

Gene Symbol	Target mRNA Accession	Length of Match	7SL RNA Seq Start	7SL RNA Seq End	Target mRNA Seq Start	Target mRNA Seq End	Target mRNA Seq Length	Target mRNA CDS Region	Target mRNA 3' UTR Region	HuR target (PAR-CLIP)
AAK1	NM_014911.3	41	257	297	16626	16586	21283	506-3391	3392-21283	Yes
AASS	NM_005763.3	76	1	76	3387	3312	5887	146-2926	2927-5887	Yes
AATK	XM_005257847	40	40	79	6720	6681	9044	75-4199	4200-9044	No
ABCA13	NM_152701.3	59	18	76	16355	16297	17207	25-15201	15202-17207	Yes
ABCB5	NM_001163942	48	20	67	1681	1634	2247	547-942	943-2247	No
ABHD17B	NM_001025780	38	30	67	2512	2475	3153	603-1469	1470-3153	No
ABRA	NM_139166.4	60	19	78	1569	1510	2831	55-1200	1201-2831	No
ACAP2	NM_012287.5	58	10	67	3962	3905	7187	242-2578	2579-7187	Yes
ACBD4	NM_001135707	33	20	52	1241	1209	1500	345-1151	1152-1500	No
ACBD7	NM_001039844	56	21	76	1098	1043	3383	49-315	316-3383	Yes
ACKR2	NM_001296.4	67	10	76	2008	1942	2978	180-1334	1335-2978	No
ACOT13	NM_001160094	49	19	67	1582	1534	4407	588-941	942-4407	No
ACOX1	NM_001185039	38	40	77	5277	5240	7759	650-2518	2519-7759	Yes
ACSL6	NM_001009185	55	22	76	3031	2978	6554	110-2278	2279-6554	No
ACTR10	NM_018477.2	43	256	298	1688	1646	2451	104-1357	1358-2451	Yes
ACVRL1	NM_000020.2	35	18	52	2781	2747	4263	284-1795	1796-4263	No
ADAMTS17	NM_139057.2	33	20	52	5645	5613	6331	80-3367	3368-6331	Yes
ADAMTS4	NM_005099.4	57	1	57	3873	3817	4410	429-2942	2943-4410	No
ADAMTSL5	NM_213604.2	39	40	78	2749	2711	2867	445-1860	1861-2867	No
ADARB2	NM_018702.3	31	269	299	7841	7811	8426	327-2546	2547-8426	No
ADAT2	NM_001286259	47	22	68	4790	4744	7368	1286-1720	1721-7368	Yes
ADIPOQ	NM_001177800	47	21	67	2761	2715	4629	136-870	871-4629	No
ADRBK2	NM_005160.3	47	21	67	4768	4722	9068	148-2214	2215-9068	Yes
AFF3	NM_001025108	56	21	76	5915	5860	8136	145-3900	3901-8136	Yes
AFMID	NM_001010982	48	20	67	1457	1410	1755	55-966	967-1755	Yes
AGMAT	NM_024758.4	47	21	67	1720	1674	3154	144-1202	1203-3154	No
AGO1	XM_005270746	57	20	76	11374	11318	12559	Jan-56	2557-12559	No
AHCYL2	NM_001130720	58	21	78	4494	4437	5072	64-1896	1897-5072	Yes
AHR	NM_001621.4	67	10	76	4880	4814	6247	614-3160	3161-6247	Yes
AHSA1	XM_005267271	39	24	62	1115	1077	1138	158-1024	1025-1138	No
AIFM2	NM_001198696	33	267	299	2190	2158	3256	218-1339	1340-3256	No
AIG1	NM_001286588	47	22	68	2282	2236	3715	85-489	490-3715	Yes
AIM1	NM_001624.2	44	18	61	6460	6417	7553	488-5659	5660-7553	Yes
AK2	NM_001625.3	48	21	68	1213	1166	2759	84-803	804-2759	Yes
AK3	NM_001199852	31	269	299	3046	3016	4213	223-786	787-4213	Yes
AKAP5	NM_004857.3	34	1	34	3434	3401	6487	379-1662	1663-6487	Yes
AKIP1	NM_001206646	57	1	57	948	892	1227	77-628	629-1227	No
AKNA	NM_030767.4	43	10	52	5902	5860	7387	163-4482	4483-7387	No
AKR7A2	NM_003689.3	32	37	68	2170	2139	2619	23-1102	1103-2619	No

ALDH1B1	NM_000692.4	39	257	295	2779	2741	3088	154-1707	1708-3088	Yes
ALDH1L2	NM_001034173	33	267	299	5923	5891	7555	128-2899	2900-7555	No
ALDH6A1	NM_001278593	56	21	76	4109	4054	4662	100-1668	1669-4662	No
ALDH7A1	NM_001182.4	48	21	68	4374	4327	4953	193-1812	1813-4953	Yes
ALG1	NM_019109.4	36	32	67	3354	3319	3946	42-1436	1437-3946	Yes
ALG10B	NM_00101362C	46	31	76	4514	4469	10091	140-1561	1562-10091	Yes
ALG9	NM_00107769C	50	18	67	5003	4954	6137	100-1935	1936-6137	No
ALOX15	NM_001140.3	56	20	75	2501	2446	2707	15-2003	2004-2707	No
ALS2	NM_001135745	43	25	67	2161	2119	2908	357-1547	1548-2908	Yes
AMER2	NM_152704.3	48	20	67	8306	8259	10619	665-2680	2681-10619	No
AMER3	NM_001105193	67	10	76	4753	4687	6236	175-2760	2761-6236	No
ANAPC16	NM_001242546	42	20	61	1996	1955	3578	493-825	826-3578	No
ANGEL2	NM_144567.3	67	10	76	3659	3593	4668	156-1790	1791-4668	Yes
ANKRD40	NM_052855.3	58	10	67	3366	3309	4169	256-1362	1363-4169	Yes
ANKRD42	XM_005273971	56	21	76	2601	2546	3767	960-1652	1653-3767	Yes
ANKRD6	NM_001242809	43	256	298	4000	3958	5355	342-2525	2526-5355	Yes
ANKS4B	NM_145865.2	38	41	78	1841	1804	2906	44-1297	1298-2906	No
ANO6	NM_001142679	31	20	50	3571	3541	3591	336-3125	3126-3591	Yes
ANTXR2	NM_00128678C	35	40	74	5914	5880	7221	158-1393	1394-7221	Yes
AP1S3	NM_001039569	72	5	76	3137	3066	4005	153-617	618-4005	Yes
AP3S2	NM_005829.4	37	257	293	4131	4095	5934	437-1018	1019-5934	Yes
AP4E1	NM_001252127	67	1	67	5929	5863	6791	356-3544	3545-6791	Yes
AP4S1	NM_001128126	41	257	297	1662	1622	4260	390-824	825-4260	Yes
APAF1	NM_001160.2	40	40	79	5289	5250	7042	578-4162	4163-7042	Yes
APBB2	NM_00116605C	57	20	76	8548	8492	9001	631-2907	2908-9001	Yes
APOBEC3F	NM_145298.5	43	5	47	3111	3069	4706	294-1415	1416-4706	Yes
APOL1	NM_00113654C	48	20	67	1606	1559	2924	208-1404	1405-2924	No
APOL2	NM_030882.2	36	255	290	1482	1447	2545	337-1350	1351-2545	Yes
APOL6	NM_030641.3	39	260	298	8059	8021	10156	295-1326	1327-10156	Yes
APOLD1	NM_001130415	56	22	77	3418	3363	4752	85-924	925-4752	Yes
APOOL	NM_198450.5	58	10	67	2411	2354	6479	22-828	829-6479	Yes
APPBP2	NM_001282476	45	20	64	5558	5514	6410	434-1978	1979-6410	Yes
APPL1	NM_012096.2	57	1	57	5353	5297	6061	148-2277	2278-6061	Yes
AQP6	NM_001652.3	57	20	76	1894	1838	2654	338-1186	1187-2654	No
ARCN1	NM_001142281	33	267	299	1996	1964	3768	162-1433	1434-3768	Yes
ARFGEF1	XM_005251136	33	267	299	6476	6444	7528	82-5484	5485-7528	Yes
ARGFX	NM_001012659	39	40	78	4078	4040	5065	96-1043	1044-5065	No
ARHGAP1	NM_004308.3	43	25	67	2693	2651	3460	165-1484	1485-3460	Yes
ARHGAP11A	NM_001286479	49	4	52	3442	3394	5157	549-3053	3054-5157	Yes
ARHGAP18	XM_005267212	48	21	68	4169	4122	4359	135-1991	1992-4359	Yes
ARHGAP26	NM_001135608	49	19	67	5202	5154	8876	36-2315	2316-8876	Yes

ARHGEF26	NM_001251962	40	28	67	3786	3747	5254	285-2900	2901-5254	No
ARL10	XM_005265890	32	21	52	1045	1014	1625	91-921	922-1625	Yes
ARL17A	NM_001113738	67	10	76	3739	3673	5273	140-673	674-5273	No
ARNTL2	NM_001248002	43	10	52	5037	4995	7369	220-2088	2089-7369	Yes
ARPP19	NM_006628.4	38	20	57	4037	4000	5162	125-463	464-5162	Yes
ARSA	NM_000487.5	42	257	298	3212	3171	4325	395-1924	1925-4325	No
ARSB	NM_000046.3	38	30	67	5550	5513	6076	1287-2888	2889-6076	Yes
ARSD	NM_001669.3	33	267	299	2241	2209	5199	101-1882	1883-5199	No
AS3MT	NM_020682.3	59	18	76	1908	1850	2477	141-1268	1269-2477	Yes
ASB16	NM_080863.4	33	267	299	1743	1711	2139	85-1446	1447-2139	No
ASB6	NM_001202403	33	267	299	2640	2608	4570	171-1349	1350-4570	No
ATAD3C	NM_001039211	31	48	78	3328	3298	3859	996-2231	2232-3859	No
ATF7IP2	NM_00125616C	49	1	49	2884	2836	3653	271-1902	1903-3653	Yes
ATG12	NM_001277783	50	18	67	2401	2352	4193	300-524	525-4193	Yes
ATG14	NM_014924.4	43	256	298	3433	3391	4760	37-1515	1516-4760	No
ATL3	XM_005273890	47	21	67	5106	5060	7278	260-2041	2042-7278	Yes
ATM	NM_000051.3	57	20	76	11180	11124	13147	386-9556	9557-13147	Yes
ATP1B2	NM_001678.3	67	1	67	2381	2315	3350	584-1456	1457-3350	No
ATP1B4	NM_001142447	40	40	79	3234	3195	4773	85-1158	1159-4773	No
ATP6VOA2	NM_012463.3	68	9	76	3463	3396	6550	249-2819	2820-6550	Yes
ATP6VOD2	NM_152565.1	35	18	52	2060	2026	2370	70-1122	1123-2370	No
ATP6V1A	NM_001690.3	58	10	67	2732	2675	4607	109-1962	1963-4607	Yes
ATP6V1C1	NM_001695.4	55	21	75	4407	4354	5704	246-1394	1395-5704	Yes
ATP7A	NM_000052.6	32	21	52	5847	5816	8540	202-4704	4705-8540	Yes
ATP8B2	NM_020452.3	59	18	76	4774	4716	5872	Jan-72	3673-5872	Yes
ATXN3	NM_001127696	59	18	76	5741	5683	6878	70-1110	1111-6878	Yes
AUH	XM_005252072	42	257	298	982	942	1105	36-803	804-1105	Yes
AUNIP	NM_024037.2	73	4	76	1694	1622	2178	102-1175	1176-2178	No
AVL9	XM_005249668	33	267	299	3258	3226	6988	222-2180	2181-6988	Yes
AVPR1A	NM_000706.4	43	25	67	5087	5045	7844	1975-3231	3232-7844	No
B3GALNT2	NM_152490.3	33	267	299	3927	3895	4755	230-1732	1733-4755	Yes
B3GAT3	XM_005273904	57	1	57	1259	1203	1600	208-1155	1156-1600	Yes
B4GALT5	NM_004776.3	48	21	68	2932	2885	4743	195-1361	1362-4743	Yes
BAG5	NM_001015048	49	19	67	3527	3479	4866	228-1571	1572-4866	Yes
BBIP1	NM_001195304	58	10	67	1438	1381	2368	303-614	615-2368	No
BCKDHB	NM_183050.2	48	20	67	1591	1544	3712	68-1246	1247-3712	Yes
BCL2L15	NM_001010922	57	1	57	1307	1251	4986	173-664	665-4986	Yes
BDH1	NM_004051.4	39	29	67	2068	2030	3394	251-1282	1283-3394	No
BET1	XM_005250109	48	18	65	2437	2390	3604	166-549	550-3604	Yes
BLOC1S2	NM_001001342	33	267	299	2350	2318	2722	226-525	526-2722	Yes
BLOC1S3	NM_212550.3	44	256	299	1587	1544	2617	97-705	706-2617	Yes

BLOC1S4	NM_018366.2	55	24	78	1036	982	1546	96-749	750-1546	No
BMP3	NM_001201.2	37	21	57	4683	4647	5734	321-1739	1740-5734	No
BMP8A	NM_181809.3	33	10	42	4612	4580	5642	347-1555	1556-5642	No
BNIP2	XM_005254607	47	11	57	4308	4262	6356	90-1433	1434-6356	Yes
BNIP1	NM_001159642	50	4	52	1932	1883	2412	672-1499	1500-2412	No
BOLA2	XM_005255415	62	5	66	1888	1827	3369	379-1230	1231-3369	No
BPNT1	NM_001286149	53	5	57	1784	1733	2337	214-975	976-2337	Yes
BRIP1	NM_032043.2	47	21	67	4346	4300	8166	307-4056	4057-8166	Yes
BROX	XM_005273065	47	11	57	1915	1869	3868	1-1395	1396-3868	No
BTF3L4	NM_001136497	40	28	67	2773	2734	4576	316-618	619-4576	Yes
BTN3A1	NM_001145008	42	35	76	2878	2837	3278	369-1754	1755-3278	No
BVES	NM_001199563	34	1	34	2160	2127	5599	218-1300	1301-5599	Yes
C10orf111	NM_153244.1	48	10	57	923	876	1785	275-742	743-1785	Yes
C10orf67	NM_153714.2	60	19	78	1560	1501	2943	67-624	625-2943	No
C10orf76	NM_024541.2	43	256	298	2782	2740	4101	103-2172	2173-4101	Yes
C11orf31	NM_170746.2	40	28	67	1172	1133	1294	347-715	716-1294	No
C11orf44	NM_001271983	54	21	74	465	412	3547	24-392	393-3547	No
C11orf58	NM_014267.5	43	256	298	1956	1914	3980	179-730	731-3980	Yes
C11orf83	NM_001085372	30	28	57	900	871	1959	93-374	375-1959	No
C12orf49	XM_005253937	49	28	76	3758	3710	4950	97-624	625-4950	Yes
C12orf5	NM_020375.2	35	256	290	2993	2959	8237	80-892	893-8237	Yes
C14orf119	NM_017924.3	49	20	68	2193	2145	2960	148-570	571-2960	Yes
C15orf38	NM_001282380	34	10	43	5059	5026	6503	833-1225	1226-6503	Yes
C15orf38-AP3S2	NM_001199058	37	257	293	4453	4417	6256	156-1340	1341-6256	No
C15orf40	NM_001160113	60	18	77	885	826	998	35-538	539-998	Yes
C15orf59	XM_005254369	45	5	49	3870	3826	6980	1613-2494	2495-6980	No
C16orf54	NM_175900.3	61	19	79	2239	2179	2686	110-784	785-2686	No
C17orf103	NM_152914.2	47	21	67	3993	3947	4787	3-344	345-4787	No
C17orf75	NM_022344.3	42	10	51	4271	4230	4599	71-1261	1262-4599	Yes
C17orf85	NM_001114118	58	10	67	5366	5309	8197	29-1891	1892-8197	Yes
C19orf35	NM_198532.2	57	1	57	2376	2320	2570	101-1522	1523-2570	No
C1GALT1	NM_020156.4	50	14	63	2916	2867	6244	224-1315	1316-6244	Yes
C1QTNF3	NM_030945.3	57	20	76	2464	2408	3624	142-882	883-3624	Yes
C1QTNF6	NM_031910.3	48	20	67	1541	1494	2954	78-914	915-2954	No
C1orf106	NM_001142569	58	10	67	3076	3019	4225	362-2098	2099-4225	No
C1orf174	NM_207356.2	58	19	76	1232	1175	1705	108-839	840-1705	Yes
C1orf210	NM_001164829	73	4	76	1168	1096	1424	164-505	506-1424	No
C1orf229	NM_207401.1	35	256	290	1877	1843	2258	194-907	908-2258	No
C20orf203	NM_182584.2	35	257	291	1958	1924	4803	264-848	849-4803	No
C2CD2	NM_015500.1	58	10	67	4614	4557	6349	243-2333	2334-6349	No
C3orf33	NM_173657.1	56	21	76	1800	1745	1931	271-1026	1027-1931	Yes

C3orf70	NM_001025266	67	10	76	2674	2608	5901	192-944	945-5901	Yes
C3orf72	NM_001040061	42	257	298	2654	2613	4075	132-659	660-4075	No
C4orf40	NM_214711.3	47	21	67	1645	1599	4814	190-849	850-4814	No
C5orf22	NM_018356.2	33	267	299	2074	2042	3616	128-1456	1457-3616	Yes
C5orf60	NM_001142306	35	256	290	913	879	1210	27-860	861-1210	No
C5orf64	NM_173667.2	39	29	67	1288	1250	2970	76-468	469-2970	No
C6orf141	XM_005248851	49	19	67	2004	1956	2134	126-860	861-2134	No
C6orf25	NM_025260.3	54	4	57	1199	1146	2435	41-754	755-2435	No
C7	NM_000587.2	34	257	290	3276	3243	4034	115-2646	2647-4034	No
C8orf37	NM_177965.3	49	4	52	2690	2642	3378	46-669	670-3378	Yes
C9orf3	NM_001193331	47	30	76	2783	2737	3851	219-1919	1920-3851	Yes
C9orf41	NM_152420.1	36	43	78	2007	1972	2219	154-1383	1384-2219	Yes
C9orf9	XM_005272164	48	20	67	1765	1718	2245	158-826	827-2245	No
C9orf91	NM_153045.3	40	40	79	4002	3963	4413	218-1246	1247-4413	Yes
CA13	NM_198584.2	60	19	78	1440	1381	3855	343-1131	1132-3855	Yes
CA5B	NM_007220.3	33	267	299	2510	2478	6032	118-1071	1072-6032	No
CACNG8	NM_031895.5	63	5	67	5763	5701	8751	108-1385	1386-8751	No
CALCOCO2	NM_001261390	47	21	67	2716	2670	3754	102-1514	1515-3754	Yes
CAMLG	NM_001745.3	64	4	67	1923	1860	2255	142-1032	1033-2255	Yes
CARD6	NM_032587.3	48	10	57	3488	3441	4097	76-3189	3190-4097	Yes
CARD8	NM_001184900	40	40	79	4314	4275	5291	44-1657	1658-5291	Yes
CARHSP1	NM_001042476	43	10	52	2019	1977	3043	361-804	805-3043	Yes
CASP10	NM_001206524	48	21	68	2102	2055	5705	419-1786	1787-5705	Yes
CASP2	NM_001224.4	57	1	57	2764	2708	4057	89-1027	1028-4057	Yes
CASP8	NM_001080124	34	256	289	1712	1679	2750	236-1630	1631-2750	Yes
CASP9	NM_001229.4	56	21	76	2807	2752	3038	246-1496	1497-3038	No
CASS4	NM_001164114	37	21	57	2847	2811	2993	202-2400	2401-2993	Yes
CBFA2T2	NM_001032999	64	4	67	4733	4670	7319	147-1934	1935-7319	Yes
CBFB	NM_001755.2	61	20	79	1611	1552	3181	262-810	811-3181	Yes
CBL	NM_005188.3	33	20	52	7852	7820	11241	143-2863	2864-11241	Yes
CBX5	NM_001127321	43	256	298	6880	6838	11525	121-696	697-11525	Yes
CC2D1B	NM_032449.2	50	18	67	4492	4443	5670	152-2728	2729-5670	No
CCDC113	NM_001142302	57	20	76	3427	3371	5142	80-1051	1052-5142	No
CCDC117	NM_001284263	47	21	67	1919	1873	3937	177-962	963-3937	Yes
CCDC120	NM_001163321	57	1	57	3292	3236	3652	214-2304	2305-3652	Yes
CCDC122	NM_144974.3	57	1	57	1657	1601	2024	260-1081	1082-2024	Yes
CCDC125	NM_176816.3	64	4	67	1889	1826	3624	44-1579	1580-3624	Yes
CCDC134	XM_005261749	36	1	36	6029	5994	6850	152-502	503-6850	Yes
CCDC141	NM_173648.3	49	19	67	6538	6490	9127	119-4711	4712-9127	No
CCDC50	NM_174908.3	34	19	52	2634	2601	8421	591-1511	1512-8421	Yes
CCDC68	NM_001143829	32	31	62	3541	3510	4033	173-1180	1181-4033	No

