10	AA259841	Dars2	1
unigen mouse_005M11	AA267779	B230219D22R ik	13
unigen mouse_005M12	AA259486	1810044 A24R ik	15
unigen mouse_005M13	AA254617	Fqfr1op	17
unigen mouse_005M14	AA259855	Csn1s1	3
unigen mouse_005M15	AA254064	Aprin	5
unigen mouse_005M16	AA260074	Orc4l	2
unigen mouse_005M17	AA267772	Soares mouse lymph node NbMLN Mu s musculus cDNA clone IMAGE:723261	
unigen mouse_005M18	AA260075	Rab11b	17
unigen mouse_005M19	AA254597	St8sia6	2
unigen mouse_005M2	AA286083	Cln6	9
unigen mouse_005M20	AA259680	A730056 A06R ik	7
unigen mouse_005M21	AA254370	Scfd2	5
unigen mouse_005M22	AA286252	Mtap7	10
unigen mouse_005M23	AA267638	EG63345 7	12
unigen mouse_005M24	AA259682	Zfp36I2	17
unigen mouse_005M3	AA253995	Tle3	9
unigen mouse_005M4	AA272761	Nfyb	10
unigen mouse_005M5	AA253991	D15M qi27	15
unigen mouse_005M6	AA403538	Hn rpab	11
unigen mouse_005M7	AA253992	Baz2b	2
unigen mouse_005M8	AA259431	Lrrc8a	2
unigen mouse_005M9	AA254358	Arsk	13
unigen mouse_005N1	AA268030	Dpysl5	5
unigen mouse_005N10	AA259334	Pip5k2b	11
unigen mouse_005N11	AA268148	Eef1b2	1
unigen mouse_005N12	AA259439	Csnk2a1	2
unigen mouse_005N13	AA259310	Zfp668	7
unigen mouse_005N14	AA261345	Ube2o	11
unigen mouse_005N15	AA268692	A030009H04R ik	11
unigen mouse_005N16	AA259441	Ttc28	5
unigen mouse_005N17	AA259522	Adcy1	13
unigen mouse_005N18	AA259719	D15 Ertd621e	15
unigen mouse_005N19	AA268794	D11 Ertd497e	11
unigen mouse_005N2	AA272824	Soares mouse 3NM E12 5 Mus musculus cDNA clone IMAGE:735412	
unigen mouse_005N20	AA259670	Gna12	5
unigen mouse_005N21	AA259632	Med11	11
unigen mouse_005N22	AA259677	Atic	1
unigen mouse_005N23	AA272078	Gypa	8
unigen mouse_005N24	AA259675	lpo11	13
unigen mouse_005N3	AA268954	Glis2	16
unigen mouse_005N4	AA272825	Ak3	19
unigen mouse_005N5	AA268965	Pkp4	2
unigen mouse_005N6	AA259443	lcmt	4
unigen mouse_005N7	AA259769	Col11a2	17
unigen mouse_005N8	AA259341	Serf1	13

**Table 7-2: Mouse Unigene Clones used cDNA Arrays (Next).**

Reporter ID	Accession Number	Reporter Name	Chromosome location
unigenmouse_005N9	AA269415	Morc4	X
unigenmouse_005 O1	AA267824	Soares mouse lymph node NbMLN Mu s musculus cDNA clone IMAGE:723293	
unigenmouse_005 O10	AA259506	Dhcr24	4
unigenmouse_005 O11	AA267790	Gpm6b	X
unigenmouse_005 O12	AA272107	St3qa16	16
unigenmouse_005 O13	AA254075	Ccdc59	10
unigenmouse_005 O14	AA259423	Cdc26	4
unigenmouse_005 O15	AA267780	Tcf4	9
unigenmouse_005 O16	AA259851	Pcdh18	3
unigenmouse_005 O17	AA254379	Gpr132	12
unigenmouse_005 O18	AA269410	Lox3	6
unigenmouse_005 O19	AA254380	Al118064	1
unigenmouse_005 O2	AA286155	Spp2	1
unigenmouse_005 O20	AA269411	Tra2a	6
unigenmouse_005 O21	AA267781	Aco2	15
unigenmouse_005 O22	AA404162	Ankmy2	12
unigenmouse_005 O23	AA254643	Timd4	11
unigenmouse_005 O24	AA260073	Dgat2	3
unigenmouse_005 O3	AA254268	Wdr75	1
unigenmouse_005 O4	AA259424	Auts2	5
unigenmouse_005 O5	AA267787	Spg20	3
unigenmouse_005 O6	AA403784	Atp1b2	11
unigenmouse_005 O7	AA267846	Clec7a	6
unigenmouse_005 O8	AA259485	Rac3	11
unigenmouse_005 O9	AA254230	Traf6	2
unigenmouse_005 P1	AA269366	Rab5c	11
unigenmouse_005 P10	AA269759	Zyg11bl	2
unigenmouse_005 P11	AA259368	Jtv1	5
unigenmouse_005 P12	AA259445	Eif4q2	7
unigenmouse_005 P13	AA259369	Rq9 mtd2	3
unigenmouse_005 P14	AA259672	Adnp	2
unigenmouse_005 P15	AA268708	2310016C08R ik	6
unigenmouse_005 P16	AA259552	Sh3p xd2b	11
unigenmouse_005 P17	AA268808	T mem85	2
unigenmouse_005 P18	AA269653	Pold3	7
unigenmouse_005 P19	AA272116	Rfc3	5
unigenmouse_005 P2	AA269493	Nhp2 l1	15
unigenmouse_005 P20	AA259352	Pink1	4
unigenmouse_005 P21	AA270693	Ttyh1	7
unigenmouse_005 P22	AA259654	Eil	8
unigenmouse_005 P23	AA272115	1200015 A19R ik	4
unigenmouse_005 P24	AA259376	Ddt	10
unigenmouse_005 P3	AA269363	2310022M17R ik	11
unigenmouse_005 P4	AA269659	Plrg1	3
unigenmouse_005 P5	AA269396	Rpl18a	1
unigenmouse_005 P6	AA259379	Cops7a	6
unigenmouse_005 P7	AA259366	Trpc4ap	2
unigenmouse_005 P8	AA259448	Nckap1	2
unigenmouse_005 P9	AA268162	Capn5	7

Figure 7-3: Real Time PCR Standard Chemistries.



**Table 7-3: Primer Sequences for SYBR Green Real Time PCR Assays.**

<b>Gene symbol</b>	<b>Forward primer (5' - 3')</b>	<b>Reverse primer (5' - 3')</b>	<b>Amplicon size (bp)</b>
<i>Adams5</i>	GCCCACCAATGGTAAATCTTT	TGACTCCTTTTGCATCAGACTGA	78
<i>App</i>	AAGTCGATGAGCTGCTTCAGAAG	CTGATTCTGGGCTCACTGATCA	79
<i>Atp5a</i>	TCGTGGACAAGATAAGAGAGTACAAATC	TTGCTGATACTCTGGGCCAAT	80
<i>Atp5a seq</i>	TCTGCAGAGGATCTTCAGGCTC	ATTACCACATGGATTTTGTATGTTCC	384
<i>Atp5o</i>	CTGCCTTTTCCACCATCATGA	AGAGGAGATGCTGTGGTCACTGT	70
<i>Bace2</i>	TCGCTCCTTCCGGATCAC	AATTGAAACCAGCTCCCATCA	68
<i>C21orf51</i>	CGCCCTGAGTATCAGAACTTC	ACCTGTTACACACAGGCATGAGA	75
<i>C21orf56</i>	CAACATTCTGAGAAGATCAAGCA	GCTCACGCAGCTTCTTCTCAT	77
<i>C21orf63</i>	GTTCCAGGAGCCCATCTC	CGTCCAGCACCTTCTGCAA	78
<i>C21orf7</i>	CCAGTTCCGATCGCGTTTAG	ACCAAAGGAATGGCATCTCA	70
<i>Cbr1</i>	GCATCGCCTTCAAGGTCAA	AGGAGCAGCTCCTTGCA	106
<i>Dscr2</i>	CCCTCGTTTTTCTATGTCAGTGT	AAACCTTCTCCAACCACTGGAA	73
<i>Dscr5</i>	GGCTTAACTTACTGGCCTCAAAAA	AAATAAGAGCACATAACCAATTACAAC TG	90
<i>Dyrk1a</i>	GTGCCAATGAGGTCGATCAGA	GCTTTCGGTGCTTGGTCAA	85
<i>Fam3b</i>	ATTCAGAGCACTCCTTCAAATCC	AGCCTTCAGTTTGGAACTTCCA	72
<i>Ftcd</i>	AGGTGCTGGCCATGTCTCA	CATCAATCACCTCCTGGTTGTTCC	75
<i>Gart</i>	CAGAAAATGGGACGGGAAAA	TGCTCGTGGGCATTTGAAC	78
<i>Hmbs</i>	CCTGGGCGGAGTCATGTC	ACTCGAATCACCTCATCTTTGA	81
<i>Hmgn1</i>	CGCGGAAAGGATAAAGCA	AGCCACGTCAGCCTGTTTG	82
<i>Hprt</i>	GCTTTCCTGGTTAAGCAGTACA	GAGAGGTCCTTTTACCAGCAA	71
<i>Hprt (intronic)</i>	CTCCCCTCAGCATGATCT TG	ATTCTAGTGATGGATGGTCACAC	435
<i>Jam2</i>	TAGAAGTACTAGTGGCTCCTGCTGTT	GAGCTGGGTTTCTTCTTTATCC	108
<i>Kcne1</i>	CGCTGCACACACCAGTT	CAGAGCAAACTCCTGGGTCTAG	51
<i>Kcne2</i>	TGCTCACATACCACACAGCAA	TCCAGCTGTCCATATAAGTAATAAAAAATCT	109
<i>Kiaa0184</i>	CAGCTCTCTGCGCATGTTGA	GAGGAAGGCATCGCAGGAA	73
<i>ml110rb</i>	CGGACAGGCAATGACGAAA	CCAGGACGGAGACTATGAGGAT	67
<i>Mrps6</i>	CCCGCTACGAGTTGGCTTT	TCAGGGATTCTATTGTACGTTTCAA	84
<i>Mx1</i>	ACTCTCAGTTTCTCAAAGG	CCGTCTGCACTCCTGGTAGT	55
<i>Mx2</i>	AATTCGCAAAAGTTATGCTGTT	TCACAAACCCTGGCAATTCTC	88
<i>Pmm2</i>	AGGGAAAGGCCTCAGTTCT	AATACCGCTTATCCCATCCTTCA	77
<i>Pttg1ip</i>	GCCTCCGCGCAGGAA	CTGAGGCACTCTTACAGGATCT	71
<i>Sh3bgr</i>	GTTATCAAAGTGTGTTGGCCACAT	GCCCACCACTTCTTGCTGTT	72
<i>Sim2</i>	TGTCAATTATGTTCTCACGGATGTT	CAGAGACAGCTGAAGTTCCTTGATTC	52
<i>Snf1lk</i>	GACCGGCAGCGGACTATAGAG	AGGCGCTCGAGTAGGAGGTAGTA	83
<i>Sod1</i>	AGTGCAGGACCTCATTTTAATCCT	GGTCTCCAACATGCCTCTCTTC	76
<i>Son</i>	CGACATCGAGCAGGTTTTCA	GGTGGATTTGTTTACCATTCA	111
<i>Synj1</i>	AAAATCACGTAAGCCACACA	TCCATGACTACCAATCCTCAACA	77
<i>Tf3</i>	GCCCTCTGGCTAATGCTGTT	TTGGAGACAGGCCAACGTAAT	79
<i>Tmprss2</i>	TTTGGAGTTCTGGGACAGC	GCTGATGCATGTGCCTAGAGAC	71
<i>Tmprss3</i>	AGCGGCTGGGCAATGA	GGCTGGATGGTCTCGTCAA	70
<i>Usp16</i>	GAGCGTCTGGTGTACAAGTGT	ATAATCAACCACTTGGCCCAAT	76
<i>Usp25</i>	CAGGGAGACGGGCATAACC	TTATTTTCTGCTATGCTGGCTCA	72
<i>Znf294</i>	CTTCGGCTTTGGATAACACAAGT	AGAGACGTGTCCTCACTCTACAAG	91
<i>Znf295</i>	AGGAGTTTGAGCAAGGCAACC	CAGTGCGGAGAGAAGAACCT	89

