

**Supplemental Table S1**

**(A) Control Round Spermatid versus Caput Spermatozoa**

DHR Name	Chr	Start	Stop	Length	# Sig Win	minP	maxLFC	CpG #	CpG Density	Gene Annotation	Gene Category
DHR1:37271301	1	37271301	37272400	1100	1	4.40E-05	-1.6622304	13	1.182		
DHR1:37649901	1	37649901	37650300	400	1	4.64E-05	-1.4234302	4	1	Adcy2	Metabolism
DHR1:56013601	1	56013601	56015600	2000	1	1.50E-07	-1.0033171	6	0.3		
DHR1:71521601	1	71521601	71523200	1600	1	6.55E-05	1.2174428	15	0.938		
DHR1:94645801	1	94645801	94645900	100	1	4.23E-05	1.555803	0	0		
DHR1:118351701	1	118351701	118351800	100	1	8.31E-05	-1.6135107	2	2		
DHR1:180262501	1	180262501	180263500	1000	1	4.24E-06	-1.7071361	4	0.4		
DHR1:180566401	1	180566401	180566900	500	1	8.32E-06	-0.5266363	13	2.6		
DHR1:180590001	1	180590001	180593300	3300	2	3.21E-06	-0.5124366	82	2.485		
DHR1:180971101	1	180971101	180974400	3300	1	3.25E-05	-0.516829	84	2.545		
DHR1:181001101	1	181001101	181001300	200	1	6.75E-05	-0.4674367	4	2		
DHR1:181166801	1	181166801	181173100	6300	3	7.97E-05	-0.5324683	133	2.111		
DHR1:181951901	1	181951901	181954700	2800	1	1.35E-05	-0.5601125	67	2.393		
DHR1:182785501	1	182785501	182786000	500	1	7.81E-05	-1.3094467	3	0.6		
DHR1:183167201	1	183167201	183167400	200	1	4.28E-05	2.2993068	2	1		
DHR1:233696101	1	233696101	233696400	300	2	1.05E-06	-2.2237598	2	0.667		
DHR1:243283501	1	243283501	243283700	200	1	6.96E-05	-2.0486178	1	0.5	Kank1	Transcription
DHR2:936601	2	936601	937000	400	1	7.59E-05	2.5932673	6	1.5		
DHR2:19295101	2	19295101	19295200	100	1	9.58E-05	-2.1104217	0	0		
DHR2:27655101	2	27655101	27655300	200	1	8.94E-05	2.3318674	2	1	AABR07007769.1	
DHR2:49358101	2	49358101	49358500	400	1	3.53E-05	-0.445616	12	3		
DHR2:52811601	2	52811601	52812300	700	2	1.53E-05	2.4049216	8	1.143		
DHR2:152817201	2	152817201	152817300	100	1	5.39E-06	2.4714619	1	1	Dhx36	Transcription
DHR2:157009301	2	157009301	157009400	100	1	7.92E-05	1.3954776	0	0		
DHR2:159614201	2	159614201	159614300	100	1	6.66E-05	-1.5395603	0	0		
DHR2:160933401	2	160933401	160934200	800	1	6.68E-05	-0.4906549	5	0.625		
DHR2:191936101	2	191936101	191936200	100	1	7.04E-05	2.4868526	0	0		
DHR2:194992701	2	194992701	194993800	1100	1	2.80E-05	1.7680994	9	0.818		
DHR2:196967701	2	196967701	196968500	800	1	9.08E-05	1.8417477	14	1.75		
DHR2:198590101	2	198590101	198590400	300	3	2.51E-15	-2.5533985	5	1.667	AABR07012587.1;RF00003	
DHR2:244543401	2	244543401	244545500	2100	1	6.60E-05	1.6596354	41	1.952	Stpg2;AABR07013566.1	Development
DHR2:249811401	2	249811401	249811600	200	1	9.99E-05	-1.7575309	1	0.5		
DHR3:133993701	3	133993701	134000100	6400	3	1.87E-07	-0.5864564	162	2.531		
DHR3:143918801	3	143918801	143919300	500	1	5.67E-06	2.2480705	7	1.4		
DHR4:23599101	4	23599101	23599300	200	1	8.24E-06	-1.6707214	2	1		
DHR4:32794001	4	32794001	32794400	400	1	2.03E-05	-1.724561	0	0		
DHR4:60891201	4	60891201	60892400	1200	1	6.97E-05	-1.8317507	12	1	Exoc4	Transport
DHR4:110673901	4	110673901	110674100	200	1	5.86E-05	-1.4172613	1	0.5		
DHR5:6372701	5	6372701	6374700	2000	20	9.27E-25	-1.9633777	33	1.65	AABR07046778.1	
DHR5:7071401	5	7071401	7071600	200	1	5.31E-05	1.8655893	9	4.5	RGD1564053	Unknown
DHR5:8922601	5	8922601	8922900	300	1	8.18E-05	1.2971805	0	0	Ppp1r42	
DHR5:71284301	5	71284301	71285700	1400	1	1.43E-05	-1.4412076	10	0.714		
DHR5:81779301	5	81779301	81779700	400	1	4.28E-05	2.3353792	7	1.75	Astn2	Unknown