CCDC8	NM_032040.4	39	40	78	2748	2710	3334	853-2469	2470-3334	No
CCL15	XM_005258019	40	28	67	1053	1014	1368	494-835	836-1368	No
CCL16	NM_004590.2	59	10	68	815	757	1497	68-430	431-1497	No
CCL22	NM_002990.4	56	21	76	1350	1295	2933	35-316	317-2933	No
CCNDBP1	NM_012142.4	47	22	68	2903	2857	3669	232-1314	1315-3669	Yes
CCNF	NM_001761.2	40	18	57	3827	3788	4287	89-2449	2450-4287	Yes
CCNY	NM_001282852	35	18	52	4387	4353	4636	181-1131	1132-4636	Yes
CCNYL1	NM_00114230C	70	23	91	2365	2296	3773	358-1284	1285-3773	No
CCPG1	NM_004748.4	44	1	44	4608	4565	7089	540-2813	2814-7089	Yes
CCRN4L	NM_012118.3	38	20	57	1706	1669	1984	224-1519	1520-1984	Yes
CCSER2	NM_00128424C	58	10	67	4732	4675	7675	260-3403	3404-7675	No
CD209	NM_001144893	58	10	67	1593	1536	3920	68-874	875-3920	No
CD24	NM_013230.2	33	267	299	1400	1368	2194	111-353	354-2194	No
CD300LG	NM_145273.3	67	10	76	2330	2264	2799	70-1068	1069-2799	No
CD302	NM_001198763	46	22	67	2914	2869	3821	58-582	583-3821	Yes
CD3EAP	NM_012099.1	48	29	76	2839	2792	3286	489-2021	2022-3286	Yes
CD3G	NM_000073.2	59	18	76	1206	1148	1311	81-629	630-1311	No
CDC5L	NM_001253.3	33	267	299	6087	6055	6432	311-2719	2720-6432	Yes
CDC6	NM_001254.3	49	4	52	2407	2359	3053	211-1893	1894-3053	Yes
CDCP1	NM_022842.4	49	28	76	4494	4446	6027	136-2646	2647-6027	No
CDH1	NM_004360.3	32	267	298	3443	3412	4815	125-2773	2774-4815	Yes
CDH17	NM_001144663	34	257	290	2814	2781	3699	127-2625	2626-3699	No
CDH6	NM_004932.3	57	1	57	6280	6224	8571	361-2733	2734-8571	No
CDK19	NM_015076.3	58	10	67	4468	4411	6139	74-1582	1583-6139	No
CDKAL1	NM_017774.3	67	10	76	2449	2383	3272	168-1907	1908-3272	Yes
CDKN2AIPNL	NM_080656.2	35	256	290	862	828	1270	54-404	405-1270	Yes
CDON	NM_001243597	50	18	67	4571	4522	8116	129-3992	3993-8116	Yes
CEACAM8	NM_001816.3	34	256	289	1509	1476	2333	103-1152	1153-2333	No
CECR1	NM_001282225	33	267	299	3363	3331	4510	277-1812	1813-4510	No
CELF3	NM_001172648	37	25	61	3608	3572	5352	695-1951	1952-5352	No
CENPH	NM_022909.3	35	256	290	1094	1060	1405	88-831	832-1405	Yes
CENPN	NM_001100624	43	256	298	2619	2577	4663	791-1810	1811-4663	Yes
CEP104	NM_014704.3	56	21	76	4815	4760	6458	360-3137	3138-6458	No
CEP41	NM_00125716C	55	21	75	2145	2091	3315	245-409	410-3315	No
CEP44	NM_001040157	48	20	67	3158	3111	4535	415-1587	1588-4535	No
CEP63	NM_001042383	49	20	68	3865	3817	5326	346-1833	1834-5326	Yes
CEP97	XM_005247758	67	10	76	7389	7323	7770	86-2761	2762-7770	Yes
CFLAR	NM_001127183	48	20	67	3378	3331	10668	494-1936	1937-10668	Yes
CHEK1	NM_001114121	56	21	76	2479	2424	2699	898-2328	2329-2699	Yes
CHMP1B	NM_020412.4	47	21	67	2577	2531	3060	123-722	723-3060	No
CHP1	NM_007236.4	55	22	76	2344	2290	3230	145-732	733-3230	No

CHRA1	NM_017444.5	48	20	67	1643	1596	2504	203-598	599-2504	Yes
CHRFAM7A	XM_005254750	33	10	42	3423	3391	3701	1009-1974	1975-3701	No
CHRNA7	NM_000746.5	33	10	42	3068	3036	3356	113-1621	1622-3356	Yes
CHRNA4	NM_000750.3	47	22	68	2124	2078	2448	113-1609	1610-2448	Yes
CHST1	NM_003654.5	35	256	290	2981	2947	3947	706-1941	1942-3947	No
CHST6	NM_021615.4	47	21	67	3584	3538	6885	181-1368	1369-6885	No
CHSY1	NM_014918.4	43	256	298	3520	3478	4567	477-2885	2886-4567	Yes
CIITA	NM_000246.3	50	18	67	4051	4002	4654	134-3526	3527-4654	No
CISD2	NM_001008388	47	22	68	5286	5240	5892	108-515	516-5892	Yes
CLCC1	NM_00104821C	46	22	67	2194	2149	4835	141-1796	1797-4835	Yes
CLCN3	NM_001243372	65	10	74	4909	4845	6142	560-2935	2936-6142	Yes
CLCN5	NM_000084.4	33	20	52	6733	6701	9515	249-2489	2490-9515	Yes
CLDN11	NM_001185056	40	40	79	1140	1101	2431	125-496	497-2431	Yes
CLEC17A	NM_001204118	56	23	78	1679	1624	2162	78-1214	1215-2162	No
CLEC19A	NM_00125672C	30	261	290	1228	1199	2511	70-630	631-2511	No
CLEC7A	NM_022570.4	67	1	67	1867	1801	2484	188-793	794-2484	No
CLMN	NM_024734.3	58	21	78	9709	9652	12750	117-3125	3126-12750	Yes
CLSPN	NM_001190481	33	267	299	4384	4352	8292	81-3908	3909-8292	Yes
CNBP	NM_001127192	37	21	57	2728	2692	3399	207-746	747-3399	Yes
CNEP1R1	NM_001281789	48	20	67	1313	1266	2150	111-488	489-2150	No
CNN2	NM_004368.2	48	21	68	2110	2063	2478	364-1293	1294-2478	Yes
CNNM3	NM_017623.4	47	21	67	3593	3547	4916	25-2148	2149-4916	Yes
CNR2	XM_005245737	58	10	67	3881	3824	5362	260-1342	1343-5362	No
CNTNAP2	NM_014141.5	43	256	298	8386	8344	9894	517-4512	4513-9894	Yes
COLGALT1	XM_005260080	33	267	299	2303	2271	3338	4-1623	1624-3338	No
COQ6	XM_005267717	58	10	67	1146	1089	2058	54-968	969-2058	Yes
COQ7	NM_001190983	48	21	68	1114	1067	2616	134-673	674-2616	Yes
COX15	NM_078470.4	50	18	67	2597	2548	7689	618-1850	1851-7689	Yes
COX16	NM_00120409C	40	18	57	1276	1237	1652	145-393	394-1652	Yes
COX18	NM_173827.2	31	21	51	2227	2197	4523	107-1108	1109-4523	Yes
COX6B2	NM_144613.4	64	4	67	1381	1318	1679	184-450	451-1679	No
CPM	NM_001005502	44	24	67	6324	6281	6651	44-1375	1376-6651	No
CPSF2	NM_017437.2	73	4	76	4764	4692	5072	269-2617	2618-5072	Yes
CPT1A	NM_001876.3	45	23	67	4148	4104	5260	171-2492	2493-5260	Yes
CR1	NM_000573.3	38	1	38	7149	7112	8629	141-6260	6261-8629	No
CRCP	NM_001040647	52	17	67	2460	2409	2721	146-493	494-2721	Yes
CREB5	NM_001011666	31	21	51	2625	2595	7772	48-1157	1158-7772	Yes
CRIP1	NM_014171.5	47	21	67	3166	3120	6366	112-417	418-6366	Yes
CRISPLD2	NM_031476.3	30	20	49	3912	3883	4607	228-1721	1722-4607	No
CRKL	NM_005207.3	48	20	67	2134	2087	5336	510-1421	1422-5336	Yes
CRLF3	NM_015986.3	48	20	67	2135	2088	2954	110-1438	1439-2954	Yes

CRLS1	NM_001127458	31	21	51	2832	2802	3667	151-759	760-3667	Yes
CRTAP	NM_006371.4	33	267	299	1747	1715	6668	121-1326	1327-6668	Yes
CRTC1	NM_001098482	33	267	299	5403	5371	7009	89-2041	2042-7009	Yes
CRX	NM_000554.4	42	257	298	1906	1865	4482	205-1104	1105-4482	No
CTF1	NM_001142544	67	10	76	928	862	1678	38-640	641-1678	No
CTSB	NM_001908.3	59	18	76	2404	2346	3783	163-1182	1183-3783	Yes
CTSS	NM_001199739	43	256	298	2808	2766	3957	262-1107	1108-3957	No
CTSV	NM_001201575	48	5	52	1744	1697	4339	48-1052	1053-4339	No
CUL2	NM_001198777	31	269	299	3754	3724	4246	236-2473	2474-4246	Yes
CXADR	NM_001207063	42	256	297	3557	3516	5482	225-983	984-5482	Yes
CXCL16	NM_022059.2	33	267	299	1847	1815	2344	533-1354	1355-2344	Yes
CXorf56	NM_001170569	53	5	57	1168	1116	2408	309-830	831-2408	Yes
CYB561D1	NM_00113440C	58	10	67	4076	4019	5010	62-817	818-5010	No
CYB5D1	NM_144607.4	44	256	299	1678	1635	3760	390-1076	1077-3760	No
CYB5R3	NM_000398.6	57	1	57	2372	2316	2923	85-990	991-2923	No
CYCS	NM_018947.5	48	21	68	2388	2341	5544	171-488	489-5544	Yes
CYLC2	NM_001340.3	47	21	67	1934	1888	2189	71-1117	1118-2189	No
CYP1A2	NM_000761.3	53	5	57	2804	2752	3127	65-1615	1616-3127	No
CYP20A1	NM_177538.2	44	24	67	8244	8201	10943	623-2011	2012-10943	Yes
CYP2B6	NM_000767.4	49	19	67	2654	2607	3052	8-1483	1484-3052	No
CYP4V2	NM_207352.3	39	40	78	2339	2301	4713	305-1882	1883-4713	Yes
CYP51A1	NM_000786.3	35	18	52	2656	2622	3208	163-1692	1693-3208	Yes
CYP8B1	NM_004391.2	59	18	76	2469	2411	3950	326-1831	1832-3950	No
CYTH2	NM_004228.6	45	22	66	3945	3901	4622	301-1500	1501-4622	No
DAND5	NM_152654.2	59	10	68	1252	1194	1732	44-613	614-1732	No
DBR1	NM_016216.3	67	1	67	1978	1912	2690	155-1789	1790-2690	Yes
DBT	NM_001918.3	33	267	299	8594	8562	10831	34-1482	1483-10831	Yes
DCAF16	NM_017741.3	43	256	298	3144	3102	4548	1062-1712	1713-4548	No
DCAF4L1	NM_001029955	43	256	298	2806	2764	4772	98-1288	1289-4772	No
DCDC5	NM_020869.3	35	256	290	4278	4244	4773	317-2989	2990-4773	Yes
DCP2	NM_001242377	64	4	67	4900	4837	10093	225-1382	1383-10093	Yes
DCX	NM_000555.3	56	10	65	6561	6506	9433	173-1498	1499-9433	No
DDA1	NM_024050.5	33	267	299	2257	2225	4078	128-436	437-4078	Yes
DDI2	XM_005246017	33	266	298	5678	5646	10604	214-3282	3283-10604	Yes
DENND6A	NM_152678.2	32	21	52	3529	3498	4679	72-1898	1899-4679	No
DENR	NM_003677.3	64	4	67	1322	1259	3061	137-733	734-3061	Yes
DEPDC5	NM_001007188	55	25	79	2126	2072	2460	203-1882	1883-2460	Yes
DES11	NM_015704.2	37	21	57	1769	1733	3804	219-725	726-3804	No
DFFB	NM_001282669	41	258	298	2314	2274	3120	338-1426	1427-3120	Yes
DHFR	NM_000791.3	67	1	67	2078	2014	3932	493-1056	1057-3932	No
DHX8	XM_005257113	58	21	78	5634	5577	6682	77-3733	3734-6682	Yes



DIEXF	NM_014388.6	48	20	67	4422	4375	8505	98-2368	2369-8505	No
DISC1	NM_001012957	34	19	52	5858	5825	7003	54-2552	2553-7003	Yes
DNAJC14	NM_032364.5	33	267	299	2640	2608	3330	205-2313	2314-3330	Yes
DNAJC16	NM_015291.2	58	10	67	4087	4030	6035	121-2469	2470-6035	Yes
DNAJC21	XM_005248250	58	19	76	2848	2791	3360	222-1622	1623-3360	Yes
DNAJC24	NM_181706.4	54	23	76	1326	1273	3000	117-566	567-3000	Yes
DNAJC3	NM_006260.4	48	10	57	4220	4174	5598	118-1632	1633-5598	Yes
DNAJC30	NM_032317.2	48	20	67	1625	1578	2534	29-709	710-2534	No
DNAL1	NM_001201366	48	1	48	7278	7231	8584	329-784	785-8584	Yes
DNMBP	NM_015221.2	32	267	298	5614	5583	6419	93-4826	4827-6419	Yes
DOCK5	XM_005273651	39	40	78	3982	3944	5342	180-3278	3279-5342	Yes
DPY19L4	NM_181787.2	50	18	67	4780	4731	6234	125-2296	2297-6234	Yes
DSC3	NM_001941.3	44	255	298	4899	4856	6935	156-2846	2847-6935	Yes
DSCR3	NM_006052.1	47	21	67	1819	1773	3252	240-1133	1134-3252	Yes
DSEL	NM_032160.2	34	257	290	8558	8525	9281	1225-4893	4894-9281	No
DTD2	NM_080664.2	57	20	76	1023	967	2696	82-588	589-2696	No
DTWD2	NM_173666.2	56	21	76	2812	2757	4974	35-931	932-4974	Yes
DTX3L	NM_138287.3	32	20	51	2618	2587	5768	90-2312	2313-5768	Yes
DUSP18	NM_152511.3	39	40	78	1920	1882	2453	502-1068	1069-2453	Yes
DUSP19	NM_001142314	55	22	76	2386	2332	5226	376-876	877-5226	Yes
DUSP4	NM_001394.6	48	21	68	2697	2650	5625	473-1657	1658-5625	Yes
DZIP1	NM_014934.4	47	21	67	5425	5379	7441	856-3402	3403-7441	Yes
E2F2	NM_004091.3	67	1	67	4251	4185	5201	428-1741	1742-5201	Yes
EDEM1	NM_014674.2	54	21	74	2599	2546	6162	133-2106	2107-6162	Yes
EEF2K	NM_013302.3	49	28	76	3084	3036	7412	486-2663	2664-7412	Yes
EFCAB2	NM_001143943	39	40	78	1266	1228	3772	91-492	493-3772	Yes
EFCAB5	NM_001145053	39	40	78	3514	3476	3762	240-2810	2811-3762	No
EFHC1	NM_00117242C	58	20	77	2468	2411	5508	185-2050	2051-5508	Yes
EFR3B	NM_014971.1	38	42	79	4877	4840	7500	210-2663	2664-7500	No
EGF	NM_00117813C	61	18	78	5018	4958	5477	453-3953	3954-5477	No
EGLN1	NM_022051.2	33	267	299	5408	5376	7102	3157-4437	4438-7102	Yes
EHD2	NM_014601.3	73	4	76	2883	2811	3601	251-1882	1883-3601	No
EIF1AD	NM_001242481	33	267	299	2342	2310	2925	374-871	872-2925	Yes
EIF2AK2	NM_001135651	38	30	67	2327	2290	4127	324-1979	1980-4127	Yes
EIF2S1	NM_004094.4	34	42	75	3397	3364	4165	142-1089	1090-4165	Yes
EIF2S3	NM_001415.3	33	267	299	2896	2864	3486	22-1440	1441-3486	Yes
EIF4E	NM_001130678	38	1	38	3370	3333	3406	121-834	835-3406	Yes
EIF4EBP2	NM_004096.4	39	19	57	5329	5291	7531	298-660	661-7531	Yes
EIF5A2	NM_020390.5	47	21	67	1649	1603	5537	131-592	593-5537	Yes
ELK4	NM_001973.3	69	10	78	5893	5826	11170	1251-2546	2547-11170	Yes
ELMSAN1	NM_001043318	40	18	57	6224	6185	7656	340-3477	3478-7656	No

ELOVL7	NM_001104558	47	21	67	2802	2756	3851	150-995	996-3851	Yes
ELP3	NM_00128422C	55	13	67	2683	2629	3135	265-1692	1693-3135	Yes
EMP2	NM_001424.4	58	19	76	3800	3743	5186	195-698	699-5186	Yes
ENAH	NM_001008493	33	267	299	9629	9597	13172	454-2229	2230-13172	Yes
ENPP1	NM_006208.2	35	256	290	6633	6599	7442	21-2798	2799-7442	Yes
ENTPD1	NM_001098175	49	28	76	4735	4687	12615	179-1732	1733-12615	No
ENTPD7	NM_020354.3	39	40	78	3904	3866	8564	179-1993	1994-8564	Yes
EOGT	NM_001278689	33	20	52	2845	2813	4666	677-2260	2261-4666	No
EPB41L4A	NM_022140.3	46	20	65	2617	2572	4707	275-2335	2336-4707	Yes
EPHA10	NM_173641.2	49	28	76	1376	1328	2082	87-974	975-2082	No
EPHA3	NM_182644.2	30	22	51	2684	2655	2684	226-1845	1846-2684	Yes
EPM2AIP1	NM_014805.3	35	260	294	6562	6528	7439	228-2051	2052-7439	Yes
ERCC1	NM_001166049	73	4	76	2732	2660	3328	147-968	969-3328	No
ERCC4	NM_005236.2	33	267	299	4589	4557	6765	Oct-60	2761-6765	Yes
EREG	NM_001432.2	48	20	67	2803	2756	4628	167-676	677-4628	No
ERN1	XM_005257141	35	256	290	6017	5983	7980	393-3134	3135-7980	No
ERO1L	NM_014584.1	31	21	51	2931	2901	3334	227-1633	1634-3334	Yes
EVC	NM_153717.2	46	22	67	5470	5425	6430	185-3163	3164-6430	No
EVI5	NM_005665.4	40	40	79	4507	4468	7403	Nov-43	2444-7403	Yes
EXD1	NM_001286441	67	1	67	2838	2772	3264	333-2051	2052-3264	No
EXOC8	NM_175876.3	31	269	299	2789	2759	5099	88-2265	2266-5099	Yes
EXOG	NM_001145464	61	18	78	1293	1233	2996	97-1053	1054-2996	Yes
EXOSC6	NM_058219.2	59	18	76	1391	1333	1729	31-849	850-1729	No
EXPH5	NM_015065.2	43	256	298	7154	7112	10208	112-6081	6082-10208	Yes
EYA3	NM_001282561	48	20	67	4765	4718	5903	183-1766	1767-5903	Yes
F11R	NM_016946.4	40	28	67	3394	3355	4830	271-1170	1171-4830	Yes
F2RL2	NM_001256566	40	40	79	1557	1518	3295	120-1178	1179-3295	No
F3	NM_001178096	40	259	298	1375	1336	2233	222-938	939-2233	Yes
FABP2	NM_000134.3	54	25	78	908	855	2271	60-458	459-2271	No
FABP7	XM_005266858	48	21	68	1284	1237	3473	246-746	747-3473	No
FAM101B	NM_182705.2	48	21	68	2954	2907	3895	65-709	710-3895	Yes
FAM105A	NM_019018.2	47	21	67	3936	3890	7064	114-1184	1185-7064	Yes
FAM105B	NM_138348.4	37	21	57	5483	5447	7896	153-1211	1212-7896	Yes
FAM114A1	NM_138389.2	56	21	76	2606	2551	4138	260-1951	1952-4138	Yes
FAM117B	NM_173511.3	48	10	57	3331	3284	5795	11-1780	1781-5795	Yes
FAM118A	NM_001104595	55	20	74	2232	2178	3255	617-1690	1691-3255	No
FAM124A	NM_001242312	56	21	76	3738	3683	4808	169-1809	1810-4808	No
FAM126B	NM_173822.3	42	10	51	5337	5296	9348	189-1781	1782-9348	Yes
FAM129A	NM_052966.3	34	257	290	4480	4447	6969	231-3017	3018-6969	Yes
FAM134A	NM_024293.4	37	21	57	4109	4073	4625	137-1768	1769-4625	Yes
FAM134C	NM_178126.3	35	256	290	2327	2293	3818	104-1504	1505-3818	Yes

