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(54) **METHOD FOR EVALUATING MULTIPLE SCLEROSIS**

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(57) **ABSTRACT**

This invention provides a method and a means for assisting in the diagnosis of multiple sclerosis. More particularly, this invention provides gene markers (shown in Tables 1 and 2) for evaluating whether or not multiple sclerosis has been developed, a method for evaluating multiple sclerosis using such gene markers, a chip, and the like.

Fig 1

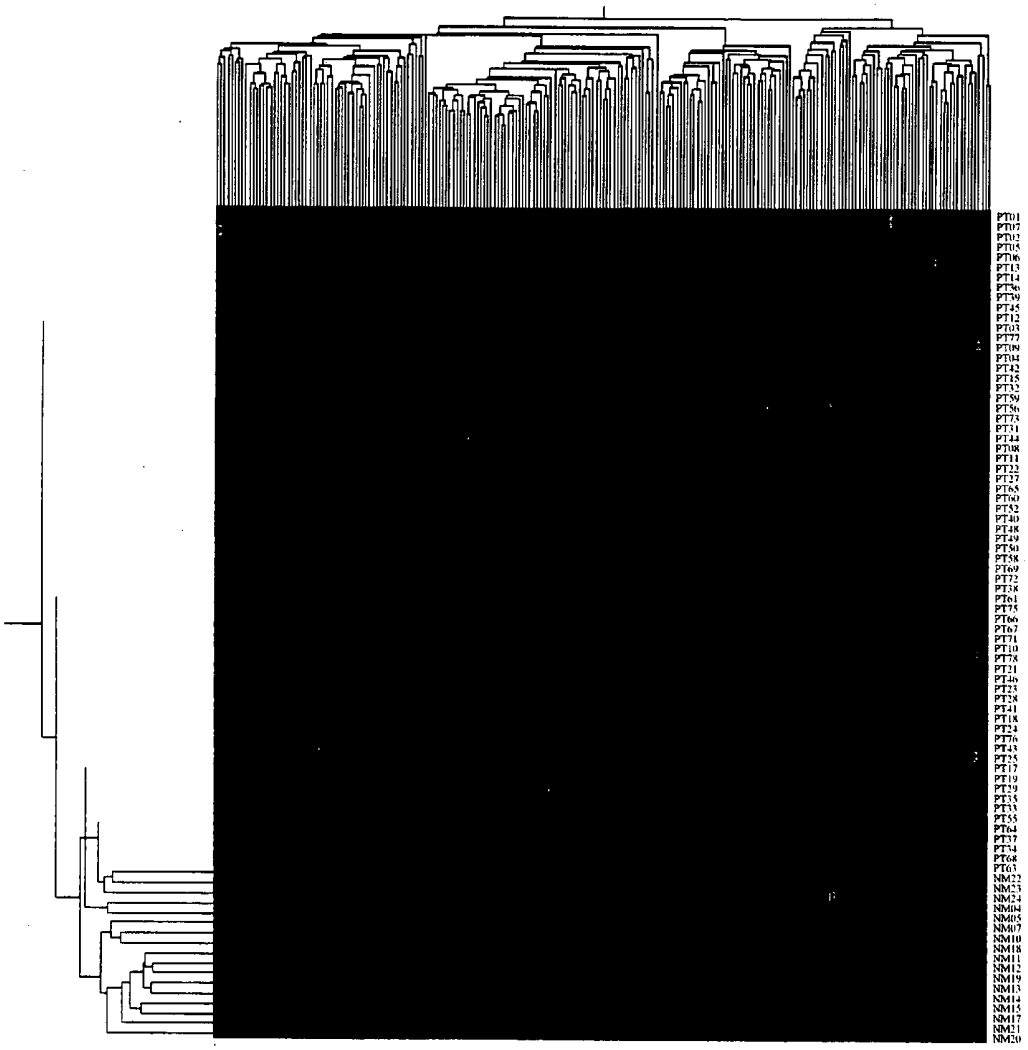

Fig 2

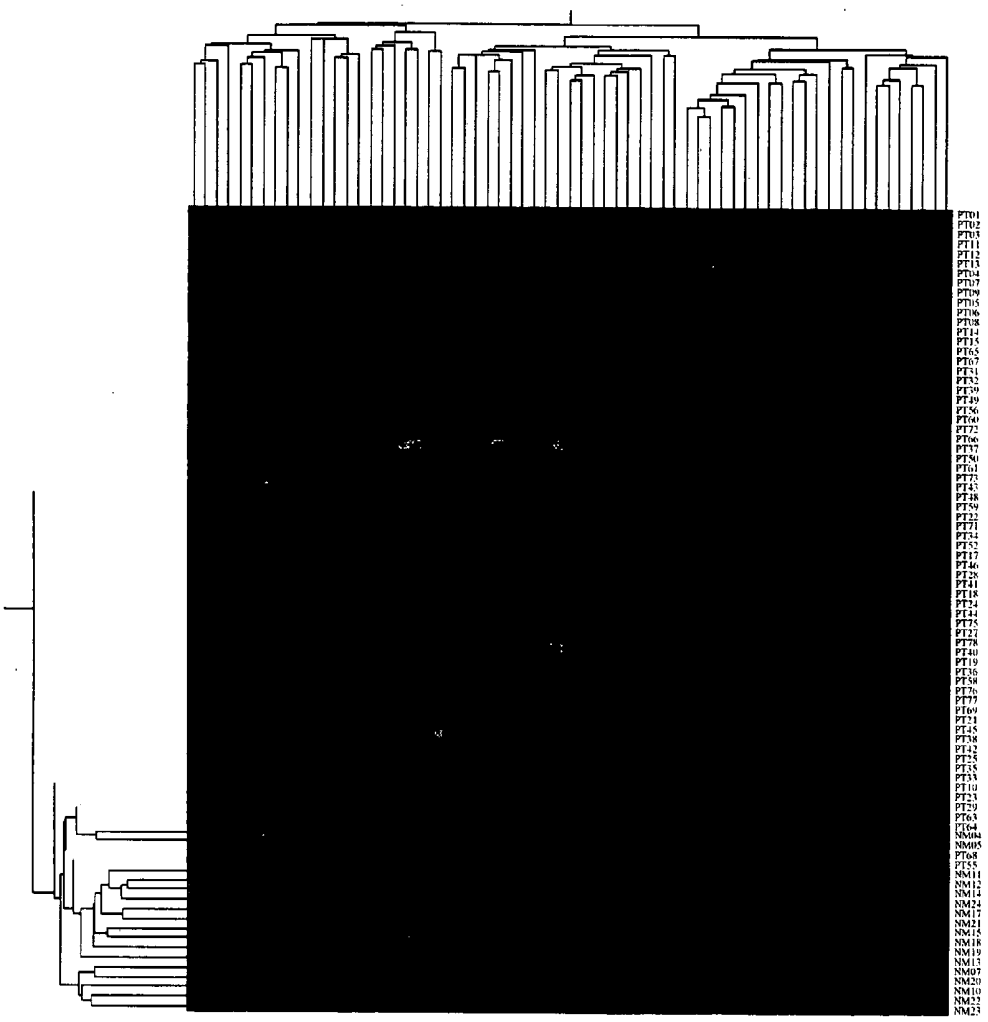

Fig 3

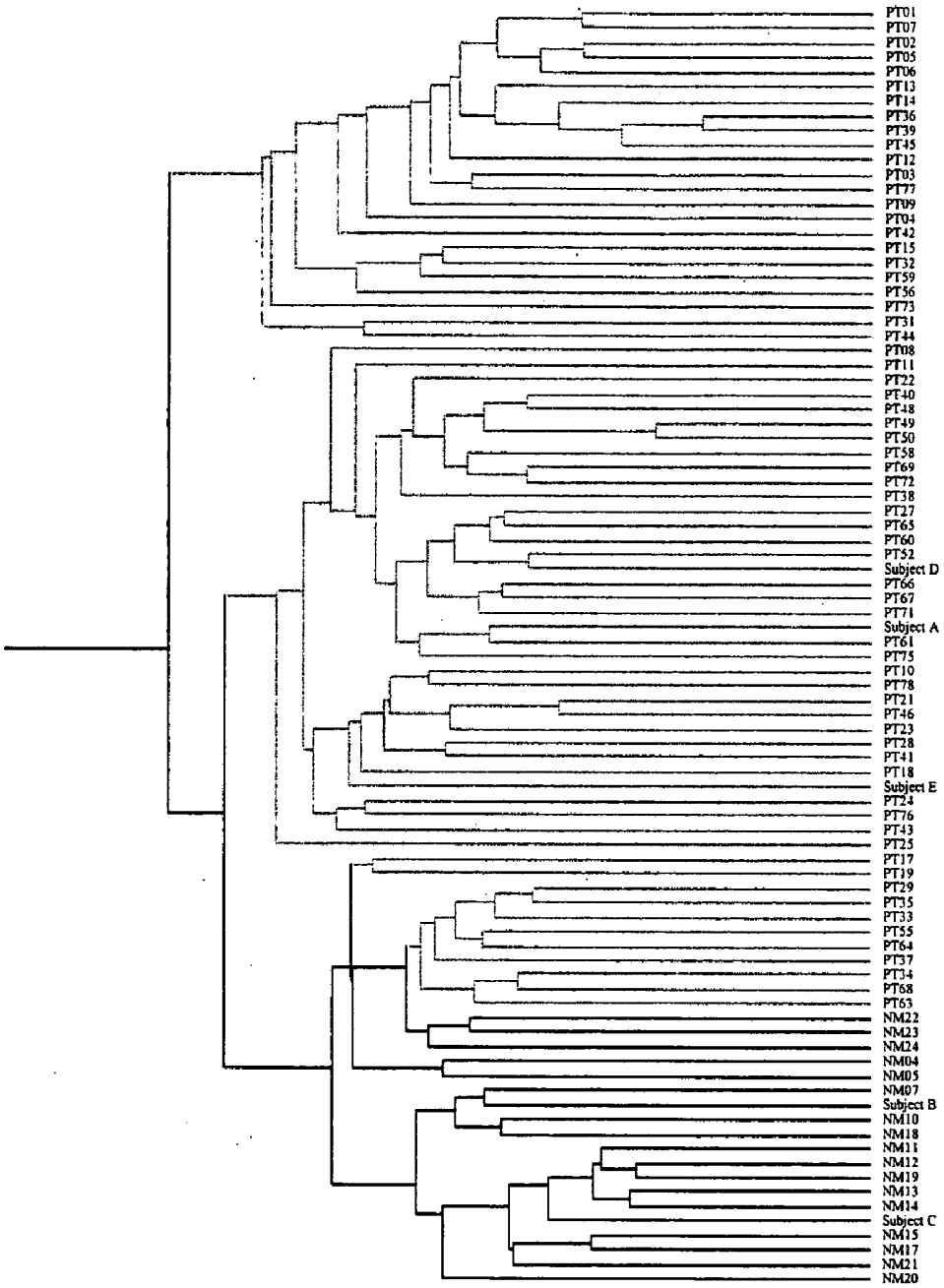
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Fig 4