DHR5:107519201	5	107519201	107519400	200	1	3.14E-05	2.5671817	1	0.5		
DHR5:109807901	5	109807901	109808500	600	1	6.97E-05	-1.9524592	4	0.667		
DHR6:16282701	6	16282701	16283300	600	1	6.16E-05	-1.6928117	1	0.167		
DHR6:16522901	6	16522901	16523500	600	1	2.84E-05	2.2802785	3	0.5		
DHR6:24137401	6	24137401	24137700	300	1	9.83E-06	-2.0767765	0	0		
DHR6:30437701	6	30437701	30438700	1000	1	1.53E-05	2.4384929	13	1.3		
DHR6:30646201	6	30646201	30647000	800	2	5.57E-05	-0.6847917	17	2.125	AABR07063424.1;AABR07063425.3;AABR07063425.2;AABR07063425.1	
DHR6:57140401	6	57140401	57140600	200	1	7.11E-05	2.2623798	1	0.5	Agmo	Metabolism

DHR6:60325001	6	60325001	60325200	200	1	5.97E-05	2.2660585	1	0.5	Zfp277	Transcription
DHR6:75623701	6	75623701	75623800	100	1	2.57E-05	2.3354958	0	0	RF00003;Snx6	Signaling
DHR7:502901	7	502901	504300	1400	1	1.94E-05	-0.7134326	5	0.357		
DHR7:20468501	7	20468501	20469000	500	1	7.33E-05	1.8058291	4	0.8	AABR07056118.1;AABR07056131.1	
DHR7:23012901	7	23012901	23013500	600	1	9.01E-05	1.697966	11	1.833	LOC300308	
DHR7:99337701	7	99337701	99338000	300	1	3.27E-05	-1.6507923	2	0.667		
DHR8:181101	8	181101	182400	1300	12	1.58E-27	-2.0698362	27	2.077		
DHR8:41149501	8	41149501	41150500	1000	1	9.11E-06	2.4385465	9	0.9	AABR07069837.1;AABR07069840.1	
DHR8:103539201	8	103539201	103539300	100	1	7.89E-05	-1.4765045	0	0	Trpc1	Transport
DHR9:8399201	9	8399201	8400600	1400	1	8.14E-05	-1.9026455	11	0.786	AABR07066379.1	
DHR9:9140001	9	9140001	9140600	600	1	8.25E-05	1.5133423	4	0.667	MGC116197	Unknown
DHR9:11660401	9	11660401	11663300	2900	1	1.58E-06	-1.4537688	10	0.345		
DHR9:21523201	9	21523201	21523500	300	1	7.35E-05	-1.9283518	0	0		
DHR9:21886501	9	21886501	21887300	800	1	8.38E-05	-1.3634867	7	0.875		
DHR9:21898701	9	21898701	21899000	300	1	1.55E-07	-2.2241442	0	0		
DHR9:37093901	9	37093901	37095100	1200	1	9.99E-05	-1.7574248	14	1.167	Phf3	
DHR9:84864801	9	84864801	84865900	1100	1	1.58E-05	2.3710978	33	3		
DHR9:121184301	9	121184301	121184400	100	1	4.96E-06	2.7066741	2	2		
DHR10:419301	10	419301	419600	300	1	2.53E-05	2.2541637	3	1		
DHR12:1508701	12	1508701	1510300	1600	4	5.74E-08	-0.8805164	26	1.625	RF00001;AABR07034940.2;Rn5s;AABR07034940.1	
DHR12:3628701	12	3628701	3628900	200	1	9.45E-05	-0.580587	4	2		
DHR12:10324001	12	10324001	10324200	200	1	3.87E-05	-1.6641916	0	0	Wasf3	Cytoskeleton
DHR13:33474001	13	33474001	33477500	3500	1	4.86E-05	-0.463189	86	2.457		
DHR13:33487601	13	33487601	33490200	2600	1	5.55E-05	-0.6240052	67	2.577		
DHR13:33719701	13	33719701	33720100	400	1	5.54E-05	-0.4990704	10	2.5		
DHR13:33755801	13	33755801	33756900	1100	1	9.97E-05	-0.6816494	26	2.364		
DHR14:28251501	14	28251501	28251700	200	1	7.11E-05	2.2991486	3	1.5		
DHR14:46539801	14	46539801	46541000	1200	1	1.15E-05	-0.8681338	25	2.083		
DHR14:46591401	14	46591401	46596000	4600	1	4.23E-05	-0.4439668	110	2.391	AABR07015066.1;AABR07015067.1;AABR07015067.2	
DHR14:46600001	14	46600001	46600600	600	1	1.37E-05	-0.5977175	16	2.667	AABR07015067.1;AABR07015067.2	
DHR14:46656401	14	46656401	46658800	2400	1	6.13E-05	-0.6928819	52	2.167	AABR07015078.1;AABR07015078.2;AABR07015079.1;AABR07015080.2;AABR07015081.2;AABR07015080.1;AABR07015081.1	
DHR14:94324801	14	94324801	94327500	2700	1	1.89E-05	1.6539379	18	0.667		
DHR14:94680201	14	94680201	94680300	100	1	1.28E-05	-2.1808488	1	1		
DHR14:94776701	14	94776701	94777000	300	2	1.63E-08	-0.7114772	10	3.333	AABR07016166.1	