FAM154B	NM_001008226	46	23	68	2010	1965	3146	70-1266	1267-3146	No
FAM160A1	XM_005263199	67	10	76	5948	5882	11322	451-3573	3574-11322	Yes
FAM208A	NM_001112736	53	5	57	7406	7354	8296	102-4640	4641-8296	No
FAM20B	NM_014864.3	48	20	67	2839	2792	5950	294-1523	1524-5950	Yes
FAM210A	NM_001098801	32	20	51	2595	2564	4392	433-1251	1252-4392	No
FAM227A	NM_001013647	55	21	75	3800	3746	10322	605-2317	2318-10322	No
FAM60A	NM_001135811	39	29	67	1200	1162	3134	327-992	993-3134	Yes
FAM73A	NM_001270384	42	258	299	3936	3895	6427	33-1934	1935-6427	Yes
FAM83B	NM_001010872	35	256	290	4108	4074	6269	117-3152	3153-6269	Yes
FAM83H	NM_198488.3	33	267	299	4132	4100	5604	70-3609	3610-5604	Yes
FANCD2	NM_001018115	50	18	67	4704	4655	5134	79-4434	4435-5134	Yes
FANCE	NM_021922.2	32	18	49	2162	2131	2565	186-1796	1797-2565	Yes
FANCF	NM_022725.3	34	257	290	1893	1860	3309	32-1156	1157-3309	Yes
FASTKD2	NM_001136193	56	21	76	6118	6063	6930	411-2543	2544-6930	Yes
FAT3	NM_001008781	37	40	76	15114	15078	19048	18-13691	13692-19048	Yes
FBXL18	NM_024963.4	50	18	67	6453	6404	8253	95-2251	2252-8253	Yes
FBXL20	NM_001184906	38	30	67	7204	7167	10285	255-1469	1470-10285	Yes
FBXO40	NM_016298.3	49	28	76	3743	3695	5722	211-2340	2341-5722	No
FBXO44	NM_001014765	33	20	52	3094	3062	3320	499-1266	1267-3320	No
FBXO45	NM_001105573	33	267	299	4821	4789	5743	132-992	993-5743	Yes
FBXW2	NM_012164.3	54	23	76	3946	3893	9186	239-1603	1604-9186	Yes
FBXW8	NM_012174.1	48	20	67	3263	3216	4673	83-1681	1682-4673	Yes
FCAR	NM_002000.2	35	18	52	1298	1264	1671	198-1061	1062-1671	No
FCF1	NM_015962.4	43	25	67	1759	1717	2409	52-648	649-2409	Yes
FCGR2A	NM_001136219	47	19	65	1613	1568	2429	54-1007	1008-2429	No
FCN1	XM_005263399	32	18	49	3442	3411	4520	133-1215	1216-4520	No
FCRL1	NM_001159397	51	18	68	2149	2099	2989	114-1214	1215-2989	No
FDX1	NM_004109.4	36	17	52	2331	2296	3155	185-739	740-3155	Yes
FDXACB1	NM_138378.2	43	256	298	2404	2362	3081	326-2200	2201-3081	Yes
FECH	NM_000140.3	40	40	79	4092	4053	7277	118-1389	1390-7277	Yes
FEZ1	NM_022549.3	47	21	67	1459	1413	1836	236-550	551-1836	No
FFAR4	NM_001195755	49	20	68	2363	2315	3609	57-1142	1143-3609	No
FGD2	NM_173558.3	34	28	61	2721	2688	3045	172-2139	2140-3045	No
FGD6	NM_018351.3	54	21	74	7958	7905	9288	225-4517	4518-9288	Yes
FGF5	NM_004464.3	36	22	57	3508	3473	5399	238-1044	1045-5399	Yes
FGFBP3	NM_152429.4	32	21	52	1933	1902	2564	183-959	960-2564	Yes
FHDC1	NM_033393.2	47	20	66	4371	4325	6480	76-3507	3508-6480	No
FKBP5	NM_001145777	60	20	79	4981	4922	7384	159-965	966-7384	Yes
FKBP9	NM_001284341	67	1	67	2972	2906	3639	171-2042	2043-3639	Yes
FLCN	NM_144997.5	56	21	76	3239	3184	3723	505-2244	2245-3723	Yes
FOPNL	NM_144600.2	49	28	76	881	833	2250	6-530	531-2250	No

FOXJ3	NM_00119885C	40	28	67	3182	3143	5324	270-2138	2139-5324	Yes
FOXK1	NM_001037165	57	1	57	9351	9295	11191	Nov-12	2213-11191	Yes
FOXP4	NM_001012426	48	20	67	5182	5135	5965	459-2501	2502-5965	Yes
FREM2	NM_207361.4	47	21	67	15573	15527	16179	310-9819	9820-16179	Yes
FRG2	NM_001005217	34	19	52	1397	1364	2084	54-890	891-2084	No
FRG2C	NM_001124759	34	38	71	1486	1453	2069	45-893	894-2069	No
FRMD8	NM_031904.3	43	256	298	3285	3243	3774	193-1587	1588-3774	No
FSBP	NM_001256141	48	20	67	2931	2884	5418	85-984	985-5418	No
FTO	NM_001080432	54	4	57	3793	3740	4313	223-1740	1741-4313	Yes
FUS	NM_001170634	48	21	68	4021	3974	5116	106-1683	1684-5116	Yes
FUT1	NM_000148.3	43	256	298	3009	2967	4246	976-2073	2074-4246	No
FUT2	NM_000511.5	64	4	67	2436	2373	3099	122-1153	1154-3099	No
FUT4	NM_002033.3	48	20	67	4537	4490	6063	284-1876	1877-6063	Yes
FUT9	NM_006581.3	34	257	290	3708	3675	12815	342-1421	1422-12815	No
FXN	NM_000144.4	33	267	299	4011	3979	7168	221-853	854-7168	Yes
FZD2	NM_001466.3	42	257	298	3341	3300	3834	246-1943	1944-3834	No
FZD3	NM_017412.3	48	32	79	6633	6586	13804	530-2530	2531-13804	Yes
FZD4	NM_012193.3	56	21	76	5992	5937	7394	314-1927	1928-7394	Yes
G6PC	NM_000151.3	40	40	79	3922	3883	4169	81-1154	1155-4169	No
GAL3ST4	NM_024637.4	46	22	67	2187	2142	2561	394-1854	1855-2561	No
GAPVD1	NM_001282679	33	20	52	6444	6412	7083	365-4801	4802-7083	Yes
GART	NM_175085.2	35	18	52	1780	1746	2207	136-1437	1438-2207	Yes
GATC	NM_176818.2	56	23	78	1732	1677	4248	44-454	455-4248	No
GBP6	NM_198460.2	33	267	299	2455	2423	4867	275-2176	2177-4867	No
GCFC2	NM_001201334	64	10	73	3187	3124	4223	406-2244	2245-4223	No
GCM1	NM_003643.3	45	5	49	1839	1795	2780	210-1520	1521-2780	Yes
GCOM1	NM_00101809C	43	256	298	2498	2456	4662	132-1784	1785-4662	No
GDAP2	NM_017686.3	37	21	57	4786	4750	8885	300-1793	1794-8885	Yes
GDPD1	NM_182569.3	37	21	57	2300	2264	3296	144-1088	1089-3296	Yes
GEMIN6	XM_005264568	32	21	52	812	781	981	31-417	418-981	Yes
GFOD2	NM_00124365C	47	21	67	1441	1395	5309	296-634	635-5309	Yes
GFPT1	NM_00124471C	43	10	52	7821	7779	8703	184-2283	2284-8703	Yes
GFRAL	NM_207410.2	50	4	52	1556	1507	1911	87-1271	1272-1911	No
GGA2	NM_015044.4	43	21	63	5674	5632	5973	84-1925	1926-5973	Yes
GGCX	NM_000821.5	31	18	48	5736	5706	7475	107-2383	2384-7475	No
GHR	NM_000163.4	43	10	52	3764	3722	4563	193-2109	2110-4563	No
GIGYF2	NM_001103146	54	21	74	6646	6593	7819	198-4097	4098-7819	Yes
GINS1	NM_021067.3	33	18	50	1920	1888	3289	135-725	726-3289	Yes
GINS4	NM_032336.2	47	30	76	2635	2589	3841	211-882	883-3841	Yes
GJC1	NM_001080383	59	18	76	4933	4875	7640	271-1461	1462-7640	Yes
GK5	NM_001039547	49	28	76	4487	4439	9855	153-1742	1743-9855	Yes

GLB1L3	NM_001080407	53	5	57	2494	2442	2959	361-2322	2323-2959	Yes
GLG1	NM_001145666	48	10	57	7070	7023	8267	51-3629	3630-8267	Yes
GLRX3	NM_001199868	40	256	295	1122	1083	1365	47-1054	1055-1365	Yes
GM2A	NM_000405.4	57	20	76	1596	1540	3690	166-747	748-3690	Yes
GNAI3	NM_006496.3	43	256	298	3613	3571	4748	158-1222	1223-4748	Yes
GNAL	NM_001142339	40	40	79	4298	4259	6048	338-1483	1484-6048	Yes
GNB4	NM_021629.3	38	40	77	4243	4206	6428	281-1303	1304-6428	Yes
GNE	NM_001128227	50	18	67	4542	4493	5313	113-2374	2375-5313	Yes
GNG4	NM_001098721	40	28	67	1982	1943	4997	329-556	557-4997	Yes
GNG7	NM_052847.2	48	20	67	1396	1349	4264	238-444	445-4264	No
GNL3L	NM_001184819	67	10	76	8331	8265	8690	257-2005	2006-8690	Yes
GNPNAT1	NM_198066.3	56	23	78	3487	3433	3945	256-810	811-3945	Yes
GNPTAB	NM_024312.4	30	21	50	5218	5189	5644	193-3963	3964-5644	Yes
GNS	NM_002076.3	73	4	76	3195	3123	5144	171-1829	1830-5144	Yes
GOLGA3	NM_005895.3	47	21	67	8054	8008	9252	560-5056	5057-9252	Yes
GOLGA6L6	NM_001145004	44	33	76	3541	3498	4091	92-2344	2345-4091	No
GOLPH3L	NM_018178.5	52	10	61	2039	1988	3208	218-1075	1076-3208	Yes
GOSR2	XM_005257844	35	256	290	3439	3405	3825	68-565	566-3825	Yes
GP5	NM_004488.2	34	257	290	2315	2282	3493	32-1714	1715-3493	No
GPANK1	NM_001199237	64	4	67	2465	2402	2793	686-1756	1757-2793	No
GPI	NM_000175.3	34	257	290	2565	2532	4212	141-1817	1818-4212	Yes
GPLD1	NM_001503.3	47	21	67	3946	3900	5858	112-2634	2635-5858	Yes
GPR110	NM_025048.2	35	18	52	941	907	1437	200-856	857-1437	No
GPR132	NM_001278694	58	21	78	3605	3548	3878	1123-2265	2266-3878	No
GPR37L1	NM_004767.3	56	21	76	2105	2050	2459	64-1509	1510-2459	No
GPR4	NM_005282.2	40	40	79	2516	2477	3057	946-2034	2035-3057	No
GPR63	NM_001143957	34	257	290	3021	2988	6088	479-1738	1739-6088	Yes
GPR65	NM_003608.3	33	267	299	2973	2941	4522	559-1572	1573-4522	No
GPR78	NM_080819.4	42	257	298	3148	3107	4262	494-1585	1586-4262	No
GPR83	NM_016540.3	37	21	57	2348	2312	4300	173-1444	1445-4300	Yes
GREB1	NM_014668.3	57	1	57	7345	7289	8482	301-6150	6151-8482	No
GRM6	NM_000843.3	45	30	74	5345	5301	6143	180-2813	2814-6143	No
GRPEL2	NM_152407.3	33	20	52	1933	1901	4105	127-804	805-4105	Yes
GRSF1	NM_001098477	56	21	76	6025	5970	6482	406-1362	1363-6482	Yes
GRWD1	NM_031485.3	41	10	50	2041	2001	2456	234-1574	1575-2456	No
GSDMA	NM_178171.4	57	11	67	1843	1787	2164	119-1456	1457-2164	No
GSPT1	NM_001130006	32	21	52	3836	3805	7166	249-2159	2160-7166	Yes
GSR	NM_000637.3	67	10	76	2211	2145	3174	135-1703	1704-3174	Yes
GSTCD	NM_001031720	57	1	57	3216	3160	4122	73-1974	1975-4122	Yes
GTF2E1	NM_005513.2	56	21	76	1823	1768	3033	115-1434	1435-3033	Yes
GTF2H3	NM_001271866	49	28	76	2565	2517	3305	122-919	920-3305	Yes

GTF2IRD2	NM_173537.3	67	10	76	3302	3236	3599	216-3065	3066-3599	No
GTF2IRD2B	NM_001003795	76	1	76	3312	3237	3595	216-3065	3066-3595	No
GTPBP1	NM_004286.4	49	4	52	4316	4268	5074	155-2164	2165-5074	No
GTPBP10	NM_001042717	38	23	60	5779	5742	7313	78-1004	1005-7313	Yes
GTPBP3	NM_001128855	34	257	290	2135	2102	2549	96-1511	1512-2549	Yes
GUCD1	NM_001284251	76	1	76	2523	2449	3592	111-1001	1002-3592	No
H2AFV	NM_138635.3	55	10	64	1180	1126	3755	156-500	501-3755	Yes
H6PD	NM_001282587	33	267	299	4727	4695	9043	153-2561	2562-9043	Yes
HAUS2	NM_001130447	39	41	79	3424	3386	3860	61-675	676-3860	Yes
HAUS3	NM_024511.5	48	20	67	2497	2450	5620	231-2042	2043-5620	Yes
HAUS5	NM_015302.1	49	4	52	3225	3177	4309	52-1953	1954-4309	Yes
HAVCR2	NM_032782.4	67	10	76	1751	1685	2448	255-1160	1161-2448	No
HCAR1	NM_032554.3	40	28	67	1735	1696	2977	244-1284	1285-2977	No
HDAC2	NM_001527.3	33	267	299	5162	5130	6656	288-1754	1755-6656	Yes
HECA	NM_016217.2	76	1	76	3550	3475	5621	286-1917	1918-5621	Yes
HELZ	NM_014877.3	64	4	67	12075	12012	13847	188-6016	6017-13847	Yes
HERC4	NM_001278187	43	25	67	1217	1175	2147	312-644	645-2147	Yes
HIF3A	NM_022462.4	33	267	299	4805	4773	5803	175-1977	1978-5803	No
HIGD1A	NM_001099668	34	19	52	1898	1865	2952	252-575	576-2952	Yes
HIST1H2BN	XM_005249438	57	1	57	2054	1998	2223	102-602	603-2223	Yes
HIST1H3E	XM_005249443	67	1	67	1761	1695	2684	361-771	772-2684	No
HIST4H4	XM_005253301	63	5	67	609	547	1946	76-387	388-1946	Yes
HJURP	NM_001282962	63	5	67	2584	2522	3027	67-2151	2152-3027	Yes
HLA-DOA	NM_002119.3	47	21	67	2301	2255	3485	77-829	830-3485	No
HMG20A	NM_018200.2	45	247	291	2476	2432	3898	202-1245	1246-3898	Yes
HMHA1	NM_001258328	41	4	44	4869	4829	5399	104-3562	3563-5399	No
HOGA1	NM_00113467C	57	20	76	1339	1283	2012	360-854	855-2012	No
HOMEZ	NM_020834.2	57	1	57	2616	2560	3741	149-1801	1802-3741	Yes
HOOK3	NM_032410.3	59	4	61	5865	5808	14460	243-2399	2400-14460	Yes
HP1BP3	NM_016287.3	56	21	76	2656	2601	3938	141-1802	1803-3938	Yes
HPSE	NM_00109854C	38	42	79	2260	2223	4630	100-1731	1732-4630	Yes
HRH4	NM_001143828	46	4	49	3056	3011	3422	101-1009	1010-3422	Yes
HSD17B13	NM_00113623C	57	1	57	1915	1859	2289	66-860	861-2289	No
HSD3B7	NM_001142777	42	257	298	1455	1414	2233	300-890	891-2233	No
HSPA14	NM_001278205	31	21	51	2799	2769	4110	244-675	676-4110	Yes
HTR1D	NM_000864.4	30	23	52	2014	1985	2857	511-1644	1645-2857	Yes
HUNK	NM_014586.1	43	256	298	5468	5426	7385	361-2505	2506-7385	Yes
HUS1	NM_004507.3	37	24	60	2050	2014	3033	107-949	950-3033	Yes
IBA57	NM_001010867	37	21	57	6437	6401	7921	90-1160	1161-7921	No
ICAM1	NM_000201.2	42	27	68	3129	3088	3249	320-1918	1919-3249	No
ICK	NM_014920.3	44	4	47	3831	3788	6127	380-2278	2279-6127	Yes

ICMT	NM_012405.3	48	20	67	3712	3665	4815	74-928	929-4815	Yes
IFI6	NM_002038.3	52	247	298	659	608	836	124-516	517-836	Yes
IFLTD1	NM_001145727	40	10	49	1145	1106	2504	12-989	990-2504	No
IFNLR1	NM_170743.3	33	267	299	4015	3983	4563	28-1590	1591-4563	No
IGF1	NM_000618.3	43	10	52	6257	6215	7321	220-681	682-7321	No
IGFBPL1	NM_001007563	43	256	298	1702	1660	3559	24-860	861-3559	No
IKBKB	XM_005273490	40	40	79	3622	3583	4084	187-2604	2605-4084	Yes
IKZF3	NM_001257408	41	20	60	7991	7951	9584	63-1490	1491-9584	Yes
IL11	NM_000641.3	40	28	67	1529	1490	2381	154-753	754-2381	Yes
IL12RB1	NM_153701.1	58	22	79	1599	1542	1881	65-1210	1211-1881	No
IL17RD	NM_017563.3	35	256	290	6156	6122	8736	90-2309	2310-8736	No
IL5RA	NM_000564.4	55	21	75	3683	3629	5821	645-1907	1908-5821	No
IL6R	NM_001206866	57	1	57	1829	1773	2058	438-1496	1497-2058	Yes
ILDR2	NM_199351.2	47	22	68	7341	7295	8127	57-1976	1977-8127	Yes
IMPAD1	NM_017813.4	49	19	67	3447	3399	7242	287-1366	1367-7242	Yes
IMPG2	NM_016247.3	30	261	290	6791	6762	8365	204-3929	3930-8365	Yes
INADL	NM_176877.2	43	256	298	5984	5942	8505	115-5520	5521-8505	Yes
ING5	NM_032329.4	43	256	298	2572	2530	5233	26-748	749-5233	Yes
INHBE	NM_031479.3	57	20	76	2024	1968	2453	225-1277	1278-2453	Yes
INMT	NM_001199219	43	256	298	1422	1380	2576	17-805	806-2576	Yes
INO80C	XM_005258195	67	10	76	2322	2256	3458	273-866	867-3458	Yes
INPP5B	NM_005540.2	59	18	76	3244	3186	4469	95-2836	2837-4469	Yes
INTS2	NM_020748.2	43	10	52	5028	4986	5881	77-3691	3692-5881	Yes
IPCEF1	NM_001130699	35	256	290	5603	5569	6858	197-1513	1514-6858	Yes
IRAK1BP1	NM_001010844	46	20	65	2204	2159	3464	34-816	817-3464	Yes
IRAK2	NM_001570.3	42	26	67	2899	2858	3469	77-1954	1955-3469	Yes
IRAK3	NM_001142523	59	1	57	2868	2810	8168	103-1710	1711-8168	Yes
IRAK4	NM_001114182	43	256	298	3398	3356	4351	131-1513	1514-4351	Yes
IREB2	NM_004136.2	54	4	57	4924	4871	6367	163-3054	3055-6367	Yes
IRF4	NM_001195286	38	258	295	1578	1541	5329	127-1479	1480-5329	No
IRF6	NM_001206696	55	22	76	2786	2732	4256	341-1459	1460-4256	Yes
IRGQ	NM_001007561	43	257	299	4519	4477	9703	157-2028	2029-9703	Yes
ISCA1	XM_005252249	48	21	68	1251	1204	1401	163-564	565-1401	Yes
ISLR2	NM_001130136	58	10	67	3671	3614	4833	770-3007	3008-4833	No
ISPD	NM_0011101417	34	18	51	2307	2274	5374	1-1206	1207-5374	No
ITGA11	XM_005254227	31	260	290	7725	7695	7936	98-3667	3668-7936	No
ITGAX	NM_000887.4	43	256	298	4012	3970	4720	122-3613	3614-4720	No
ITGB8	NM_002214.2	39	19	57	4318	4280	8787	706-3015	3016-8787	No
ITPRIPL2	NM_001034841	40	40	79	6410	6371	7722	531-2138	2139-7722	Yes
JADE1	NM_001287441	30	10	39	3740	3711	4083	161-1690	1691-4083	No
JAK3	NM_000215.3	33	267	299	4183	4151	5449	101-3475	3476-5449	No