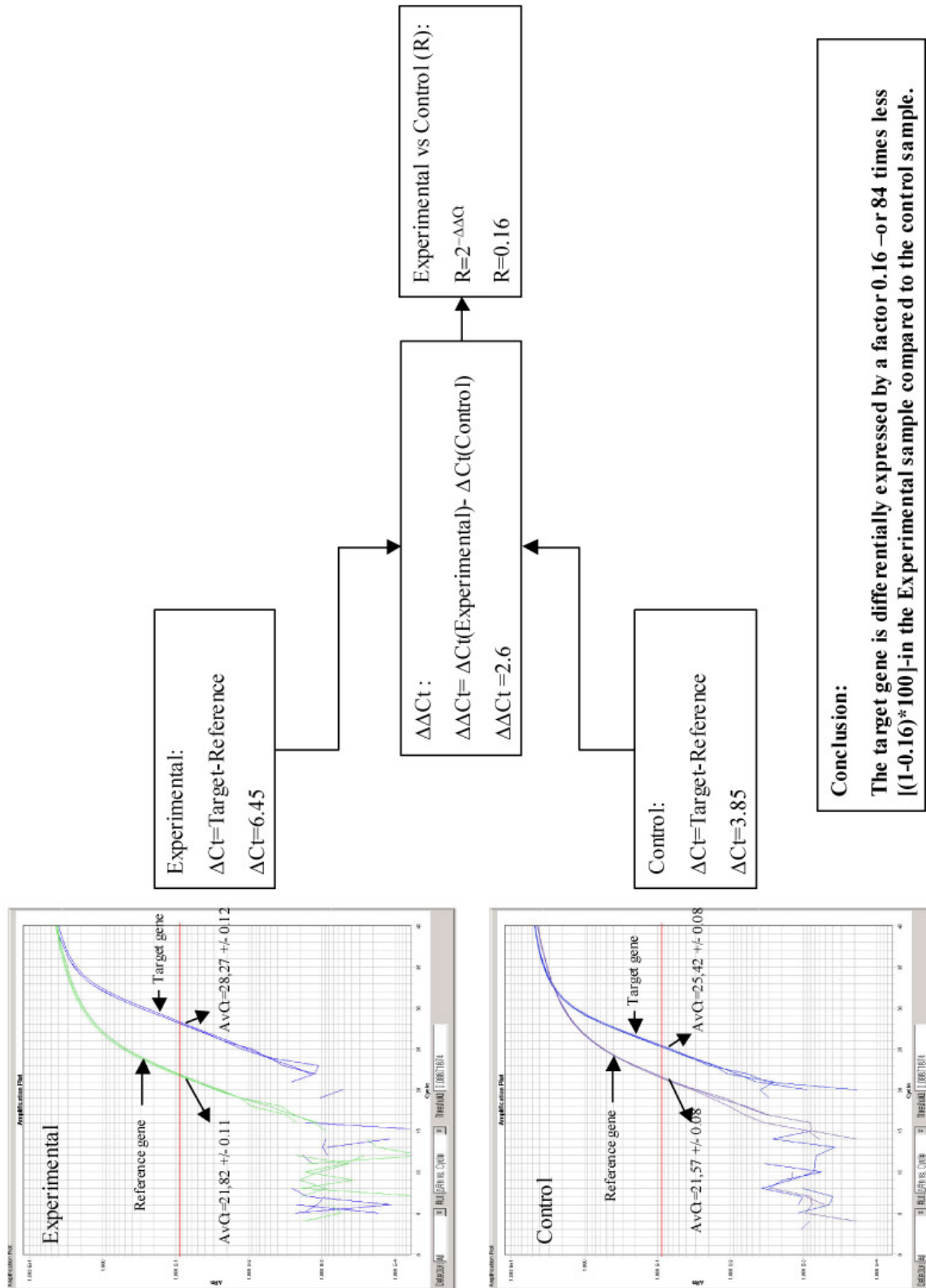
Table 7-4: TaqMan Gene Expression Assay References.

Gene Symbol	Gene Name	Assay ID	Amplicon size (bp)	Context Sequence	Target Exons	NCBI Reference	Gene Chromosome
<i>Adams5</i>	a disintegrin-like and metalloprotease (reprolysin type) with thrombospondin type 1 motif, 5 (aggrecanase-2)	Mm00478620_m1	102	AAAATATTACTCGA CATCAAGCCAT	2	NM_011782N M_011782	16
<i>App</i>	amyloid beta (A4) precursor protein	Mm00431827_m1	129	TGCCCCCAAGGCC TCATCATGTGTT	9	NM_007471,N M_007471	16
<i>B3galt5</i>	UDP-Gal:betaGlcNAc beta 1,3-galactosyltransferase, polypeptide 5	Mm00473621_s1	78	AGACATCTGTGCAG GGCCAACAGGT	3	NM_033149N M_033149	16
<i>Bace2</i>	beta-site APP-cleaving enzyme 2	Mm00517133_m1	69	TTTGGCCAAGCCAT CAAGCTCTCTG	3	NM_019517,N M_019517	16
<i>C21orf5</i>	RIKEN cDNA 2610510B01 gene	Mm00509870_m1	99	TCCGCGGCCGCCG ATCCCTCCTTCT	1	NM_026700N M_026700	16
<i>C21orf51</i>	RIKEN cDNA 1190017012 gene	Mm00507089_m1	85	ACTGGAAGGTCTT GAACACGTGCC	2	NM_138743N M_138743	16
<i>C21orf56</i>	RIKEN cDNA 1700027D21 gene	Mm00512974_m1	90	GCTCCCCAGGGAA TGGAGTCCAGA	1	NM_029661,N M_029661	10
<i>C21orf7</i>	open reading frame 63	Mm00520021_m1	63	TCAATGATGCCCA GATGATACACC	2	NM_144854N M_144854	16
<i>Cbr1</i>	carbonyl reductase 1	Mm00514232_m1	77	AGGCATCGCCTTCA AGGTCAATGAC	1	NM_007620N M_007620	16
<i>Cbs</i>	cystathionine beta-synthase	Mm00460654_m1	124	CACAGTGCTGACC AAATCCCCAAA	2	NM_144855N M_178224N M_178224	17
<i>Cct8</i>	chaperonin subunit 8 (theta)	Mm00486840_m1	145	TGTAAGATTCTGGG CTCTGGTATTT	6	NM_009840N M_009840	16
<i>Cldn8</i>	claudin 8	Mm00516972_s1	67	GGTGGTGTGGCA TGGTGGGCACGG	1	NM_018778N M_018778	16
<i>Col18a1</i>	procollagen, type XVIII, alpha 1	Mm00487131_m1	75	CTGGCCACCCAGG GCAATTCCCCAT	32	NM_009929N M_009929	10
<i>Cryaa</i>	crystallin, alpha A	Mm00660256_m1	74	ACGAGAGGCAGGA TGACCATGGCTA	3	NM_013501,N M_013501	17
<i>Cstb</i>	cystatin B	Mm00432769_m1	133	CGCCGACCAGGTG AAGTCCCAGCTT	1	NM_007793N M_007793	10
<i>Dscr2</i>	Down syndrome critical region homolog 2 (human)	Mm00517146_m1	80	CAACGCAACAGCAT TCCTGTCAGCG	2	NM_019537,N M_019537	16
<i>Dyrk1a</i>	dual-specificity tyrosine-(Y)-phosphorylation regulated kinase 1a	Mm00432934_m1	86	CTCCTCCAGCTCAG GTGGATCCTCG	9	NM_007890N M_007890	16
<i>Ets2</i>	E26 avian leukemia oncogene 2, 3 domain	Mm00468972_m1	66	TTCGTGGGACACT CAAGCGCCAGCC	2	NM_011809N M_011809	16
<i>Fam3b</i>	open reading frame 9	Mm00508056_m1	100	GTCTCAAAGCCCC AGCCCCAAA	2	NM_020622N M_020622	16
<i>Gabpa</i>	GA repeat binding protein, alpha	Mm00484598_m1	93	TGCAAGATATTCAG CTGGATCCAGA	3	NM_008065N M_008065	16
<i>Gart</i>	phosphoribosylglycinamide formyltransferase	Mm00599836_m1	83	TCCAATGCTGCTGT CTCTGTCAATG	2	NM_010256N M_010256	16
<i>Hlcs</i>	holocarboxylase synthetase (biotin-[propionyl-Coenzyme A-carboxylase (ATP-Mm00507322_m1 hydrolysing)] ligase)	Mm00507322_m1	61	CTGGCCGCTGAGG AAACCAGGATC	3	NM_139145N M_139145	16
<i>Hmbs</i>	hydroxymethylbilane synthase	Mm00660262_g1	111	GGCATAACAGTTTGA AATCATTGCTA	3	NM_013551N M_013551	9
<i>Hprt</i>	hypoxanthine guanine phosphoribosyl transferase	Mm00446968_m1	64	TTAAGTTGCAAGC TTGCTGGTGAA	6	NM_013556N M_013556	X
<i>Ifnar1</i>	interferon (alpha and beta) receptor 1	Mm00439544_m1	96	AGAAAACACGTCCA GGAAGTTTTTC	9	NM_010508N M_010508	16
<i>Ifnar2</i>	interferon (alpha and beta) receptor 2	Mm00494916_m1	57	CATCGTGCCTGCAA ACGCTCCTCTT	5	NM_010509N M_010509	16
<i>Ifngr2</i>	interferon gamma receptor 2	Mm00492626_m1	107	GCGTCTCGCCAG ACTCGTTTTCCC	1	NM_008338N M_008338	16
<i>Il10rb</i>	interleukin 10 receptor, beta	Mm00434157_m1	68	ACAGGCAATGACG AAATAACCCCTT	5	NM_008349N M_008349	16
<i>Itn</i>	intersectin (SH3 domain protein 1A)	Mm00495015_m1	72	TAGCACAATATGG GCGCTAGCGGA	3	NM_010587N M_010587	16
<i>Jam2</i>	junction cell adhesion molecule 2	Mm00470197_m1	76	TGATCGTCGCCCT GGACTATCATAA	1	NM_023844N M_023844	16
<i>Kcne1</i>		Mm00434615_m1	67	TTCTAGACCCAGGA GTTTTGCTCTG	1		16
<i>Kcne2</i>	potassium voltage-gated channel, Isk-related subfamily, gene 2	Mm00506492_m1	75	TTGCTCACATACCA CACAGCAAGGG	1	NM_134110N M_134110	16
<i>Kiaa0179</i>	RIKEN cDNA 2600005C20 gene	Mm00551206_m1	80	ACATGACTGCAGAA TTAAGAAGAC	15	NM_028244N M_028244	17