DHR14:95093601	14	95093601	95093700	100	1	4.51E-05	-1.9560092	2	2		
DHR15:5255901	15	5255901	5256000	100	1	7.04E-05	2.4868244	1	1	Cd99l2	Extracellular Matrix
DHR15:5400901	15	5400901	5403300	2400	1	2.08E-05	1.5568406	24	1		
DHR15:5788201	15	5788201	5790500	2300	1	7.47E-05	1.6153125	29	1.261	LOC108348081;AABR07016992.1	
DHR15:18004301	15	18004301	18004600	300	1	4.31E-05	1.8317199	1	0.333		
DHR15:31495401	15	31495401	31496200	800	1	3.27E-05	1.8313095	1	0.125	AABR07017825.5	
DHR15:42549801	15	42549801	42549900	100	1	7.04E-05	2.4868998	0	0	Ccdc25	
DHR15:49748201	15	49748201	49750900	2700	1	6.71E-05	2.1041093	29	1.074		
DHR15:81231701	15	81231701	81232300	600	1	3.35E-05	1.9726939	13	2.167		
DHR16:650301	16	650301	652600	2300	1	9.45E-05	-1.1065057	11	0.478		
DHR16:21640901	16	21640901	21641100	200	1	9.52E-05	-1.4061016	1	0.5		
DHR16:21776101	16	21776101	21776800	700	1	3.49E-05	-0.8854366	7	1	AABR07024907.1	

DHR16:64458801	16	64458801	64459700	900	1	6.67E-05	-1.8155484	11	1.222		
DHR16:64934001	16	64934001	64935300	1300	1	2.32E-06	-1.0314784	8	0.615	AABR07026120.1	
DHR16:88956701	16	88956701	88956800	100	1	5.36E-05	2.3017838	2	2		
DHR17:42053101	17	42053101	42054600	1500	1	1.53E-05	-2.0010266	22	1.467	Mrs2	Metabolism
DHR17:44304401	17	44304401	44306000	1600	1	1.37E-05	-0.5846451	41	2.562		
DHR17:57783601	17	57783601	57786400	2800	1	6.00E-05	2.6977113	31	1.107		
DHR17:57829701	17	57829701	57829800	100	1	4.95E-05	1.4968309	0	0	AABR07028143.1	
DHR18:68399101	18	68399101	68399200	100	1	5.15E-05	-1.9856506	1	1	Ccdc68	
DHR18:85542201	18	85542201	85542500	300	1	8.31E-05	-1.6136354	4	1.333		
DHR18:88188701	18	88188701	88188800	100	1	2.88E-06	-2.1796876	0	0		
DHR19:210101	19	210101	212300	2200	1	4.76E-05	1.6568588	18	0.818	LOC108348293	
DHR19:423701	19	423701	425900	2200	1	4.28E-05	2.3353479	19	0.864	AABR07042629.1	
DHR19:26487101	19	26487101	26489000	1900	1	5.63E-05	1.3995067	15	0.789		
DHR19:28226801	19	28226801	28230600	3800	1	3.81E-06	1.8263463	19	0.5	AABR07043421.1	
DHR19:57975301	19	57975301	57975500	200	2	1.83E-09	-3.4677102	6	3	Disc1	
DHR20:4897001	20	4897001	4899300	2300	1	9.99E-05	2.0094935	29	1.261	RT1-CE1;RT1-CE4;RT1-CE7;AABR07044408.1;RT1-CE5;AABR07044408.3	Immune
DHR20:5366701	20	5366701	5366900	200	1	5.01E-05	1.6601379	2	1	RT1-A1;RT1-A2	Immune
DHR20:19484001	20	19484001	19485800	1800	15	4.72E-21	-3.3584221	22	1.222	Fam13c	
DHR20:40882301	20	40882301	40883600	1300	1	9.20E-05	0.550579	42	3.231		
DHRMT:1	MT	1	16313	16313	164	1.07E-54	-2.0405289	303	1.857	AY172581.13;AY172581.9;AY172581.3;AY172581.24;AY172581.14;Mt-nd1;AY172581.4;AY172581.21;AY172581.15;Mt-nd2;AY172581.6;AY172581.22;AY172581.18;AY172581.10;AY172581.7;Mt-co1;AY172581.19;AY172581.12;Mt-co2;AY172581.1;Mt-atp8;Mt-atp6;Mt-co3;AY172581.5;Mt-nd3;AY172581.16;Mt-nd4l;Mt-nd4;AY172581.23;AY172581.17;AY172581.11;Mt-nd5;Mt-nd6;AY172581.20;Mt-cyb;AY172581.8;AY172581.2	
DHRX:91801	X	91801	94300	2500	1	3.43E-09	-1.5659714	13	0.52		
DHRX:73399601	X	73399601	73401500	1900	12	1.38E-07	-2.7078473	0	0	Zfp449	Transcription
DHRX:117450901	X	117450901	117451700	800	1	5.88E-05	-1.5041802	1	0.125		
DHRX:159920101	X	159920101	159920800	700	1	7.18E-06	2.5107059	6	0.857		
DHRY:1467201	Y	1467201	1467600	400	1	6.53E-05	1.9473017	15	3.75		

**(B) Control Caput versus Cauda**

DHR Name	Chr	Start	Stop	Length	# Sig Win	minP	maxLFC	CpG #	CpG Density	Gene Annotation	Gene Category