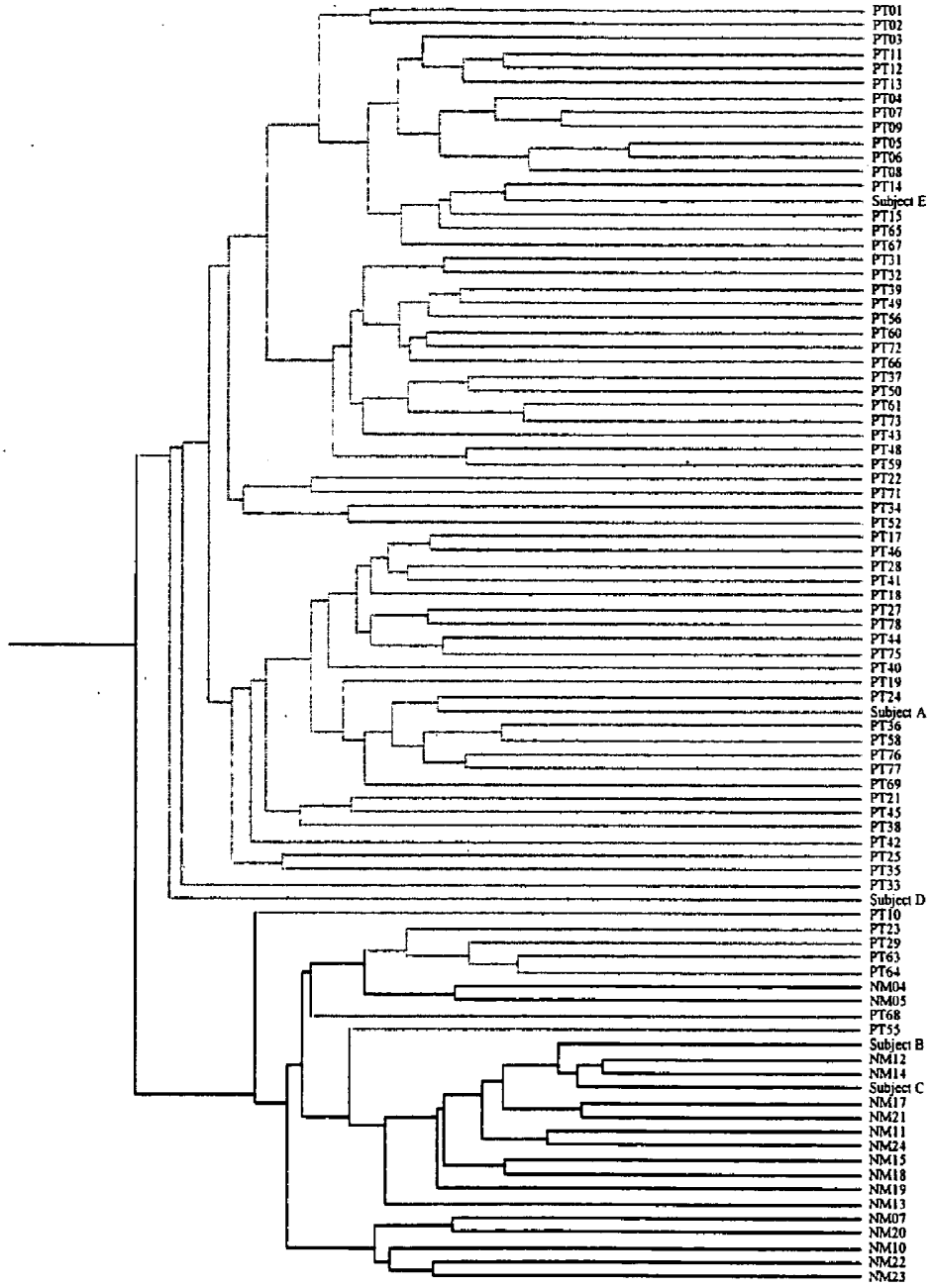
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Fig 5

Gene / Case No.	RGS14	PTPN8	E2F4	TIM	AP1S2	ISGF3G	IL6R	EP300	TCF17	ATP2C1	PPP3CB	NFATC3	CDC10	RBL2	CCNC	JAK1	COX15	TCFL1	STAT1	SELL
FK01	0.89	0.57	0.72	0.55	0.19	0.52	0.78	0.57	0.59	1.03	0.44	0.96	0.61	0.66	0.63	0.47	0.77	0.95	0.50	0.26
FK07	0.94	0.22	0.44	0.54	0.22	0.08	0.27	0.09	0.59	0.86	0.35	0.67	0.68	0.37	0.35	0.19	0.82	0.75	0.19	0.09
FK02	0.24	0.05	0.27	0.46	0.12	0.09	0.07	0.10	0.47	0.76	0.42	0.75	0.46	0.66	0.91	0.37	0.34	0.40	0.10	0.10
FK05	0.33	0.25	0.57	0.45	0.16	0.41	0.44	0.15	0.31	0.70	0.44	0.81	0.20	0.27	0.68	0.34	0.38	0.58	0.11	0.19
FK06	0.60	0.26	0.64	0.68	0.22	0.26	0.37	0.17	0.47	0.54	0.52	0.57	0.47	0.30	0.42	0.23	0.72	0.53	0.11	0.12
FK13	0.49	0.60	0.60	0.58	0.28	0.20	0.36	0.38	0.75	0.77	0.71	0.60	0.55	0.56	0.41	0.51	0.62	0.55	0.17	0.19
FK14	0.50	0.50	0.49	0.44	0.48	0.51	0.36	0.33	0.60	0.62	0.45	0.34	0.40	0.52	0.55	0.69	0.57	0.48	0.17	0.26
FK36	0.61	0.50	0.82	0.57	0.29	0.45	0.47	0.51	0.92	0.59	0.34	0.35	0.55	0.51	0.46	0.67	0.55	0.70	0.11	0.14
FK39	0.43	0.38	0.73	0.57	0.35	0.43	0.69	0.84	1.02	0.60	0.30	0.34	0.51	0.46	0.68	0.54	0.69	0.47	0.12	0.17
FK45	0.36	0.59	0.62	0.58	0.54	0.99	0.97	0.90	0.67	0.68	0.42	0.43	0.50	0.44	0.54	0.55	0.63	0.53	0.34	0.38
FK12	0.32	0.42	0.57	0.50	0.52	0.35	0.28	0.38	0.53	0.67	0.66	0.42	0.55	0.75	0.67	0.45	0.44	0.69	0.33	0.23
FK03	0.70	0.51	0.97	0.61	0.80	0.70	0.89	1.38	0.55	0.83	0.75	1.06	0.73	0.90	0.65	0.70	0.92	0.93	0.53	0.42
FK77	1.47	1.55	1.29	0.98	1.29	1.24	2.51	1.99	1.69	1.61	2.02	2.75	2.00	6.17	2.08	2.38	1.53	1.34	2.50	1.41
FK09	0.41	0.32	0.43	0.31	0.33	0.93	0.64	0.66	0.50	0.76	0.60	1.20	0.34	0.44	0.55	0.36	0.41	0.62	0.12	0.31
FK04	0.68	0.48	1.66	0.76	0.42	0.44	0.72	0.62	0.98	0.85	0.64	0.90	0.68	0.43	0.51	1.00	0.80	0.85	0.35	0.36
FK42	0.74	1.28	0.61	0.46	1.19	1.82	1.45	0.65	0.92	0.94	0.80	0.54	0.71	0.53	0.50	0.41	1.00	0.78	1.09	0.63
FK15	0.87	0.54	1.12	0.95	0.85	0.48	0.79	0.52	0.40	0.32	0.48	0.23	0.60	0.36	0.32	0.45	0.60	0.76	0.15	0.37
FK32	0.93	1.06	1.39	1.36	1.35	1.32	1.25	2.10	0.46	0.41	0.55	0.58	0.62	0.49	0.35	0.78	0.73	0.82	0.35	0.69
FK59	0.67	1.14	1.29	0.78	1.07	0.45	0.81	2.25	0.43	0.35	0.38	0.46	0.57	0.72	0.54	0.44	0.56	0.73	0.28	0.40
FK56	1.00	0.33	0.26	1.04	0.92	0.57	0.63	1.04	0.67	0.41	0.29	0.18	1.02	1.07	0.53	1.34	0.28	0.54	0.10	0.20
FK73	1.17	1.50	1.32	1.36	1.56	0.78	2.16	1.51	0.88	0.74	0.79	0.60	1.12	0.43	0.55	0.50	1.03	1.06	0.64	0.75
FK31	0.86	0.91	1.21	1.34	1.59	0.98	1.57	3.33	0.51	0.62	0.77	0.80	0.70	0.94	0.50	0.49	1.03	1.01	0.38	0.95
FK44	0.81	0.88	0.93	1.45	1.03	1.16	2.06	3.38	0.50	0.54	0.59	0.70	0.82	0.88	0.60	0.48	0.85	1.06	0.54	0.96
FK08	1.08	0.59	1.26	1.01	0.76	0.41	0.40	0.88	1.19	1.13	1.01	1.04	1.01	0.88	0.97	1.38	0.75	1.04	0.78	0.73
FK11	0.87	0.73	0.93	0.68	0.42	0.45	0.50	0.73	0.85	0.85	0.72	0.81	0.85	1.36	1.34	1.28	0.36	0.79	0.28	0.47
FK22	0.62	0.53	0.63	0.65	1.03	1.02	0.81	1.34	0.76	1.04	1.28	0.99	1.09	0.59	0.76	0.86	1.07	0.86	0.95	0.97
FK27	1.03	0.93	0.81	0.72	0.71	0.71	0.83	0.88	0.82	0.85	0.87	0.92	0.79	0.87	0.83	0.78	0.88	0.94	0.34	0.64
FK65	0.69	1.22	0.97	0.59	0.91	0.69	1.05	0.58	1.04	1.18	1.10	1.52	0.85	0.87	0.85	0.95	0.78	0.67	0.49	0.96
FK60	0.66	0.84	0.67	0.55	0.72	0.67	1.46	1.21	0.78	0.82	0.84	0.90	1.14	1.20	1.14	1.18	1.05	0.85	0.59	1.00
FK52	0.89	1.10	1.03	0.97	0.69	1.14	0.69	1.93	0.85	0.98	1.11	1.44	0.79	0.98	1.00	1.83	0.94	1.20	1.49	0.63
FK40	0.85	0.69	1.72	0.68	0.53	0.84	1.10	1.24	1.09	1.48	1.07	1.20	1.14	2.28	1.03	1.25	0.76	0.63	0.37	0.81
FK48	0.90	1.00	0.80	0.69	0.80	0.86	1.41	0.99	1.13	1.14	0.97	1.33	0.90	1.23	0.83	1.00	0.96	0.67	0.41	0.75
FK49	0.94	0.92	0.84	0.98	1.34	0.87	1.00	1.50	0.88	0.70	0.72	0.72	0.77	1.05	0.82	0.85	1.05	0.91	0.43	0.79
FK50	0.70	0.92	0.80	0.84	0.96	0.83	0.79	1.61	0.77	0.88	0.79	0.74	0.80	0.97	0.64	0.74	0.89	0.78	0.64	0.68
FK58	0.58	0.72	0.31	0.59	0.74	0.71	0.95	1.00	0.72	0.71	0.72	0.78	0.63	1.14	0.76	1.36	0.61	0.82	0.22	0.34
FK69	0.70	0.75	0.87	0.70	0.80	0.55	0.96	0.96	0.71	0.97	0.93	1.03	0.85	0.75	1.18	1.35	0.88	0.77	0.62	0.63
FK72	0.56	1.24	0.69	0.42	0.61	1.27	0.96	0.58	0.52	0.91	0.86	0.88	0.64	0.64	0.51	0.64	0.69	0.75	0.50	0.50
FK38	0.81	0.51	0.76	0.88	0.50	1.16	0.76	2.14	0.96	1.09	0.98	0.78	1.25	1.36	1.60	1.65	0.74	0.67	0.72	0.35
FK61	0.84	1.04	1.64	0.98	0.73	0.93	1.43	1.97	1.08	1.15	1.66	1.89	1.14	1.83	1.35	1.37	1.24	1.10	1.74	1.03
FK75	0.63	0.82	1.20	0.63	0.49	0.62	0.63	0.83	0.99	1.65	1.55	2.00	1.33	1.95	1.56	2.01	1.10	0.69	2.10	1.45