JAKMIP2	NM_001270934	56	21	76	5327	5272	9209	542-2941	2942-9209	Yes
JAM2	NM_001270407	43	256	298	2704	2662	4249	541-1329	1330-4249	No
JMJD1C	XM_005269628	38	41	78	6556	6519	8299	459-5561	5562-8299	Yes
JMY	NM_152405.4	37	43	79	5122	5086	9145	550-3516	3517-9145	Yes
JOSD1	NM_014876.5	48	20	67	1786	1739	3435	468-1076	1077-3435	Yes
JRK	NM_003724.3	36	257	292	3473	3438	9124	526-2232	2233-9124	Yes
KANSL3	XM_005263980	67	1	67	3361	3295	4830	147-2903	2904-4830	No
KATNAL1	NM_00101438C	56	21	76	2501	2446	7512	130-1602	1603-7512	Yes
KBTD12	NM_207335.2	48	20	67	4230	4183	5268	4-1875	1876-5268	No
KCNE3	NM_005472.4	32	21	52	1705	1674	3070	348-659	660-3070	No
KCNE4	NM_080671.3	57	20	76	2540	2484	3190	216-881	882-3190	No
KCNJ5	XM_005271543	64	4	67	4378	4315	5714	21-1280	1281-5714	No
KCNMB4	NM_014505.5	48	29	76	2979	2932	4725	454-1086	1087-4725	Yes
KCNN3	NM_001204087	56	21	76	9854	9799	13080	315-2555	2556-13080	Yes
KCTD10	NM_031954.3	49	28	76	3018	2970	4057	89-1030	1031-4057	Yes
KIAA0513	NM_001286565	67	1	67	5648	5582	7781	632-1867	1868-7781	No
KIAA0754	NM_015038.1	57	1	57	5996	5940	6979	763-5046	5047-6979	No
KIAA0825	NM_001145678	48	21	68	5403	5356	7241	258-4085	4086-7241	No
KIAA0922	XM_005262869	57	20	76	5302	5246	5914	53-4882	4883-5914	Yes
KIAA1143	NM_020696.3	52	1	52	4642	4591	5157	80-544	545-5157	Yes
KIAA1210	NM_020721.1	61	1	61	5475	5416	7838	Jan-30	5131-7838	No
KIAA1324	NM_001267048	63	5	67	6164	6102	6793	222-3002	3003-6793	No
KIAA1456	NM_001099677	34	1	34	3864	3831	9313	581-1567	1568-9313	No
KIAA1462	NM_020848.2	31	21	51	8916	8886	9300	138-4217	4218-9300	Yes
KIAA1467	NM_020853.1	33	267	299	3442	3410	4725	24-1892	1893-4725	Yes
KIAA1671	NM_001145206	36	256	291	9541	9506	10517	27-5447	5448-10517	Yes
KIAA1737	NM_033426.2	56	21	76	2890	2835	4397	180-1379	1380-4397	Yes
KIAA1751	NM_001080484	61	8	68	3378	3319	4710	157-2445	2446-4710	No
KIAA1755	NM_001029864	43	257	299	4654	4612	6412	273-3875	3876-6412	No
KIAA1841	XM_005264609	48	20	67	1635	1588	2474	351-1490	1491-2474	Yes
KIAA2018	NM_001009899	58	10	67	8627	8570	13708	412-7149	7150-13708	Yes
KIF18B	NM_001264573	34	257	290	3594	3561	4308	99-2600	2601-4308	Yes
KIF1B	NM_183416.3	56	21	76	6520	6465	7680	253-3714	3715-7680	Yes
KIF1C	NM_006612.5	54	1	54	4552	4499	7935	358-3669	3670-7935	No
KIF3A	NM_007054.5	42	257	298	4548	4507	6257	155-2254	2255-6257	Yes
KIN	NM_012311.3	33	19	51	3153	3121	6401	95-1276	1277-6401	Yes
KLC1	XM_005267601	43	256	298	2728	2686	5571	46-2034	2035-5571	No
KLF8	NM_001159296	33	267	299	3300	3268	4821	487-1260	1261-4821	No
KLHL24	NM_017644.3	40	256	295	5819	5780	7331	296-2098	2099-7331	Yes
KLHL30	NM_198582.3	63	5	67	3307	3245	3685	108-1844	1845-3685	No
KLHL6	NM_130446.2	48	5	52	3188	3141	6320	59-1924	1925-6320	No



KLLN	NM_001126049	33	20	52	3539	3507	4277	951-1487	1488-4277	No
KLRD1	NM_001114396	51	18	68	1209	1159	3195	198-737	738-3195	No
KMO	NM_003679.4	35	257	291	2479	2445	5266	312-1772	1773-5266	No
KPNA4	NM_002268.4	67	1	67	7834	7768	8981	307-1872	1873-8981	Yes
KRAS	NM_004985.3	48	20	67	3156	3109	5312	182-748	749-5312	Yes
KSR2	NM_173598.4	40	40	79	8986	8947	17008	56-2821	2822-17008	No
L2HGDH	NM_024884.2	33	267	299	2605	2573	6111	80-1471	1472-6111	Yes
LAMP3	NM_014398.3	50	18	67	2126	2077	3341	225-1475	1476-3341	No
LAMTOR3	NM_001243736	43	257	299	2043	2001	4259	250-603	604-4259	No
LAT2	XM_005250562	67	10	76	2291	2225	2499	192-923	924-2499	No
LATS1	NM_004690.3	31	29	59	6328	6298	7533	549-3941	3942-7533	Yes
LBX2	NM_001009812	42	257	298	1253	1212	1463	458-1042	1043-1463	No
LDHAL6A	NM_001144071	37	256	292	1460	1424	1990	262-1260	1261-1990	No
LEPREL1	NM_001134418	38	10	47	2241	2204	3082	299-1882	1883-3082	Yes
LEPROT	NM_001198681	53	5	57	4145	4093	4625	115-537	538-4625	Yes
LETM1	NM_012318.2	58	10	67	4713	4656	5462	298-2517	2518-5462	Yes
LGSN	NM_001143940	30	28	57	3209	3180	5213	35-661	662-5213	No
LIMD1	NM_014240.2	54	20	73	5478	5425	6284	50-2080	2081-6284	Yes
LIN28A	NM_024674.4	57	11	67	2980	2924	4014	115-744	745-4014	No
LIN54	NM_001115007	38	261	298	2706	2669	5214	129-1715	1716-5214	Yes
LIN7C	NM_018362.3	34	257	290	3839	3806	4866	28-621	622-4866	Yes
LINC00843	XM_005278342	57	1	57	1709	1653	2439	356-808	809-2439	No
LITAF	NM_001136472	42	38	79	1461	1420	2479	71-556	557-2479	Yes
LIX1L	NM_153713.2	43	256	298	2616	2574	3992	93-1106	1107-3992	Yes
LLGL1	NM_004140.3	42	256	297	3652	3611	4225	62-3256	3257-4225	Yes
LMX1B	NM_001174146	43	10	52	2807	2765	5816	8-1228	1229-5816	No
LNX2	NM_153371.3	57	20	76	2988	2932	4804	310-2382	2383-4804	Yes
LOC100129520	XM_005262352	48	31	78	4116	4070	4787	272-3253	3254-4787	No
LOC100288255	NM_001199232	34	19	52	1395	1362	2082	54-890	891-2082	No
LOC100294341	XM_003403615	67	10	76	4451	4385	5973	852-1385	1386-5973	No
LOC100506127	NM_001282456	48	21	68	3024	2977	5372	505-1269	1270-5372	No
LOC100506571	XM_003119160	44	256	299	1688	1645	2649	204-827	828-2649	No
LOC100507656	XM_003118753	57	20	76	2862	2806	3754	254-2281	2282-3754	No
LOC100652758	NM_001278082	33	267	299	1053	1021	1175	262-594	595-1175	No
LOC100653071	XM_003403765	33	267	299	1159	1127	1467	70-738	739-1467	No
LOC100996273	XM_003846283	58	19	76	1793	1736	2946	304-945	946-2946	No
LOC100996779	XM_003846740	40	40	79	1665	1626	2598	648-1052	1053-2598	No
LOC101060212	XM_005276917	60	19	78	2766	2707	3994	62-943	944-3994	No
LOC101060405	XM_005276503	32	21	52	1897	1866	2652	92-766	767-2652	No
LOC101060445	XM_005276331	53	5	57	1345	1293	3483	479-1126	1127-3483	No
LOC101060589	XM_003960630	49	28	76	4603	4555	6050	1324-3843	3844-6050	No

LOC101927294	XM_005260628	57	1	57	1185	1129	1631	62-889	890-1631	No
LOC101928206	XM_005268252	48	32	79	698	654	1015	1-465	466-1015	No
LOC101929403	XM_005274425	56	12	67	566	511	870	1->870	1-870	No
LOC101929496	XM_005250749	33	267	299	820	788	2815	<1-123	124-2815	No
LOC101929668	XM_005255732	67	4	70	1586	1520	2652	2-970	971-2652	No
LOC101929695	XM_005268255	35	256	290	1771	1737	3357	855-1544	1545-3357	No
LOC101929889	XM_005276513	46	18	63	1580	1535	1909	108-1310	1311-1909	No
LOC101929970	XM_005276472	33	10	42	3250	3218	3528	562-1800	1801-3528	No
LOC101930037	XM_005276305	39	40	78	1017	979	1168	1-618	619-1168	No
LOC101930123	XM_005276497	49	28	76	3068	3020	5284	470-2647	2648-5284	No
LOC101930145	XM_005276410	48	20	67	81	34	291	<1->291	1-291	No
LOC101930184	XM_005272731	43	10	52	89	47	204	<1->204	1-204	No
LOC101930602	XM_005276012	43	10	52	89	47	204	<1->204	1-204	No
LOC400682	XM_003846486	42	10	51	3183	3142	3499	365-955	956-3499	No
LOC440243	NM_001271664	44	33	76	3227	3184	3777	92-2053	2054-3777	No
LOC646021	XM_003960735	50	18	67	1240	1191	1581	1-1014	1015-1581	No
LOC651959	XM_003846756	34	19	52	1332	1299	2029	1-849	850-2029	No
LONRF2	NM_198461.3	43	256	298	6465	6423	13920	641-2905	2906-13920	Yes
LPCAT3	NM_005768.5	61	16	76	1890	1830	2297	115-1578	1579-2297	Yes
LPGAT1	NM_014873.2	47	18	64	2683	2637	7802	228-1340	1341-7802	Yes
LPIN3	NM_022896.1	48	20	67	3061	3014	4464	92-2647	2648-4464	No
LPP	NM_001167671	43	256	298	7640	7598	18221	190-2028	2029-18221	Yes
LRCH3	XM_005269368	48	21	68	2848	2801	2861	39-2216	2217-2861	Yes
LRP2	NM_004525.2	40	36	75	15391	15352	15735	214-14181	14182-15735	Yes
LRPAP1	NM_002337.3	60	19	78	7037	6978	10536	86-1159	1160-10536	No
LRRRC10	NM_201550.2	39	40	78	2036	1998	2649	325-1158	1159-2649	No
LRRRC19	NM_022901.2	56	21	76	2334	2279	3624	112-1224	1225-3624	No
LRRRC25	NM_145256.2	55	22	76	2134	2080	2430	643-1560	1561-2430	No
LRRRC3	NM_030891.3	48	5	52	1972	1925	2520	294-1067	1068-2520	No
LRRRC47	NM_020710.2	56	21	76	2018	1963	2694	29-1780	1781-2694	No
LRTOMT	NM_001205138	43	256	298	1349	1307	2521	612-1136	1137-2521	No
LSM5	NM_001130710	32	21	52	1728	1697	2212	71-259	260-2212	Yes
LURAP1	NM_001013615	39	40	78	1293	1255	1863	94-813	814-1863	No
LUZP2	NM_001009909	33	267	299	3906	3874	5311	275-1315	1316-5311	No
LY75	NM_002349.3	49	19	67	5900	5852	6936	75-5243	5244-6936	No
LY75-CD302	NM_001198759	46	22	67	8028	7983	8919	75-5696	5697-8919	No
LYRM7	NM_181705.2	38	245	282	3359	3322	6213	74-388	389-6213	Yes
LYZ	NM_000239.2	57	1	57	935	879	1516	56-502	503-1516	No
LZTS1	NM_021020.2	43	256	298	3347	3305	5459	112-1902	1903-5459	No
MAGEA10	NM_001011543	54	23	76	2246	2193	2759	434-1543	1544-2759	No
MAGT1	NM_032121.5	40	40	79	2062	2023	4035	63-1166	1167-4035	Yes

MAK	NM_001242385	49	28	76	2775	2727	3800	304-2055	2056-3800	No
MALL	NM_005434.4	57	1	57	1812	1756	3071	775-1236	1237-3071	No
MANSC1	NM_018050.2	67	10	76	1834	1768	2297	259-1554	1555-2297	Yes
MAP1LC3C	NM_001004343	33	267	299	961	929	1192	76-519	520-1192	No
MAP3K13	NM_001242314	56	21	76	8044	7989	9830	292-3192	3193-9830	Yes
MAP4	NM_030885.3	30	28	57	1978	1949	3224	527-826	827-3224	Yes
MAP7D3	NM_001173516	43	256	298	3254	3212	4463	164-2740	2741-4463	Yes
MAPK12	XM_003846644	43	256	298	1322	1280	2150	65-847	848-2150	No
MAPK13	NM_002754.4	42	257	298	5885	5844	6348	100-1197	1198-6348	No
MAPK1IP1L	NM_144578.3	42	257	298	3232	3191	6469	165-902	903-6469	Yes
6-Mar	NM_00127066C	47	21	67	5025	4979	9566	261-2849	2850-9566	No
MARVELD2	NM_001038603	35	256	290	1840	1806	2297	75-1751	1752-2297	Yes
MAST3	NM_015016.1	48	20	67	4335	4288	5893	Jan-30	3931-5893	Yes
MATR3	NM_001194954	37	256	292	4703	4667	5522	697-3240	3241-5522	Yes
MAVS	NM_001206491	57	20	76	4790	4734	11596	421-1620	1621-11596	No
MBOAT1	NM_00108048C	57	1	57	2035	1979	4334	231-1718	1719-4334	No
MCCC2	NM_022132.4	58	10	67	2551	2494	3696	139-1830	1831-3696	Yes
MCF2L2	NM_015078.3	57	1	57	4693	4637	5013	293-3637	3638-5013	Yes
MCM10	NM_018518.4	34	259	292	3554	3521	4559	129-2753	2754-4559	Yes
MCPH1	NM_024596.3	33	267	299	3015	2983	3154	77-2584	2585-3154	Yes
MCTS1	NM_001137554	67	1	67	1532	1466	9617	158-706	707-9617	Yes
MCUR1	NM_001031713	56	21	76	2745	2690	5472	132-1211	1212-5472	No
MDM2	NM_001145337	42	257	298	6386	6345	7104	75-1409	1410-7104	Yes
MDM4	NM_001204171	33	1	33	7258	7226	9940	167-1489	1490-9940	Yes
ME2	NM_001168335	54	4	57	3364	3311	4468	260-1699	1700-4468	Yes
MEAF6	NM_001270875	58	10	67	3380	3323	4788	74-649	650-4788	No
MED17	NM_004268.4	32	19	50	2751	2720	3497	276-2231	2232-3497	Yes
MED18	NM_00112735C	59	18	76	1034	976	1813	190-816	817-1813	No
MED21	NM_001271811	31	269	299	2378	2348	2703	59-265	266-2703	Yes
MEFV	NM_000243.2	67	1	67	3309	3243	3507	41-2386	2387-3507	No
MET	NM_000245.2	33	267	299	5070	5038	6641	188-4360	4361-6641	Yes
METTL16	NM_024086.3	63	5	67	3359	3297	5758	149-1837	1838-5758	No
METTL20	NM_001135863	40	28	67	1656	1617	2122	229-1017	1018-2122	No
METTL21B	NM_015433.2	61	1	61	1383	1323	2717	126-806	807-2717	No
METTL6	NM_152396.2	54	21	74	1626	1573	2499	259-1113	1114-2499	Yes
METTL7A	NM_014033.3	48	5	52	1616	1569	3390	289-1023	1024-3390	Yes
METTL8	NM_024770.3	32	18	49	2922	2891	8154	142-1365	1366-8154	Yes
MFAP3	NM_001135037	58	21	78	2883	2826	4588	197-847	848-4588	Yes
MFSD4	NM_181644.4	48	20	67	2898	2851	4114	87-1631	1632-4114	No
MGAT4A	NM_012214.2	34	40	73	4576	4543	8382	315-1922	1923-8382	Yes
MICB	NM_005931.3	30	22	51	2047	2018	2497	117-1268	1269-2497	Yes

MILR1	NM_001085423	47	21	67	1237	1191	1488	55-1086	1087-1488	No
MINOS1	NM_001032363	56	12	67	2136	2081	3726	70-306	307-3726	No
MIP	NM_012064.3	60	239	298	2128	2069	2608	39-830	831-2608	No
MIS12	NM_001258217	55	21	75	1896	1842	2701	746-1363	1364-2701	Yes
MLANA	NM_005511.1	57	11	67	1114	1058	1524	54-410	411-1524	No
MMS22L	NM_198468.2	57	1	57	6867	6811	8643	267-3998	3999-8643	No
MOAP1	NM_022151.4	35	256	290	1726	1692	2435	371-1426	1427-2435	No
MOB1B	NM_001244766	58	19	76	4572	4515	7091	295-960	961-7091	No
MOB3A	NM_130807.2	40	40	79	1687	1648	3347	319-972	973-3347	No
MOC53	NM_014484.4	63	5	67	2090	2028	3050	30-1412	1413-3050	Yes
MON2	NM_001278469	43	256	298	8062	8020	10440	392-5419	5420-10440	Yes
MORN4	NM_001098831	43	10	52	1298	1256	2352	183-623	624-2352	Yes
MPC2	NM_001143674	43	256	298	1340	1298	2220	189-572	573-2220	No
MPHOSPH8	NM_017520.3	65	12	76	3106	3042	4281	102-2684	2685-4281	Yes
MPL	NM_005373.2	48	20	67	2606	2559	3645	46-1953	1954-3645	No
MPRIP	NM_015134.3	35	256	290	7561	7527	10960	90-3206	3207-10960	Yes
MPV17L	NM_001128423	51	17	67	1373	1323	2309	145-735	736-2309	No
MPZL1	NM_001146191	50	30	79	1622	1573	4576	203-562	563-4576	Yes
MPZL3	NM_001286152	67	10	76	1650	1584	3950	75-746	747-3950	Yes
MREG	NM_018000.2	43	10	52	2100	2058	3213	297-941	942-3213	Yes
MRI1	NM_001031727	58	10	67	2058	2001	3177	67-1176	1177-3177	Yes
MRO	NM_001127174	56	21	76	4194	4139	4895	81-671	672-4895	No
MRPL30	NM_145212.3	43	257	299	2679	2637	4554	199-684	685-4554	Yes
MRPL35	NM_016622.3	33	45	77	1744	1712	3323	59-625	626-3323	No
MRPL42	NM_014050.3	36	256	291	2808	2773	3139	160-588	589-3139	Yes
MRPL44	NM_022915.3	50	18	67	1413	1364	1772	70-1068	1069-1772	Yes
MRPL49	NM_004927.3	48	20	67	1011	964	2119	104-604	605-2119	No
MRPS16	NM_016065.3	35	256	290	1300	1266	2651	212-625	626-2651	Yes
MRTO4	NM_016183.3	33	267	299	2124	2092	2273	256-975	976-2273	Yes
MS4A10	NM_206893.3	42	257	298	1844	1803	2296	97-900	901-2296	No
MSMO1	NM_001017369	49	4	52	1298	1250	1955	238-726	727-1955	No
MSS51	NM_001024593	56	21	76	1751	1696	2433	67-1449	1450-2433	No
MTDH	NM_178812.3	33	21	53	6470	6438	7667	329-2077	2078-7667	Yes
MTF1	NM_005955.2	48	5	52	4401	4354	7986	142-2403	2404-7986	Yes
MTFMT	NM_139242.3	43	256	298	1898	1856	2763	27-1196	1197-2763	No
MTL5	NM_001039656	57	20	76	1971	1915	3625	141-1061	1062-3625	No
MTPAP	NM_018109.3	57	2	57	2997	2941	5620	64-1812	1813-5620	No
MTR	NM_000254.2	56	21	76	5120	5065	10558	424-4221	4222-10558	Yes
MUC21	NM_001010909	54	22	75	3212	3159	3656	252-1952	1953-3656	No
MUSK	XM_005251994	43	256	298	5271	5229	6008	251-2890	2891-6008	No
MXRA7	NM_001008528	58	10	67	1605	1548	2507	29-643	644-2507	Yes