Table 7-4: TaqMan Gene Expression Assay References (Next).

Gene Symbol	Gene Name	Assay ID	Amplicon size (bp)	Context Sequence	Target Exons	NCBI Reference	Chromosome
<i>Lss</i>	lanosterol synthase	Mm00461312_m1	70	CTTCCTCTTGCCAG GTCTCCTGATT	3	NM_146006N M_146006	10
<i>Mrpl39</i>	mitochondrial ribosomal protein L39	Mm00489949_m1	127	CCAACAAAAGAGAA CCTGCGTCTT	5	NM_017404N M_017404	16
<i>Mrps6</i>	mitochondrial ribosomal protein S6	Mm00459877_m1	82	CAGCCGAGGAGGG TATTTCTGGTG	1	NM_080456N M_080456	16
<i>Ncam2</i>	neural cell adhesion molecule 2	Mm00448056_m1	92	CCAGACACTGCCA GTCCGTGAGCCA	13	NM_010954N M_010954 NM_173440N	16
<i>Nrip1</i>	nuclear receptor interacting protein 1	Mm00476537_s1	75	ACAGGAGTTGGGC CAGAGAGAGCAA	32	M_173440N M_008735N M_008735	16
<i>Pde9a</i>	phosphodiesterase 9A	Mm00501039_m1	87	CTGCGAATTCAGAG CGCACTCCCTA	3	NM_008804N M_008804	17
<i>Pmm2</i>	phosphomannomutase 2	Mm00450349_m1	85	AACTGGGAAATGAT GTGGTTGAGAA	2	NM_016881N M_016881 NM_178855N	16
<i>Prss7</i>	protease, serine, 7 (enterokinase)	Mm00435990_m1	80	AACTGGGCTATGT GCCACAGCTTG	9	M_178855N M_008941N M_008941	16
<i>Runx1</i>	runt related transcription factor 1	Mm00486762_m1	109	AGAACCCGAAAT GCCAGGCAGATC	3	NM_009821N M_009821	16
<i>S100b</i>	S100 protein, beta pdypeptide, neural	Mm00485897_m1	68	CTTCCTGGAGGAAA TCAAGGAGCAG	1	NM_009115N M_009115	10
<i>Sh3bgr</i>	SH3-binding domain glutamic acid-rich protein	Mm00489429_m1	121	TGAAGAGCAGTATT GTGGGGACTTT	2	NM_015825N M_015825	16
<i>Son</i>	Son cell proliferation protein	Mm00490912_m1	67	ACAGGAGCTTTCCA GTGGAAGGAGT	1	NM_019973N M_019973	16
<i>Tff2</i>	trefoil factor 2 (spasmolytic protein 1)	Mm00447491_m1	69	ACCAAGAATCGGA GCAGTGTGTCAT	2	NM_009363N M_009363	17
<i>Tff3</i>	trefoil factor 3, intestinal	Mm00495590_m1	60	TGCAGGAGACAGA ATGCACATTTTG	2	NM_011575N M_011575	17
<i>Tiam1</i>	T-cell lymphoma invasion and metastasis 1	Mm00437071_m1	76	TTCCAAGAAAGGCC TGAAGGCGGGG	13	NM_009384N M_009384 NM_080727N	16
<i>Tmprss3</i>	transmembrane protease, serine 3	Mm00453694_m1	101	GTGGCACCAGATG GAGACGCACTGG	1	M_080727 NM_024258N	17
<i>Usp16</i>	ubiquitin specific protease 16	Mm00470393_m1	60	GGCGCCGTCGCC CGGATTGTAAC	1	M_024258 M_024258	16
<i>Usp25</i>	ubiquitin specific protease 25	Mm00450054_m1	90	GCCACCACAGCAC AAGCAGGAGGCG	17	NM_013918N M_013918	16
<i>Wdr4</i>	WD repeat domain 4	Mm00498663_m1	61	TCTGTGTGAGTGC GTTCCCGTGGTC	8	NM_021322N M_021322	17
<i>Znf295</i>	zinc finger protein 295	Mm00558469_m1	69	AAGATGTGTGCTTG CCAGATAAAGT	1	NM_175428N M_175428	16

Figure 7-4: A Practical Example of the  $\Delta\Delta Ct$  Methods.



**Table 7-5: *C. elegans* Strains Used and Generated in this Work.**

Strain Number	Name	Genotype	Origin
not assigned	N2	wild type	A. Antebi's lab
not assigned	VH525	glr-1::YFP,unc-47::YFP unc-129::YFP,rol-6(su1006)	A. Antebi's lab
NL2099	RRF-3	rrf-3(pk1426)III	A. Antebi's lab
AA959 dhEx414	C05D10.3::GFP line F1	n765(L3781::C05D10.3::gfp; lin-15(+))	microinjection
AA960 dhEx420	C05D10.3::GFP line H1	n765(L3781::C05D10.3::gfp; lin-15(+))	microinjection
AA961 dhEx421	C05D10.3::GFP line M1	n765(L3781::C05D10.3::gfp; lin-15(+))	microinjection
AA962 dhEx422	C05D10.3::GFP line M2	n765(L3781::C05D10.3::gfp; lin-15(+))	microinjection
AA963 dhEx423	C05D10.3::GFP line M4	n765(L3781::C05D10.3::gfp; lin-15(+))	microinjection
AA883 dhEx393	C33C12.9::GFP line 2-2	n765(L3781::C33C12.9::gfp; lin-15(+))	microinjection
AA895 dhEx395	C33C12.9::GFP line 2-5	n765(L3781::C33C12.9::gfp; lin-15(+))	microinjection
not assigned	C33C12.9::GFP line 2-1	n765(L3781::C33C12.9::gfp; lin-15(+))	microinjection
not assigned	C33C12.9::GFP line 2-3	n765(L3781::C33C12.9::gfp; lin-15(+))	microinjection
AA950 dhEx410	Y105E8A.1::GFP line 7-1	n765(L3781::Y105E8A.1::gfp; lin-15(+))	microinjection
AA951 dhEx411	Y105E8A.1::GFP line 10-1	n765(L3781::Y105E8A.1::gfp; lin-15(+))	microinjection
AA952 dhEx412	Y105E8A.1::GFP line 10-2	n765(L3781::Y105E8A.1::gfp; lin-15(+))	microinjection
AA953 dhEx413	Y105E8A.1::GFP line 10-3	n765(L3781::Y105E8A.1::gfp; lin-15(+))	microinjection
AA954 dhEx414	Y105E8A.1::GFP line 10-4	n765(L3781::Y105E8A.1::gfp; lin-15(+))	microinjection
AA955 dhEx415	Y105E8A.1::GFP line 10-5	n765(L3781::Y105E8A.1::gfp; lin-15(+))	microinjection
AA956 dhEx416	Y105E8A.1::GFP line 10-6	n765(L3781::Y105E8A.1::gfp; lin-15(+))	microinjection
AA957 dhEx417	Y105E8A.1::GFP line 10-7	n765(L3781::Y105E8A.1::gfp; lin-15(+))	microinjection
AA958 dhEx418	Y105E8A.1::GFP line 11-1	n765(L3781::Y105E8A.1::gfp; lin-15(+))	microinjection
AA912 dhEx402	Y74C10Al.2::GFP line I2	n765(L3781::Y74C10Al.2::gfp; lin-15(+))	microinjection
AA913 dhEx403	Y74C10Al.2::GFP line H9	n765(L3781::Y74C10Al.2::gfp; lin-15(+))	microinjection
AA914 dhEx404	Y74C10Al.2::GFP line B3	n765(L3781::Y74C10Al.2::gfp; lin-15(+))	microinjection
AA880 dhEx390	ZC373.1::GFP line A9	n765(L3781::ZC373.1::gfp; lin-15(+))	microinjection
not assigned	ZC373.1::GFP line A8	n765(L3781::ZC373.1::gfp; lin-15(+))	microinjection
not assigned	ZC373.1::GFP line E8	n765(L3781::ZC373.1::gfp; lin-15(+))	microinjection