FK66	0.71	1.02	0.81	1.11	0.71	0.61	0.58	0.81	0.69	0.89	1.08	0.76	0.82	0.82	1.55	1.23	0.71	0.83	0.93	0.65
FK67	1.10	1.51	1.05	0.78	1.32	0.85	0.96	0.82	0.95	1.06	1.70	1.56	1.09	1.73	1.35	1.35	0.87	1.19	1.56	0.99
FK71	0.94	0.83	0.63	0.68	0.88	0.42	0.62	0.80	0.90	1.20	1.21	1.13	1.46	1.70	1.47	1.41	0.74	0.93	0.95	1.17
FK10	1.28	1.11	1.13	0.85	1.94	0.62	1.62	0.91	1.13	1.44	1.73	1.51	1.33	1.84	1.56	2.53	1.65	1.44	1.63	1.30
FK78	1.47	1.55	1.29	0.98	1.29	1.24	2.51	1.99	1.69	1.61	2.02	2.75	2.00	6.17	2.08	2.38	1.53	1.34	2.50	1.41
FK21	0.87	0.66	1.13	0.74	0.95	0.88	1.33	1.59	0.99	1.38	1.64	1.88	1.81	2.99	1.29	1.84	1.39	1.05	1.84	1.06
FK46	0.97	0.92	0.85	0.97	0.85	0.87	1.40	1.82	1.09	1.23	1.30	1.30	1.68	3.34	1.39	1.71	1.34	1.05	2.77	1.08
FK23	1.16	0.80	1.21	0.76	1.01	1.06	1.12	0.76	1.01	1.46	1.71	2.02	2.14	2.11	1.83	2.42	1.62	1.28	2.25	1.22
FK28	0.88	0.91	1.63	0.87	1.15	1.16	1.41	2.37	1.38	1.47	1.74	2.05	1.94	4.28	2.04	2.41	1.13	1.08	1.60	1.84
FK41	0.71	0.54	0.79	0.96	0.69	0.98	1.70	3.15	1.31	2.15	2.10	2.34	2.48	6.26	2.58	2.74	1.59	0.92	2.05	1.97
FK18	0.81	0.99	1.27	0.70	1.11	0.96	1.15	0.75	1.17	0.98	1.72	2.11	1.29	1.51	1.42	2.02	2.03	1.52	2.08	0.82
FK24	1.22	1.23	1.23	0.80	1.30	0.99	1.45	0.51	1.59	1.21	1.58	1.70	1.22	1.70	1.15	1.62	1.59	1.07	0.64	1.09
FK76	1.47	1.55	1.29	0.98	1.29	1.24	2.51	1.99	1.69	1.61	2.02	2.75	2.00	6.17	2.08	2.38	1.53	1.34	2.50	1.41
FK43	1.08	0.68	0.64	0.99	0.82	1.46	1.36	1.42	0.98	0.96	1.42	0.77	1.44	1.11	1.08	1.16	1.26	1.03	2.13	0.88
FK25	0.48	0.31	0.48	0.80	1.12	0.38	0.22	0.60	0.72	1.44	0.73	0.82	1.96	1.45	3.10	2.96	0.75	0.77	0.59	0.31
FK17	1.35	1.01	2.04	1.22	1.41	0.70	0.88	0.95	1.38	2.24	2.32	2.56	2.87	7.23	3.01	4.03	1.89	2.34	1.58	1.67
FK19	1.53	0.98	2.16	0.82	1.11	0.93	1.65	1.11	1.74	1.51	2.44	2.53	1.90	3.61	2.80	3.22	2.19	1.63	2.23	1.48
FK29	0.94	0.65	1.13	0.93	0.97	0.88	1.42	1.89	1.85	2.12	2.29	2.99	3.04	11.76	3.05	4.11	2.31	1.49	2.56	1.91
FK35	0.77	0.70	1.04	0.99	0.75	0.92	1.25	1.69	1.28	1.63	1.64	2.49	2.49	6.87	2.45	3.64	1.77	1.18	3.23	1.80
FK33	0.84	0.76	0.83	1.04	0.80	1.51	1.15	1.94	1.22	1.44	1.70	2.21	1.90	4.12	1.81	3.39	1.59	1.30	3.59	2.33
FK55	1.31	0.90	1.05	0.81	1.21	0.90	1.45	1.52	1.44	1.69	2.22	3.02	2.01	4.28	1.95	2.44	1.12	1.37	2.52	1.91
FK64	1.16	1.34	1.24	0.94	0.66	0.68	1.15	0.85	1.65	1.45	1.64	2.45	1.98	5.99	2.47	3.16	1.08	1.27	3.13	1.91
FK37	1.30	1.33	1.45	1.08	0.97	1.18	2.18	1.77	1.21	1.65	2.01	2.50	1.72	3.21	1.43	1.64	1.56	1.68	1.25	1.77
FK34	1.22	1.25	1.06	1.05	0.92	0.95	1.57	1.30	1.07	1.41	1.63	2.15	1.73	2.65	1.34	1.58	1.46	1.25	2.34	1.19
FK68	1.13	1.25	1.22	0.87	1.08	1.15	1.08	0.87	1.13	1.56	1.84	1.90	1.34	2.09	1.32	1.76	1.31	1.40	2.62	1.30
FK63	1.26	1.30	0.88	1.21	1.18	0.85	1.21	0.63	1.40	1.67	2.17	2.25	2.26	5.37	2.44	1.89	1.54	1.43	3.52	2.18
Nc22	0.76	0.71	0.86	0.79	1.08	0.81	0.98	2.19	1.14	1.96	2.20	3.26	3.54	4.84	2.07	2.84	1.28	0.96	2.11	1.69
Nc23	1.32	1.20	1.43	0.89	1.00	1.38	2.04	2.77	1.78	2.40	1.95	2.18	3.09	5.32	2.87	2.93	1.23	1.07	2.50	1.36
Nc24	1.47	1.55	1.29	0.98	1.29	1.24	2.51	1.99	1.69	1.61	2.02	2.75	2.00	6.17	2.08	2.38	1.53	1.34	2.50	1.41
Nc04	0.78	0.75	1.22	0.76	1.34	0.93	0.98	0.72	2.33	1.99	2.15	1.75	2.59	6.51	2.02	2.53	1.85	1.48	4.00	1.84
Nc05	1.03	1.10	0.88	0.77	0.97	0.59	1.26	0.54	1.65	1.37	1.78	1.25	1.93	3.79	2.11	1.99	1.65	1.24	2.49	1.37
Nc07	2.79	2.48	2.40	1.09	1.75	1.79	1.85	2.65	1.68	1.08	1.48	1.80	0.82	0.75	0.68	1.00	1.59	1.40	1.63	1.03
Nc10	4.79	3.59	1.74	1.54	1.38	1.22	1.06	1.72	1.78	1.54	1.84	2.53	1.25	2.48	2.03	1.84	1.67	1.33	1.84	1.68
Nc18	2.75	2.73	2.28	1.51	1.76	1.44	1.91	2.02	2.38	1.69	1.54	2.43	1.45	1.94	1.54	1.76	1.98	1.19	1.49	1.52
Nc11	1.93	2.09	1.48	1.52	1.02	1.34	2.72	3.43	2.70	1.92	2.68	3.52	2.08	4.83	2.26	3.70	1.94	1.27	2.53	1.40
Nc12	3.27	2.05	1.79	1.76	1.32	1.52	1.86	2.85	2.86	2.04	2.84	3.40	2.61	6.65	3.49	3.38	2.65	1.98	3.94	2.09
Nc19	2.31	2.31	1.90	1.57	1.22	1.59	2.43	2.80	3.07	1.87	2.00	3.17	2.78	4.45	2.68	3.21	2.83	1.51	2.23	1.59
Nc13	2.76	2.01	1.80	1.24	1.30	1.69	1.50	2.53	2.24	1.91	2.64	3.87	1.81	7.73	2.78	3.18	2.58	1.94	3.27	1.93
Nc14	3.87	2.23	1.93	1.65	1.40	1.39	2.14	2.27	2.65	2.54	2.65	3.82	2.68	8.35	3.29	3.80	2.01	2.03	2.00	2.22
Nc15	3.40	1.82	1.46	1.55	1.38	1.70	2.11	2.48	2.34	2.09	2.38	3.27	2.54	5.25	2.68	3.59	2.62	1.84	3.30	2.59
Nc17	3.18	1.62	1.27	1.23	1.46	1.65	2.36	2.56	2.04	2.03	2.24	3.82	1.82	5.89	2.19	2.80	2.40	1.63	2.11	2.45
Nc21	2.84	2.91	2.46	0.91	1.39	2.61	2.39	2.67	1.64	2.16	2.07	2.45	2.07	3.22	2.16	2.45	2.17	2.10	4.88	1.92
Nc20	2.17	1.61	1.99	1.23	1.46	1.57	1.85	2.32	1.38	1.73	1.75	2.16	1.69	2.67	1.91	2.02	2.06	1.48	2.30	2.68