MYADM	NM_001020818	49	28	76	1697	1649	3243	315-1283	1284-3243	Yes
MYEF2	NM_016132.3	76	1	76	3404	3329	5403	125-1927	1928-5403	Yes
MYLK3	NM_182493.2	42	257	298	4351	4310	7998	117-2576	2577-7998	Yes
MYLK4	NM_001012418	48	1	48	3005	2958	5760	298-1464	1465-5760	No
MYNN	NM_001185118	67	10	76	5292	5226	5367	497-2329	2330-5367	Yes
MYO10	NM_012334.2	44	256	299	8177	8134	11436	469-6645	6646-11436	Yes
MYO5C	NM_018728.3	54	4	57	6123	6070	6975	163-5391	5392-6975	No
NAA38	NM_016200.4	58	10	67	5365	5308	12520	193-483	484-12520	No
NAA50	NM_025146.2	35	256	290	5303	5269	6148	325-834	835-6148	No
NADK2	NM_001085411	49	19	67	3125	3077	3897	1-1329	1330-3897	No
NANOG	NM_024865.2	40	256	295	1421	1382	2098	217-1134	1135-2098	No
NANP	NM_152667.2	35	41	75	1989	1955	3806	65-811	812-3806	Yes
NAPG	NM_003826.2	37	256	292	2000	1964	3729	228-1166	1167-3729	Yes
NARG2	NM_001018089	59	18	76	3963	3905	7081	502-3039	3040-7081	Yes
NAT10	XM_005252999	40	22	61	5514	5475	6222	213-3290	3291-6222	Yes
NAV1	NM_001167738	35	256	290	10431	10397	11689	190-4641	4642-11689	No
NCCRP1	NM_001001414	33	267	299	1617	1585	1973	20-847	848-1973	No
NCMAP	NM_00101098C	59	21	79	1801	1743	3991	102-410	411-3991	No
NDRG3	NM_022477.3	50	18	67	2470	2421	2995	143-1234	1235-2995	Yes
NDST3	NM_004784.2	30	261	290	4507	4478	5961	404-3025	3026-5961	Yes
NDUFA4	NM_002489.3	41	21	61	1166	1127	2058	130-375	376-2058	Yes
NDUFA7	NM_005001.3	31	49	79	578	548	585	39-380	381-585	Yes
NDUFC2	NM_001204054	56	21	76	1956	1901	2284	476-742	743-2284	No
NDUFV3	NM_001001503	43	256	298	574	532	1056	67-393	394-1056	Yes
NEIL2	NM_001135746	32	19	50	1640	1609	2202	132-1130	1131-2202	Yes
NEK2	NM_001204183	52	1	52	1715	1664	1938	152-1306	1307-1938	Yes
NF2	NM_000268.3	58	10	67	3657	3600	6046	444-2231	2232-6046	Yes
NFAT5	NM_001113178	50	18	67	9723	9674	13304	337-4983	4984-13304	Yes
NFATC3	XM_005255961	42	257	298	3934	3893	4137	316-3522	3523-4137	Yes
NFKBIZ	NM_001005474	43	256	298	3010	2968	3801	283-2139	2140-3801	Yes
NHLRC1	NM_198586.2	33	267	299	1648	1616	2134	15-1202	1203-2134	No
NHLRC2	NM_198514.3	57	20	76	4231	4175	6409	242-2422	2423-6409	Yes
NICN1	NM_032316.3	46	22	67	1929	1884	3227	86-727	728-3227	No
NIPAL3	XM_005245949	37	40	76	1127	1091	1800	393-1073	1074-1800	Yes
NLRC3	NM_178844.2	48	10	57	4768	4721	6401	412-3609	3610-6401	No
NMNAT1	NM_022787.3	50	18	67	2477	2428	3781	145-984	985-3781	Yes
NMUR1	NM_006056.4	33	267	299	2079	2047	3274	111-1391	1392-3274	No
NOL9	NM_024654.4	57	20	76	5636	5580	6728	97-2205	2206-6728	Yes
NOM1	NM_138400.1	67	1	67	3464	3401	6082	16-2598	2599-6082	Yes
NONO	NM_001145408	43	256	298	2527	2485	3228	711-2126	2127-3228	Yes
NOS1	NM_000620.4	33	20	52	8387	8355	12189	712-5016	5017-12189	No

NOS3	NM_001160111	33	267	299	1943	1911	2546	1-1890	1891-2546	No
NPAP1	NM_018958.2	58	19	76	4748	4691	8053	475-3945	3946-8053	No
NQO1	NM_000903.2	34	257	290	1701	1668	2601	192-1016	1017-2601	No
NR5A2	NM_001276464	55	25	79	4132	4078	4787	156-1565	1566-4787	No
NR6A1	NM_001278546	57	1	57	4571	4515	7052	192-1622	1623-7052	Yes
NRIP3	NM_020645.2	53	5	57	3059	3007	3809	115-840	841-3809	No
NRSN1	NM_080723.4	81	18	98	1536	1456	2408	238-825	826-2408	No
NRXN3	NM_00110525C	57	1	57	5284	5228	8659	954-2333	2334-8659	Yes
NSL1	NM_001042549	51	19	69	6069	6019	13233	35-676	677-13233	Yes
NT5DC3	NM_001031701	33	267	299	5033	5001	7214	42-1688	1689-7214	Yes
NUAK2	NM_030952.1	67	1	67	2719	2653	3443	128-2014	2015-3443	No
NUDT15	NM_018283.1	34	18	51	1612	1579	2022	181-675	676-2022	Yes
NUDT19	NM_00110557C	50	18	67	2478	2429	2984	1-1128	1129-2984	Yes
NUDT4	NM_019094.4	33	267	299	4645	4613	4810	399-941	942-4810	No
NUGGC	NM_001010906	34	257	290	2823	2790	3912	144-2534	2535-3912	No
NUP43	NM_198887.2	47	21	67	2726	2680	3894	78-1220	1221-3894	Yes
NUSAP1	NM_001243142	33	267	299	2294	2262	2465	265-1584	1585-2465	Yes
NXN	NM_001205319	35	256	290	1921	1887	2681	62-1045	1046-2681	Yes
NXPE3	NM_001134456	43	256	298	5186	5144	8929	957-2636	2637-8929	No
OCLN	NM_001205254	47	21	67	3183	3137	6221	207-1775	1776-6221	Yes
OGFOD3	NM_024648.2	43	256	298	3532	3490	4300	153-1112	1113-4300	No
OGFRL1	XM_005248765	57	20	76	2023	1967	2971	98-1456	1457-2971	Yes
OLFML1	NM_198474.3	59	10	68	2321	2263	2921	508-1716	1717-2921	No
OLFML2A	NM_001282715	46	22	67	3382	3337	5970	175-1491	1492-5970	Yes
OPRK1	NM_000912.3	57	20	76	3544	3488	4959	236-1378	1379-4959	No
OPRM1	NM_000914.4	57	1	57	8891	8835	15279	444-1646	1647-15279	Yes
OR51E2	NM_030774.3	43	10	52	1741	1699	2785	245-1207	1208-2785	No
OR7D2	NM_175883.2	42	257	298	1385	1344	3224	189-1127	1128-3224	No
ORAI2	NM_00112634C	39	41	79	7336	7298	10788	255-1019	1020-10788	No
ORAI3	NM_152288.2	39	40	78	1724	1686	2205	207-1094	1095-2205	No
ORAOV1	NM_153451.2	49	28	76	2055	2007	2544	159-572	573-2544	Yes
ORC1	NM_001190818	43	256	298	2906	2864	3189	229-2814	2815-3189	No
OSBPL2	NM_001278649	58	10	67	2725	2668	3848	463-1575	1576-3848	Yes
OSGEPL1	XM_005246763	55	21	75	1504	1450	2055	80-1357	1358-2055	Yes
OSMR	NM_003999.2	58	10	67	4888	4831	5556	403-3342	3343-5556	No
OSTM1	NM_014028.3	33	267	299	3642	3610	4467	87-1091	1092-4467	Yes
OTUD3	NM_015207.1	47	21	67	5103	5057	6523	120-1316	1317-6523	Yes
P2RX5	XM_005256661	47	21	67	2859	2813	4498	400-1719	1720-4498	No
P2RY2	NM_002564.3	33	267	299	3638	3606	8602	335-1468	1469-8602	No
PACRGL	NM_001130727	31	20	50	1355	1325	1796	392-763	764-1796	Yes
PACS2	NM_001100913	35	256	290	5108	5074	6712	505-3219	3220-6712	Yes

PAEP	XM_005263406	33	267	299	766	734	889	48-359	360-889	No
PAFAH1B2	NM_002572.3	37	21	57	2067	2031	4200	143-832	833-4200	Yes
PAIP2B	NM_020459.1	59	10	68	3607	3549	6300	188-559	560-6300	Yes
PAK2	NM_002577.4	43	10	52	4533	4491	6139	323-1897	1898-6139	Yes
PAPLN	NM_173462.3	56	21	76	4628	4573	5849	103-3858	3859-5849	No
PAPOLA	NM_001252006	54	23	76	2100	2047	4013	218-1075	1076-4013	Yes
PAPOLG	NM_022894.3	57	10	66	6898	6842	7386	250-2460	2461-7386	Yes
PAQR5	NM_001104554	41	258	298	5034	4994	5480	669-1661	1662-5480	No
PAQR7	NM_178422.5	58	10	67	2628	2571	3023	668-1708	1709-3023	No
PAQR8	NM_133367.4	40	40	79	3783	3744	4758	175-1239	1240-4758	Yes
PARD6B	NM_032521.2	57	18	74	1990	1934	4625	244-1362	1363-4625	Yes
PARD6G	NM_032510.3	50	27	76	2343	2294	3847	167-1297	1298-3847	Yes
PARP11	NM_001286521	34	257	290	2690	2657	4377	342-1115	1116-4377	Yes
PARP14	NM_017554.2	54	14	67	6453	6400	7713	60-5465	5466-7713	Yes
PARP9	NM_001146106	43	256	298	3741	3699	6801	327-2459	2460-6801	Yes
PCBD2	NM_032151.4	41	17	57	646	606	2395	21-413	414-2395	Yes
PCCB	XM_005247510	39	30	68	3240	3202	5485	52-1704	1705-5485	Yes
PCDHA9	NM_014005.3	73	4	76	4667	4595	6388	725-3253	3254-6388	Yes
PCDHB11	NM_018931.2	48	20	67	2670	2623	3271	Jan-94	2395-3271	No
PCDHB16	NM_020957.2	40	40	79	3973	3934	4549	871-3201	3202-4549	No
PCDHB9	NM_019119.4	46	22	67	3195	3150	4412	193-2586	2587-4412	No
PCYT1B	NM_001163264	33	267	299	4460	4428	5507	231-1286	1287-5507	No
PDCL	NM_005388.4	59	18	76	3043	2985	3085	192-1097	1098-3085	Yes
PDDC1	NM_182612.2	40	40	79	2726	2687	4378	26-688	689-4378	Yes
PDE11A	NM_001077196	43	256	298	6001	5959	7786	152-1621	1622-7786	No
PDE12	NM_177966.5	46	20	65	2422	2377	3993	127-1956	1957-3993	Yes
PDE6A	NM_000440.2	39	40	78	5065	5027	5659	121-2703	2704-5659	Yes
PDE6B	NM_000283.3	48	20	67	2898	2851	3414	54-2618	2619-3414	No
PDE7A	NM_001242318	48	10	57	5114	5067	6641	227-1675	1676-6641	Yes
PDHA1	NM_000284.3	54	23	76	2161	2108	3390	146-1318	1319-3390	Yes
PDK1	NM_001278549	42	256	297	2751	2710	4734	183-1553	1554-4734	Yes
PDK3	NM_001142386	33	267	299	3439	3407	12795	230-1477	1478-12795	Yes
PDLIM2	NM_176871.3	33	267	299	2593	2561	4608	132-1232	1233-4608	No
PDP2	NM_020786.2	33	267	299	4209	4177	7042	216-1805	1806-7042	Yes
PDPN	NM_001006624	37	21	57	2195	2159	2652	228-590	591-2652	Yes
PDSS2	NM_020381.3	72	5	76	2176	2105	3568	291-1490	1491-3568	Yes
PDXK	NM_003681.4	48	10	57	5405	5358	7390	199-1137	1138-7390	Yes
PECAM1	NM_000442.4	59	18	76	3989	3931	6831	214-2430	2431-6831	No
PER2	NM_022817.2	48	20	67	5460	5413	6342	238-4005	4006-6342	Yes
PEX13	NM_002618.3	40	256	295	3205	3166	4524	84-1295	1296-4524	Yes
PEX2	NM_000318.2	49	20	68	3302	3254	4392	459-1376	1377-4392	No

PEX26	NM_001127649	37	21	57	3071	3035	4267	384-1301	1302-4267	Yes
PFAS	NM_012393.2	59	18	76	4918	4860	5400	142-4158	4159-5400	No
PGAM5	NM_001170543	55	22	76	1842	1789	2851	71-940	941-2851	No
PGAP1	NM_024989.3	40	40	79	6731	6692	11113	115-2883	2884-11113	Yes
PGPEP1	NM_017712.2	67	10	76	2628	2562	7084	85-714	715-7084	Yes
PGS1	XM_005257828	51	18	68	4154	4104	6169	43-1713	1714-6169	Yes
PHACTR4	NM_001048183	47	5	51	5137	5091	6225	283-2391	2392-6225	Yes
PHC3	NM_024947.3	31	257	287	10377	10347	12687	35-3022	3023-12687	Yes
PHKG2	NM_000294.2	48	10	57	3037	2990	5503	211-1431	1432-5503	No
PHLDA1	NM_007350.3	56	21	76	3724	3669	5913	36-1241	1242-5913	Yes
PHLPP2	NM_015020.2	33	267	299	4296	4264	7919	Jul-78	3979-7919	Yes
PIAS2	XM_005258377	49	19	67	4760	4712	5450	74-1954	1955-5450	Yes
PIGR	NM_002644.3	43	256	298	3293	3251	4295	185-2479	2480-4295	No
PIGW	NM_178517.3	34	257	290	1767	1734	2255	56-1570	1571-2255	Yes
PIK3C2B	NM_002646.3	63	5	67	6930	6868	7606	480-5384	5385-7606	No
PIK3CD	NM_005026.3	42	257	298	4161	4120	5411	209-3343	3344-5411	No
PKNOX1	NM_001286258	47	1	47	3274	3228	5180	391-1350	1351-5180	Yes
PLA2G4E	NM_001206670	43	10	52	3234	3192	4798	Jan-07	2608-4798	No
PLAC4	NM_182832.2	36	256	291	6546	6511	10009	5612-6064	6065-10009	No
PLAC8	NM_001130716	56	21	76	1088	1033	1442	162-509	510-1442	No
PLCD3	NM_133373.3	62	18	79	3191	3130	3477	115-2484	2485-3477	No
PLCXD1	NM_018390.3	58	10	67	2807	2750	5320	313-1284	1285-5320	No
PLD6	NM_178836.3	56	21	76	1712	1657	2591	47-805	806-2591	Yes
PLEKHA1	NM_001001974	32	21	52	2790	2759	3891	250-1464	1465-3891	Yes
PLEKHA2	NM_021623.1	41	257	297	3975	3935	5656	235-1512	1513-5656	Yes
PLEKHA5	NM_001143821	49	28	76	3749	3701	6591	109-3633	3634-6591	Yes
PLEKHG1	NM_001029884	55	10	64	6442	6388	7237	313-4470	4471-7237	Yes
PLEKHG2	NM_022835.2	57	1	57	6381	6325	7642	326-4486	4487-7642	No
PLEKHG3	XM_005267511	39	257	295	6170	6132	7555	331-4353	4354-7555	No
PLEKHH1	NM_020715.2	47	21	67	4693	4647	6540	143-4237	4238-6540	No
PLEKHH2	NM_172069.3	40	40	79	5520	5481	6972	84-4565	4566-6972	Yes
PLEKHJ1	NM_018049.1	55	19	73	760	706	1215	82-531	532-1215	Yes
PLGLB1	NM_001032392	38	30	67	2685	2648	3011	64-354	355-3011	No
PLGLB2	NM_002665.4	38	30	67	2690	2653	3016	68-358	359-3016	No
PLXDC2	NM_001282736	49	19	67	9131	9083	12135	638-2080	2081-12135	Yes
PM20D2	NM_001010853	47	21	67	2053	2007	4720	96-1406	1407-4720	Yes
PNMA2	NM_007257.5	52	10	61	2233	2182	4846	771-1865	1866-4846	No
PNO1	NM_020143.2	41	257	297	1338	1298	1994	63-821	822-1994	No
PNPO	NM_018129.3	58	10	67	1840	1783	3482	154-939	940-3482	Yes
POLE3	NM_001278255	54	22	75	1888	1835	2258	219-662	663-2258	Yes
POLH	NM_006502.2	45	23	67	6186	6142	8412	305-2446	2447-8412	Yes



POLI	NM_007195.2	45	23	67	3593	3549	6074	69-2291	2292-6074	Yes
POLR2J2	NM_032959.5	58	10	67	1475	1418	1987	129-476	477-1987	Yes
POLR2J3	NM_001097615	58	10	67	1445	1388	1680	101-448	449-1680	Yes
POLR2M	NM_001018102	43	256	298	1672	1630	3849	323-958	959-3849	No
POMK	NM_001277971	34	258	291	1462	1429	1527	172-1224	1225-1527	No
POU2AF1	NM_006235.2	33	267	299	2551	2519	3032	256-1026	1027-3032	No
POU2F1	NM_001198783	67	1	67	7020	6954	14038	236-2503	2504-14038	Yes
POU2F3	NM_001244682	48	20	67	2543	2497	2903	35-1351	1352-2903	No
PPEF2	NM_006239.2	54	10	63	3075	3022	3430	358-2619	2620-3430	No
PPFIBP1	NM_001198915	43	256	298	5403	5361	5807	532-3108	3109-5807	Yes
PPHLN1	NM_001143788	37	42	78	1420	1384	1620	106-1152	1153-1620	Yes
PPID	NM_005038.2	64	4	67	1572	1509	1851	113-1225	1226-1851	Yes
PPIL2	NM_014337.3	41	257	297	2070	2030	4128	117-1679	1680-4128	Yes
PPIL6	NM_001111298	43	256	298	3176	3134	4223	582-1595	1596-4223	Yes
PPM1D	NM_003620.3	53	11	63	3623	3571	4790	233-2050	2051-4790	Yes
PPM1K	NM_152542.4	53	24	76	5694	5642	6590	486-1604	1605-6590	Yes
PPP1R12B	NM_001197131	33	267	299	5239	5207	8596	27-587	588-8596	Yes
PPP1R15B	NM_032833.3	76	1	76	4300	4225	5284	406-2547	2548-5284	Yes
PPP1R9A	NM_00116616C	69	10	78	8527	8459	10519	283-4407	4408-10519	Yes
PRICKLE3	XM_005272603	33	267	299	2316	2284	2441	232-1965	1966-2441	No
PRIM2	NM_000947.3	48	21	68	1814	1767	2360	95-1624	1625-2360	Yes
PRKAA1	NM_006251.5	48	20	67	2319	2272	5085	7-1686	1687-5085	Yes
PRKAG2	XM_005250002	66	11	76	5006	4941	6616	539-2398	2399-6616	Yes
PRKAR2A	XM_005265314	48	10	57	2747	2700	6387	240-1388	1389-6387	Yes
PRKCA	NM_002737.2	47	21	67	6880	6834	8787	45-2063	2064-8787	Yes
PRKX	XM_005274560	56	21	76	2460	2405	2946	382-1458	1459-2946	No
PRND	NM_012409.3	30	21	50	1580	1551	4038	128-658	659-4038	No
PROM2	NM_001165977	33	266	298	2680	2648	2930	134-2638	2639-2930	No
PRR11	NM_018304.3	47	21	67	3132	3086	6487	313-1395	1396-6487	No
PRR23C	NM_001134657	58	10	67	1981	1924	2791	273-1061	1062-2791	No
PRRG4	NM_024081.5	48	21	68	4390	4343	5538	262-942	943-5538	No
PSMB2	NM_001199779	47	20	66	1712	1666	4391	120-650	651-4391	Yes
PSMD9	NM_00126140C	33	20	52	1307	1275	2053	127-483	484-2053	Yes
PSPH	NM_004577.3	48	10	57	1777	1730	2142	730-1407	1408-2142	Yes
PSTPIP2	NM_024430.3	50	18	67	2541	2492	3054	97-1101	1102-3054	Yes
PTCHD4	NM_207499.2	57	1	57	1869	1813	3268	35-970	971-3268	No
PTGES	NM_004878.4	40	40	79	1230	1191	1787	54-512	513-1787	No
PTGES3L	NM_001142653	46	22	67	1589	1544	1923	347-847	848-1923	No
PTGIS	NM_000961.3	57	1	57	4500	4444	5603	55-1557	1558-5603	Yes
PTPN3	NM_001145368	58	18	75	4798	4741	6599	113-2719	2720-6599	No
PTPRB	NM_001109754	35	256	290	9795	9761	11332	46-6693	6694-11332	No