**Table 7-6: Plasmids Generated in this Work.**

Plasmid	Size (bp)	resistance	PCR primers	DNA Template	Insert size (bp)	Restriction sites
L3781::C33C12.9	9366	Amp	C33C12.a C33C12.b	cosmid C33C12	5678	PstI, KpnI
L3781::Y74C10Al.2	8014	Amp	Y74C10Al.a Y74C10Al.b	N2 genomic DNA	4326	PstI, KpnI
L3781::ZC373.1	8591	Amp	ZC373.a ZC373.b	N2 genomic DNA	4909	SphI, KpnI
L3781::F28B3.1	12325	Amp	F28B3.a F28B3.b	cosmid F28B3	8625	XbaI, KpnI
L3781::C05D10.3	7851	Amp	C05D10.a C05D10.b	N2 genomic DNA	4159	SphI, EagI
L3781::Y105E8A.1	9825	Amp	Y105E8A.a Y105E8A.b	N2 genomic DNA	6137	PstI, KpnI
L4440::C33C12.9	3212	Amp	C33C12.9 Fw C33C12.9 Rv	N2 cDNA	434	BglII
L4440::Y74C10Al.2	3152	Amp	Y74C10Al Fw Y74C10Al Rv	N2 cDNA	374	BglII
L4440::ZC373.1	3307	Amp	ZC373 Fw ZC373 Rv	N2 cDNA	529	BglII
L4440::F28B3.1	3400	Amp	F28B3 Fw F28B3 Rv	N2 cDNA	622	BglII
L4440::Y116A8C.36	3330	Amp	Y116A8C.36 Fw Y116A8C.36 Rv	N2 cDNA	552	BglII
L4440::C24H12.5	3325	Amp	C24H12.5 Fw C24H12.5 Rv	N2 cDNA	547	BglII
L4440::C47E12.7	3299	Amp	C47E12.7 Fw C47E12.7 Rv	N2 cDNA	521	BglII



**Table 7-7: Primers Used for GFP Fusion Constructs Generation.**

Number	Primer name	sense	Sequence	Were used for
1a	C24H12.a	Forward	GG TACCCC ATTCTTAGTCCATTTACACAATTC	cloning, sequen cing, colony screen ing
1b	C24H12.b	Reverse	TCTAGATGGAAAAA GAGTAAA TATCGAT	cloning, sequen cing, colony screen ing
1c	C24H12.c	Forward	ACC GG TCC ATTCTTAGTCCATTTACACAATTC	sequen cing, colony screen ing
1d	C24H12.d	Reverse	GCATGCAGTAAAGTTTCGATAAA TCAAGAC	sequen cing, colony screen ing
1e	C24H12.e	Forward	AATGCCGTATAACTCCC	sequen cing, colony screen ing
1f	C24H12.f	Reverse	CGCTACAAATATGGG ACA	sequen cing, colony screen ing
1g	C24H12.g	Forward	AGAGCC TGCAGAATTC AATT	cloning, sequen cing, colony screen ing
1h	C24H12.h	Reverse	TTTCAGCC TATTA AAA TGTCGG	cloning, sequen cing, colony screen ing
2a	C33C12.a	Forward	GG TACCCC TTCAATTTCCGCAAGTGGCG	cloning, sequen cing, colony screen ing
2b	C33C12.b	Reverse	CTGCAGATTTGGG AAA TTTT GAGATTTTTTTT G	cloning, sequen cing, colony screen ing
2c	C33C12.c	Forward	CAAGTAA TTTT GACACGC	sequen cing, colony screen ing
2d	C33C12.d	Reverse	CAGACTACTCCC GAA TATT	sequen cing, colony screen ing
2e	C33C12.e	Forward	GTCGCGGCTCAAATGCAAAA	sequen cing, colony screen ing
2f	C33C12.f	Reverse	GGCCGCCGTCTCAGATTTCT	sequen cing, colony screen ing
3a	Y105E8A.a	Forward	GG TACCCC GG CCTTTT CTTCC TCC TC	cloning, sequen cing, colony screen ing
3b	Y105E8A.b	Reverse	CTGCAGATTTCCAA TTGATTCAA TTTCCC	cloning, sequen cing, colony screen ing
3c	Y105E8A.c	Forward	AGCGGTTCAAAGTTCTG	sequen cing, colony screen ing
3d	Y105E8A.d	Reverse	CTGGG TTTT CAAGTGTG	sequen cing, colony screen ing
3e	Y105E8A.e	Forward	AGTACCCC ATACAA TACTACTA	sequen cing, colony screen ing
3f	Y105E8A.f	Reverse	CATCAGCCATAATGACTGTC	sequen cing, colony screen ing
4a	Y74C10 AL.a	Forward	GG TACCCC TCCC ACATCTCTTCGGTAC	cloning, sequen cing, colony screen ing
4b	Y74C10 AL.b	Reverse	CTGCAGATAGTTTTAAAAA TAAAAA TTGAGC	cloning, sequen cing, colony screen ing
4c	Y74C10 AL.c	Forward	ACGACGAAAA TCAAA CA	sequen cing, colony screen ing
4d	Y74C10 AL.d	Reverse	AGATTTT CACACCC GAT	sequen cing, colony screen ing
4e	Y74C10 AL.e	Forward	CAC TTTT GATGCTTTGTGAA	sequen cing, colony screen ing
4f	Y74C10 AL.f	Reverse	CAATGTT CATGG TTAATGCT	sequen cing, colony screen ing
5a	ZC373.1.a	Forward	GCATGCAGG AATGACC ATCAATTTGAAA TA	cloning, sequen cing, colony screen ing
5b	ZC373.1.b	Reverse	GG TACCCC GG CGTCTAGGAAA TGACGCTC	cloning, sequen cing, colony screen ing
5c	ZC373.1.c	Forward	CGGACTTT CGCTTGA	sequen cing, colony screen ing
5d	ZC373.1.d	Reverse	TGTTGGCATAAGGTGAT	sequen cing, colony screen ing
5e	ZC373.1.e	Forward	CTCGTGTCTCTGACCC TCAT	sequen cing, colony screen ing
5f	ZC373.1f	Reverse	GGTGATTCC TTTCC TGCAA	sequen cing, colony screen ing
6a	C47E12.a	Forward	GG TACCCC ATTTTT CTTTCC TGCTTTTCTTTT C	cloning, sequen cing, colony screen ing
6b	C47E12.b	Reverse	CCGCGGATTATTATGATTTTT CAATGTTT GTATG	cloning, sequen cing, colony screen ing
6c	C47E12.c	Forward	AAGTCC TTCAACG AAGC	sequen cing, colony screen ing
6d	C47E12.d	Reverse	GCAAGGCTACACTTTGA	sequen cing, colony screen ing
6e	C47E12.e	Forward	TTTATCC ATGCGCC ATCGAT	sequen cing, colony screen ing
6f	C47E12.f	Reverse	ACAGTATTGGAAT ACTTGTGGAAGC	sequen cing, colony screen ing
7a	F28B3.a	Forward	TCTAGAAC C GAATGAGGG CCAAGATTA	cloning, sequen cing, colony screen ing
7b	F28B3.b	Reverse	GG TACCCCC ATGTGATACGCTACGTATATC	cloning, sequen cing, colony screen ing
7c	F28B3.c	Forward	CATCTGTATGCAAAGGAGC	sequen cing, colony screen ing
7d	F28B3.d	Reverse	GATCGAGAGAA GAACCAA	sequen cing, colony screen ing
7e	F28B3.e	Forward	AAA CTGACACTTTT CAACTTTT CCC	sequen cing, colony screen ing
7f	F28B3.f	Reverse	AAGCGGCAAGAAA GTGAA GA	sequen cing, colony screen ing
8a	Y71G12A.a	Forward	TCTAGAACTGCCC TTTGCTCTACTTTA	cloning, sequen cing, colony screen ing
8b	Y71G12A.b	Reverse	ACCGT TCCC TCCACTAATTT CCC ATCGATT	cloning, sequen cing, colony screen ing
8c	Y71G12A.c	Forward	TGATCTCTGCGTATTGC	sequen cing, colony screen ing
8d	Y71G12A.d	Reverse	AACTTATGAGGG AAGCC	sequen cing, colony screen ing
8e	Y71G12A.e	Forward	GATATTTGGTCATTTTGGTACC	sequen cing, colony screen ing
8f	Y71G12A.f	Reverse	TCAACC AAAA TTTCTCGTTT	sequen cing, colony screen ing
9a	Y116A8C.a	Forward	GCGGCC GCAGAACTATTGATTTTTTTTTT GCC	cloning, sequen cing, colony screen ing
9b	Y116A8C.b	Reverse	GCGGCC GCTTGCTGCTGAA CATAATTCG	cloning, sequen cing, colony screen ing
9c	Y116A8C.c	Forward	GCACAA TTTTCTTACTTTT G	sequen cing, colony screen ing
9d	Y116A8C.d	Reverse	GTTT GACACCAGGAAA TT	sequen cing, colony screen ing
9e	Y116A8C.e	Forward	CCCC TGTTCTCCAGATGACA	sequen cing, colony screen ing
9f	Y116A8C.f	Reverse	TCTGCTAGATGGAGTTCCGG	sequen cing, colony screen ing
10a	C05D10.a	Forward	CGGCC GAAGTATTATTATAGGAACGGATG	cloning, sequen cing, colony screen ing
10b	C05D10.b	Reverse	GCATGCGTTGTTATTTGTTACTACATATTG	cloning, sequen cing, colony screen ing
10c	C05D10.c	Forward	GGAGTGTATCGAACGAGT	sequen cing, colony screen ing
10d	C05D10.d	Reverse	CTGACACTTCACAA GAATCT	sequen cing, colony screen ing
10e	C05D10.e	Forward	TCTCTCCACACGAAA GACCT	sequen cing, colony screen ing
10f	C05D10.f	Reverse	CCC ACCA ACTTCGTAGATCG	sequen cing, colony screen ing
11a	M13 rps	Forward	CAGGAAA CAGCTATGAC	sequen cing, colony screen ing
11b	M13 fps	Reverse	GTA AAA CGACGGCCAG	sequen cing, colony screen ing
12a	GFP r	Reverse	TACATAACCTTCGGG CATGG	sequen cing, colony screen ing