Fig 6

Gene / Case No.	AKAP2	HDGF	CSF1R	NHP2L1	TNFRSF11A	NPR2L	RAB9	TCF21	ATP6B2	BAG1	MAPKAPK3	MYC	GNB5	CREB1	RAP1A	PMS1	IFI16	MAP3K7	PTPRC	POLR2G
FK01	0.41	0.42	0.46	0.77	0.73	0.84	0.39	0.32	0.43	0.39	0.30	0.30	0.63	0.41	0.24	0.55	0.28	0.44	0.21	0.30
FK07	0.10	0.23	0.25	0.69	0.35	0.59	0.32	0.09	0.23	0.34	0.17	0.19	0.60	0.28	0.09	0.14	0.09	0.18	0.05	0.06
FK02	0.11	0.83	0.30	0.43	0.12	0.47	0.37	0.13	0.24	0.10	0.07	0.10	0.30	0.22	0.10	0.10	0.09	0.12	0.01	0.02
FK05	0.40	0.72	0.23	0.59	0.24	0.38	0.17	0.14	0.35	0.41	0.18	0.17	0.43	0.30	0.06	0.11	0.10	0.07	0.01	0.14
FK06	0.15	0.58	0.37	0.76	0.41	0.58	0.33	0.32	0.37	0.30	0.11	0.09	0.35	0.24	0.15	0.15	0.10	0.11	0.07	0.09
FK13	0.32	0.68	0.84	0.54	0.55	1.11	0.35	0.50	0.48	0.79	0.37	0.20	0.35	0.55	0.33	0.42	0.29	0.36	0.22	0.23
FK14	0.34	0.47	0.63	0.39	0.79	0.78	0.73	0.28	0.45	0.34	0.19	0.12	0.31	0.32	0.31	0.33	0.36	0.34	0.34	0.21
FK35	0.22	0.38	0.46	0.34	0.94	0.65	0.52	0.14	0.27	0.31	0.21	0.24	0.43	0.37	0.15	0.30	0.36	0.27	0.08	0.37
FK39	0.41	0.49	0.76	0.39	1.31	0.68	0.38	0.20	0.31	0.41	0.24	0.13	0.44	0.38	0.17	0.32	0.30	0.24	0.08	0.23
FK45	0.45	0.66	0.59	0.47	0.97	0.85	0.57	0.26	0.51	0.43	0.25	0.15	0.43	0.40	0.28	0.36	0.42	0.36	0.20	0.25
FK12	0.39	0.55	0.71	0.62	0.84	0.74	0.63	0.48	0.40	0.65	0.30	0.71	1.35	0.46	0.28	0.51	0.39	0.23	0.12	0.21
FK03	0.52	0.89	0.78	0.58	0.83	0.66	1.13	0.86	0.73	0.53	0.46	0.63	1.04	0.67	0.53	0.51	0.46	0.61	0.23	0.57
FK77	2.26	1.26	1.48	1.50	0.89	1.29	1.30	1.10	1.42	0.79	0.99	1.72	1.00	1.34	1.27	1.17	1.41	1.28	1.00	0.98
FK09	0.42	0.74	0.61	0.62	0.55	0.39	0.26	0.59	0.64	0.27	0.29	0.14	0.42	0.32	0.29	0.22	0.18	0.41	0.07	0.29
FK04	0.46	0.63	0.79	0.81	0.94	0.98	1.55	0.55	0.69	0.53	0.32	0.36	0.84	0.48	0.48	0.72	0.18	0.48	0.49	0.34
FK42	0.73	0.82	0.74	0.50	0.78	0.74	0.76	0.54	0.65	0.56	0.64	0.33	0.43	0.62	0.42	0.57	0.91	0.46	0.27	0.37
FK15	0.38	0.69	0.77	0.70	0.80	0.63	0.72	0.53	0.41	0.87	0.53	0.38	0.58	0.51	0.24	0.55	0.30	0.33	0.21	0.45
FK32	0.48	1.88	1.29	1.32	1.08	0.95	0.77	0.97	0.56	0.75	0.89	0.31	0.54	0.61	0.34	0.93	0.77	0.54	0.41	0.76
FK59	0.57	1.68	1.18	0.79	0.59	0.77	0.67	0.49	0.43	0.69	0.64	0.22	0.51	0.66	0.31	0.41	0.50	0.35	0.28	0.57
FK56	0.36	0.90	0.72	0.81	0.84	0.87	0.49	0.43	0.44	0.39	0.45	0.14	0.28	0.40	0.22	0.33	0.28	0.60	0.32	0.36
FK73	1.15	1.32	0.88	0.90	0.87	0.91	0.79	0.65	0.84	1.37	1.32	0.55	0.63	1.04	0.69	0.96	0.28	0.85	0.33	1.06
FK31	0.54	2.07	1.41	1.43	1.20	0.97	0.68	1.11	0.64	0.77	1.07	0.85	0.61	0.73	0.58	0.84	0.99	0.53	0.46	0.99
FK44	1.05	2.13	1.63	1.64	1.04	1.10	0.96	0.90	0.80	0.96	1.06	0.73	0.63	0.70	0.48	0.77	0.94	0.54	0.51	1.02
FK08	0.60	0.89	1.25	0.67	1.01	1.12	2.15	0.90	0.90	0.80	0.67	0.67	1.05	0.72	0.78	1.20	0.48	0.41	0.37	0.35
FK11	0.72	1.22	0.90	1.40	0.84	1.21	1.36	0.63	0.66	0.82	0.63	0.71	0.80	0.69	0.53	0.70	0.56	0.61	0.26	0.41
FK22	0.52	0.58	0.85	0.55	0.94	0.99	1.65	0.53	0.79	0.68	0.58	0.62	0.78	0.63	0.75	0.79	0.47	0.74	0.57	0.71
FK27	0.82	1.34	1.18	0.84	0.70	1.02	0.53	0.44	0.45	0.59	0.63	0.24	0.52	0.69	0.42	0.60	0.67	0.42	0.29	0.47
FK65	0.92	1.27	1.00	0.54	0.83	0.93	0.55	0.48	0.53	0.72	0.90	0.50	0.80	0.83	0.67	0.76	0.52	0.65	0.40	0.50
FK60	1.15	1.07	1.29	0.88	0.68	0.94	0.87	0.46	0.43	0.69	0.65	0.64	0.80	0.65	0.74	0.47	0.31	0.42	0.26	0.58
FK52	0.63	0.98	1.18	1.07	0.91	0.66	0.81	0.51	0.81	0.52	0.58	0.55	0.69	0.65	0.69	0.59	0.64	0.59	0.53	0.76
FK40	1.24	1.22	1.20	0.80	0.90	1.28	0.87	0.38	0.55	0.61	0.47	0.31	0.73	0.77	0.73	0.60	0.59	0.60	0.40	0.42
FK48	0.67	1.18	1.01	0.53	0.88	0.74	0.64	0.37	0.38	0.52	0.39	0.30	0.75	1.01	0.57	0.59	0.60	0.60	0.37	0.37
FK49	0.65	1.42	1.20	1.11	0.99	0.96	0.85	0.74	0.79	0.64	0.69	0.36	0.45	0.56	0.47	0.68	0.53	0.42	0.24	0.48
FK50	0.58	1.11	1.04	0.62	1.21	1.08	0.88	0.50	0.55	0.68	0.62	0.53	0.52	0.64	0.55	0.74	0.46	0.44	0.28	0.63
FK58	0.58	1.06	1.01	0.71	0.84	0.86	0.72	0.36	0.70	0.45	0.48	0.31	0.85	0.52	0.41	0.48	0.74	0.49	0.32	0.50
FK69	0.59	1.05	1.41	0.78	0.82	1.10	1.19	0.60	0.99	0.80	0.89	0.53	1.33	0.64	0.65	0.54	0.50	0.97	0.37	0.66
FK72	0.42	0.82	0.76	0.51	1.08	1.42	0.56	0.29	0.76	0.75	0.72	0.49	0.94	0.50	0.31	0.58	0.41	0.73	0.29	0.71
FK38	0.76	0.93	1.18	1.13	0.96	1.16	1.96	0.61	1.30	0.70	1.06	0.29	0.91	0.81	0.81	0.79	0.72	0.94	0.36	0.72
FK61	1.05	1.03	1.27	0.96	1.27	1.30	1.17	0.53	0.59	0.80	0.56	0.75	1.06	0.95	0.82	1.04	0.78	0.93	0.72	0.96
FK75	0.86	1.21	1.36	0.85	1.39	0.85	1.07	0.76	1.26	0.81	1.07	1.61	1.07	1.06	1.23	0.95	0.51	1.07	0.52	0.52
FK66	0.95	1.90	3.04	1.34	0.83	0.80	0.85	0.87	0.73	1.30	1.21	0.56	0.74	0.63	0.76	0.98	0.47	0.47	0.29	0.60