DHR1:11904001	1	11904001	11920500	16500	3	1.05E-05	-0.9763775	1467	8.891	RF00002;RF01518	
										RF01518;AABR07000398.1;RF00002;AABR07000402.1;AABR07000404.1;LOC10090959	
DHR1:11957601	1	11957601	11975300	17700	2	3.61E-05	-1.1072542	1546	8.734	9	
DHR1:24905001	1	24905001	24906500	1500	1	3.66E-05	-2.0748207	9	0.6	AABR07000740.2	
DHR1:26287001	1	26287001	26288700	1700	1	1.19E-05	-2.0691577	27	1.588		
DHR1:26875701	1	26875701	26875900	200	1	1.43E-05	-2.1278118	3	1.5		
DHR1:37427001	1	37427001	37427800	800	1	3.40E-05	-2.6687322	6	0.75		
DHR1:54206501	1	54206501	54210100	3600	1	9.08E-05	-1.3895226	29	0.806		
DHR1:76262301	1	76262301	76262500	200	1	4.18E-05	-2.8247304	1	0.5	Sult2a2	Metabolism
DHR1:77223701	1	77223701	77225900	2200	1	7.79E-07	-3.3147606	3	0.136		
DHR1:86811901	1	86811901	86812400	500	1	4.91E-05	-0.8785013	3	0.6	AABR07002845.1	
DHR1:95728701	1	95728701	95729400	700	1	6.26E-06	-3.2777554	7	1		
DHR1:95770701	1	95770701	95771000	300	1	6.98E-05	-2.3046743	0	0		
DHR1:147363001	1	147363001	147363400	400	1	4.26E-05	-2.2729142	1	0.25		
DHR1:152174901	1	152174901	152175300	400	1	1.44E-05	1.8629767	4	1		
DHR1:153058001	1	153058001	153058100	100	1	2.62E-05	2.287647	0	0	Tmem135	Unknown
DHR1:160130201	1	160130201	160130500	300	1	9.90E-05	1.61003	5	1.667	AABR07004833.1	
DHR1:168733301	1	168733301	168733900	600	1	5.66E-06	1.9602636	3	0.5	Olr115	
DHR1:179090801	1	179090801	179095300	4500	1	1.43E-05	-2.1279327	44	0.978		
DHR1:179136701	1	179136701	179143000	6300	1	2.62E-05	-1.4016688	43	0.683		
DHR1:179933801	1	179933801	179935100	1300	1	5.67E-05	-1.640661	7	0.538		
DHR1:179936501	1	179936501	179939100	2600	1	5.30E-05	-1.7743018	11	0.423		
DHR1:180858001	1	180858001	180860000	2000	1	4.95E-05	0.7191308	47	2.35		
DHR1:181412701	1	181412701	181415600	2900	1	3.97E-05	-0.9383679	43	1.483		
DHR1:182406401	1	182406401	182407600	1200	1	1.47E-05	-3.0117132	2	0.167		
DHR1:182967901	1	182967901	182968000	100	1	9.18E-05	-2.0197174	0	0		
DHR1:195713501	1	195713501	195715300	1800	1	4.41E-05	1.0843938	8	0.444		
DHR1:212980301	1	212980301	212981100	800	1	3.91E-05	-2.7515833	6	0.75	Olr298	
DHR1:223749401	1	223749401	223750900	1500	1	5.47E-05	-2.3072806	14	0.933		
DHR1:253407801	1	253407801	253408100	300	1	5.32E-05	1.6190855	2	0.667		
DHR2:1266701	2	1266701	1267200	500	1	9.47E-05	-1.9505171	2	0.4		
DHR2:5733801	2	5733801	5734000	200	1	6.92E-05	2.1302549	2	1		
DHR2:21056201	2	21056201	21057200	1000	1	1.82E-05	-2.1214912	13	1.3		
DHR2:49316201	2	49316201	49325000	8800	1	7.27E-06	-1.7081442	280	3.182		
DHR2:53003301	2	53003301	53003900	600	1	1.88E-05	1.4709403	3	0.5		
DHR2:70637701	2	70637701	70638000	300	1	7.06E-05	1.6448843	3	1		
DHR2:78294801	2	78294801	78297100	2300	1	2.54E-05	1.9146706	17	0.739		
DHR2:114698401	2	114698401	114699300	900	1	8.23E-05	-2.2601998	4	0.444		
DHR2:124031701	2	124031701	124032000	300	1	3.38E-05	1.6604377	0	0		
DHR2:130619601	2	130619601	130620000	400	1	6.98E-05	1.8725698	3	0.75		
DHR2:133205001	2	133205001	133206100	1100	1	2.30E-05	1.7752973	12	1.091		
DHR2:156111901	2	156111901	156112100	200	1	4.74E-05	-2.3014406	2	1		
DHR2:156563001	2	156563001	156566800	3800	1	1.63E-05	-1.9156578	58	1.526		
DHR2:159023701	2	159023701	159041600	17900	2	9.61E-06	-1.272306	245	1.369		
DHR2:159241501	2	159241501	159241800	300	1	1.55E-05	-2.1761834	2	0.667		
DHR2:159887801	2	159887801	159888000	200	1	1.05E-08	-4.3231903	4	2		