**Table 7-8: Primers Used for RNAi Constructs Generation.**

Number	Primer name	sense	Sequence	Were used for
14a	C33C12.9	Forward	TTTAGATCTTCGCGACCCCAAGCTTGTAC	cloning, sequencing, colony screening
14b	C33C12.9	Reverse	TTTAGATCTCTTTGAGCAGTGCCGGGATA	cloning, sequencing, colony screening
15a	Y105E8A.1	Forward	TTTAGATCTTCGAGTACAGAGAACTCTTATG	cloning, sequencing, colony screening
15b	Y105E8A.1	Reverse	TTTAGATCTGTCTTACTGAACAACGCAGC	cloning, sequencing, colony screening
16a	Y74C10AL.2	Forward	TTTAGATCTGTAGAAACGCCGTTGCCTCT	cloning, sequencing, colony screening
16b	Y74C10AL.2	Reverse	TTTAGATCTGTTGGTGAGGAAAAGGGCAA	cloning, sequencing, colony screening
17a	ZC373.1	Forward	TTTAGATCTAGACTGGAAAACCTGGAAAG	cloning, sequencing, colony screening
17b	ZC373.1	Reverse	TTTAGATCTTAGAAGTCGATGTCAGTCTC	cloning, sequencing, colony screening
18a	Y71G12A.2	Forward	TTTAGATCTTGATGAATCACAAATTCGACGG	cloning, sequencing, colony screening
18b	Y71G12A.2	Reverse	TTTAGATCTAGCCAACACACATCGTGC	cloning, sequencing, colony screening
19a	C24H12.5	Forward	TTTAGATCTCAGGCTTTTCGAGGGCAGAA	cloning, sequencing, colony screening
19b	C24H12.5	Reverse	TTTAGATCTACGTGGCGATTAGAGTGGGC	cloning, sequencing, colony screening
20a	F28B3.1	Forward	TTTAGATCTAAGCGTCGGCGATAACTGTC	cloning, sequencing, colony screening
20b	F28B3.1	Reverse	TTTAGATCTATTTGACGCCCGGAGAAG	cloning, sequencing, colony screening
21a	C05D10.3	Forward	TTTAGATCTCAAATCTGCTTTCTGTCAGG	cloning, sequencing, colony screening
21b	C05D10.3	Reverse	TTTAGATCTGGAATGGCGTCAAATGTTATGA	cloning, sequencing, colony screening
22a	Y116A8C.36	Forward	TTTAGATCTCAGTACCTACTCCAGGCGGT	cloning, sequencing, colony screening
22b	Y116A8C.36	Reverse	TTTAGATCTCTGTTGTCTCGACAGCTTCA	cloning, sequencing, colony screening
23a	C47E12.7	Forward	TTTAGATCTATTCGTGATCAGTCCGCAA	cloning, sequencing, colony screening
23b	C47E12.7	Reverse	TTTAGATCTCTGATGCTTTGTTCCGAGAA	cloning, sequencing, colony screening
11a	M13 rps	Forward	CAGGAAACAGCTATGAC	sequencing, colony screening
11b	M13 fps	Reverse	GTAAAACGACGGCCAG	sequencing, colony screening

**Table 7-9: Primer Sequences of RNAi Library Clones from the Ahringer Laboratory.**

Chr	GeneName	Fwd Primer Seq	Rev Primer Seq
I	F28B3.1	GTTGTTGTGTGTGCTCCACC	GGCTGGTACGAGATCGAGAG
II	C33C12.9	GCCGCTTTAACATTATTCTCCTT	TTTTCTCCAATTTCTTCCAACA
III	C05D10.3	GCCCAAGTCCGTAGACAAAA	TTCGCAACAATATGCCAAAA
IV	Y116A8C.36	TGTTCTCCAGATGACAAATCCTT	GCGACAAGTTTTCGAATAAACATC
II	C24H12.5	CTCTGCGGTGATTCTTGGAT	GAAAAAGCGCGAGAAGCTAA
IV	C47E12.7	GAGCTCGCTTTTGTGATTTGG	GTTTTCGCTCAGAACTCGC
IV	unc-22 [ZK617]	AATGATCTCCCTTGTTGAGTGAA	CACTCTTACTGCTACCAACGCTT

**Table 7-10: Electronic Ratio of the additional tested tissues in individual Ts65Dn mice.** Column A: Mmu21 gene Name. Genes in orange are not triplicated genes in Ts65Dn, genes in black are duplicated in Ts65Dn.: For each tissue the Mean Ts/Eu ratio obtained by electronic pooling. And the p-value from the T-test is given. Significant values (<0.05) are highlighted in green.

	Heart		kidney		Liver		Testis	
	eRatio	p-value t-test	eRatio	p-value t-test	eRatio	p-value t-test	eRatio	p-value t-test
Usp25	0.95	0.84	0.97	0.90	0.93	0.67	0.20	0.07
Jam2	1.37	0.39	2.08	0.04	1.35	0.36	1.58	0.16
App	1.92	0.26	1.37	0.10	1.74	0.06	1.76	0.04
Adamts5	1.55	0.22	1.94	0.28	3.33	0.35	1.70	0.04
Usp16	1.42	0.09	1.69	0.01	0.99	0.93	0.44	0.21
C21orf7	1.71	0.12	1.13	0.17			0.57	0.20
Ii10rb	1.10	0.70	1.58	0.00	1.25	0.37	1.31	0.03
Gart	1.42	0.14	1.53	0.04	1.13	0.30	1.70	0.01
Son	1.58	0.08	1.25	0.13	1.51	0.34	0.85	0.62
Mrps6	1.52	0.07	2.27	0.01	1.17	0.62	1.26	0.08
Kcne2							0.25	0.01
C21orf51	1.19	0.18	1.60	0.07	1.34	0.02	0.97	0.88
Kcne1	1.38	0.61	1.70	0.11			2.49	0.49
Cbr1	1.33	0.20	1.93	0.15	1.84	0.15	1.06	0.86
Dyrk1a	1.35	0.35	1.28	0.02	1.59	0.43	1.07	0.82
Dscr2	1.24	0.47	1.13	0.78	1.76	0.21	0.83	0.53
Sh3bgr	1.44	0.20	1.33	0.47			2.78	0.43
Bace2	1.85	0.07	1.80	0.12	2.07	0.00	4.23	0.38
Fam3b							0.17	0.09
Znf295	1.21	0.43	1.24	0.20	1.22	0.44	0.79	0.47
Tff3					2.41	0.47		
Tmprss3							0.65	0.28
Cbs	1.71	0.42	0.71	0.42	1.47	0.48	1.93	0.45
C21orf56							0.18	0.09

**Table 7-11 (Next page): Result summary table.** For each brain tissue the table contains following information: *Column A:* Mmu21 gene Name. Names in red are triplicated genes, genes in black are duplicated in Ts65Dn.: *Column B:* Mean Ts/Eu ratio obtained by electronic pooling. *Column C:* p-value from the T-test. Significant values (<0.05) are highlighted in green. *Column D:* shows the p-value from the F-test. Significant values (<0.05) are highlighted in green. *Column E:* Mean Ts/Eu ratio obtained for the RNA pools. *Columns F-J* and *Columns K-O* shows the data for the control and Ts65Dn samples respectively. *Column F, K:* Mean normalized expression for the 4 samples of a group. *Column G, L:* Standard deviation of the mean normalized expression. *Column H, M:* Coefficient of variation (in %) for the 4 samples of a group. *Column I, N:* Technical variance for the 4 samples of a group. *Column J, O:* Biological variance for the 4 samples of a group.