FK67	0.95	1.81	1.19	1.42	0.91	0.85	0.76	1.20	0.95	1.10	1.58	1.10	0.81	0.76	0.72	1.19	0.58	0.54	0.40	0.83
FK71	0.95	1.30	1.78	0.81	0.71	1.34	1.15	1.06	0.84	1.04	1.17	0.54	0.75	0.75	0.90	0.50	0.50	0.48	0.31	0.70
FK10	1.38	1.50	1.99	1.30	2.27	1.31	1.45	1.98	1.65	0.69	1.23	0.64	1.01	0.95	0.94	1.05	0.85	0.83	0.88	0.87
FK79	2.26	1.26	1.48	1.50	0.89	1.29	1.30	1.10	1.42	0.79	0.99	1.72	1.00	1.34	1.27	1.17	1.41	1.28	1.00	0.98
FK21	1.06	1.22	1.14	1.32	1.23	1.00	1.16	0.92	0.76	0.65	0.70	0.56	0.94	0.80	1.01	1.10	0.90	0.68	0.68	0.86
FK46	1.82	1.57	1.48	1.43	0.87	1.11	0.86	1.09	0.95	0.63	1.04	0.71	0.89	0.84	1.15	0.93	0.81	0.55	0.49	0.79
FK23	1.27	1.55	1.35	1.76	0.81	1.13	1.41	0.81	1.21	0.86	0.75	1.04	0.98	0.93	1.25	0.93	1.02	0.73	0.78	0.95
FK28	1.97	1.77	1.22	1.83	1.05	1.27	0.77	1.26	1.24	0.67	0.84	0.54	1.26	1.17	1.16	0.86	0.94	0.93	0.76	0.88
FK41	2.01	1.16	1.26	1.37	1.06	1.19	1.68	1.12	1.28	0.76	0.71	1.01	1.11	1.39	1.84	1.13	1.08	0.90	0.81	0.85
FK18	1.49	1.45	1.35	1.55	1.10	1.82	0.95	0.97	1.19	0.64	1.36	1.04	1.29	0.80	1.02	0.67	0.75	1.03	0.62	0.75
FK24	1.60	1.60	1.47	1.13	0.93	1.81	1.11	1.06	0.58	0.68	0.59	0.55	0.87	0.96	0.90	0.76	0.70	0.75	0.96	0.57
FK76	2.26	1.26	1.48	1.50	0.89	1.29	1.30	1.10	1.42	0.79	0.99	1.72	1.00	1.34	1.27	1.17	1.41	1.28	1.00	0.98
FK43	1.81	1.42	1.06	1.63	1.05	0.77	0.82	1.05	1.05	0.58	0.73	0.21	0.60	0.68	0.95	0.93	0.72	0.72	0.51	0.59
FK25	0.73	1.82	0.68	2.99	3.08	1.58	1.61	0.64	1.02	0.93	0.58	1.46	0.68	0.77	1.60	0.77	0.75	0.61	0.44	0.66
FK17	2.23	1.76	1.35	2.29	2.74	2.04	3.14	1.43	1.84	1.29	1.37	1.57	1.34	1.48	1.84	1.50	1.43	0.89	0.66	1.22
FK19	1.98	1.77	1.50	2.65	1.48	1.97	1.40	1.26	0.97	0.88	0.77	1.11	1.06	1.12	1.35	1.19	1.17	1.05	1.06	1.31
FK29	2.73	1.55	1.76	2.52	1.00	1.57	1.24	1.89	1.78	0.73	0.99	2.00	1.27	1.48	1.82	1.04	1.97	0.85	1.02	1.28
FK35	2.09	1.58	1.49	2.14	0.89	1.08	1.09	1.21	1.06	0.85	0.78	1.29	1.01	1.14	1.47	0.94	1.21	0.66	0.88	0.97
FK33	1.08	1.78	1.24	2.00	1.18	1.22	1.15	1.09	1.44	0.69	0.95	2.55	1.16	1.05	1.25	1.27	1.41	0.72	0.79	1.21
FK55	1.11	1.36	1.32	1.37	1.06	1.09	1.71	1.03	0.89	1.14	0.98	1.72	1.17	1.11	1.19	0.97	0.91	0.79	0.79	0.87
FK64	1.55	1.48	1.34	1.26	1.00	1.22	1.17	1.12	1.33	1.04	1.36	1.98	0.91	0.97	1.26	1.15	0.97	0.74	0.83	1.03
FK37	1.60	1.51	1.40	1.79	1.10	1.74	1.22	0.97	1.07	0.92	1.03	1.51	1.20	1.15	1.11	0.89	0.81	1.17	0.70	0.93
FK34	1.93	1.77	1.29	1.84	0.80	1.33	1.60	1.14	0.96	1.02	1.26	0.97	1.00	0.83	1.14	1.01	0.78	0.77	0.61	1.00
FK58	0.92	1.25	1.74	1.19	1.01	1.19	1.50	1.06	1.11	0.93	0.97	1.30	1.24	0.89	1.26	0.92	1.02	1.12	1.16	1.09
FK63	1.69	2.66	2.48	2.15	1.04	1.35	1.17	2.15	1.44	1.35	2.00	2.40	1.42	0.97	1.57	1.41	1.05	0.78	0.61	1.06
Nc22	1.99	1.68	0.96	1.36	0.91	0.85	1.42	1.40	1.30	1.00	0.77	1.23	1.12	1.47	1.38	0.97	1.34	0.76	0.95	0.74
Nc23	3.28	1.80	1.29	2.03	0.98	1.12	1.76	1.42	1.09	1.26	0.91	1.32	0.99	1.94	1.75	1.38	1.55	1.33	1.53	0.82
Nc24	2.26	1.26	1.48	1.50	0.89	1.29	1.30	1.10	1.42	0.79	0.99	1.72	1.00	1.34	1.27	1.17	1.41	1.28	1.00	0.98
Nc04	1.66	1.05	1.14	1.68	2.62	1.51	1.95	1.04	1.25	1.09	0.87	2.12	1.38	1.49	1.74	1.51	2.11	1.07	1.43	1.39
Nc05	1.47	1.32	1.35	1.24	2.38	1.18	2.37	1.27	1.08	1.10	0.98	1.15	1.11	1.01	1.91	1.36	1.37	0.85	0.66	1.37
Nc07	0.65	1.90	1.76	1.33	1.61	1.00	0.69	1.46	1.53	1.37	1.61	1.46	1.03	1.02	0.97	0.91	0.66	1.00	0.61	0.92
Nc10	1.44	4.32	3.33	3.73	1.60	1.99	1.18	3.21	1.28	1.57	2.13	2.28	0.88	1.01	0.99	1.41	0.79	0.71	0.64	1.39
Nc18	1.55	2.65	2.72	1.57	1.30	0.56	1.40	2.82	1.83	1.48	1.81	1.88	1.21	1.19	1.11	1.50	0.97	1.28	0.77	0.98
Nc11	1.58	2.25	1.97	2.07	2.42	1.60	1.91	2.11	2.06	1.49	1.51	2.33	1.01	1.40	1.53	1.57	1.41	1.57	1.12	1.21
Nc12	2.04	2.58	2.58	2.44	2.48	1.78	1.98	2.29	1.97	1.13	1.59	2.58	1.43	1.89	1.53	1.63	1.98	1.20	0.63	1.28
Nc19	1.91	1.86	1.85	2.36	4.01	1.83	2.65	2.02	1.64	1.31	1.27	1.76	1.35	1.54	1.44	1.88	1.81	2.43	1.01	1.43
Nc13	1.97	2.15	1.60	2.62	2.23	2.30	1.59	1.76	1.80	1.24	1.52	2.41	1.38	1.60	1.35	1.26	1.55	1.57	0.76	1.18
Nc14	1.70	2.69	2.08	2.83	2.54	2.07	1.55	2.33	1.78	1.45	1.82	2.93	1.73	1.78	1.43	1.61	1.80	1.48	1.16	1.35
Nc15	1.73	2.47	2.12	2.90	2.16	1.54	2.25	1.85	1.60	1.31	1.79	2.72	1.46	1.48	1.16	1.23	1.49	1.55	1.04	1.19
Nc17	1.58	2.39	1.96	2.92	2.84	2.00	2.15	1.93	2.20	1.07	1.77	2.63	1.71	1.66	1.15	1.14	1.07	1.24	1.02	1.06
Nc21	1.71	1.85	2.05	1.74	2.10	2.07	2.04	1.84	*1.44	1.32	1.43	2.57	1.10	1.50	1.17	1.39	1.53	1.32	0.86	1.37
Nc20	1.69	2.90	1.66	3.28	3.43	1.87	1.55	1.86	1.37	1.67	1.69	1.86	1.04	1.27	1.09	1.44	0.97	1.07	0.91	1.21