DHR2:160770001	2	160770001	160771400	1400	1	5.72E-05	-2.0102717	18	1.286		
DHR2:160935501	2	160935501	160936900	1400	1	4.81E-05	-1.8284273	23	1.643		
DHR2:161071401	2	161071401	161071800	400	1	2.62E-05	-2.5492176	4	1		
DHR2:161490501	2	161490501	161490800	300	1	6.62E-05	-1.1651501	2	0.667		
DHR2:161610701	2	161610701	161611400	700	1	3.54E-05	-1.2368948	2	0.286		
DHR2:162544301	2	162544301	162544700	400	1	7.86E-06	-2.4658441	3	0.75		

DHR2:163345901	2	163345901	163346200	300	1	4.79E-05	-2.7483371	5	1.667	AABR07011545.1	
DHR2:179506301	2	179506301	179506400	100	1	1.90E-05	-2.8936993	2	2		
DHR2:196967601	2	196967601	196968000	400	1	7.69E-05	-1.7816017	3	0.75		
DHR2:197138101	2	197138101	197140000	1900	1	7.23E-05	-1.1251469	55	2.895		
DHR2:201702201	2	201702201	201705600	3400	1	8.17E-05	-1.7168038	28	0.824		
DHR2:262620101	2	262620101	262620300	200	1	5.74E-06	2.0468625	1	0.5		
DHR3:17867601	3	17867601	17867700	100	1	5.32E-05	1.618986	1	1		
DHR3:47892601	3	47892601	47892700	100	1	6.98E-05	1.8724662	2	2		
DHR3:96283801	3	96283801	96284500	700	1	6.98E-05	-2.2725342	9	1.286		
DHR3:96759501	3	96759501	96760200	700	1	2.29E-05	-2.1332728	10	1.429		
DHR3:133560501	3	133560501	133568600	8100	2	4.84E-07	-0.8323417	107	1.321		
DHR3:169271601	3	169271601	169271800	200	1	6.29E-05	-1.6290544	3	1.5		
DHR3:169432201	3	169432201	169434900	2700	1	8.56E-05	-2.3586996	28	1.037		
DHR4:20863701	4	20863701	20863800	100	1	1.45E-05	1.9868593	0	0		
DHR4:33208001	4	33208001	33212700	4700	2	3.66E-05	-2.047632	28	0.596	AABR07059723.1	
DHR4:33591501	4	33591501	33592400	900	2	5.39E-07	1.9214181	7	0.778		
DHR4:129358201	4	129358201	129358400	200	1	4.13E-05	1.8678284	3	1.5	Fam19a4	
DHR4:146538701	4	146538701	146543600	4900	2	2.98E-05	0.5447802	147	3		
DHR4:146545701	4	146545701	146548800	3100	1	5.18E-05	0.4774839	93	3		
DHR4:172584001	4	172584001	172584600	600	1	6.88E-05	1.5252091	5	0.833		
DHR5:16400901	5	16400901	16401100	200	1	6.98E-05	1.8726224	0	0	Tmem68	Unknown
DHR5:36846601	5	36846601	36847000	400	1	7.78E-05	1.6599442	6	1.5		
DHR5:38275501	5	38275501	38275700	200	1	2.85E-05	2.2506691	3	1.5		
DHR5:39607001	5	39607001	39607100	100	1	9.12E-05	1.4794666	0	0	Fhl5;Ufl1	Transcription
DHR5:85718901	5	85718901	85719000	100	1	5.66E-06	2.0633327	0	0		
DHR5:91123901	5	91123901	91137700	13800	3	1.08E-06	-1.3280459	1568	11.362	RF01518;RF00002;AABR07048791.1	
DHR5:96304601	5	96304601	96306900	2300	1	3.57E-06	1.6543192	28	1.217		
DHR5:97239501	5	97239501	97239800	300	1	8.12E-05	1.9833457	2	0.667		
DHR5:121162701	5	121162701	121163400	700	1	6.68E-05	-2.1162169	9	1.286		
DHR6:16259201	6	16259201	16261600	2400	1	2.94E-05	-1.7611726	11	0.458		
DHR6:16551701	6	16551701	16551900	200	1	4.26E-05	-2.2729308	1	0.5		
DHR6:16846201	6	16846201	16846900	700	1	9.24E-05	-2.3242063	4	0.571		
DHR6:30436201	6	30436201	30436900	700	1	3.95E-06	-2.302091	9	1.286		
DHR6:31064801	6	31064801	31070900	6100	1	6.02E-05	-1.0090723	110	1.803		
DHR6:54052801	6	54052801	54053000	200	1	5.14E-05	2.0425498	2	1	Hdac9	
DHR6:58851201	6	58851201	58852000	800	1	3.45E-06	2.1302705	7	0.875		
DHR6:125451301	6	125451301	125451600	300	1	6.30E-05	0.6083593	10	3.333	Tc2n	Unknown
DHR7:230301	7	230301	230500	200	1	6.28E-05	-2.1759135	1	0.5		
DHR7:21655601	7	21655601	21657700	2100	1	8.71E-05	-1.6926849	32	1.524		
DHR7:22571901	7	22571901	22572000	100	1	7.05E-05	-2.4040363	0	0		