PURB	NM_033224.4	33	267	299	7781	7749	9098	38-976	977-9098	Yes
PUS7	NM_019042.3	47	5	51	3006	2960	3484	220-2205	2206-3484	Yes
PVR	NM_001135768	40	21	60	2006	1967	5769	300-1418	1419-5769	Yes
PVRL4	NM_030916.2	33	267	299	2685	2653	3520	300-1832	1833-3520	Yes
PXMP4	NM_007238.4	57	1	57	3013	2957	5727	124-762	763-5727	Yes
PYGO1	NM_015617.2	46	22	67	4479	4434	8399	1-1260	1261-8399	Yes
QPCTL	NM_001163377	42	257	298	1429	1388	2063	222-1088	1089-2063	No
QTRTD1	NM_001256835	67	10	76	3028	2962	3917	116-1399	1400-3917	Yes
R3HDM2	NM_014925.3	76	1	76	3384	3309	3974	36-2966	2967-3974	Yes
RAB11A	NM_001206836	35	264	298	2953	2919	4848	128-595	596-4848	Yes
RAB21	NM_014999.2	44	255	298	1220	1177	2627	253-930	931-2627	Yes
RAB22A	NM_020673.2	49	28	76	6015	5967	8702	263-847	848-8702	Yes
RAB2B	NM_001163380	48	10	57	1427	1380	2883	167-679	680-2883	Yes
RAB33B	NM_031296.1	51	26	76	1607	1558	3876	390-1079	1080-3876	Yes
RAB36	NM_004914.2	56	10	65	2544	2489	3822	41-1042	1043-3822	Yes
RAB37	NM_001006638	44	25	68	1680	1637	2698	57-728	729-2698	No
RAB3D	NM_004283.3	64	4	67	3350	3287	4290	262-921	922-4290	No
RAB5B	NM_001252036	52	16	67	3855	3804	5299	181-828	829-5299	Yes
RABL2A	NM_013412.2	38	30	67	1547	1510	2187	215-901	902-2187	Yes
RABL2B	NM_001003789	38	30	67	1559	1522	2190	217-906	907-2190	Yes
RAD21L1	XM_005260794	50	18	67	2290	2241	2854	297-1967	1968-2854	No
RAD52	NM_134424.2	42	257	298	2081	2040	2673	115-1371	1372-2673	Yes
RAD54B	NM_001205262	48	20	67	2908	2861	5380	132-485	486-5380	Yes
RAD9B	NM_001286531	39	28	66	2039	2001	2809	326-1363	1364-2809	Yes
RAET1E	NM_001243328	68	1	68	1923	1856	2099	348-986	987-2099	No
RAP2B	NM_002886.3	43	256	298	7007	6965	8413	483-1034	1035-8413	Yes
RAPH1	NM_213589.2	39	40	78	8126	8088	9749	226-3978	3979-9749	Yes
RARS2	XM_005248735	56	12	67	2215	2160	2453	767-1978	1979-2453	Yes
RASA4	NM_001079877	30	261	290	4309	4280	5468	70-2343	2344-5468	No
RASAL1	NM_001193520	38	256	293	3682	3645	3832	302-2722	2723-3832	No
RASGRF2	NM_006909.2	59	21	79	6192	6134	8171	51-3764	3765-8171	Yes
RASGRP4	NM_001146202	76	1	76	2642	2567	3193	215-2194	2195-3193	No
RASSF2	NM_014737.2	67	1	67	4627	4561	5426	197-1177	1178-5426	No
RBBP4	NM_001135255	40	28	67	5498	5459	7940	160-1434	1435-7940	Yes
RBM12B	XM_005250915	58	21	78	5681	5625	6146	306-3311	3312-6146	Yes
RBM3	NM_006743.4	52	1	52	3827	3776	4432	235-708	709-4432	Yes
RBM34	NM_015014.2	33	267	299	1727	1695	1870	31-1323	1324-1870	Yes
RBM4	NM_001198844	52	28	78	2549	2498	3106	149-670	671-3106	Yes
RBM43	NM_198557.2	35	256	290	1572	1538	3914	149-1222	1223-3914	No
RBM48	NM_032120.2	48	20	67	1435	1388	1734	42-1145	1146-1734	No
RBM7	NM_001286045	63	5	67	2668	2606	3750	144-947	948-3750	No

RBM8A	NM_005105.4	32	21	52	4419	4388	4974	111-635	636-4974	Yes
RBMS2	NM_002898.3	67	1	67	4964	4898	8504	200-1423	1424-8504	No
RBP1	NM_001130992	58	10	67	659	602	1487	112-585	586-1487	Yes
RC3H1	NM_172071.2	58	10	67	5833	5776	10996	88-3489	3490-10996	Yes
RCHY1	NM_001009922	31	21	51	2576	2546	4420	145-903	904-4420	Yes
RCSD1	XM_005245605	42	35	76	4447	4406	5347	187-1347	1348-5347	No
RD3	NM_001164688	35	256	290	3374	3340	4287	1162-1749	1750-4287	No
RDH10	NM_172037.4	47	4	50	2490	2444	3981	689-1714	1715-3981	Yes
REEP3	NM_00100133C	45	20	64	2933	2889	5205	184-951	952-5205	Yes
RELL1	NM_00108540C	35	256	290	1658	1624	3622	91-906	907-3622	Yes
REPS2	NM_001080975	59	18	76	4122	4064	7961	172-2151	2152-7961	Yes
RFFL	NM_001017368	40	28	67	2600	2561	4137	174-1265	1266-4137	Yes
RFT1	NM_052859.3	57	20	76	4575	4519	5112	55-1680	1681-5112	Yes
RFWD3	NM_018124.3	37	41	77	3967	3931	4952	99-2423	2424-4952	Yes
RHD	NM_001127691	38	30	67	1892	1855	2549	63-1028	1029-2549	No
RHNO1	NM_001252499	50	18	67	1100	1051	1962	169-885	886-1962	No
RHOF	NM_019034.2	54	23	76	1862	1809	2451	56-691	692-2451	No
RHPN2	NM_033103.4	45	23	67	3098	3054	3546	67-2127	2128-3546	Yes
RINL	NM_001195833	35	18	52	2387	2353	3062	88-1788	1789-3062	No
RIPK1	NM_003804.3	36	43	78	2257	2222	3864	Jan-16	2017-3864	Yes
RIPPLY3	NM_018962.2	49	19	67	1414	1366	2260	211-783	784-2260	No
RLIM	NM_016120.3	57	20	76	5199	5143	10590	229-2103	2104-10590	Yes
RMDN1	NM_001286707	47	21	67	1644	1598	2952	161-976	977-2952	No
RMI1	NM_024945.2	50	19	68	2611	2562	3508	409-2286	2287-3508	Yes
RNF115	NM_014455.3	35	256	290	1848	1814	1949	251-1165	1166-1949	Yes
RNF125	NM_017831.3	73	4	76	3562	3490	5888	383-1081	1082-5888	Yes
RNF135	NM_001184992	33	267	299	1638	1606	2254	137-997	998-2254	No
RNF144A	NM_014746.3	50	18	67	4575	4526	5740	443-1321	1322-5740	No
RNF149	XM_005263921	40	21	60	2877	2838	3164	129-1409	1410-3164	Yes
RNF152	XM_005266650	55	13	67	6544	6490	8991	595-1206	1207-8991	Yes
RNF168	NM_152617.3	40	28	67	3053	3014	5365	596-2311	2312-5365	Yes
RNF207	NM_207396.2	49	19	67	2614	2566	3987	175-2079	2080-3987	No
RNF7	NM_00120137C	47	21	67	1270	1224	1962	134-427	428-1962	Yes
RNF8	NM_003958.3	52	19	70	2691	2640	5639	194-1651	1652-5639	Yes
RP2	NM_006915.2	66	11	76	3101	3036	3831	190-1242	1243-3831	Yes
RPH3AL	NM_001190411	47	22	68	1838	1792	2578	168-1115	1116-2578	No
RPL15	NM_001253384	48	21	68	2090	2043	2860	381-818	819-2860	Yes
RPL27A	NM_000990.4	52	1	52	2925	2874	4906	367-813	814-4906	Yes
RPL28	NM_000991.4	56	21	76	2472	2417	4245	43-456	457-4245	No
RPL32	NM_000994.3	30	22	51	1305	1276	1668	95-502	503-1668	Yes
RPP30	NM_006413.4	57	20	76	2126	2070	2371	36-842	843-2371	Yes

RPS24	NM_001142285	32	36	67	1883	1852	2820	143-1012	1013-2820	Yes
RPS29	NM_001030001	30	21	50	971	942	1414	71-274	275-1414	Yes
RPS3A	NM_001267699	32	259	290	683	652	1581	81-257	258-1581	No
RRAGD	NM_021244.4	48	21	68	3136	3089	4926	284-1486	1487-4926	Yes
RRM2	NM_001034.3	56	21	76	2620	2565	3284	64-1233	1234-3284	Yes
RRP15	NM_016052.3	40	21	60	3428	3389	7782	31-879	880-7782	Yes
RSL1D1	NM_015659.2	56	21	75	4348	4293	5137	74-1546	1547-5137	Yes
RTCA	NM_001130841	41	17	57	2304	2264	2634	219-1358	1359-2634	No
RTN4IP1	NM_032730.4	44	256	299	2016	1973	2636	478-1668	1669-2636	Yes
RUFY2	NM_017987.4	57	20	76	3448	3392	4520	328-2253	2254-4520	Yes
RUFY3	NM_001037442	43	26	68	3459	3417	4435	596-2458	2459-4435	Yes
RWDD2A	XM_005248647	64	4	67	1760	1697	3847	504-1184	1185-3847	No
S100PBP	XM_005271124	33	20	52	2756	2724	3634	292-1320	1321-3634	Yes
S1PR2	NM_004230.3	43	256	298	1574	1532	3589	112-1173	1174-3589	No
S1PR5	NM_001166215	40	10	49	2426	2387	2467	188-1384	1385-2467	No
SAMD5	NM_001030060	35	256	290	1822	1788	6324	238-759	760-6324	Yes
SAMHD1	NM_015474.3	51	25	75	2479	2429	3189	201-2081	2082-3189	Yes
SAR1B	NM_001033503	47	21	67	5048	5002	6651	254-850	851-6651	Yes
SARM1	NM_015077.3	42	258	299	6212	6171	7305	372-2546	2547-7305	Yes
SASH1	NM_015278.3	64	4	67	5631	5568	7709	476-4219	4220-7709	Yes
SBSPON	NM_153225.3	35	256	290	2605	2571	3804	206-1000	1001-3804	No
SC5D	NM_001024956	37	21	57	4210	4174	7019	222-1121	1122-7019	No
SCAI	NM_001144877	66	10	75	3829	3764	12152	123-1943	1944-12152	No
SCAMP4	NM_079834.2	36	22	57	1753	1718	2548	108-797	798-2548	Yes
SCARB2	NM_001204255	64	4	67	3498	3435	4340	357-1364	1365-4340	Yes
SCARF1	NM_003693.3	37	21	57	3080	3044	3502	93-2585	2586-3502	No
SCD5	NM_001037582	47	21	67	1655	1609	3108	321-1313	1314-3108	Yes
SCIMP	XM_005256631	35	256	290	1533	1499	3034	948-1319	1320-3034	No
SCN3B	NM_001040151	38	42	79	3266	3229	5682	408-1055	1056-5682	Yes
SCN9A	NM_002977.3	53	21	73	9025	8973	9771	342-6275	6276-9771	Yes
SCNM1	NM_001204856	35	256	290	1093	1059	2085	286-873	874-2085	No
SCUBE3	XM_005248943	49	4	52	6008	5960	7776	373-3402	3403-7776	No
SDE2	NM_152608.3	57	20	76	2591	2535	4029	54-1409	1410-4029	No
SEC62	NM_003262.3	50	18	67	5781	5732	6541	32-1231	1232-6541	Yes
SEC63	NM_007214.4	47	21	67	5803	5757	6500	270-2552	2553-6500	Yes
SENP5	NM_152699.4	47	21	67	5338	5292	6324	250-2517	2518-6324	Yes
SEPN1	NM_020451.2	37	262	298	3379	3343	4357	56-1828	1829-4357	Yes
SERAC1	NM_032861.3	61	18	78	3216	3156	3969	143-2107	2108-3969	Yes
SERBP1	NM_001018067	32	21	52	5469	5438	6764	141-1367	1368-6764	Yes
SERF1A	NM_021967.2	48	20	67	1034	987	1935	208-540	541-1935	No
SERF1B	NM_022978.2	48	20	67	1028	981	1917	202-534	535-1917	Yes

SERHL2	XM_005261482	67	10	76	1318	1252	1402	160-945	946-1402	No
SERINC3	XM_005260255	38	261	298	3441	3404	4535	283-1683	1684-4535	Yes
SERPINB1	NM_030666.3	35	256	290	2230	2196	2678	247-1386	1387-2678	Yes
SERPINB9	NM_004155.5	40	40	79	3811	3772	4167	123-1253	1254-4167	Yes
SF3B3	NM_012426.4	67	10	76	7405	7339	9736	212-3865	3866-9736	Yes
SFMBT2	NM_001018039	50	18	67	3572	3523	7922	92-2776	2777-7922	Yes
SFR1	NM_001002759	57	1	57	976	920	1447	14-751	752-1447	No
SFXN1	NM_022754.5	58	1	57	2457	2400	2991	139-1107	1108-2991	Yes
SFXN2	NM_178858.4	35	256	290	1730	1696	2562	167-1135	1136-2562	Yes
SGCB	NM_000232.4	49	19	67	3445	3397	4295	61-1017	1018-4295	Yes
SGK494	NM_001174103	34	257	290	1732	1699	3779	33-1265	1266-3779	No
SGOL1	NM_001012409	67	1	67	2191	2125	3999	156-1739	1740-3999	Yes
SGPL1	NM_003901.3	63	5	67	2568	2506	5783	223-1929	1930-5783	Yes
SGPP2	XM_005246297	43	26	68	1710	1668	4733	193-1008	1009-4733	No
SGSH	XM_005257583	43	256	298	1389	1347	1397	21-1043	1044-1397	No
SGTB	NM_019072.2	51	17	67	2770	2720	5453	221-1135	1136-5453	Yes
SH3BP2	NM_001122681	63	5	67	3756	3694	9068	121-1806	1807-9068	No
SH3TC2	NM_024577.3	59	19	77	5007	4949	26588	153-4019	4020-26588	No
SHE	NM_001010846	35	256	290	1706	1672	6186	25-1512	1513-6186	No
SHISA2	NM_001007538	41	257	297	1448	1408	2889	86-973	974-2889	No
SHISA9	NM_001145205	59	18	76	2533	2475	4245	446-1111	1112-4245	No
SHOX	NM_000451.3	67	1	67	2994	2928	3757	692-1570	1571-3757	No
SHROOM3	NM_020859.3	48	21	68	9038	8991	11023	954-6944	6945-11023	Yes
SIGLEC14	NM_001098612	35	256	290	1685	1651	2113	121-1311	1312-2113	No
SIGLEC8	NM_014442.2	57	20	76	2015	1959	2967	68-1567	1568-2967	No
SIKE1	NM_001102396	54	23	76	4714	4661	5519	81-716	717-5519	Yes
SIRT5	NM_001193267	47	21	67	1788	1742	4462	291-1169	1170-4462	No
SIX4	NM_017420.4	76	1	76	4174	4099	6277	61-2406	2407-6277	Yes
SKA1	NM_001039535	57	4	60	1640	1584	2938	230-997	998-2938	No
SKA2	NM_001100595	42	257	298	2170	2129	2988	357-584	585-2988	No
SKIDA1	NM_207371.3	33	267	299	6059	6027	6613	2254-4980	4981-6613	No
SKIL	NM_001145097	76	1	76	4499	4424	7061	710-2626	2627-7061	Yes
SKP2	NM_001243120	42	257	298	2543	2502	3273	616-1248	1249-3273	Yes
SLA2	NM_032214.3	57	20	76	1982	1926	2569	424-1209	1210-2569	No
SLC10A6	XM_005262980	30	261	290	1205	1176	1205	92-841	842-1205	No
SLC11A1	NM_000578.3	37	256	292	2485	2449	3865	341-1993	1994-3865	No
SLC11A2	NM_001174126	33	267	299	3550	3518	3795	146-1852	1853-3795	Yes
SLC12A2	NM_001046.2	44	24	67	5607	5564	6891	165-3803	3804-6891	Yes
SLC12A3	NM_000339.2	33	18	50	3773	3741	5582	30-3122	3123-5582	No
SLC12A6	NM_001042494	47	30	76	6439	6393	7688	528-3803	3804-7688	Yes
SLC12A8	NM_001195483	58	10	67	2500	2443	3449	51-2195	2196-3449	Yes

SLC13A1	NM_022444.3	43	256	298	3290	3248	3811	26-1813	1814-3811	No
SLC15A1	NM_005073.3	30	28	57	2502	2473	3142	78-2204	2205-3142	Yes
SLC16A4	NM_001201546	67	10	76	1847	1781	2485	251-1570	1571-2485	No
SLC16A5	XM_005257791	67	1	67	2047	1981	3589	129-1631	1632-3589	No
SLC16A7	NM_001270622	67	1	67	5879	5813	11919	307-1743	1744-11919	No
SLC17A5	NM_012434.4	33	267	299	2826	2794	3333	129-1616	1617-3333	Yes
SLC1A2	NM_001195728	35	256	290	3947	3913	11659	258-1955	1956-11659	Yes
SLC24A2	NM_001193288	41	257	297	9489	9449	10806	154-2088	2089-10806	No
SLC24A4	NM_153646.3	67	10	76	6916	6850	9757	24-1892	1893-9757	No
SLC25A15	NM_014252.3	67	10	76	1874	1808	4038	323-1228	1229-4038	No
SLC25A32	NM_030780.4	53	5	57	1994	1942	3133	399-1346	1347-3133	Yes
SLC25A34	NM_207348.1	47	21	67	2102	2056	3172	173-1087	1088-3172	No
SLC25A35	NM_201520.1	35	42	76	2213	2179	2785	46-933	934-2785	No
SLC25A45	NM_001077241	34	1	34	1641	1608	2231	276-1016	1017-2231	No
SLC25A53	NM_001012755	57	20	76	2429	2373	6240	182-1105	1106-6240	No
SLC27A1	NM_198580.1	58	10	67	2427	2370	3562	51-1991	1992-3562	No
SLC2A10	NM_030777.3	48	20	67	2312	2265	4241	98-1723	1724-4241	No
SLC2A4	NM_001042.2	35	256	290	2286	2252	3159	201-1730	1731-3159	No
SLC30A4	NM_013309.4	56	21	76	3022	2967	4290	313-1602	1603-4290	Yes
SLC30A5	NM_001251969	50	18	67	780	731	1256	308-541	542-1256	Yes
SLC30A6	NM_001193513	35	256	290	2073	2039	4965	61-1566	1567-4965	Yes
SLC30A7	NM_001144884	43	25	67	1812	1770	7918	188-1318	1319-7918	Yes
SLC35E1	NM_024881.4	35	256	290	4241	4207	5109	19-1251	1252-5109	Yes
SLC35E2	NM_182838.2	42	10	51	3723	3682	6308	424-1224	1225-6308	Yes
SLC35F1	NM_001029858	43	256	298	2676	2634	4852	202-1428	1429-4852	Yes
SLC35F2	NM_017515.4	31	269	299	2483	2453	3184	422-1546	1547-3184	Yes
SLC35F6	NM_017877.3	48	32	79	2618	2571	3912	77-1192	1193-3912	No
SLC36A2	NM_181776.2	54	23	76	2896	2843	3439	131-1582	1583-3439	No
SLC41A2	NM_032148.3	34	257	290	2940	2907	3548	168-1889	1890-3548	Yes
SLC44A1	NM_00128673C	58	10	67	7676	7619	9650	257-2215	2216-9650	Yes
SLC47A1	NM_018242.2	47	21	67	2373	2327	3279	87-1799	1800-3279	Yes
SLC4A8	NM_00103996C	56	21	76	7555	7500	11794	179-3460	3461-11794	Yes
SLC52A1	XM_005256709	35	261	295	3176	3142	3176	1413-2465	2466-3176	No
SLC5A5	NM_000453.2	41	28	68	2686	2646	3594	348-2279	2280-3594	No
SLC6A14	NM_007231.4	53	21	73	3817	3765	4579	132-2060	2061-4579	No
SLC7A14	NM_020949.2	40	28	67	7075	7036	10133	317-2632	2633-10133	Yes
SLC9A7	NM_001257291	47	21	67	3247	3201	10041	144-2324	2325-10041	Yes
SLFN13	NM_144682.5	52	40	91	5567	5516	8469	277-2970	2971-8469	No
SLU7	NM_006425.4	43	256	298	2229	2187	3570	156-1916	1917-3570	Yes
SLX4	NM_032444.2	50	18	67	6560	6511	7304	628-6132	6133-7304	No
SMAD2	NM_001003652	31	4	34	6346	6316	10551	401-1804	1805-10551	Yes