Fig 7

Gene / Case No.	AFG3L2	RAB4	GNG10	PSMC6	GABPB1	IL18R1	CDC27	VAV2	TTF1	RBBP1	TGFBR2	GSTM3	CSNK2A1	ST13	TOP1	CHST4	SLC35A1	ATP6D	TCF12	ABCC5
FK01	0.28	0.17	0.23	0.31	0.31	0.42	0.87	0.60	0.38	0.79	0.40	0.45	0.67	0.75	0.65	0.60	0.65	1.18	0.85	0.83
FK07	0.13	0.10	0.22	0.08	0.26	0.51	0.89	0.26	0.38	0.44	0.20	0.30	0.84	0.84	0.42	0.55	0.41	2.21	1.15	1.14
FK02	0.13	0.10	0.16	0.12	0.20	0.35	0.34	0.27	0.14	0.42	0.31	0.31	0.87	0.87	0.97	1.23	0.53	0.96	1.16	0.75
FK05	0.23	0.08	0.13	0.06	0.20	0.37	0.32	0.57	0.47	0.44	0.55	0.57	1.04	0.61	0.30	0.95	0.98	0.60	0.73	1.03
FK06	0.21	0.13	0.14	0.12	0.23	0.40	0.43	0.33	0.27	0.32	0.28	0.47	0.62	1.26	0.54	1.13	0.91	0.99	1.18	0.97
FK13	0.43	0.31	0.33	0.39	0.27	0.66	0.48	0.56	0.53	0.71	0.32	0.65	0.52	0.65	0.86	1.33	0.82	0.62	1.22	0.98
FK14	0.40	0.31	0.47	0.45	0.55	0.45	0.51	0.42	0.42	0.41	0.38	0.37	0.55	0.41	0.85	1.18	1.12	0.78	0.75	0.70
FK36	0.28	0.21	0.22	0.44	0.52	0.35	0.66	0.32	0.57	0.49	0.24	0.41	0.42	0.53	0.61	1.36	1.04	0.85	0.82	0.72
FK39	0.35	0.28	0.27	0.37	0.50	0.36	0.61	0.35	0.45	0.48	0.27	0.46	0.43	0.65	0.62	1.28	0.99	0.72	0.77	0.49
FK45	0.41	0.37	0.34	0.51	0.60	0.35	0.59	0.52	0.49	0.50	0.47	0.41	0.51	0.49	0.71	1.11	0.72	0.79	0.62	0.66
FK12	0.29	0.28	0.36	0.38	0.39	0.56	0.80	0.20	0.95	0.75	0.64	0.68	1.14	0.56	0.68	0.80	1.06	0.63	0.59	0.71
FK03	0.40	0.37	0.51	0.48	0.51	0.91	0.82	0.83	0.67	1.17	0.42	0.75	1.17	0.60	0.73	0.79	1.09	0.90	0.84	0.95
FK77	0.73	0.80	0.99	1.04	1.22	1.31	1.44	1.59	1.17	1.21	1.61	0.81	1.33	0.91	1.55	1.07	1.46	1.99	2.28	0.93
FK09	0.23	0.19	0.40	0.21	0.36	0.33	0.25	0.93	1.58	1.05	0.57	0.46	1.38	0.93	0.73	0.80	1.26	0.53	0.77	1.56
FK04	0.49	0.41	0.32	0.36	0.69	0.51	0.83	0.66	0.62	0.69	0.49	0.65	0.74	0.58	0.96	0.75	0.64	1.03	0.68	1.04
FK42	0.43	0.35	0.59	0.59	0.57	0.56	0.73	0.56	0.50	0.59	0.29	0.42	0.54	0.46	0.80	0.91	1.18	0.87	0.70	0.61
FK15	0.55	0.63	0.46	0.57	0.40	0.44	0.52	0.28	0.57	0.47	0.20	0.41	0.58	0.60	0.87	0.66	0.89	0.77	1.07	0.75
FK32	0.72	0.84	0.74	0.81	0.33	0.58	0.58	0.41	0.53	0.55	0.37	0.38	0.64	0.69	0.70	0.95	1.21	0.61	0.62	0.54
FK59	0.66	0.64	0.56	0.90	0.22	0.33	0.59	0.44	0.48	0.51	0.21	0.26	0.63	0.48	0.56	0.75	2.03	0.64	0.59	0.42
FK56	0.53	0.62	0.29	1.19	0.64	0.55	0.82	0.29	0.37	0.88	0.25	0.29	0.36	0.58	1.33	0.86	1.59	1.03	1.24	0.09
FK73	0.92	0.96	0.77	1.24	0.61	0.71	1.13	1.17	0.67	1.03	0.48	0.41	0.63	0.93	1.04	0.85	1.18	1.02	1.18	0.70
FK31	0.79	0.82	0.92	0.93	0.46	0.50	0.58	0.50	0.58	0.72	0.38	0.70	0.89	0.90	0.72	0.86	1.29	0.41	0.58	1.01
FK44	1.08	1.08	0.63	1.24	0.45	0.36	0.50	0.49	0.91	0.75	0.48	0.62	0.85	0.66	0.77	0.95	1.40	0.60	0.66	0.69
FK08	0.82	0.65	0.60	0.44	0.41	0.85	0.72	0.58	0.72	0.73	1.25	1.58	1.28	1.16	0.86	0.83	0.62	1.05	0.99	0.92
FK11	0.75	0.64	0.78	0.59	1.07	1.03	0.67	0.43	1.03	0.89	1.27	0.91	1.04	0.68	0.96	1.13	1.39	0.44	0.52	0.67
FK22	0.75	0.53	0.74	0.53	1.16	1.79	0.78	0.73	0.81	0.63	0.85	0.85	0.85	0.71	0.70	0.71	0.70	0.84	0.67	1.02
FK27	0.58	0.61	0.54	0.61	0.45	0.64	0.87	0.55	0.52	0.69	0.32	0.37	0.62	0.59	0.85	1.40	0.89	0.73	0.77	0.73
FK65	0.51	0.46	0.67	0.59	0.55	0.57	1.01	0.70	0.61	1.16	0.42	0.55	0.63	0.52	0.71	0.52	1.05	0.41	0.75	1.12
FK60	0.63	0.67	0.52	0.46	0.58	0.37	0.75	0.77	0.62	0.88	0.43	0.64	0.56	0.51	0.50	0.71	0.60	0.65	0.72	0.56
FK52	0.63	0.57	0.61	0.60	0.64	0.57	0.67	0.80	0.56	0.60	0.94	1.11	1.14	0.57	0.76	0.95	0.92	1.01	0.90	1.21
FK40	0.62	0.67	0.58	1.34	0.71	0.54	0.97	0.82	0.77	1.10	0.91	0.62	0.56	0.60	1.22	1.01	1.18	0.43	0.71	1.04
FK48	0.53	0.45	0.55	0.90	0.48	0.56	1.02	0.63	0.50	0.83	0.48	0.51	0.55	0.51	1.00	0.93	1.15	0.59	0.65	1.14
FK49	0.64	0.61	0.65	0.77	0.72	0.49	0.67	0.52	0.58	0.68	0.92	0.75	0.70	0.69	0.87	1.00	1.09	0.65	0.53	0.64
FK50	0.58	0.54	0.59	0.73	0.62	0.42	0.79	0.57	0.69	0.76	0.72	0.71	0.67	0.63	0.75	0.87	0.88	0.56	0.62	0.75
FK58	0.50	0.49	0.34	0.66	0.73	0.90	0.77	0.57	0.70	0.76	0.30	0.40	0.72	0.34	1.13	1.05	1.02	0.79	0.73	0.78
FK69	0.89	0.62	0.68	0.43	1.19	0.88	0.75	0.72	1.11	0.87	0.94	1.16	0.79	0.66	0.96	0.77	0.79	0.60	0.73	0.87
FK72	0.62	0.26	0.44	0.45	0.73	0.73	0.78	0.87	0.75	1.17	0.40	0.60	0.53	0.36	0.92	0.61	1.14	0.47	0.64	1.62
FK38	1.03	1.00	0.66	1.03	2.36	1.70	1.11	0.58	1.19	1.12	1.20	1.09	1.00	0.69	1.40	1.13	0.89	0.43	0.83	0.41
FK61	0.79	0.65	0.82	0.70	0.71	0.98	1.07	1.19	0.73	1.24	1.52	1.50	1.09	0.76	0.95	0.85	0.97	0.78	0.91	0.83
FK75	0.99	0.67	0.69	0.44	0.42	1.44	1.06	0.44	0.60	0.60	1.12	1.45	0.79	0.90	0.53	0.71	0.72	0.51	0.89	1.37
FK66	0.73	0.94	0.79	0.44	0.80	0.58	0.60	0.39	0.79	0.91	0.71	1.18	0.90	0.64	0.77	0.61	0.92	0.47	0.70	0.58
FK67	0.82	0.74	0.85	0.49	0.55	0.69	0.70	0.81	0.74	0.84	1.20	1.03	0.99	0.82	0.72	0.63	1.04	0.60	0.78	1.17
FK71	0.88	0.74	0.78	0.47	0.52	0.57	0.83	0.65	0.97	0.79	0.96	1.38	0.77	0.90	0.68	0.68	0.69	0.59	1.04	0.59
FK10	0.79	0.83	0.99	0.63	0.70	0.84	1.11	1.41	1.11	0.86	0.88	1.27	1.21	1.16	0.92	0.91	1.21	1.07	1.19	0.89
FK78	0.73	0.80	0.99	1.04	1.22	1.31	1.44	1.59	1.17	1.21	1.61	0.81	1.33	0.91	1.55	1.07	1.46	1.99	2.28	0.93
FK21	0.61	0.66	0.77	0.71	0.83	1.17	1.11	0.84	1.04	0.92	1.06	1.18	1.18	0.83	0.83	0.99	0.89	1.01	0.67	1.28
FK46	0.76	0.77	0.80	0.81	0.67	0.77	0.67	0.75	0.91	0.82	1.11	1.24	1.05	0.93	0.80	0.99	0.97	0.82	1.04	0.75
FK23	0.89	0.89	0.96	0.75	0.91	1.56	1.01	0.81	1.63	1.20	1.28	0.61	1.27	1.10	0.91	0.96	0.87	1.15	1.27	0.96
FK28	0.98	0.85	1.00	0.85	0.90	0.87	1.20	0.94	1.26	1.23	2.04	1.59	1.48	1.16	1.32	1.14	1.32	0.79	1.75	1.00
FK41	0.88	1.08	0.88	1.18	0.87	1.23	1.33	0.93	1.72	1.46	1.60	1.28	1.20	1.12	1.19	1.04	0.66	1.02	1.39	0.99
FK18	0.91	0.75	1.01	0.76	0.53	0.75	0.94	0.80	1.07	0.90	0.64	0.73	0.99	0.85	0.80	0.90	1.05	1.11	1.23	1.01
FK24	0.81	0.66	0.84	1.20	0.63	1.45	1.30	1.01	1.18	1.45	0.59	0.58	0.77	0.62	1.29	1.13	1.40	0.81	0.74	1.81
FK76	0.73	0.80	0.99	1.04	1.22	1.31	1.44	1.59	1.17	1.21	1.61	0.81	1.33	0.91	1.55	1.07	1.46	1.99	2.28	0.93
FK43	0.70	0.69	0.61	0.92	0.98	0.92	0.56	0.57	1.05	0.79	0.64	0.73	0.97	0.85	1.21	0.96	0.79	0.89	0.67	0.65
FK25	0.76	1.66	1.80	0.97	1.70	0.75	0.84	0.40	2.39	1.75	1.53	0.88	1.49	1.20	1.41	1.07	0.49	0.50	1.20	0.28
FK17	1.02	1.16	1.22	0.92	0.67	1.35	1.55	1.17	2.00	1.62	1.36	2.00	2.01	1.85	1.13	1.35	1.06	1.13	2.56	1.69
FK19	1.18	1.02	0.99	1.05	0.97	0.81	1.01	2.01	1.58	1.29	1.44	1.29	1.20	1.31	1.36	1.14	1.35	1.21	1.54	1.29
FK29	1.03	1.04	1.10	1.10	0.96	1.18	1.24	1.40	1.64	1.52	2.03	1.80	1.90	1.51	1.22	1.18	0.94	2.04	2.25	1.37
FK35	0.94	1.04	0.81	0.83	0.81	0.81	1.32	1.05	1.91	1.41	1.91	1.23	1.48	0.96	0.95	0.89	0.51	1.36	1.73	0.96
FK33	1.01	0.78	0.86	0.75	1.17	0.89	1.01	1.23	1.24	1.25	2.33	1.84	1.57	1.05	1.02	1.06	0.71	1.10	1.66	1.08
FK55	0.88	0.65	0.71	0.54	0.85	0.99	1.07	1.20	1.12	1.16	2.70	2.44	1.57	1.25	1.09	0.91	1.03	1.04	1.83	1.27
FK64	1.12	0.93	0.89	0.62	0.72	0.98	0.88	1.04	1.12	1.01	1.85	2.18	1.34	1.06	0.89	0.82	0.91	0.99	2.03	1.93
FK37	0.84	0.80	0.90	0.94	0.77	0.93	1.05	1.61	1.17	1.12	1.22	1.02	1.12	0.97	1.09	1.02	1.38	0.75	1.05	1.89
FK34	0.70	0.83	0.80	0.79	0.72	1.34	1.22	1.11	0.85	0.88	0.93	1.04	1.10	0.83	0.82	0.84	0.98	0.78	0.96	1.27
FK68	0.94	0.63	0.82	0.47	0.73	1.10	1.00	1.59	0.83	0.89	1.02	2.02	1.17	0.82	0.80	0.93	1.09	0.96	1.56	1.23
FK53	1.12	0.96	1.30	0.53	0.60	0.72	1.02	0.74	1.02	0.84	1.69	1.92	1.45	1.29	0.61	0.69	1.26	1.01	1.48	0.97
Nc22	1.00	0.85	0.75	0.65	0.80	2.23	1.10	1.01	1.45	1.13	1.73	0.99	1.38	1.18	1.21	0.96	0.74	0.97	1.76	0.80
Nc23	1.10	1.10	1.04	1.26	1.29	1.89	1.53	1.32	1.47	1.60	1.78	1.07	1.21	1.04	1.61	1.02	1.30	1.14	1.84	1.27
Nc24	0.73	0.80	0.99	1.04	1.22	1.31	1.44	1.59	1.17	1.21	1.61	0.81	1.33	0.91	1.55	1.07	1.46	1.99	2.28	0.93
Nc04	0.90	1.08	1.53	1.15	1.05	1.37	1.35	1.55	1.86	0.97	1.63	2.09	1.51	1.44	1.33	0.94	1.17	1.90	2.00	1.31
Nc05	0.90	1.10	1.35	0.94	0.82	1.01	1.14	1.01	1.36	0.80	1.07	1.53	1.22	1.06	0.81	0.89	0.98	1.74	1.78	1.04
Nc07	0.83	0.58	0.95	1.18	0.97	0.63	0.81	0.88	1.11	0.84	1.30	1.25	1.10	0.91	1.17	1.49	2.22	1.19	1.08	1.78
Nc10	1.06	0.99	0.88	1.25	0.93	0.66	0.85	0.88	1.30	1.04	1.48	1.64	1.66	0.82	1.40	2.03	1.47	1.31	1.06	1.68
Nc18	1.09	0.83	0.98	1.42	1.22	1.56	1.06	0.92	1.23	1.07	1.52	1.63	1.15	0.99	1.61	1.78	2.42	1.13	0.95	1.63
Nc11	1.03	1.00	1.28	1.36	1.30	1.32	1.04	1.23	1.62	1.44	2.48	1.87	1.55	1.54	1.86	1.85	2.63	1.61	1.66	2.21
Nc12	1.17	1.23	1.16	1.88	1.52	1.44	1.45	1.48	1.94	1.75	2.45	1.60	2.07	1.53	1.84	2.14	2.15	2.32	2.46	1.80
Nc19	1.07	1.11	1.47	1.83	2.08	2.46	1.47	1.82	1.81	2.15	2.11	1.28	1.40	1.40	1.95	2.03	2.59	1.84	1.88	1.88
Nc13	1.02	0.73	1.00	1.52	1.39	1.58	1.11	1.34	1.63	1.67	2.35	1.86	2.04	1.46	1.93	1.65	2.62	1.97	1.97	2.38
Nc14	1.07	0.98	1.22	1.82	1.66	2.78	1.42	1.79	2.45	1.69	2.72	3.39	2.16	1.30	1.98	1.73	2.69	1.90	1.85	1.82
Nc15	1.19	1.09	1.00	1.45	1.75	1.52	1.23	1.81	2.15	1.69	2.47	1.30	2.13	1.79	2.31	1.69	1.87	2.14	2.67	1.59
Nc17	1.11	0.78	1.06	1.54	1.33	1.30	0.96	1.46	1.92	1.56	1.82	0.89	1.72	1.49	2.08	1.96	1.38	2.08	2.18	1.41
Nc21	1.14	1.13	1.19	1.29	1.32	1.54	1.55	1.24	1.47	0.99	1.51	1.24	1.39	0.87	1.39	1.24	1.85	2.23	1.60	1.38
Nc20	1.06	1.11	1.10	1.02	1.50	0.96	1.00	0.95	1.33	1.30	1.89	1.69	1.45	1.16	1.49	1.42	1.32	0.90	0.99	1.04