DHR7:87937001	7	87937001	87937900	900	1	2.47E-05	-2.4753801	16	1.778	AABR07057765.1	
DHR7:99350501	7	99350501	99350600	100	1	3.43E-05	-2.4182926	0	0		
DHR7:100303401	7	100303401	100305700	2300	1	4.01E-05	0.5922911	64	2.783		
DHR8:11928201	8	11928201	11928300	100	1	5.80E-05	-2.722215	0	0	Ccdc82;Maml2	Transcription
DHR8:18890001	8	18890001	18890300	300	1	4.26E-05	1.9227436	0	0		
DHR8:96952201	8	96952201	96953100	900	1	8.63E-05	1.828928	6	0.667		
DHR8:112344801	8	112344801	112345700	900	1	3.81E-05	-2.0745537	7	0.778		
DHR8:120953001	8	120953001	120953400	400	1	8.33E-05	1.7750481	5	1.25		
DHR9:2005601	9	2005601	2005700	100	1	6.28E-05	-2.2047211	2	2		
DHR9:4001701	9	4001701	4005000	3300	1	1.02E-05	-2.2725173	9	0.273		
DHR9:4104001	9	4104001	4104500	500	1	3.37E-05	-1.9912348	5	1	LOC100910057;RGD1562392;AABR07066160.1	Metabolism
DHR9:11480201	9	11480201	11480500	300	1	3.52E-06	-3.3507576	6	2		
DHR9:11705301	9	11705301	11706500	1200	1	2.54E-05	-2.1758035	6	0.5		
DHR9:12467401	9	12467401	12469500	2100	1	9.54E-05	-0.9825045	12	0.571	AABR07066700.1	
DHR9:21903201	9	21903201	21905000	1800	1	3.66E-05	-2.0476487	13	0.722		

DHR9:22760401	9	22760401	22760500	100	1	2.73E-05	2.0178746	0	0		
DHR9:75401701	9	75401701	75401900	200	1	2.58E-09	1.820571	0	0	ErbB4	Signaling
DHR9:76420401	9	76420401	76420900	500	1	9.43E-06	2.0180447	8	1.6		
DHR9:103429101	9	103429101	103429300	200	1	1.55E-05	1.863805	3	1.5		
DHR10:112502101	10	112502101	112503200	1100	1	6.91E-05	1.4441902	3	0.273		
DHR11:7067801	11	7067801	7067900	100	1	5.00E-05	2.182874	0	0		
DHR11:16170401	11	16170401	16171100	700	1	1.54E-05	2.1543088	3	0.429		
DHR11:29747401	11	29747401	29748500	1100	1	3.47E-06	1.8571647	10	0.909		
DHR11:36816801	11	36816801	36817000	200	1	5.11E-05	1.8170751	1	0.5		
DHR11:60753901	11	60753901	60754300	400	1	5.81E-05	1.6523631	5	1.25		
DHR12:35676901	12	35676901	35677400	500	1	8.07E-05	-2.49025	8	1.6		
DHR13:19383601	13	19383601	19388100	4500	1	1.60E-06	-1.4411695	34	0.756		
DHR13:27983501	13	27983501	27983600	100	1	2.80E-05	2.0381609	1	1		
DHR13:32647101	13	32647101	32647600	500	1	9.42E-05	1.8785531	1	0.2		
DHR14:4887501	14	4887501	4887700	200	1	9.91E-05	1.9827426	5	2.5		
DHR14:21680201	14	21680201	21684300	4100	1	5.66E-05	1.6951515	17	0.415	Smr3b	
DHR14:22059201	14	22059201	22064500	5300	1	5.36E-05	1.3822103	25	0.472	Sult1e1	Metabolism
DHR14:46547801	14	46547801	46555400	7600	1	1.42E-05	-1.0609466	128	1.684		
DHR14:46564901	14	46564901	46566800	1900	2	1.18E-05	-1.0518517	113	5.947	RF01518	
DHR14:46599801	14	46599801	46605700	5900	1	2.13E-05	-0.8446078	101	1.712	AABR07015067.1;AABR07015067.2	
DHR14:46609501	14	46609501	46613300	3800	1	9.63E-06	-1.0636189	68	1.789		
DHR14:46633701	14	46633701	46635700	2000	1	5.67E-06	-0.9113983	158	7.9	RF01518	
DHR14:46636901	14	46636901	46642000	5100	3	2.04E-06	-1.0960068	580	11.373	RF01518;Rn5-8s;AABR07015078.1;AABR07015078.2	
DHR14:46666601	14	46666601	46667400	800	1	2.34E-05	-1.5826909	6	0.75	AABR07015081.2	
DHR14:46678401	14	46678401	46683600	5200	4	4.38E-06	-1.0822103	560	10.769	RF01518;RF00002	
DHR14:52440001	14	52440001	52440200	200	1	6.98E-05	1.8726102	1	0.5		
DHR14:71475701	14	71475701	71475800	100	1	1.54E-05	2.0341017	1	1		
DHR14:94776701	14	94776701	94777000	300	1	2.92E-07	0.6360154	10	3.333	AABR07016166.1	
DHR14:95386201	14	95386201	95386400	200	1	2.57E-05	-2.576022	3	1.5		