SMAD4	NM_005359.5	37	21	57	4415	4379	8789	539-2197	2198-8789	Yes
SMAD9	NM_001127217	38	20	57	4075	4038	5592	344-1747	1748-5592	Yes
SMARCA5	NM_003601.3	47	22	68	6229	6183	7926	463-3621	3622-7926	Yes
SMARCE1	XM_005257607	43	10	52	4856	4814	6630	1677-2807	2808-6630	Yes
SMC5	NM_015110.3	48	20	67	5462	5415	5965	118-3423	3424-5965	Yes
SMIM12	NM_001164824	30	49	78	2034	2005	6021	396-674	675-6021	No
SMIM14	XM_005262645	37	28	64	3419	3383	5198	1-369	370-5198	No
SMIM17	NM_001193628	38	20	57	1385	1348	2542	153-509	510-2542	No
SMU1	NM_018225.2	48	21	67	2176	2129	7091	109-1650	1651-7091	Yes
SNAP23	NM_003825.3	30	261	290	1727	1698	2650	423-1058	1059-2650	Yes
SNAPC1	NM_003082.3	40	40	79	2181	2142	2684	105-1211	1212-2684	Yes
SNAPC3	NM_001039697	33	267	299	2072	2040	3095	97-1332	1333-3095	Yes
SNIP1	NM_024700.3	35	256	290	3705	3671	4605	116-1306	1307-4605	Yes
SNTB2	NM_006750.3	43	256	298	3659	3617	9771	21-1643	1644-9771	Yes
SNTN	NM_001080537	48	20	67	1266	1219	1586	21-464	465-1586	No
SNX1	NM_001242933	47	21	67	4334	4288	7858	131-1804	1805-7858	Yes
SNX15	NM_013306.4	47	4	50	1529	1483	1957	131-1159	1160-1957	No
SNX20	NM_182854.2	58	21	78	1355	1298	1555	174-1124	1125-1555	No
SNX21	NM_001042632	48	20	67	2011	1964	3166	90-548	549-3166	No
SNX22	NM_024798.2	67	1	67	1260	1194	3614	60-641	642-3614	No
SNX27	NM_030918.5	35	256	290	4712	4678	7085	17-1603	1604-7085	Yes
SOAT1	NM_001252511	56	21	76	5530	5475	6879	347-1825	1826-6879	Yes
SP140L	NM_138402.4	55	22	76	2284	2230	2668	92-1834	1835-2668	No
SP4	NM_003112.3	40	28	67	3965	3926	5811	182-2536	2537-5811	Yes
SPAG9	NM_001130527	42	257	298	5871	5830	8243	210-4145	4146-8243	Yes
SPAST	NM_014946.3	57	11	67	3768	3712	5221	222-2072	2073-5221	Yes
SPATA5	NM_145207.2	33	267	299	4686	4654	8152	74-2755	2756-8152	Yes
SPATS2L	NM_001100422	43	4	46	3121	3079	6335	413-2089	2090-6335	Yes
SPC24	XM_005259753	67	10	76	807	741	982	112-567	568-982	Yes
SPCS3	NM_021928.3	67	1	67	4103	4037	4596	139-681	682-4596	Yes
SPECC1	NM_001033554	33	20	52	2911	2879	4901	204-2333	2334-4901	No
SPG7	NM_199367.1	42	258	299	2171	2130	2319	22-1491	1492-2319	Yes
SPN	NM_001030288	46	18	63	1638	1593	6944	166-1368	1369-6944	No
SPP2	XM_005246102	40	28	67	1175	1136	1658	85-720	721-1658	No
SPRED1	NM_152594.2	59	18	76	5108	5050	7255	336-1670	1671-7255	Yes
SPRED3	NM_001042522	35	256	290	3488	3454	5075	104-1336	1337-5075	Yes
SPRYD4	NM_207344.3	47	21	67	1590	1544	2122	76-699	700-2122	Yes
SPRYD7	NM_001127482	63	3	65	2523	2461	3103	263-736	737-3103	No
SPTBN2	XM_005274192	44	33	76	9141	9098	11166	619-7791	7792-11166	No
SPTSSA	NM_138288.3	59	18	76	1638	1580	2538	56-271	272-2538	No
SRD5A3	NM_024592.4	34	257	290	2694	2661	4089	117-1073	1074-4089	Yes

SREK1	NM_001077199	41	258	298	5789	5749	6782	160-2034	2035-6782	No
SRFBP1	NM_152546.2	39	40	78	1521	1483	2836	73-1362	1363-2836	Yes
SRL	NM_001098814	42	257	298	2019	1978	4219	14-1435	1436-4219	No
SRSF1	NM_001078166	30	23	52	3673	3644	5668	210-815	816-5668	No
SS18	NM_001007559	33	267	299	3164	3132	3440	79-1335	1336-3440	Yes
SSBP1	XM_005250048	45	32	76	1047	1003	1420	76-555	556-1420	Yes
SSR1	NM_003144.3	38	256	293	5277	5240	9874	189-1049	1050-9874	Yes
SSR3	NM_007107.3	36	255	290	3294	3259	3734	96-653	654-3734	Yes
ST6GAL2	NM_001142351	33	257	289	3587	3555	6801	120-1709	1710-6801	No
ST8SIA1	NM_003034.3	67	1	67	8068	8002	9737	483-1553	1554-9737	No
ST8SIA4	NM_005668.5	38	20	57	2207	2170	6332	331-1410	1411-6332	Yes
STAMBPL1	XM_005269995	48	20	67	2871	2824	4511	853-2238	2239-4511	Yes
STAR	XM_005273619	33	267	299	1602	1570	2020	448-1332	1333-2020	No
STARD4	NM_139164.1	42	257	298	947	906	2264	85-702	703-2264	Yes
STAT2	NM_005419.3	31	267	297	3747	3717	4576	204-2759	2760-4576	Yes
STEAP2	NM_001040665	37	21	57	3712	3676	6708	170-1642	1643-6708	Yes
STEAP4	NM_001205315	31	19	49	3269	3239	4587	224-1603	1604-4587	No
STK11	XM_005259618	34	257	290	3428	3395	4542	626-1840	1841-4542	Yes
STK17B	NM_004226.3	48	20	67	3239	3192	5324	325-1443	1444-5324	Yes
STK4	NM_006282.2	47	21	67	4727	4681	6344	91-1554	1555-6344	Yes
STMN1	NM_001145454	35	256	290	1771	1737	2265	177-701	702-2265	Yes
STOM	NM_001270526	57	20	76	1472	1416	3107	118-711	712-3107	Yes
STON1	NM_001198595	33	258	290	4027	3995	5651	213-2420	2421-5651	No
STON2	NM_033104.3	63	5	67	10196	10134	12957	310-3027	3028-12957	Yes
STRIP2	NM_020704.2	58	10	67	3884	3827	5115	41-2545	2546-5115	No
STX11	NM_003764.3	43	256	298	2649	2607	5509	193-1056	1057-5509	Yes
STX1B	NM_052874.3	43	256	298	1975	1933	4544	113-979	980-4544	No
STX2	NM_001980.3	42	257	298	1455	1414	3351	176-1039	1040-3351	Yes
STYX	NM_001130701	48	29	76	3101	3054	4631	63-734	735-4631	Yes
STYXL1	XM_005250419	34	19	52	1128	1095	1593	194-1042	1043-1593	Yes
SULT1E1	NM_005420.2	55	22	76	1276	1222	1805	114-998	999-1805	No
SUMF2	NM_001042469	38	261	298	1658	1621	2019	32-949	950-2019	Yes
SUPT7L	NM_001282729	50	18	67	3317	3268	4542	607-1851	1852-4542	Yes
SUSD5	NM_015551.1	58	10	67	2767	2710	5005	419-2308	2309-5005	Yes
SV2B	NM_00116758C	40	40	79	9365	9326	10788	415-2013	2014-10788	Yes
SV2C	XM_005248470	40	40	79	2517	2478	3252	443-2473	2474-3252	No
SVOP	NM_018711.2	40	259	298	2704	2665	3486	173-1819	1820-3486	No
SYDE2	NM_032184.1	37	31	67	4123	4087	4711	50-3634	3635-4711	Yes
SYNJ2BP	NM_018373.2	43	256	298	6037	5995	7074	128-565	566-7074	Yes
SYNJ2BP-COX16	NM_001202547	40	18	57	1586	1547	1955	128-703	704-1955	No
SYNPO2	NM_001286754	58	19	76	4620	4563	7263	242-3934	3935-7263	No



SYNRG	NM_001163544	48	20	67	5647	5600	7947	84-3794	3795-7947	No
SYS1	NM_001099791	47	31	77	561	515	2967	220-450	451-2967	Yes
SYT11	NM_152280.4	34	18	51	1956	1923	5298	294-1589	1590-5298	Yes
SYT13	NM_001247987	47	21	67	3234	3188	5388	777-1625	1626-5388	No
SYT15	NM_031912.4	58	10	67	2622	2565	5511	154-1419	1420-5511	Yes
SYT5	XM_005259184	33	267	299	2468	2436	3016	371-1531	1532-3016	No
TAB1	XM_005261305	48	10	57	1860	1813	2174	50-1363	1364-2174	No
TADA3	NM_133480.2	54	4	57	2322	2269	2846	824-1933	1934-2846	No
TAF11	NM_001270488	62	18	79	1120	1059	1490	115-579	580-1490	Yes
TAF1D	XM_005274251	33	20	52	1655	1623	4131	202-1038	1039-4131	No
TAF7L	NM_001168474	56	22	77	1600	1545	2203	117-1247	1248-2203	No
TAF8	NM_138572.2	59	18	76	3936	3878	4323	30-962	963-4323	Yes
TAL1	NM_001287347	40	34	73	3657	3618	4664	217-1212	1213-4664	No
TANGO2	NM_001283106	48	20	67	2006	1959	2463	352-1182	1183-2463	No
TAPBP	NM_003190.4	33	267	299	2077	2045	3779	347-1693	1694-3779	Yes
TAS2R20	NM_176889.2	36	14	49	1680	1645	1914	1-930	931-1914	No
TAT	NM_000353.2	35	256	290	2242	2208	2757	100-1464	1465-2757	No
TATDN3	NM_001042552	42	10	51	1441	1400	2588	95-919	920-2588	Yes
TBC1D15	NM_001146213	48	20	67	3396	3349	5760	76-2100	2101-5760	Yes
TBC1D20	NM_144628.2	35	18	52	2952	2918	4456	139-1350	1351-4456	Yes
TBC1D24	NM_001199107	73	4	76	4578	4506	6607	141-1820	1821-6607	Yes
TBCCD1	NM_001134415	57	1	57	2446	2390	3080	481-2154	2155-3080	Yes
TBL1Y	XM_005262573	49	19	67	2569	2521	2675	1137-2231	2232-2675	No
TBXA2R	NM_001060.5	42	256	297	2070	2029	2619	388-1419	1420-2619	No
TCTN2	NM_001143850	67	1	67	2380	2315	2927	129-2219	2220-2927	Yes
TDGF1	NM_001174136	49	19	67	966	918	1784	43-561	562-1784	No
TEDDM1	NM_172000.3	35	256	290	1164	1130	2500	132-953	954-2500	No
TENM4	NM_001098816	32	268	299	11351	11320	13566	464-8773	8774-13566	No
TEP1	NM_007110.4	47	21	67	9124	9078	10694	41-7924	7925-10694	Yes
TERF1	NM_003218.3	64	4	67	1804	1741	2900	26-1285	1286-2900	Yes
TERF2	NM_005652.4	57	1	57	1890	1834	2996	18-1646	1647-2996	Yes
TES	NM_015641.3	37	21	57	2252	2216	2799	216-1481	1482-2799	Yes
TFB1M	XM_005267005	52	25	76	3058	3007	5087	70-1110	1111-5087	Yes
TFDP2	NM_001178138	40	28	67	5922	5883	9946	673-1833	1834-9946	Yes
TFPI	NM_006287.4	40	40	79	2883	2844	3927	296-1210	1211-3927	Yes
TGIF2	NM_001199513	43	10	52	2342	2300	3328	87-800	801-3328	Yes
TGS1	NM_024831.6	33	267	299	3383	3351	3708	388-2949	2950-3708	Yes
THAP5	NM_001130475	35	18	52	2124	2090	3306	155-1342	1343-3306	Yes
THEM4	NM_053055.4	49	19	67	4841	4793	5172	428-1150	1151-5172	Yes
THNSL1	NM_024838.4	49	19	67	3130	3082	3787	330-2561	2562-3787	Yes
THOC2	XM_005262449	57	20	76	5779	5723	6784	33-4892	4893-6784	Yes

THSD1	XM_005266471	33	20	52	1824	1792	2059	197-1486	1487-2059	No
TIGD6	NM_001243253	49	245	293	3248	3200	3988	763-2328	2329-3988	Yes
TIMM10B	NM_012192.3	54	4	57	2410	2357	2861	71-382	383-2861	No
TIMM23B	XM_003118952	57	1	57	1578	1522	2308	111-677	678-2308	Yes
TINAGL1	NM_001204414	57	21	77	1920	1864	2159	127-1437	1438-2159	No
TLCD2	NM_001164407	56	21	76	4592	4537	5901	127-921	922-5901	No
TM4SF20	NM_024795.3	56	21	76	1163	1108	2310	39-728	729-2310	No
TMED10	NM_006827.5	49	28	76	3343	3295	4163	68-727	728-4163	Yes
TMED4	XM_005249651	37	21	57	1352	1316	2198	77-613	614-2198	Yes
TMEM105	NM_178520.3	46	22	67	2184	2139	3335	551-940	941-3335	No
TMEM119	NM_181724.2	42	257	298	1892	1851	2701	164-1015	1016-2701	No
TMEM120B	NM_001080825	42	27	68	2367	2326	7510	145-1164	1165-7510	Yes
TMEM127	NM_001193304	66	11	76	3394	3329	4570	254-970	971-4570	Yes
TMEM128	NM_032927.2	71	9	79	1122	1052	1750	583-1008	1009-1750	Yes
TMEM136	NM_001198670	33	267	299	3531	3499	4462	495-1298	1299-4462	Yes
TMEM159	NM_020422.4	52	1	52	1687	1636	1922	362-847	848-1922	Yes
TMEM169	NM_001142310	44	256	299	2217	2174	3477	327-1220	1221-3477	No
TMEM170A	XM_005255795	67	1	67	1979	1913	4770	85-450	451-4770	Yes
TMEM170B	NM_001100829	48	20	67	5048	5001	8413	52-450	451-8413	Yes
TMEM184C	NM_018241.2	40	18	57	2325	2286	2986	570-1886	1887-2986	Yes
TMEM185B	NM_024121.2	63	5	67	2821	2759	5938	433-1485	1486-5938	No
TMEM192	NM_001100389	34	18	51	2957	2924	4511	100-915	916-4511	Yes
TMEM209	NM_032842.3	65	4	68	2345	2281	3560	124-1809	1810-3560	Yes
TMEM236	NM_001098844	50	18	67	2027	1978	5454	36-1091	1092-5454	No
TMEM248	NM_017994.4	33	267	299	2577	2545	4238	265-1209	1210-4238	No
TMEM33	NM_018126.2	57	20	76	5763	5707	7717	366-1109	1110-7717	Yes
TMEM41B	NM_015012.3	67	10	76	1830	1764	3973	328-1203	1204-3973	Yes
TMEM52B	NM_001079815	31	22	52	2122	2092	2563	348-899	900-2563	No
TMPO	NM_001032283	33	267	299	3179	3147	4186	296-1660	1661-4186	Yes
TMPRSS3	NM_001256317	47	21	67	1891	1845	2460	202-1563	1564-2460	No
TMTC1	NM_001193451	43	19	61	5598	5556	8750	60-2708	2709-8750	Yes
TNFAIP2	NM_006291.2	43	256	298	3317	3275	4180	132-2096	2097-4180	No
TNFAIP8L1	NM_001167942	48	21	68	2762	2717	3845	147-707	708-3845	No
TNFAIP8L2-SCN1	NM_001204848	35	256	290	956	922	1948	149-736	737-1948	No
TNFRSF10B	NM_003842.4	72	5	76	3737	3666	4154	294-1616	1617-4154	Yes
TNFRSF9	NM_001561.5	37	43	79	4057	4021	6001	262-1029	1030-6001	No
TNFSF15	NM_001204344	30	20	49	4246	4217	6412	1-579	580-6412	No
TNFSF9	NM_003811.3	40	22	61	1545	1506	1680	39-803	804-1680	No
TNNI1	NM_003281.3	47	21	67	1993	1947	6162	94-657	658-6162	No
TNS4	NM_032865.5	34	19	52	3165	3132	4090	165-2312	2313-4090	No
TOR1AIP2	NM_001199260	40	40	79	4718	4679	8331	815-2227	2228-8331	Yes

TOR1B	NM_014506.1	34	19	52	1335	1302	2774	61-1071	1072-2774	Yes
TOR4A	NM_017723.2	75	2	76	3791	3717	4069	118-1389	1390-4069	No
TOX4	NM_014828.2	57	11	67	3030	2974	4538	104-1969	1970-4538	Yes
TP53	NM_000546.5	39	40	78	2405	2367	2591	203-1384	1385-2591	Yes
TP53BP1	XM_005254634	50	18	67	7414	7365	10261	24-5942	5943-10261	Yes
TPM3	NM_001043351	50	18	67	2413	2364	3212	131-877	878-3212	Yes
TPMT	NM_000367.2	54	4	57	1419	1366	3258	156-893	894-3258	Yes
TRAF3IP1	NM_00113949C	58	10	67	3328	3271	3985	120-1997	1998-3985	Yes
TRAF3IP2	NM_001164281	67	1	67	5650	5584	6241	508-2202	2203-6241	Yes
TRAF5	NM_00103391C	48	20	67	2934	2887	4013	86-1759	1760-4013	Yes
TRAF6	NM_004620.3	65	4	68	4747	4683	7947	289-1857	1858-7947	Yes
TRAPPC2	NM_001011658	67	10	76	1789	1723	2869	273-695	696-2869	Yes
TRDMT1	NM_004412.5	35	256	290	5449	5415	7687	438-1613	1614-7687	Yes
TRIM13	NM_001007278	49	4	52	2170	2122	6975	419-1651	1652-6975	Yes
TRIM16	NM_006470.3	43	256	298	2501	2459	2920	558-2252	2253-2920	Yes
TRIM16L	NM_00103733C	47	21	67	1659	1613	1982	278-1324	1325-1982	Yes
TRIM45	NM_001145635	33	267	299	2840	2808	3527	589-2277	2278-3527	Yes
TRIM5	NM_033034.2	47	21	67	2519	2473	3399	304-1785	1786-3399	Yes
TRIM59	NM_173084.2	42	27	68	2145	2104	3886	196-1407	1408-3886	Yes
TRIM6	NM_001003818	59	18	76	2072	2014	3430	264-1814	1815-3430	No
TRIM65	NM_001256124	30	32	61	2233	2204	3393	67-1554	1555-3393	Yes
TRIM66	NM_014818.1	41	21	61	7577	7537	9753	196-3846	3847-9753	No
TRIM68	NM_018073.6	57	20	76	2654	2598	3372	291-1748	1749-3372	No
TRIM7	NM_203293.2	33	267	299	2544	2512	2978	184-1719	1720-2978	Yes
TRIP11	NM_004239.3	39	40	78	6982	6944	8106	375-6314	6315-8106	Yes
TRMT5	NM_020810.2	37	263	299	3114	3078	5302	92-1621	1622-5302	Yes
TRPM6	NM_00117731C	30	21	50	7063	7034	8250	73-6126	6127-8250	No
TRPM7	NM_017672.4	42	257	298	7587	7546	10404	283-5880	5881-10404	Yes
TRPV1	NM_018727.5	67	10	76	3136	3070	4074	159-2678	2679-4074	Yes
TSPAN31	NM_005981.3	35	256	290	1300	1266	1749	155-787	788-1749	Yes
TSPYL1	NM_003309.3	41	256	296	2259	2219	5259	288-1601	1602-5259	Yes
TTC21B	NM_024753.4	58	19	76	4621	4564	5491	134-4084	4085-5491	Yes
TTC26	NM_00114492C	42	257	298	2518	2477	4216	115-1578	1579-4216	Yes
TTC39C	NM_001135993	43	23	65	4774	4732	5253	453-2204	2205-5253	Yes
TTL	NM_153712.4	39	21	59	3641	3603	5181	180-1313	1314-5181	Yes
TUFT1	NM_001126337	45	21	65	2532	2488	3083	63-1160	1161-3083	Yes
TVP23A	NM_001079512	67	1	67	1554	1488	3339	272-913	914-3339	No
TVP23C	NM_001135036	30	20	49	1731	1702	4244	184-795	796-4244	No
TXNDC15	NM_024715.3	43	25	67	2983	2941	3689	659-1741	1742-3689	Yes
TXNL4B	NM_001142317	40	10	49	1483	1444	2514	263-712	713-2514	Yes
TXNRD2	NM_001282512	48	20	67	1478	1431	2081	190-1206	1207-2081	Yes