Fig 8

Gene / Case No.	CHST2	HSPA1A	ABCB7	CCR5	DAXX	DOK1	COX10	IL2RB	ATRX	TP53BP1	IRS4	SMARCA3	MSH2	MAPZK1	TOPBP1	NR3C1	HSPCA	TAF2F	TPR	TSC22
FK01	0.28	0.25	0.30	0.12	0.33	0.23	0.20	0.15	0.28	0.12	0.20	0.36	0.14	0.19	0.27	0.18	0.11	0.05	0.27	0.11
FK07	0.30	0.42	1.06	0.09	0.34	0.29	0.34	0.19	0.17	0.09	0.11	0.25	0.12	0.25	0.19	0.14	0.04	0.01	0.11	0.10
FK02	0.17	0.08	0.13	0.08	0.17	0.13	0.18	0.12	0.20	0.10	0.22	0.14	0.15	0.15	0.20	0.09	0.04	0.02	0.12	0.04
FK05	0.28	0.15	0.16	0.11	0.36	0.19	0.31	0.22	0.30	0.14	0.24	0.14	0.07	0.05	0.09	0.09	0.04	0.01	0.09	0.07
FK06	0.35	0.13	0.28	0.09	0.34	0.27	0.17	0.13	0.16	0.15	0.14	0.12	0.07	0.03	0.14	0.08	0.08	0.09	0.12	0.05
FK13	0.18	0.11	0.19	0.17	0.24	0.22	0.19	0.23	0.20	0.24	0.30	0.27	0.22	0.16	0.33	0.20	0.27	0.16	0.13	0.13
FK14	0.32	0.11	0.23	0.20	0.31	0.34	0.13	0.25	0.23	0.29	0.22	0.19	0.15	0.15	0.37	0.23	0.21	0.15	0.37	0.13
FK36	0.60	0.11	0.30	0.12	0.39	0.39	0.11	0.06	0.12	0.26	0.15	0.23	0.15	0.11	0.38	0.21	0.12	0.05	0.27	0.09
FK39	0.21	0.11	0.22	0.16	0.27	0.34	0.14	0.07	0.20	0.21	0.21	0.18	0.11	0.12	0.24	0.22	0.14	0.08	0.16	0.10
FK45	0.27	0.29	0.35	0.20	0.29	0.36	0.14	0.16	0.20	0.29	0.25	0.18	0.16	0.14	0.36	0.28	0.28	0.14	0.47	0.15
FK12	0.66	0.51	0.90	0.13	0.20	0.34	0.21	0.13	0.42	0.16	0.23	0.33	0.25	0.13	0.24	0.21	0.19	0.14	0.16	0.18
FK03	0.45	0.35	0.65	0.19	0.54	0.66	0.43	0.43	0.51	0.26	0.42	0.46	0.37	0.37	0.30	0.40	0.27	0.13	0.25	0.34
FK77	0.54	0.80	0.50	0.76	0.76	0.60	0.30	0.33	0.65	0.56	0.64	0.95	0.83	0.76	0.86	0.75	0.49	0.43	0.55	0.36
FK09	0.18	0.08	0.19	0.12	0.28	0.18	0.27	0.45	0.48	0.17	0.18	0.22	0.15	0.10	0.17	0.15	0.23	0.09	0.11	0.10
FK04	0.35	0.37	0.61	0.20	0.37	0.41	0.22	0.30	0.30	0.32	0.20	0.23	0.16	0.31	0.44	0.45	0.28	0.16	0.39	0.15
FK42	0.26	0.60	0.40	0.51	0.51	0.82	0.21	0.11	0.28	0.24	0.25	0.37	0.32	0.22	0.36	0.36	0.23	0.13	0.38	0.15
FK15	0.50	0.61	0.30	0.47	0.56	0.78	0.24	0.50	0.35	0.45	0.28	0.30	0.26	0.27	0.36	0.36	0.35	0.43	0.26	0.26
FK32	0.54	0.58	0.51	0.84	0.75	0.95	0.50	0.51	0.54	0.66	0.54	0.48	0.45	0.35	0.37	0.44	0.40	0.59	0.30	0.62
FK59	0.37	0.31	0.35	0.28	0.70	0.57	0.31	0.56	0.39	0.45	0.56	0.32	0.32	0.28	0.43	0.36	0.37	0.50	0.31	0.24
FK56	0.69	0.15	0.37	0.25	0.45	0.71	0.20	0.34	0.32	1.49	0.87	0.30	0.26	0.34	0.79	0.62	0.33	0.19	0.36	0.26
FK73	0.82	0.32	0.62	0.44	0.93	0.67	0.39	0.46	0.83	0.83	1.27	0.83	0.96	0.91	0.99	0.58	0.82	0.48	0.57	0.48
FK31	0.65	0.52	0.61	0.51	0.90	1.12	0.62	1.14	0.71	0.59	0.82	0.56	0.73	0.56	0.55	0.47	0.61	0.64	0.28	0.54
FK44	0.43	0.76	0.73	0.63	1.02	0.86	0.68	0.79	0.65	0.75	0.74	0.45	0.45	0.39	0.70	0.49	0.53	0.71	0.34	0.30
FK08	0.37	0.26	0.58	0.18	0.64	0.45	0.37	0.50	0.41	0.25	0.34	0.27	0.41	0.62	0.34	0.50	0.70	0.28	0.33	0.26
FK11	0.45	0.34	0.34	0.34	0.36	0.31	0.27	0.27	0.26	0.34	0.29	0.32	0.26	0.26	0.44	0.48	0.55	0.33	0.31	0.24
FK22	0.27	0.10	0.30	0.28	0.36	0.37	0.23	0.24	0.44	0.15	0.19	0.37	0.27	0.46	0.35	0.40	0.33	0.30	0.29	0.26
FK27	0.37	0.17	0.30	0.50	0.64	0.45	0.17	0.26	0.35	0.26	0.35	0.27	0.32	0.28	0.55	0.30	0.25	0.18	0.30	0.19
FK65	0.34	0.08	0.24	0.27	0.44	0.33	0.14	0.18	0.35	0.25	0.42	0.60	0.35	0.30	0.47	0.34	0.43	0.18	0.34	0.27
FK60	0.20	0.10	0.33	0.09	0.42	0.28	0.20	0.14	0.29	0.18	0.41	0.40	0.50	0.25	0.38	0.34	0.24	0.26	0.37	0.18
FK52	0.26	0.18	0.28	0.35	0.55	0.30	0.26	0.43	0.40	0.29	0.34	0.40	0.30	0.44	0.37	0.39	0.31	0.26	0.38	0.22
FK40	0.20	0.11	0.37	0.16	0.35	0.31	0.13	0.15	0.39	0.34	0.58	0.37	0.47	0.34	0.62	0.35	0.47	0.23	0.50	0.26
FK48	0.37	0.14	0.39	0.23	0.45	0.35	0.17	0.14	0.33	0.33	0.49	0.48	0.51	0.28	0.47	0.30	0.36	0.18	0.34	0.24
FK49	0.46	0.25	0.49	0.26	0.46	0.53	0.20	0.17	0.32	0.25	0.39	0.33	0.25	0.22	0.42	0.36	0.27	0.24	0.28	0.17
FK50	0.34	0.16	0.42	0.15	0.41	0.43	0.19	0.19	0.36	0.22	0.35	0.35	0.28	0.33	0.42	0.35	0.31	0.27	0.29	0.23
FK58	0.31	0.25	0.35	0.15	0.38	0.37	0.10	0.26	0.23	0.35	0.30	0.30	0.20	0.22	0.54	0.41	0.28	0.18	0.35	0.16
FK69	0.37	0.11	0.23	0.29	0.36	0.36	0.20	0.18	0.42	0.23	0.31	0.24	0.22	0.48	0.46	0.53	0.42	0.26	0.39	0.25
FK72	0.31	0.08	0.29	0.25	0.44	0.35	0.13	0.17	0.27	0.23	0.23	0.29	0.15	0.34	0.36	0.39	0.40	0.14	0.39	0.22
FK38	0.34	0.17	0.26	0.25	0.42	0.36	0.23	0.14	0.32	0.27	0.32	0.37	0.19	0.59	0.78	0.82	0.70	0.39	0.33	0.20
FK61	0.29	0.13	0.47	0.27	0.44	0.28	0.30	0.22	0.48	0.31	0.55	0.44	0.53	0.47	0.47	0.58	0.35	0.35	0.52	0.32
FK75	0.24	0.08	0.25	0.27	0.28	0.23	0.19	0.24	0.40	0.25	0.34	0.33	0.55	0.41	0.42	0.38	0.67	0.23	0.22	0.25
FK66	0.37	0.18	0.25	0.37	0.42	0.38	0.17	0.21	0.27	0.21	0.24	0.24	0.19	0.36	0.39	0.46	0.40	0.36	0.31	0.25
FK67	0.38	0.21	0.32	0.24	0.47	0.36	0.24	0.23	0.35	0.20	0.37	0.37	0.30	0.41	0.39	0.40	0.44	0.30	0.25	0.32
FK71	0.35	0.10	0.29	0.16	0.37	0.25	0.25	0.22	0.30	0.17	0.30	0.29	0.41	0.44	0.40	0.46	0.58	0.39	0.32	0.23
FK10	0.54	0.31	0.40	0.34	0.48	0.52	0.34	0.31	0.63	0.30	0.33	0.48	0.45	0.78	0.49	0.50	0.51	0.87	0.32	0.36
FK76	0.64	0.80	0.50	0.76	0.76	0.60	0.30	0.33	0.65	0.56	0.64	0.95	0.83	0.76	0.86	0.75	0.49	0.43	0.55	0.36
FK21	0.55	0.18	0.51	0.26	0.47	0.49	0.39	0.40	0.61	0.28	0.38	0.52	0.52	0.51	0.54	0.63	0.50	0.35	0.37	0.32
FK46	0.47	0.19	0.40	0.32	0.49	0.44	0.31	0.34	0.47	0.34	0.48	0.52	0.55	0.45	0.56	0.49	0.56	0.40	0.46	0.23
FK23	0.46	0.17	0.48	0.82	0.57	0.52	0.38	0.51	0.40	0.33	0.38	0.70	0.54	0.49	0.61	0.58	0.60	0.55	0.48	0.32
FK28	0.62	0.19	0.44	0.28	0.51	0.47	0.28	0.38	0.46	0.29	0.58	0.62	0.50	0.38	0.71	0.69	0.51	0.47	0.43	0.32
FK41	0.33	0.12	0.36	0.16	0.47	0.33	0.38	0.33	0.70	0.39	0.49	0.54	0.54	0.48	0.82	0.92	0.76	0.53	0.82	0.33
FK18	0.34	0.26	0.44	0.55	0.55	0.50	0.36	0.36	0.54	0.40	0.69	0.49	0.68	0.72	0.56	0.52	0.73	0.51	0.68	0.26
FK24	0.44	0.41	0.50	0.86	0.59	0.68	0.29	0.32	0.52	0.50	0.38	0.81	0.65	0.49	0.59	0.38	0.35	0.30	0.76	0.37
FK76	0.64	0.80	0.50	0.76	0.76	0.60	0.30	0.33	0.65	0.56	0.64	0.95	0.83	0.76	0.86	0.75	0.49	0.43	0.55	0.36
FK43	0.37	0.43	0.36	0.81	0.55	0.56	0.30	0.45	0.49	0.38	0.38	0.49	0.38	0.49	0.55	0.49	0.64	0.34	0.31	0.23
FK25	0.60	0.21	0.24	0.21	0.30	0.51	0.24	0.36	0.09	0.25	0.20	0.18	0.14	0.37	0.61	0.85	0.85	0.62	0.37	0.31
FK17	0.67	0.16	0.82	0.16	0.49	0.40	0.40	0.34	0.38	0.27	0.44	0.50	0.80	0.50	0.77	0.93	0.83	0.71	0.70	0.38
FK19	0.57	0.23	0.66	0.69	0.64	0.48	0.52	0.40	0.62	0.49	0.57	0.80	0.92	0.76	0.71	0.74	0.73	0.76	0.67	0.47
FK29	0.50	0.23	0.55	0.35	0.60	0.39	0.42	0.46	0.57	0.42	0.74	0.75	0.83	0.56	0.91	0.86	0.78	0.57	0.39	0.28
FK35	0.54	0.13	0.44	0.25	0.48	0.36	0.34	0.40	0.46	0.31	0.46	0.49	0.57	0.49	0.67	0.76	0.58	0.54	0.42	0.29
FK33	0.32	0.32	0.58	0.35	0.60	0.32	0.44	0.31	0.44	0.26	0.55	0.52	0.58	0.55	0.63	0.62	0.54	0.49	0.43	0.22
FK55	0.48	0.11	0.44	0.16	0.50	0.29	0.33	0.20	0.47	0.20	0.34	0.45	0.51	0.58	0.54	0.72	0.55	0.39	0.43	0.35
FK64	0.41	0.09	0.47	0.33	0.45	0.24	0.34	0.21	0.48	0.29	0.49	0.56	0.71	0.58	0.65	0.75	0.65	0.44	0.44	0.32
FK37	0.35	0.23	0.51	0.30	0.72	0.41	0.32	0.33	0.58	0.37	0.72	0.66	0.65	0.53	0.58	0.51	0.77	0.43	0.61	0.38
FK34	0.40	0.41	0.47	0.62	0.74	0.65	0.34	0.48	0.49	0.32	0.45	0.47	0.51	0.57	0.67	0.51	0.53	0.38	0.54	0.39
FK68	0.32	0.29	0.35	0.58	0.58	0.48	0.31	0.36	0.40	0.34	0.48	0.40	0.47	0.71	0.48	0.63	0.50	0.35	0.49	0.41
FK63	0.46	0.26	0.51	0.17	0.60	0.38	0.37	0.31	0.29	0.27	0.44	0.37	0.60	0.80	0.59	0.62	0.73	0.53	0.39	0.36
Nc22	0.49	0.16	0.40	0.44	0.52	0.28	0.22	0.42	0.58	0.33	0.47	0.64	0.72	0.56	0.74	0.68	0.55	0.49	0.41	0.46
Nc23	0.66	0.31	0.62	0.37	0.65	0.43	0.33	0.49	0.63	0.41	0.59	0.88	1.11	0.44	1.07	1.04	0.73	0.74	0.70	0.47
Nc24	0.64	0.80	0.50	0.76	0.76	0.60	0.30	0.33	0.65	0.56	0.64	0.95	0.83	0.76	0.86	0.75	0.49	0.43	0.55	0.36
Nc04	0.58	0.58	0.76	0.39	0.54	0.47	0.50	0.44	0.49	0.35	0.37	0.73	1.04	0.97	0.59	1.09	1.13	0.52	0.73	0.46
Nc05	0.70	0.59	0.62	0.46	0.56	0.58	0.53	0.30	0.43	0.27	0.33	0.58	0.83	1.00	0.57	0.85	0.69	0.55	0.85	0.40
Nc07	0.79	1.71	0.69	1.25	0.93	0.85	0.33	0.40	0.46	0.64	0.68	0.90	0.54	0.47	0.69	0.39	0.66	0.41	0.41	0.51
Nc10	0.92	0.76	0.57	1.16	0.96	0.70	0.47	0.53	0.44	0.53	0.58	0.56	0.54	0.50	0.63	0.57	0.68	0.63	0.54	0.33
Nc18	1.21	0.81	0.68	1.21	0.85	1.05	0.56	0.47	0.63	0.79	0.82	0.74	0.60	0.61	0.96	0.67	0.86	0.64	0.53	0.82
Nc11	0.98	1.12	0.49	1.04	0.87	0.66	0.53	0.76	1.19	0.85	0.73	0.92	0.73	0.88	0.96	0.74	1.08	0.54	0.81	0.62
Nc12	0.96	0.82	0.75	1.21	1.09	0.89	0.63	0.62	0.89	0.74	0.85	1.23	1.33	0.66	1.12	0.90	1.00	0.61	0.66	0.47
Nc19	1.13	1.02	0.79	1.37	1.19	1.02	0.61	0.66	0.84	0.70	0.69	1.33	1.03	0.79	1.04	0.98	0.89	0.61	0.88	0.64
Nc13	0.82	0.79	0.68	1.09	0.83	0.86	0.51	0.61	0.66	0.53	0.70	0.82	0.79	0.48	0.95	0.90	0.84	0.61	0.69	0.49
Nc14	0.72	0.76	0.70	1.20	0.97	0.79	0.64	0.61	0.84	0.72	0.81	1.04	0.89	0.74	1.08	1.00	1.07	1.00	0.96	0.65
Nc15	0.83	0.53	0.66	0.79	1.01	0.74	0.64	0.45	0.85	0.56	0.67	1.37	0.94	0.82	1.07	0.73	0.94	0.93	0.65	0.44
Nc17	0.99	0.62	0.73	0.62	0.92	0.88	0.60	0.40	0.59	0.43	0.70	0.78	0.63	0.70	0.98	0.71	0.84	0.67	0.62	0.38
Nc21	1.33	0.81	0.70	1.58	1.07	1.01	0.51	0.39	0.74	0.49	0.45	1.18	0.85	0.77	0.93	0.71	0.66	0.49	1.07	0.39
Nc20	0.72	0.21	0.72	0.45	0.76	0.68	0.58	0.35	0.57	0.31	0.51	0.54	0.75	0.49	0.78	0.72	0.59	0.58	0.39	0.40