DHR14:95728701	14	95728701	95728800	100	1	9.88E-05	-2.3398942	1	1		
DHR14:101401801	14	101401801	101404600	2800	1	5.15E-05	-2.5427721	27	0.964		
DHR14:101987301	14	101987301	101990000	2700	1	6.85E-05	-1.7369854	50	1.852		
DHR14:102136701	14	102136701	102136900	200	1	6.98E-05	-2.2727134	3	1.5		
DHR14:102152301	14	102152301	102153400	1100	1	1.31E-05	-2.8249046	10	0.909		
DHR15:21322401	15	21322401	21323100	700	1	5.32E-05	-1.8890726	5	0.714		
DHR15:22353901	15	22353901	22354900	1000	2	1.26E-05	-1.8311559	15	1.5		
DHR15:22384601	15	22384601	22386200	1600	1	2.72E-05	-2.1712526	29	1.812		
DHR15:22684201	15	22684201	22684300	100	1	1.98E-06	-3.4201967	2	2		
DHR15:65100301	15	65100301	65101400	1100	1	3.92E-05	-2.2330077	5	0.455		
DHR15:65195901	15	65195901	65198600	2700	1	8.87E-05	-1.1233095	13	0.481	AABR07018574.1	
DHR15:65228701	15	65228701	65229300	600	1	7.80E-05	-1.6869571	8	1.333		
DHR15:107460701	15	107460701	107461500	800	1	3.38E-05	-1.9419557	6	0.75		
DHR16:30283401	16	30283401	30283600	200	1	8.59E-05	-2.3542744	5	2.5		
DHR16:30748701	16	30748701	30749100	400	2	6.87E-05	-2.0858631	8	2		
DHR16:31026001	16	31026001	31026500	500	1	7.72E-05	-2.4701003	12	2.4		
DHR16:37773601	16	37773601	37774800	1200	1	9.09E-05	0.94231	4	0.333	Gla3	Receptor
DHR16:64912601	16	64912601	64913200	600	1	8.33E-05	-1.8617178	4	0.667		
DHR16:64924301	16	64924301	64925600	1300	1	5.52E-06	-2.2279383	13	1	AABR07026120.1	

DHR16:66340901	16	66340901	66341200	300	1	8.72E-06	-1.1104075	2	0.667	LOC302192	Unknown
DHR17:11806201	17	11806201	11806400	200	1	7.97E-05	-1.5915205	1	0.5		
DHR17:11808501	17	11808501	11809800	1300	1	6.58E-05	-1.1296086	11	0.846		
DHR17:12514901	17	12514901	12516100	1200	1	6.81E-06	-2.2666933	3	0.25		
DHR17:43378001	17	43378001	43378700	700	1	1.74E-06	2.2180372	4	0.571	Scgn	Signaling
DHR17:43552901	17	43552901	43553100	200	1	8.00E-05	1.9655098	3	1.5	Slc17a3	Transport
DHR17:89456501	17	89456501	89460100	3600	1	4.25E-05	0.4642291	9	0.25	AABR07028872.1	
DHR18:5383501	18	5383501	5386000	2500	1	9.18E-05	1.7734428	26	1.04		
DHR18:87926201	18	87926201	87927500	1300	1	6.67E-05	-1.877608	27	2.077		
DHR19:5827701	19	5827701	5828000	300	1	6.73E-05	-1.5088893	5	1.667		
DHR19:5829001	19	5829001	5837200	8200	2	3.86E-06	-4.1764919	234	2.854		
DHR19:26457301	19	26457301	26458800	1500	1	4.32E-05	-1.9015546	14	0.933		
DHR19:29942401	19	29942401	29942700	300	1	3.92E-05	1.86385	0	0	Inpp4b	Signaling
DHR19:45476401	19	45476401	45476600	200	1	1.79E-05	1.6743088	2	1		
DHR20:40830801	20	40830801	40832100	1300	2	1.90E-05	1.0902238	2	0.154		
DHR20:40898601	20	40898601	40899100	500	1	2.49E-06	0.5489577	15	3		
DHRX:73101	X	73101	74400	1300	2	3.60E-05	-1.5560481	5	0.385		
DHRX:78701	X	78701	80000	1300	1	2.93E-05	-2.5084997	5	0.385		
DHRX:89101	X	89101	92600	3500	1	6.47E-05	-1.3076018	23	0.657		
DHRX:93701	X	93701	94400	700	1	2.46E-06	-1.6469482	3	0.429		
DHRX:110801	X	110801	113600	2800	1	5.65E-05	-1.5562906	23	0.821		
DHRX:184201	X	184201	187000	2800	1	7.47E-05	-2.4758094	8	0.286		
DHRX:310801	X	310801	311400	600	1	7.76E-05	-1.5230017	2	0.333		
DHRX:18229801	X	18229801	18231000	1200	1	1.28E-05	-1.1458284	4	0.333		
DHRX:19634101	X	19634101	19634200	100	1	7.34E-05	-2.2778006	1	1		
DHRX:26152101	X	26152101	26152400	300	1	2.56E-06	1.9490626	5	1.667		
DHRX:26277201	X	26277201	26277400	200	1	9.18E-05	1.6885609	0	0		
DHRX:66868601	X	66868601	66868700	100	1	7.65E-05	1.8626987	0	0		