TYSND1	NM_001040273	54	5	58	2507	2454	3481	155-1351	1352-3481	Yes
UAP1L1	NM_207309.2	38	18	55	3148	3111	3401	33-1556	1557-3401	No
UBA52	NM_00103393C	33	267	299	2234	2202	2823	115-501	502-2823	No
UBE2G1	NM_003342.4	56	21	76	3002	2947	4208	359-871	872-4208	No
UBE2W	NM_001001481	36	40	75	5450	5415	8459	2-577	578-8459	Yes
UBR2	NM_001184801	39	22	60	1972	1934	2493	299-1618	1619-2493	Yes
UBXN2B	NM_001077619	48	10	57	1895	1848	5088	123-1118	1119-5088	Yes
UEVLD	XM_005253001	66	11	76	797	732	1016	53-700	701-1016	Yes
UFD1L	XM_005261276	33	267	299	4742	4710	5059	212-1030	1031-5059	Yes
UFM1	NM_001286703	54	4	57	2184	2131	2630	150-401	402-2630	Yes
UGDH	NM_00118470C	40	11	50	1856	1817	3013	324-1607	1608-3013	Yes
UGGT1	NM_020120.3	47	21	67	9514	9468	10802	179-4846	4847-10802	No
UHMK1	NM_001184763	45	20	64	3604	3560	8194	78-1115	1116-8194	Yes
ULBP1	NM_025218.2	59	18	76	1398	1340	3160	44-778	779-3160	Yes
ULBP3	XM_005267138	34	1	34	1054	1021	1671	129-521	522-1671	Yes
ULK2	NM_014683.3	55	1	55	6954	6900	9165	510-3620	3621-9165	No
UMPS	NM_000373.3	42	257	298	1939	1898	6738	107-1549	1550-6738	Yes
UNC45B	NM_001033576	32	18	49	4948	4917	5688	98-2887	2888-5688	No
UPK3BL	NM_001114403	58	10	67	1107	1050	1360	51-842	843-1360	No
UQCRQ	NM_014402.4	56	21	76	864	810	1585	75-323	324-1585	Yes
USP13	NM_003940.2	34	257	290	6196	6163	7933	82-2673	2674-7933	Yes
USP15	NM_001252078	37	43	79	6509	6473	8367	76-3021	3022-8367	Yes
USP26	XM_005262478	34	266	299	3702	3669	4060	471-3212	3213-4060	Yes
USP28	NM_020886.2	47	30	76	4209	4163	4642	34-3267	3268-4642	Yes
USP3	NM_001256702	37	21	57	2889	2853	5474	230-1660	1661-5474	Yes
USP33	NM_015017.4	76	1	76	3584	3509	4551	375-3203	3204-4551	Yes
USP4	NM_001251877	33	267	299	1404	1372	1673	80-1021	1022-1673	Yes
USP46	NM_001134223	49	19	67	6291	6243	8057	283-1362	1363-8057	Yes
USP9X	NM_00103959C	49	28	76	10519	10471	12401	634-8346	8347-12401	Yes
UTP11L	NM_016037.3	58	22	79	1205	1148	2067	92-853	854-2067	Yes
UTP15	NM_00128443C	45	21	65	4189	4145	5038	256-1755	1756-5038	Yes
UTY	XM_005262532	59	18	76	3668	3610	3833	356-3586	3587-3833	No
UVSSA	NM_020894.2	61	18	78	3480	3420	4665	448-2577	2578-4665	No
VAPA	NM_003574.5	34	257	290	4064	4031	6994	300-1184	1185-6994	Yes
VENTX	NM_014468.3	76	1	76	1189	1114	2422	12-788	789-2422	No
VGLL3	NM_016206.2	31	22	52	8869	8839	10396	365-1345	1346-10396	Yes
VHL	NM_000551.3	48	20	67	3527	3480	4560	214-855	856-4560	Yes
VIPR2	NM_003382.4	38	20	57	1901	1866	3961	187-1503	1504-3961	No
VMA21	NM_00101798C	53	24	76	1888	1837	4760	125-430	431-4760	Yes
VMAC	NM_001017921	48	20	67	1042	995	1708	51-560	561-1708	No
VPS13C	NM_017684.4	34	257	290	11681	11648	13312	92-11224	11225-13312	Yes

VPS33A	NM_022916.4	67	1	67	2239	2173	2628	114-1904	1905-2628	Yes
VPS53	NM_001128159	33	35	67	3119	3087	13106	148-2646	2647-13106	Yes
VSIG1	NM_001170553	67	1	67	1923	1857	3236	162-1433	1434-3236	No
VSIG10	NM_019086.5	43	256	298	2393	2351	5003	335-1957	1958-5003	No
VTI1A	XM_005269544	63	4	66	1409	1347	2061	341-952	953-2061	Yes
VWA2	NM_001272046	43	10	52	4217	4175	5857	327-2594	2595-5857	No
WDR31	XM_005251690	51	10	60	2936	2886	4759	306-1409	1410-4759	No
WDR33	NM_018383.4	34	19	52	5566	5533	6315	200-4210	4211-6315	Yes
WDR55	NM_017706.4	47	21	67	2104	2058	2580	115-1266	1267-2580	Yes
WDR76	NM_001167941	63	5	67	2284	2222	3927	202-1890	1891-3927	Yes
WDR87	XM_005259304	52	1	52	9159	9108	9268	171-8909	8910-9268	No
WFDC8	NM_181510.2	47	21	67	918	872	1269	80-805	806-1269	No
WHAMM	NM_001080435	35	256	290	2743	2709	3859	100-2529	2530-3859	Yes
WHSC1	NM_133334.2	30	23	52	5981	5952	8390	30-1973	1974-8390	Yes
WNK3	NM_001002838	57	20	76	6397	6341	11185	440-5671	5672-11185	Yes
WNT9B	XM_005257637	40	40	79	1486	1447	2654	54-1043	1044-2654	No
WWC3	NM_015691.3	37	40	76	5603	5567	6463	199-3477	3478-6463	No
WWTR1	NM_001168278	67	1	67	2468	2402	5052	258-1460	1461-5052	Yes
XIAP	NM_001167.3	33	267	299	3718	3686	8460	160-1653	1654-8460	Yes
XKR5	NM_207411.4	33	19	51	3425	3393	4908	152-2212	2213-4908	No
XPNPEP3	NM_022098.3	48	20	67	4526	4479	8027	102-1625	1626-8027	Yes
XRCC2	NM_005431.1	47	5	51	1306	1260	3094	87-929	930-3094	Yes
YAF2	NM_001190980	39	22	60	1456	1418	5095	170-523	524-5095	Yes
YES1	NM_005433.3	43	256	298	3228	3186	4685	222-1853	1854-4685	Yes
YIPF6	NM_001195214	56	19	74	4799	4744	6153	286-867	868-6153	Yes
YTHDC1	NM_001031732	41	18	58	4618	4578	6249	354-2537	2538-6249	Yes
ZBTB24	NM_014797.2	55	21	75	3433	3379	5597	169-2262	2263-5597	Yes
ZBTB25	XM_005268049	54	4	57	2789	2736	3921	343-2025	2026-3921	Yes
ZBTB3	NM_024784.3	47	4	50	2679	2633	2990	123-1847	1848-2990	Yes
ZBTB40	NM_001083621	41	20	60	6506	6466	8992	512-4231	4232-8992	Yes
ZBTB44	NM_014155.4	38	42	79	3121	3084	9351	395-1756	1757-9351	Yes
ZBTB8A	NM_001040441	58	10	67	4676	4619	7333	486-1811	1812-7333	Yes
ZBTB8OS	XM_005270799	42	257	298	1422	1381	1959	399-917	918-1959	Yes
ZC3H12B	NM_001010888	33	20	52	3130	3098	7273	68-2578	2579-7273	No
ZC3H12D	NM_207360.2	53	26	78	3214	3162	4907	271-1854	1855-4907	Yes
ZC3H6	NM_198581.2	58	10	67	8953	8896	11557	395-3964	3965-11557	Yes
ZC3HAV1	NM_020119.3	33	267	299	3562	3530	7190	389-3097	3098-7190	Yes
ZC3HAV1L	NM_080660.3	40	40	79	1568	1529	1802	13-915	916-1802	No
ZCCHC4	NM_024936.2	38	30	67	1982	1945	2814	37-1578	1579-2814	Yes
ZCCHC8	NM_017612.4	62	4	65	3173	3112	4260	234-2357	2358-4260	Yes
ZDBF2	NM_001285549	67	1	67	8351	8285	10214	308-7366	7367-10214	Yes

ZDHHC20	NM_001286638	38	20	57	2881	2844	5333	362-1240	1241-5333	Yes
ZFAND5	NM_00110242C	33	18	50	5109	5077	5887	699-1340	1341-5887	Yes
ZFP3	NM_153018.2	38	256	293	1859	1822	5011	126-1634	1635-5011	No
ZFP30	NM_014898.2	42	10	51	4065	4024	4611	559-2118	2119-4611	Yes
ZFP42	NM_174900.3	32	21	52	2064	2033	2646	409-1341	1342-2646	No
ZFP64	NM_018197.2	47	21	67	2630	2584	3281	350-2395	2396-3281	Yes
ZFX	NM_001178084	52	1	52	4211	4160	7396	100-2517	2518-7396	Yes
ZIK1	XM_005258766	42	20	61	3686	3645	4255	218-1642	1643-4255	No
ZKSCAN3	NM_001242894	56	21	76	2725	2670	4842	334-1950	1951-4842	Yes
ZKSCAN7	NM_025169.1	33	267	299	1399	1367	1792	417-1247	1248-1792	No
ZMYM6	NM_007167.3	48	10	57	4737	4690	5159	229-4206	4207-5159	Yes
ZNF117	NM_015852.3	50	18	67	4543	4494	6404	1286-2737	2738-6404	Yes
ZNF2	NM_001017396	57	1	57	3367	3311	3908	538-1689	1690-3908	Yes
ZNF208	NM_007153.3	32	20	51	6126	6095	9088	150-3992	3993-9088	No
ZNF234	NM_001144824	30	10	39	3504	3475	4482	190-2292	2293-4482	Yes
ZNF250	NM_001109689	50	18	67	3363	3314	6367	118-1785	1786-6367	Yes
ZNF260	NM_001012756	57	1	57	4656	4600	5474	923-2161	2162-5474	No
ZNF264	NM_003417.4	67	1	67	10124	10058	12172	415-2298	2299-12172	Yes
ZNF273	NM_021148.2	49	19	67	2760	2712	4325	77-1786	1787-4325	Yes
ZNF28	NM_006969.3	47	21	67	4006	3960	4608	158-2314	2315-4608	Yes
ZNF286A	NM_001130842	35	256	290	2666	2632	5472	397-1962	1963-5472	No
ZNF286B	NM_001145045	35	256	290	2524	2490	5328	252-1820	1821-5328	No
ZNF316	NM_001278559	58	10	67	6108	6051	7239	557-3571	3572-7239	No
ZNF320	NM_207333.2	37	21	57	2095	2059	6145	192-1721	1722-6145	Yes
ZNF329	NM_024620.3	37	21	57	2365	2329	3426	238-1863	1864-3426	Yes
ZNF331	NM_001079906	36	22	57	2805	2770	4151	423-1814	1815-4151	Yes
ZNF345	NM_001242472	41	4	44	2381	2341	2965	215-1681	1682-2965	Yes
ZNF391	XM_005249081	36	256	291	2644	2609	3884	351-1427	1428-3884	Yes
ZNF43	NM_001256648	35	256	290	5299	5265	5771	702-3113	3114-5771	Yes
ZNF440	NM_152357.2	58	10	67	3261	3204	4181	157-1944	1945-4181	Yes
ZNF443	XM_005259705	43	256	298	4335	4293	5282	Jan-22	2023-5282	Yes
ZNF445	NM_181489.5	54	23	76	6387	6334	10264	349-3444	3445-10264	Yes
ZNF451	NM_001257273	42	257	298	7726	7685	9558	245-1924	1925-9558	Yes
ZNF461	NM_153257.2	39	14	52	3007	2969	3192	229-1920	1921-3192	Yes
ZNF468	NM_001008801	35	256	290	3236	3202	3935	152-1720	1721-3935	Yes
ZNF486	NM_052852.3	56	21	76	2073	2018	3897	118-1509	1510-3897	No
ZNF490	NM_020714.2	33	267	299	2851	2819	6098	130-1719	1720-6098	Yes
ZNF492	NM_020855.2	48	20	67	2910	2863	4245	245-1840	1841-4245	Yes
ZNF493	NM_145326.2	47	21	67	1172	1126	1765	120-431	432-1765	Yes
ZNF497	NM_001207009	34	28	61	2430	2397	3481	187-1683	1684-3481	Yes
ZNF500	NM_021646.1	46	29	74	2276	2231	3252	248-1690	1691-3252	Yes

ZNF501	NM_00125828C	40	40	79	2925	2886	3400	721-1536	1537-3400	Yes
ZNF506	NM_001099269	49	28	76	1844	1796	3341	149-1483	1484-3341	No
ZNF527	NM_032453.1	56	21	76	2234	2179	5126	112-1941	1942-5126	Yes
ZNF528	NM_032423.2	48	20	67	3703	3656	3995	427-2313	2314-3995	Yes
ZNF529	NM_001145649	58	10	67	3759	3702	5242	285-1976	1977-5242	Yes
ZNF543	NM_213598.3	43	256	298	2468	2426	3671	358-2160	2161-3671	Yes
ZNF548	NM_001172773	37	21	57	2575	2539	4565	251-1888	1889-4565	Yes
ZNF550	NM_00127709C	33	267	299	2814	2782	4323	182-1450	1451-4323	Yes
ZNF552	NM_024762.3	58	19	76	2007	1950	2352	171-1394	1395-2352	Yes
ZNF554	NM_001102651	54	23	76	2933	2880	3698	199-1815	1816-3698	Yes
ZNF555	NM_001172775	48	10	57	4429	4382	8544	139-2022	2023-8544	Yes
ZNF557	NM_001044387	43	256	298	4444	4402	5990	474-1766	1767-5990	Yes
ZNF566	NM_001145343	39	29	67	4671	4633	5253	136-1395	1396-5253	Yes
ZNF585B	NM_152279.3	41	28	68	3555	3515	6210	253-2562	2563-6210	Yes
ZNF587	NM_001204817	49	28	76	2216	2168	6943	227-1951	1952-6943	Yes
ZNF595	NM_001286052	34	257	290	2384	2351	2815	205-2055	2056-2815	Yes
ZNF619	NM_001145082	41	28	68	3246	3206	4171	308-2158	2159-4171	Yes
ZNF626	NM_001076675	37	21	57	3966	3930	6088	151-1737	1738-6088	No
ZNF639	NM_016331.1	35	257	291	2635	2601	3013	446-1903	1904-3013	Yes
ZNF652	NM_001145365	67	1	67	4906	4840	11492	465-2285	2286-11492	Yes
ZNF655	NM_00100996C	33	267	299	2570	2538	4585	221-1696	1697-4585	Yes
ZNF660	XM_005265090	56	21	76	4815	4760	5899	399-1394	1395-5899	No
ZNF662	NM_001134656	34	257	290	2615	2582	5524	187-1545	1546-5524	No
ZNF670	NM_00120422C	33	43	75	2419	2387	4195	218-1384	1385-4195	Yes
ZNF674	NM_001039891	67	1	67	3066	3000	4095	228-1973	1974-4095	Yes
ZNF677	NM_182609.2	56	12	67	2809	2754	3509	152-1906	1907-3509	Yes
ZNF681	NM_138286.2	67	1	67	3347	3281	6513	143-2080	2081-6513	Yes
ZNF69	NM_021915.2	45	5	49	657	613	1671	70-519	520-1671	Yes
ZNF7	NM_001282796	37	21	57	1248	1212	1929	138-584	585-1929	Yes
ZNF70	NM_021916.2	56	21	76	3480	3425	4042	462-1802	1803-4042	No
ZNF701	NM_001172655	67	10	76	4560	4494	5538	226-1821	1822-5538	Yes
ZNF709	NM_152601.3	56	21	76	2282	2227	4916	162-2087	2088-4916	Yes
ZNF713	NM_182633.1	61	4	64	1608	1548	2065	39-1331	1332-2065	Yes
ZNF714	NM_182515.3	34	1	34	5070	5037	8808	379-2046	2047-8808	Yes
ZNF716	NM_001159279	60	17	76	1963	1904	5210	113-1600	1601-5210	No
ZNF737	NM_001159293	67	10	76	5761	5695	8419	181-1791	1792-8419	No
ZNF747	NM_023931.2	59	18	76	1810	1752	2392	195-770	771-2392	Yes
ZNF764	NM_001172679	34	18	51	2216	2183	2814	140-1363	1364-2814	Yes
ZNF765	NM_001040185	64	4	67	4021	3958	4577	124-1695	1696-4577	Yes
ZNF770	NM_014106.3	44	21	64	3138	3095	5453	355-2430	2431-5453	Yes
ZNF772	NM_001024596	38	20	57	4769	4732	5434	262-1731	1732-5434	Yes

ZNF776	NM_173632.3	44	35	78	4115	4072	5292	264-1820	1821-5292	Yes
ZNF780B	NM_001005851	67	10	76	4343	4277	8664	66-2567	2568-8664	Yes
ZNF783	NM_00119522C	38	20	57	2576	2539	4455	164-1804	1805-4455	Yes
ZNF785	NM_152458.6	46	4	49	2621	2576	3265	161-1378	1379-3265	No
ZNF793	NM_001013659	53	5	57	2224	2172	7136	443-1663	1664-7136	Yes
ZNF805	NM_001023563	43	256	298	5460	5418	10126	208-2091	2092-10126	Yes
ZNF814	NM_001144989	33	266	298	5451	5419	6283	273-2840	2841-6283	Yes
ZNF816-ZNF321	NM_001202473	50	1	50	2235	2186	2680	211-912	913-2680	No
ZNF829	NM_001037232	34	257	290	2342	2309	5056	366-1664	1665-5056	No
ZNF835	NM_00100585C	32	20	51	2392	2361	2774	228-1841	1842-2774	No
ZNF839	NM_001267827	54	21	74	3443	3390	3781	351-2786	2787-3781	Yes
ZNF85	NM_001256172	30	22	51	495	466	1580	149-412	413-1580	Yes
ZNF850	NM_001193552	53	5	57	6222	6170	7721	160-3432	3433-7721	No
ZNF99	NM_001080409	64	4	67	5138	5075	7881	156-2750	2751-7881	No
ZNHIT3	NM_001281432	33	267	299	554	522	2064	74-520	521-2064	Yes
ZNRF3	NM_001206998	57	10	66	5445	5389	6696	Jan-11	2812-6696	Yes
ZSCAN2	NM_181877.3	42	257	298	3178	3137	3765	227-2071	2072-3765	No
ZSCAN22	NM_181846.2	35	256	290	2833	2799	4643	148-1623	1624-4643	Yes
ZSCAN29	NM_152455.3	31	22	52	3560	3530	5607	148-2706	2707-5607	Yes
ZSWIM1	NM_080603.4	47	11	57	2037	1991	2787	114-1571	1572-2787	Yes
ZSWIM7	NM_001042697	35	256	290	907	873	2008	99-521	522-2008	Yes
ZYG11A	NM_001004339	57	1	57	3671	3615	4286	374-2653	2654-4286	Yes
ZYG11B	NM_024646.2	33	267	299	6517	6485	8143	196-2430	2431-8143	Yes