CEREBELLUM														
Gene Name	Ts/Eu (e-pool)	p-value (T-test)	F-test (p-value)	Ts/Eu (b-pool)	Euploid					Ts65Dn				
					Mean expression	SD	CV (%)	Technical VAR	Biological VAR	Mean expression	SD	CV (%)	Technical VAR	Biological VAR
Mpl39	1.37	0.149	0.471	1.55	44.64	15.06	33.7	30.28	2044.34	61.12	13.04	21.3	14.99	1530.70
Jam2	1.40	0.012	0.206	1.24	16.51	11.10	67.1	0.10	10.36	23.17	3.55	15.96	0.92	113.60
Gabpa	1.61	0.020	0.007	1.29	18.88	7.21	38.2	1.48	467.83	30.47	1.52	5.0	1.80	20.64
App	1.59	0.026	0.601	1.60	540.60	142.54	26.4	4248.19	18258.32	858.60	162.70	18.9	4621.33	238907.41
Adamts5	0.84	0.276	0.795	1.03	1.86	0.40	21.8	0.43	1.47	1.56	0.29	18.5	0.30	0.75
Usp16	1.48	0.057	0.912	1.49	31.20	6.79	21.8	10.62	414.44	46.22	10.79	23.3	46.70	1046.54
Ccst	1.71	0.004	0.398	1.29	53.34	8.95	18.8	5.84	721.34	91.18	26.28	23.9	85.04	6222.67
C21orf7	0.85	0.530	0.385	0.86	0.27	0.12	44.7	0.00	0.13	0.23	0.06	25.6	0.02	0.03
Cln8	0.74	0.563	0.035	0.62	0.15	0.13	89.4	0.02	0.16	0.11	0.02	20.1	0.01	0.00
Tiam1	2.36	0.013	0.491	1.70	109.53	22.44	20.5	94.64	4522.54	257.97	81.82	31.7	625.62	60166.21
Ifnar2	1.37	0.328	0.001	1.37	45.52	31.49	69.2	44.37	8941.75	62.33	2.51	4.0	57.85	35.43
Ifitrb	1.12	0.734	0.529	1.30	20.17	10.86	54.4	11.56	1084.76	22.61	8.21	36.3	14.26	609.79
Ifnar1	1.74	0.031	0.379	1.33	46.39	17.40	37.5	38.80	2711.08	80.73	17.23	21.3	26.92	2671.97
Ifng2	1.56	0.045	0.826	1.32	10.98	2.37	21.6	0.98	50.48	17.09	4.23	24.8	4.71	162.08
Gart	1.61	0.001	0.859	1.49	1.94	0.24	12.1	0.39	0.52	3.13	0.34	10.9	0.33	1.05
Son	1.58	0.014	0.997	1.53	353.09	63.81	18.1	365.42	36676.39	556.59	100.83	18.1	3175.34	91511.31
Itsn	1.68	0.002	0.479	1.61	136.42	12.82	9.4	508.71	1522.87	229.25	33.79	14.7	255.88	10382.01
Mps6	1.51	0.023	0.729	1.54	40.18	8.57	21.3	45.66	656.55	60.67	10.41	15.2	104.43	982.04
Kcne2	1.07	0.925	0.419	1.19	32.28	39.27	121.7	1.71	13876.41	34.57	25.11	72.6	2.14	5675.88
C21orf51	1.38	0.191	0.759	1.30	45.49	12.02	26.4	55.29	1298.83	62.76	20.10	32.0	131.01	3656.64
Runx1	1.28	0.286	0.661	1.14	0.28	0.07	24.6	0.02	0.04	0.06	0.12	32.4	0.03	0.12
Cbr1	1.21	0.077	0.783	1.03	64.27	9.03	14.0	37.87	733.54	78.05	9.22	11.8	615.53	654.80
C21orf6	1.71	0.010	0.696	1.19	12.19	2.59	10.1	1.82	23.08	10.25	21.71	10.2	10.25	224.80
Hics	1.73	0.000	0.019	1.28	47.68	7.72	16.2	29.58	536.76	62.35	2.40	2.9	95.83	50.56
Dyrk1a	1.63	0.064	0.999	1.46	136.35	39.65	29.1	128.11	14173.68	222.44	64.74	29.1	312.60	37663.45
Ets2	2.48	0.002	0.622	2.00	17.18	4.60	26.8	51.86	184.60	42.60	8.96	19.6	8.35	629.64
Decr2	1.22	0.211	0.168	1.45	28.09	7.90	28.1	68.33	552.82	34.25	3.87	11.3	4.34	134.73
Sh3bp1	1.85	0.053	0.378	1.65	13.15	5.16	39.2	3.33	236.78	21.64	4.83	23.6	7.35	209.71
B3gat5	1.46	0.106	0.131	1.24	41.53	4.87	11.7	21.67	214.88	60.67	19.53	32.2	25.48	3435.23
Bace2	1.05	0.856	0.240	0.97	4.88	2.13	43.7	0.73	41.03	5.10	1.04	20.3	0.51	9.67
Znr295	1.46	0.070	0.983	1.42	15.97	3.83	24.0	5.09	132.13	23.36	5.52	23.6	7.17	275.65
Nrip1	1.57	0.009	0.901	1.23	42.83	6.58	15.4	27.81	390.24	67.00	11.19	16.7	8.54	1127.05
Usp25	1.05	0.517	1.011	1.01	51.87	4.10	7.9	51.95	151.70	53.14	6.34	11.9	103.83	368.87
Ncam2	0.95	0.666	0.579	0.96	43.75	5.74	13.1	9.32	296.18	41.56	7.74	18.6	7.54	539.45
Pde9a	1.08	0.637	0.231	1.05	74.80	22.09	29.5	21.10	4396.00	80.93	10.93	13.5	201.86	1096.82
Wdr4	1.12	0.340	0.071	0.90	9.46	2.15	22.2	1.19	41.93	10.63	7.00	6.6	2.07	4.39
Cbs	0.37	0.146	0.414	0.41	21.26	15.56	73.2	45.28	2194.26	7.95	3.45	43.4	3.65	107.43
Kiaa0179	1.29	0.133	0.195	1.04	6.39	1.16	19.3	0.69	12.04	1.76	21.4	4.45	21.73	3.73
Cebt	0.93	0.699	0.155	0.89	50.69	15.91	11.4	9.43	2275.19	47.26	5.76	13.1	131.19	277.53
Col18a1	0.62	0.578	0.161	0.56	71.40	89.39	125.2	32.66	71899.53	44.33	21.90	49.4	15.93	4313.78
Las	0.69	0.381	0.036	0.63	27.08	17.33	64.0	17.95	2710.85	18.80	2.73	14.5	2.35	66.72
S100b	1.14	0.588	0.344	1.16	610.48	132.53	21.7	6235.60	158793.78	698.81	278.79	39.9	2548.22	699944.71

CORTEX														
Gene Name	Ts/Eu (e-pool)	p-value (T-test)	F-test (p-value)	Ts/Eu (b-pool)	Euploid					Ts65Dn				
					Mean expression	SD	CV (%)	Technical VAR	Biological VAR	Mean expression	SD	CV (%)	Technical VAR	Biological VAR
Mpl39	1.57	0.005	0.764	1.60	25.17	3.97	15.3	9.24	141.85	39.53	5.16	13.1	18.66	239.90
Jam2	1.33	0.072	0.969	1.33	7.73	1.42	18.4	2.83	18.00	10.27	1.84	18.0	6.64	30.06
Gabpa	1.69	0.002	0.839	1.41	14.61	1.81	12.4	1.06	29.41	24.69	3.47	14.1	53.57	116.34
App	1.50	0.006	0.850	1.55	606.86	72.83	12.0	10392.33	47190.42	908.12	122.68	13.5	21735.88	137571.71
Adamts5	1.32	0.101	0.278	1.23	0.97	0.27	27.7	0.08	0.85	1.27	0.17	7.7	0.14	0.27
Usp16	1.24	0.082	0.821	1.24	24.87	4.32	17.4	9.22	167.81	30.95	3.83	12.7	27.83	140.80
Ccst	1.69	0.002	0.199	1.29	63.01	13.47	21.4	74.07	1639.03	106.27	9.76	9.2	125.54	859.68
C21orf7	0.98	0.941	0.793	1.06	0.21	0.10	47.3	0.01	0.09	0.21	0.08	40.1	0.00	0.06
Cln8	1.72	0.173	0.985	1.77	0.10	0.04	46.5	0.04	0.03	0.16	0.08	48.0	0.03	0.05
Tiam1	1.55	0.051	0.450	1.12	38.02	12.42	32.7	16.84	1388.81	58.96	11.90	20.2	51.93	1274.41
Ifnar2	1.88	0.001	0.504	1.67	35.12	3.63	10.3	14.01	118.25	65.90	10.40	15.8	458.15	1037.87
Ifitrb	1.39	0.082	0.910	1.57	13.58	3.07	22.6	4.21	85.45	18.82	3.97	21.1	40.18	142.59
Ifnar1	1.60	0.000	0.235	1.26	27.87	3.71	13.3	5.51	123.61	44.52	2.73	6.1	73.54	65.03
Ifng2	1.56	0.006	0.208	1.20	9.81	2.16	22.0	1.68	42.02	15.27	1.47	9.6	0.89	19.36
Gart	1.48	0.008	0.581	1.52	1.40	0.10	19.7	0.07	0.08	2.07	0.31	15.2	0.28	0.98
Son	1.29	0.230	0.852	1.18	238.70	58.88	24.7	802.25	31210.00	307.83	85.37	17.2	218.62	65602.85
Itsn	1.48	0.017	0.096	1.39	90.16	5.58	6.2	690.08	319.02	133.03	25.49	19.2	1173.41	5663.31
Mps6	1.47	0.010	0.366	1.51	23.58	2.11	8.9	17.84	39.31	34.58	5.52	16.0	6.23	274.08
Kcne2	2.84	0.184	0.750	3.27	3.54	3.43	96.9	0.26	105.92	10.06	7.98	79.3	1.02	573.46
C21orf51	1.14	0.429	0.876	1.27	23.87	5.65	23.7	10.45	286.88	27.32	5.87	21.5	27.43	199.23
Runx1	1.24	0.143	0.774	1.11	0.19	0.04	88.8	0.00	0.01	0.24	0.04	15.7	0.01	0.01
Cbr1	1.20	0.112	0.636	1.21	58.87	6.72	11.4	257.44	414.25	70.77	10.90	15.4	244.52	1011.92
C21orf6	1.46	0.001	0.888	1.00	12.08	0.97	7.8	15.60	9.16	17.65	1.26	7.1	18.76	13.65
Hics	1.63	0.012	0.556	1.14	28.46	3.93	13.8	84.94	133.06	46.37	9.31	20.1	204.02	749.38
Dyrk1a	1.35	0.327	0.893	1.23	129.39	47.49	36.7	351.95	2062.28	174.34	69.64	39.9	750.17	43380.79
Ets2	1.42	0.248	0.007	1.50	22.46	3.22	41.1	22.02	154.32	37.29	1.94	5.2	36.05	32.02
Decr2	1.26	0.237	0.945	1.46	16.88	4.28	25.4	12.47	165.02	21.29	5.17	24.3	42.13	227.33
Sh3bp1	1.22	0.555	0.454	1.34	0.83	0.47	57.2	0.08	2.03	1.01	0.36	35.5	0.05	1.17
B3gat5	1.47	0.082	0.920	1.39	25.96	6.33	24.4	149.60	390.75	38.27	9.94	26.0	2.76	888.81
Bace2	1.24	0.342	0.429	1.28	4.06	0.81	20.0	0.38	5.95	5.01	1.66	33.0	1.21	24.87
Znr295	1.42	0.059	0.579	1.20	14.50	3.25	25.0	2.27	34.21	25.07	1.84	5.2	8.32	84.30
Nrip1	1.10	0.354	0.385	0.93	54.13	4.80	9.9	35.74	209.56	59.44	15.93	47.59	803.67	
Usp25	0.93	0.477	0.761	1.01	40.34	5.10	12.6	16.62	233.96	37.43	5.73	15.3	20.20	294.12
Ncam2	1.02	0.841	0.948	0.97	69.38	8.14	11.7	15.98	597.09	70.62	8.63	12.2	16.97	669.66
Pde9a	1.15	0.193	0.956	1.08	24.86	3.27	13.2	4.40	96.00	28.58	3.89	13.6	9.48	137.01
Wdr4	1.02	0.854	0.331	0.82	7.14	1.00	14.1	0.48	9.09	7.24	0.94	7.5	0.44	2.67
Cbs	0.53	0.719	0.683	0.87	8.67	4.81	1.70	213.03	4.59	2.70	1.84	1.84	41.36	9.24
Kiaa0179	1.06	0.616	0.522	0.95	7.49	1.42	18.9	1.24	17.90	7.94	1.00			

Figure 7-5: Topo XL Vector Map (from Invitrogen).