DHRX:104053201	X	104053201	104053400	200	1	6.73E-05	-2.7218632	0	0		
DHRX:150665601	X	150665601	150666200	600	1	2.15E-05	1.7429319	5	0.833	AABR07042226.1	
DHRX:155836801	X	155836801	155836900	100	1	7.48E-05	-1.8028732	5	5	Dkc1	Transcription
DHRY:208901	Y	208901	209100	200	1	8.48E-05	-2.3677459	4	2	LOC103694540	
DHRY:1838301	Y	1838301	1839200	900	1	2.35E-05	-0.9688381	32	3.556		
DHRY:1840201	Y	1840201	1847900	7700	1	2.09E-06	-2.2757602	259	3.364		

**(C) Control H3K27me3 Caput versus Cauda**

DHR Name	Chr	Start	Stop	Length	# Sig Win	minP	maxLFC	CpG #	CpG Density	Gene Annotation	Gene Category
DHR1:37352801	1	37352801	37353100	300	1	8.53E-05	1.7874461	2	0.667		
DHR1:38368801	1	38368801	38370300	1500	1	5.63E-07	-3.6888712	3	0.2		
DHR2:693501	2	693501	694200	700	1	4.24E-05	-2.2231222	2	0.286		
DHR2:774301	2	774301	774700	400	1	2.56E-05	-2.4026656	1	0.25		
DHR2:835401	2	835401	835900	500	1	9.95E-05	-1.8924458	0	0		
DHR2:20252501	2	20252501	20252600	100	1	9.74E-05	1.6328888	2	2		
DHR2:146854701	2	146854701	146855100	400	1	2.52E-05	1.8788249	12	3		
DHR2:161097001	2	161097001	161097300	300	1	5.28E-05	-1.9392416	2	0.667		
DHR3:133887401	3	133887401	133887600	200	1	7.09E-05	-2.3294361	0	0	AABR07053968.1	
DHR4:146477201	4	146477201	146477700	500	1	3.16E-05	0.8858945	9	1.8		
DHR4:146538701	4	146538701	146548700	10000	1	3.70E-06	0.6206305	294	2.94		
DHR4:173875501	4	173875501	173875600	100	1	6.94E-05	1.9324548	1	1	Pik3c2g;AABR07062390.2	Signaling
DHR5:6372701	5	6372701	6374700	2000	13	4.85E-11	-2.1580081	33	1.65	AABR07046778.1	
DHR5:58954701	5	58954701	58954800	100	1	6.64E-05	1.792298	2	2	Cd72	
DHR7:1595101	7	1595101	1595200	100	1	7.43E-05	-1.6863379	2	2	LOC108351589	
DHR7:21775901	7	21775901	21776400	500	1	2.76E-05	-1.7925099	2	0.4		
DHR7:49494401	7	49494401	49494900	500	1	5.16E-05	1.610024	5	1	Lin7a	Cell Junction
DHR8:181201	8	181201	182300	1100	4	4.42E-07	-2.61287	24	2.182		
DHR9:4028201	9	4028201	4029500	1300	1	1.17E-05	-2.490459	13	1		
DHR9:4788001	9	4788001	4788900	900	1	4.94E-05	-2.015017	6	0.667		
DHR12:34931101	12	34931101	34931600	500	1	7.27E-05	-1.4913791	1	0.2		
DHR12:35044601	12	35044601	35044700	100	1	8.27E-05	1.6700974	0	0		
DHR15:5789101	15	5789101	5789500	400	1	5.77E-05	1.6700537	2	0.5	LOC108348081;AABR07016992.1	
DHR15:55541701	15	55541701	55542000	300	1	2.53E-05	1.5401823	9	3		
DHR16:403201	16	403201	403600	400	1	6.31E-06	1.2631279	9	2.25		
DHR16:77428601	16	77428601	77429700	1100	1	1.01E-05	2.1205017	7	0.636		
DHR19:8431601	19	8431601	8431900	300	1	7.13E-06	-2.6407775	7	2.333		
DHR20:19484001	20	19484001	19485200	1200	12	1.03E-11	-2.5311577	14	1.167	Fam13c	
DHRMT:1	MT	1	16300	16300	147	2.27E-17	-2.5261656	303	1.859	AY172581.13;AY172581.9;AY172581.3;AY172581.24;AY172581.14;Mt-nd1;AY172581.4;AY172581.21;AY172581.15;Mt-nd2;AY172581.6;AY172581.22;AY172581.18;AY172581.10;AY172581.7;Mt-co1;AY172581.19;AY172581.12;Mt-co2;AY172581.1;Mt-atp8;Mt-atp6;Mt-co3;AY172581.5;Mt-nd3;AY172581.16;Mt-nd4;Mt-nd4;AY172581.23;AY172581.17;AY172581.11;Mt-nd5;Mt-nd6;AY172581.20;Mt-cyb;AY172581.8;AY172581.2	
DHRX:36450401	X	36450401	36451200	800	1	9.38E-05	0.6087044	30	3.75		
DHRX:89297801	X	89297801	89298000	200	1	4.24E-05	1.746955	0	0		
DHRX:98571301	X	98571301	98571400	100	1	4.27E-05	-2.3296222	0	0		
DHRX:113683801	X	113683801	113684700	900	1	8.35E-05	1.8216035	9	1		
DHRX:145785801	X	145785801	145786000	200	1	6.64E-05	1.7922848	3	1.5		