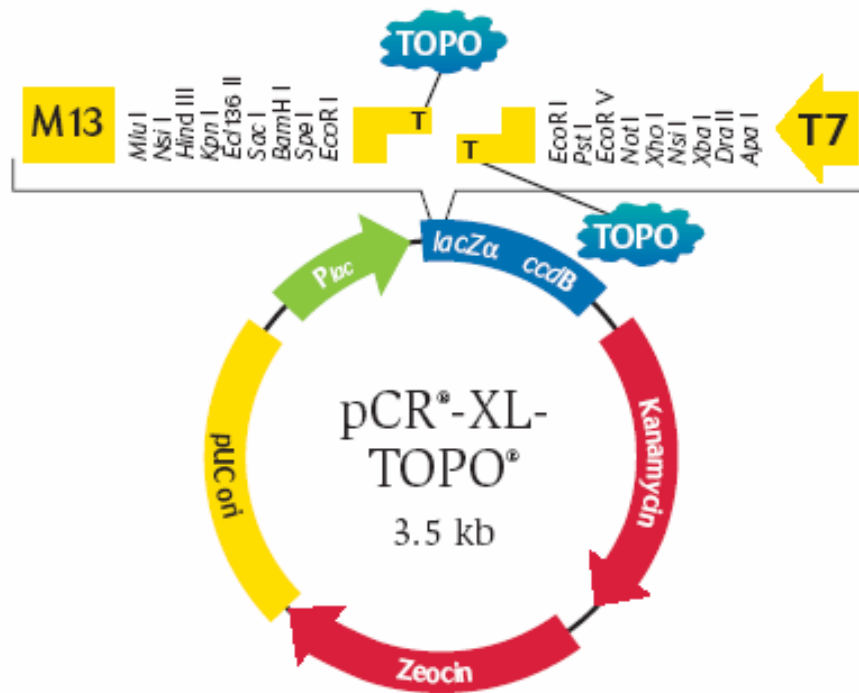


Figure 7-6: L3781 Vector Map.

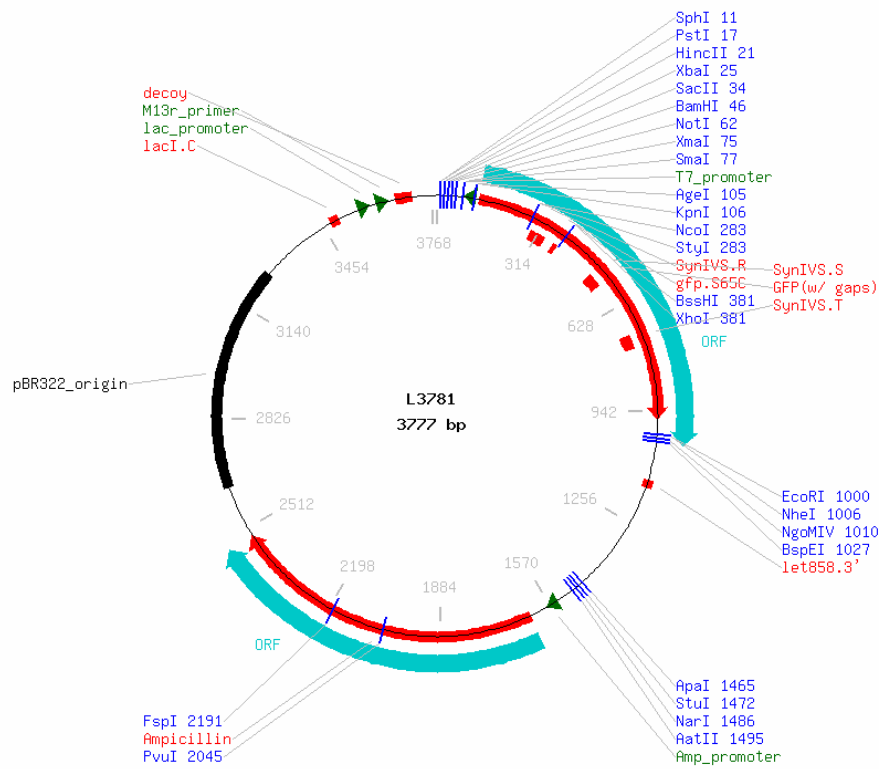
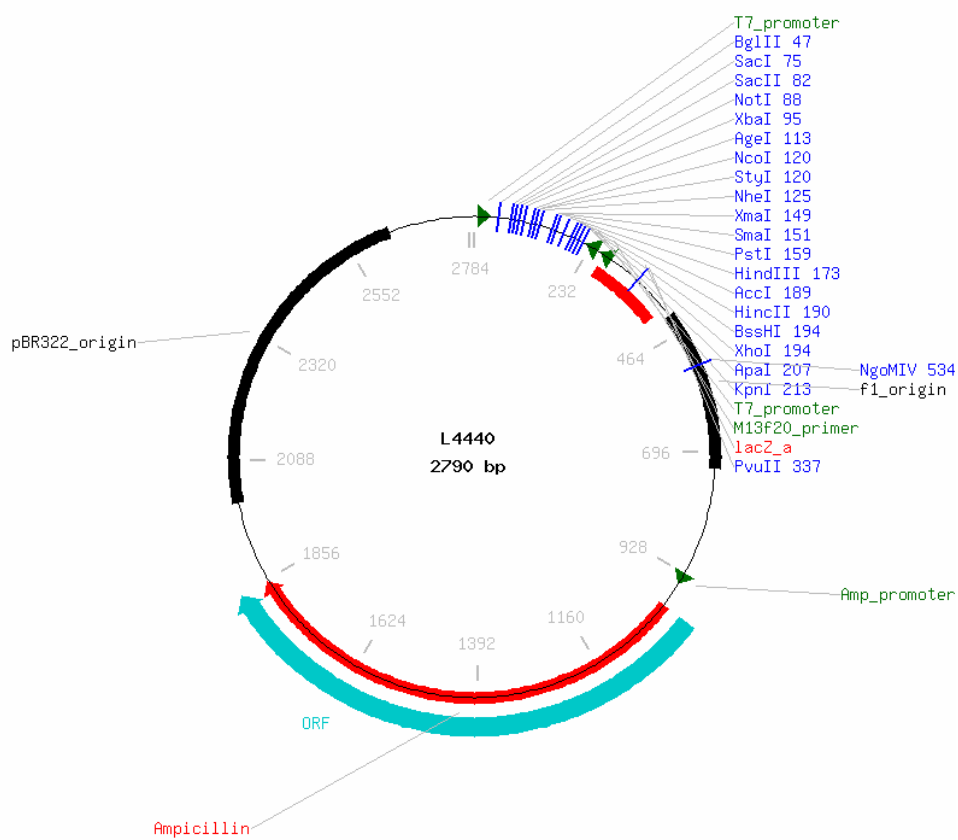


Figure 7-7: L4440 Vector Map.



## CURRICULUM VITAE

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### Education

October 2001- Present **Max Planck Institute for Molecular Genetics, Berlin, Germany**  
PhD thesis with Dr. Marie-Laure Yaspo: "Taking a functional genomic approach on the study of Down syndrome pathogenesis".

1998-1999 **University Louis Pasteur, Strasbourg, France**  
Master of Science in Biochemistry, Grade A (1<sup>st</sup> of 113 Candidates).

1995-1998 **University Louis Pasteur, Strasbourg, France**  
Bachelor of Science in Biochemistry, Grade A- (2nd of 102 Candidates)

1994-1995 **University of Medicine, Strasbourg, France**  
Medical Studies (PCEM 1).

1993-1994 **Lycée Louis-le-Grand, Paris, France**  
Economics (Classes préparatoires aux Hautes Etudes Commerciales).

1993 **French-German High School, Freiburg, Germany**  
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### Professional Experience

January 2005- Present **Max Planck Institute for Molecular Genetics, Berlin, Germany**  
Project leader of EUPREXPRESS, a european consortium to generate a web-based gene expression atlas by RNA *in situ* hybridization. *This is an integrated project funded by the EU in the framework program 6.*

February to June 2001 **University Louis-Pasteur, Strasbourg, France**  
Internship at the Microbiology and Genetic Laboratory of Dean Pr. Dr. Serge Potier: „Studies on the multigenic family DUP240 in the Yeast, *Saccharomyces cerevisiae*".

October 1999 to January 2001 **Oceanologic Center of the Pacific (IFREMER), Tahiti, French Polynesia**  
Technical Aid Volunteer working on the pathologies of the pearl oyster *Pinctada margaritifera*, with Dr. Denis Saulnier.

September 1999 **IFREMER, La Tremblade, France**  
Practical Initiation on pathologies of mollusks and their detection techniques.

July, August 1999 **TRANSGENE, Strasbourg, France**  
**Internship** in molecular biology with Dr. Annie. Findeli.

1998-1999 **Schülerhilfe, Kehl, Germany**  
Teaching in mathematics, German and french, for a private support School (High School Level).

1996-1997 **BASF, Willstätt, Germany**  
Quality Control in chemistry section

## Languages

Mother tongues: French and German  
English  
Italian (basic level)

## Publications

**Sultan M**, Piccini I, Balzereit D, Herwig R, Saran NG, Lehrach H, Reeves RH, Yaspo ML. Gene Expression Variation in Individual "Down Syndrome" Mice. *Submitted in Genome Biology*.

Dahl A, **Sultan M**, Jung M, Schwartz M, Lange M, Steinwand M, Livak KJ, Lehrach H, Nyarsik N Quantitative PCR based expression analysis on a nanoliter scale. *Accepted in Biomedical Microdevices*.

Kahlem P\*, **Sultan M\***, Herwig R, Steinfath M, Balzereit M, Eppens B, Saran NG, Pletcher MT, South ST, Stetten T, Lehrach H, Reeves RH, Yaspo ML. Transcript level Alterations Reflect Gene Dosage Effects Across Several Tissues in a Mouse Model of Down Syndrome. *Genome Research*, 2004; 14:1258-1267.

\*The first 2 authors should be regarded as equal first authors.



## Oral Presentations

Human Genome Meeting; Helsinki, Finland, June 2006.

*'Gene Expression Variation in Three Brain Tissues of a Mouse Model of Down Syndrome'*

Day of Science of the MPI for Molecular Genetics; Berlin, Germany, March 2006.

*'Eurexpress, a European Consortium to Generate a Web-Based Mouse Gene Expression Atlas'*

Moltools meeting on Single Cell and Single Molecule Detection Technology; Aarhus, Denmark, August 2005.

*'Eurexpress, a European Consortium to Generate a Web-Based Mouse Gene Expression Atlas'*

III International Conference on Chromosome 21 and Medical Research on Down Syndrome; Barcelona, Spain, March 2005.

*'Gene Expression Profiles in Down Syndrome and in Mouse Models'*

International Workshop on Encoding Information in DNA Sequences; Okinawa, Japan, February 2005.

*'Taking a Functional Genomic Approach to the Study of Down Syndrome Pathogenesis'*

Genome Variation Analysis, Seminar Applied Biosystems; Berlin, Germany, October 2004.

*'Gene Dosage Effects in a Mouse Model of Down Syndrome'*

Network on Experimental models of CNS Diseases, 3<sup>rd</sup> Meeting; Barcelona, July 2004.

*'Gene Dosage Effects in a Mouse Model of Down Syndrome'*

Expert Workshop on the biology of Chromosome 21 Genes: Towards the Gene Phenotype Correlations in Down Syndrome; Washington DC, USA, June 2004.

*'Gene Dosage Effects in a Mouse Model of Down Syndrome'*

Languages of Science, Humboldt-University, Berlin, Germany, May 2004.

*'From Genome to Genomics...'*

Human Genome Meeting; Cancun, Mexico, April 2003.

*'A Gene Expression Map of Human Chromosome 21 Orthologs in the Mouse'*

XVth IIGB meeting: From Genome Sequence to functional Analysis and Medical Applications; Capri, Italy, October 2002.

*'Taking a Functional Genomic Approach to the Study of Down Syndrome Pathogenesis'*

X International Meeting on molecular biology of Chromosome 21 and Down syndrome; Sitges, Spain, September 2002.

*'A Gene Expression Map of Human Chromosome 21 Orthologs in the Mouse'*

*'A Transcriptome Study of the Ts65Dn Mouse Model'*

## Poster Presentations

Nationales Genomforschungsnetz Meeting (NGFN); Heidelberg, Germany, November 2006.

*Piccini I, Schmidt D, Balzereit D, **Sultan M**, Manke T, Haas S, Wruck W, Herwig R, Magen A, Buchholz F, Krobitch S, Lehrach H, Yaspo, ML. 'RNAi of Human Transcription Factors for Analysing Regulatory Networks'.*

Human Genome Meeting, Helsinki, Finland, June 2006.

***Sultan M**, Piccini I, Balzereit D, Herwig R, Saran NG, Lehrach H, Reeves RH, Yaspo ML. 'Gene Expression Variation in Three Brain Tissues of a Mouse Model of Down Syndrome'.*

*Piccini I, Balzereit D, **Sultan M**, Herwig R, Buchholz F, Krobitch S, Lehrach H, Yaspo, ML. 'RNAi of Human Transcription Factors for Analysing Regulatory Networks'.*

21<sup>st</sup> AB Asilomar Conference; Pacific Grove, USA, October 2005.

*Jung A, Livak KJ, Steinwand M, Nyarsik L, **Sultan M**, Dahl A, Lehrach H. 'Procedures for Complex Bioassays in High Density Microwell Arrays'.*

Gesellschaft für Biochemie und Molekularbiologie (GBM), Annual Fall Meeting; Berlin, Germany, September 2005.

***Sultan M**, The Eurexpress Consortium. 'Eurexpress, a European Consortium to Generate a Web-Based Mouse Gene Expression Atlas'.*

***Sultan M**, Balzereit D, Saran NG, Guenther S, Guegler K, Lehrach H, Reeves RH, Yaspo ML. 'Gene Expression Variation in Three Brain Tissues of a Mouse Model of Down Syndrome'.*

*Piccini I, Balzereit D, **Sultan M**, Lehrach H, Krobitch S, Yaspo ML. 'Analysis of Transcription Regulatory Networks by RNA Interference Expression Analysis'.*

Human genome Meeting; Kyoto, Japan, April 2005.

*Guenther S, **Sultan M**, Balzereit D, Saran NG, Guegler K, Lehrach H, Reeves RH, Yaspo ML. 'Gene Expression Variation in Three Brain Tissues of a Mouse Model of Down Syndrome'.*

International Workshop on Encoding Information in DNA Sequences; Okinawa, Japan, February 2005.

***Sultan M**, Kahlem P, Herwig R, Steinfath M, Balzereit D, Eppens B, Saran NG, Pletcher MT, South ST, Stetten G, Weitzel C, Antebi A, Lehrach H, Reeves RH, Yaspo ML. 'Taking a Functional Genomic Approach to the Study of Down Syndrome Pathogenesis'.*

First International Conference Jérôme Lejeune. Genetic Mental Disability: from Molecular Biology to Treatment; Paris, France, November 2004.

***Sultan M**, Kahlem P, Herwig R, Steinfath M, Balzereit D, Eppens B, Saran NG, Mathew S, Pletcher T, South ST, Stetten G, Lehrach H, Reeves RH, Yaspo ML.*

*'Transcript Level Alterations Reflect Gene Dosage Effects Across Multiple Tissues in a Mouse Model Of Down Syndrome'*.

Expert Workshop on the biology of Chromosome 21 Genes: Towards the Gene-Phenotype Correlations in Down Syndrome; Washington DC, USA, June 2004.

**Sultan M**, Kahlem M, Herwig R, Steinfath M, Balzereit D, Eppens E, Saran NG, Pletcher MT, South ST, Stetten G, Lehrach H, Reeves RH, Yaspo ML. *'Gene Dosage Effects in a Mouse Model of Down Syndrome'*.

Human Genome Meeting; Berlin, Germany, April 2004.

**Sultan M**, Kahlem P, Herwig H, Steinfath M, Balzereit D, Eppens B, Saran NG, Pletcher MT, South ST, Stetten G, Weitzel C, Antebi A, Lehrach H, Reeves RH, Yaspo ML. *'Taking a Functional Genomic Approach to the Study of Down Syndrome Pathogenesis'*.

Human Genome Meeting; Cancun, Mexico, April 2003.

**Sultan M**, Kahlem P, Pletcher MT, Saran NG, Herwig R, Eppens B, Lehrach H, Reeves RH, Yaspo ML. *'Molecular Signatures of Trisomy 21 Investigated in the Ts65Dn Mouse Model'*.

ESF Programme in Functional Genomics; First conference: Functional Genomics and Disease; Prague, Czech Republic, May 2003.

Kahlem P, **Sultan M**, Pletcher MT, Saran NG, Herwig R, Eppens B, Lehrach H, Reeves RH, Yaspo ML. *'Molecular Signatures of Trisomy 21 Investigated in the Ts65Dn Mouse Model'*.

Symposium of the German National Genome Research Network (NGFN) and the German Human Genome Project (DHGP); Berlin, November 2002.

**Sultan M**, Kahlem P, Pletcher MT, Saran NG, Herwig R, Eppens B, Lehrach H, Reeves RH, Yaspo ML. *'A Transcriptome Study of the Ts65Dn Mouse Model'*.

X International Meeting on molecular biology of Chromosome 21 and Down syndrome; Sitges, Spain, September 2002.

**Sultan M**, Kahlem P, Pletcher MT, Saran NG, Herwig R, Eppens B, Lehrach H, Reeves RH, Yaspo ML. *'A Transcriptome Study of the Ts65Dn Mouse Model'*.

Human Genome Meeting, Shanghai, China, April 2002.

Kahlem P, **Sultan M**, Pletcher MT, Steinfath M, Eppens B, Lehrach H, Herwig R, Reeves RH, Yaspo ML. *'Molecular Genetic Analysis of Down Syndrome Pathogenesis in the Ts65Dn Mouse Model'*.

German Human Genome Project (DHGP), Braunschweig, November 2001.

Kahlem P, Ben Kahla A, **Sultan M**, Warnatz HJ, Schrinner S, Lehrach H, Yaspo ML. *'Impact of the Genome Sequence for Molecular Medicine: Human Chr. 21 and Down Syndrome Pathogenesis'*.

## **Fellowships**

Fellowship awarded for the International Workshop on Encoding Information in DNA Sequences; Okinawa, Japan, February 2005.

Fellowship awarded for the XVth IIGB meeting: From Genome Sequence to functional Analysis and Medical Applications; Capri, Italy, October 2002.

## **Related Extra Curricular Activities**

-Training in developmental anatomy of the mouse embryo at the Institute of Neurosciences; Alicante, Spain, November 2006.

-Co-organizer of an NGFN course (Nationales Genomforschungsnetz) on «Analysis of transcription regulatory networks by RNA interference»; Berlin, May 2006

-Chairman of the student association of the Max Planck institute for molecular genetics (STA), from November 2003 until March 2005.

-Staff member at the Human Genome Meeting 2004 (HGM 204), Berlin, Germany, April 2004.

## **Interests**

Music (piano).

Diving (CMAS./FFEMSS, Level II).

Waveriding, snowboarding.

## **ERKLÄRUNG**

Hiermit erkläre ich, dass ich die Arbeit selbst verfasst habe sowie keine anderen als die angegebenen Quellen und Hilfsmittel in Anspruch genommen habe. Ich versichere, dass diese Arbeit in dieser oder anderer Form keiner anderen Prüfungsbehörde vorgelegt wurde.

Berlin, den 17 Dezember 2006

Marc Sultan

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