Fig 9

Gene / Case No.	AKR1B1	ADPRT	MCM3	PCNA	ATP6H	RAB11A	IL16	NTF5	AKAP11	YWHAH	POLR2H	ING1	GZMA	CASP10	CDC25B	ABCB1	ALDH9	TPST2	PSMC4	RUNX1
FK01	0.16	0.13	0.09	0.11	0.21	0.09	0.25	0.44	0.14	0.06	0.22	0.23	0.08	0.28	0.32	0.26	0.39	0.20	0.20	0.17
FK07	0.13	0.09	0.04	0.07	0.10	0.05	0.23	0.30	0.06	0.03	0.11	0.10	0.05	0.22	0.13	0.20	0.36	0.14	0.08	0.10
FK02	0.07	0.07	0.10	0.03	0.08	0.11	0.06	0.13	0.11	0.03	0.05	0.10	0.03	0.10	0.06	0.15	0.40	0.28	0.22	0.43
FK05	0.06	0.08	0.12	0.03	0.09	0.14	0.13	0.12	0.12	0.07	0.13	0.11	0.06	0.18	0.13	0.19	0.30	0.37	0.36	0.48
FK06	0.12	0.10	0.07	0.08	0.15	0.07	0.25	0.28	0.09	0.08	0.11	0.14	0.03	0.20	0.14	0.14	0.37	0.19	0.22	0.22
FK13	0.11	0.10	0.08	0.12	0.14	0.16	0.20	0.18	0.24	0.18	0.23	0.33	0.14	0.19	0.32	0.26	0.30	0.29	0.31	0.26
FK14	0.20	0.13	0.14	0.18	0.11	0.15	0.23	0.38	0.27	0.34	0.22	0.29	0.18	0.39	0.24	0.51	0.38	0.39	0.62	0.25
FK35	0.22	0.11	0.18	0.07	0.10	0.08	0.29	0.40	0.12	0.09	0.23	0.33	0.06	0.26	0.48	0.49	0.45	0.18	0.36	0.12
FK39	0.17	0.11	0.15	0.09	0.10	0.10	0.42	0.58	0.13	0.20	0.27	0.27	0.08	0.30	0.33	0.27	0.49	0.19	0.33	0.24
FK45	0.18	0.15	0.14	0.15	0.17	0.15	0.45	0.43	0.24	0.16	0.29	0.35	0.08	0.40	0.29	0.31	0.50	0.26	0.40	0.25
FK12	0.29	0.23	0.11	0.12	0.19	0.11	0.25	0.40	0.21	0.13	0.30	0.41	0.16	0.32	0.29	0.26	0.20	0.25	0.27	0.28
FK03	0.20	0.19	0.15	0.15	0.31	0.24	0.29	0.48	0.43	0.33	0.46	0.58	0.22	0.57	0.39	0.34	0.51	0.75	0.48	0.66
FK77	0.35	0.47	0.42	0.48	0.52	0.46	0.67	0.57	0.87	0.64	0.83	0.68	0.63	0.98	0.73	0.74	0.90	1.03	0.67	0.64
FK09	0.11	0.12	0.13	0.12	0.16	0.21	0.14	0.51	0.42	0.16	0.23	0.25	0.12	0.32	0.27	0.18	0.40	0.69	0.36	0.45
FK04	0.19	0.11	0.11	0.18	0.25	0.15	0.45	0.41	0.23	0.23	0.27	0.33	0.09	0.28	0.35	0.55	0.44	0.29	0.43	0.37
FK42	0.19	0.24	0.23	0.23	0.38	0.17	0.38	0.43	0.34	0.45	0.62	0.51	0.24	1.19	0.41	0.34	0.58	0.61	0.44	0.31
FK15	0.42	0.34	0.18	0.26	0.33	0.38	0.36	0.42	0.51	0.61	0.44	0.43	0.65	0.47	0.46	0.60	0.58	0.77	0.73	0.34
FK32	0.50	0.64	0.43	0.47	0.75	0.81	0.70	0.58	0.66	0.72	0.74	0.74	0.52	0.92	0.58	0.67	1.58	1.06	1.09	0.70
FK59	0.54	0.42	0.36	0.23	0.37	0.40	0.35	0.41	0.48	0.34	0.54	0.58	0.66	0.71	0.68	0.63	1.19	1.06	1.07	0.61
FK56	0.27	0.16	0.44	0.28	0.15	0.25	0.37	0.43	0.31	0.35	0.29	0.49	0.04	0.40	0.39	1.26	1.63	0.34	0.74	0.33
FK73	0.61	0.45	0.40	0.31	0.46	0.46	0.52	0.49	0.68	0.59	1.39	1.09	0.41	1.35	1.39	0.61	1.04	0.91	0.97	0.94
FK31	0.70	0.90	0.62	0.66	0.90	0.91	0.63	0.61	0.97	1.07	0.88	0.74	1.25	0.99	0.97	0.56	2.16	1.77	1.04	1.25
FK44	0.87	0.68	0.42	0.55	0.77	0.97	0.67	0.71	0.89	0.78	0.72	0.77	0.64	1.01	0.73	0.56	1.55	1.19	1.20	0.78
FK08	0.33	0.26	0.17	0.28	0.38	0.32	0.55	0.35	0.32	0.18	0.54	0.52	0.35	0.45	0.49	0.22	0.55	0.60	0.51	0.66
FK11	0.26	0.17	0.24	0.45	0.29	0.20	0.45	0.37	0.38	0.35	0.43	0.65	0.21	0.26	0.44	0.88	0.49	0.34	0.53	0.36
FK22	0.37	0.21	0.16	0.31	0.45	0.17	0.32	0.70	0.44	0.29	0.52	0.54	0.54	0.37	0.37	0.47	0.34	0.58	0.38	0.29
FK27	0.22	0.23	0.29	0.16	0.39	0.21	0.29	0.49	0.49	0.42	0.49	0.55	0.55	0.51	0.50	0.88	0.79	0.65	0.71	0.54
FK65	0.19	0.25	0.28	0.18	0.37	0.20	0.28	0.27	0.40	0.31	0.65	0.49	0.32	0.56	0.76	0.51	0.45	0.50	0.49	0.60
FK60	0.24	0.18	0.30	0.12	0.27	0.17	0.19	0.37	0.36	0.35	0.54	0.43	0.19	0.52	0.41	0.32	0.54	0.33	0.49	0.66
FK52	0.33	0.23	0.30	0.33	0.43	0.32	0.40	0.39	0.52	0.36	0.51	0.39	0.54	0.45	0.41	0.36	0.60	0.59	0.88	0.39
FK40	0.18	0.15	0.19	0.15	0.20	0.21	0.46	0.55	0.43	0.28	0.53	0.52	0.11	0.62	0.63	0.47	0.85	0.29	0.52	0.75
FK48	0.16	0.19	0.23	0.17	0.29	0.20	0.37	0.39	0.44	0.30	0.58	0.46	0.20	0.78	0.77	0.53	0.72	0.33	0.45	0.56
FK49	0.36	0.23	0.27	0.21	0.34	0.28	0.57	0.54	0.53	0.35	0.45	0.54	0.14	0.54	0.50	0.45	0.71	0.38	0.60	0.50
FK50	0.35	0.17	0.18	0.18	0.32	0.24	0.39	0.50	0.44	0.30	0.49	0.59	0.17	0.51	0.53	0.40	0.52	0.32	0.48	0.48
FK58	0.15	0.12	0.17	0.17	0.20	0.15	0.19	0.39	0.35	0.24	0.34	0.54	0.17	0.31	0.33	1.10	0.65	0.30	0.67	0.44
FK69	0.23	0.17	0.19	0.20	0.29	0.23	0.40	0.48	0.36	0.28	0.40	0.44	0.21	0.34	0.40	0.32	0.45	0.37	0.54	0.44
FK72	0.19	0.20	0.16	0.16	0.24	0.13	0.21	0.50	0.24	0.30	0.39	0.45	0.18	0.44	0.65	0.55	0.33	0.42	0.51	0.21
FK38	0.30	0.16	0.28	0.24	0.32	0.31	0.36	0.58	0.52	0.57	0.37	0.64	0.32	0.22	0.38	0.67	0.66	0.39	0.68	0.52
FK61	0.27	0.26	0.25	0.19	0.36	0.34	0.55	0.58	0.56	0.33	0.66	0.68	0.38	0.63	0.61	0.58	0.55	0.53	0.52	0.72
FK75	0.20	0.31	0.34	0.32	0.32	0.27	0.34	0.35	0.41	0.24	0.55	0.50	0.38	0.41	0.75	0.31	0.41	0.46	0.47	0.70
FK66	0.30	0.25	0.28	0.22	0.37	0.32	0.44	0.38	0.46	0.64	0.54	0.53	0.40	0.28	0.46	0.48	0.38	0.41	0.69	0.69
FK67	0.27	0.22	0.29	0.17	0.50	0.40	0.27	0.39	0.40	0.50	0.55	0.73	0.76	0.47	0.74	0.62	0.46	0.53	0.71	0.72
FK71	0.31	0.18	0.17	0.17	0.32	0.33	0.38	0.39	0.38	0.34	0.51	0.65	0.52	0.42	0.62	0.35	0.46	0.57	0.58	0.49
FK10	0.27	0.33	0.30	0.47	0.75	0.52	0.56	0.50	0.47	0.55	0.64	0.56	0.41	0.49	0.47	0.46	0.67	0.71	0.63	0.58
FK78	0.35	0.47	0.42	0.48	0.62	0.46	0.67	0.57	0.87	0.64	0.83	0.68	0.63	0.98	0.73	0.74	0.90	1.03	0.67	0.64
FK21	0.40	0.32	0.27	0.47	0.61	0.39	0.46	0.82	0.55	0.43	0.60	0.80	0.60	0.52	0.50	0.58	0.54	1.11	0.59	0.61
FK46	0.37	0.33	0.33	0.29	0.56	0.45	0.64	0.57	0.57	0.53	0.59	0.69	0.52	0.51	0.53	0.55	0.86	0.79	0.72	0.73
FK23	0.44	0.41	0.31	0.60	0.62	0.50	0.41	0.57	0.62	0.66	0.67	0.55	1.10	0.54	0.56	0.94	0.53	0.99	0.75	0.77
FK28	0.36	0.37	0.31	0.42	0.59	0.41	0.66	0.51	0.78	0.36	0.72	0.60	0.27	0.60	0.60	0.54	0.76	0.44	0.64	1.22
FK41	0.41	0.34	0.25	0.38	0.54	0.45	0.63	0.50	0.70	0.49	0.73	0.84	0.40	0.53	0.56	0.38	0.86	0.55	0.59	0.97
FK18	0.31	0.37	0.34	0.72	0.51	0.43	0.36	0.50	0.52	0.54	0.70	0.54	0.46	0.65	0.60	0.44	0.55	0.84	0.59	0.61
FK24	0.20	0.29	0.39	0.27	0.47	0.30	0.54	0.59	0.62	0.49	0.77	0.65	0.44	0.93	0.68	1.01	0.59	0.71	0.58	0.78
FK76	0.35	0.47	0.42	0.48	0.62	0.46	0.67	0.57	0.87	0.64	0.83	0.68	0.63	0.98	0.73	0.74	0.90	1.03	0.67	0.64
FK43	0.30	0.44	0.38	0.46	0.60	0.44	0.68	0.64	0.59	0.73	0.64	0.54	0.71	0.50	0.60	0.54	0.97	0.82	0.69	0.71
FK25	0.26	0.12	0.10	0.41	0.41	0.80	0.36	0.44	0.31	0.64	0.43	0.89	0.24	0.17	0.16	0.28	0.34	0.30	0.50	0.34
FK17	0.52	0.28	0.23	0.28	0.63	0.58	0.79	0.72	0.74	0.62	0.93	1.27	0.47	0.53	0.79	0.50	0.45	0.73	0.65	1.06
FK19	0.42	0.42	0.43	0.87	0.68	0.67	0.73	0.81	0.66	0.57	0.76	0.74	0.63	0.82	0.76	0.63	0.76	0.68	0.80	0.73
FK29	0.41	0.50	0.52	0.87	0.89	0.69	0.65	0.56	0.76	0.76	0.76	0.80	0.89	0.62	0.55	0.70	1.02	0.69	0.77	1.11
FK35	0.45	0.36	0.33	0.43	0.70	0.56	0.42	0.55	0.56	0.50	0.54	0.81	0.47	0.46	0.42	0.53	0.65	0.57	0.64	1.05
FK33	0.51	0.43	0.34	0.33	0.71	0.48	0.61	0.51	0.69	0.40	0.65	0.68	0.54	0.60	0.61	0.47	0.79	0.47	0.74	0.97
FK55	0.37	0.29	0.25	0.28	0.52	0.32	0.46	0.54	0.51	0.35	0.52	0.65	0.43	0.40	0.76	0.53	0.71	0.56	0.60	0.81
FK64	0.42	0.29	0.31	0.21	0.32	0.43	0.63	0.47	0.48	0.31	0.61	0.75	0.72	0.48	0.65	0.80	0.56	0.80	0.71	0.96
FK37	0.32	0.33	0.35	0.31	0.68	0.40	0.54	0.61	0.64	0.70	0.84	0.68	0.59	0.76	0.65	0.71	0.89	0.72	0.73	0.65
FK34	0.37	0.43	0.41	0.37	0.71	0.50	0.63	0.73	0.50	0.70	0.77	0.61	0.92	0.53	0.64	0.55	0.93	1.21	0.87	0.82
FK68	0.40	0.40	0.34	0.48	0.72	0.44	0.80	0.69	0.47	0.55	0.69	0.53	0.76	0.48	0.75	0.52	0.56	1.24	0.71	0.61
FK63	0.43	0.34	0.38	0.32	0.73	0.68	0.61	0.49	0.37	0.93	0.81	0.76	0.54	0.51	0.85	0.48	0.55	0.88	1.10	1.00
Nc22	0.35	0.51	0.43	0.45	0.89	0.37	0.47	0.45	0.60	0.63	0.73	0.62	1.01	0.44	0.84	0.62	0.72	0.77	0.47	0.74
Nc23	0.39	0.48	0.59	0.54	0.58	0.48	0.61	0.79	0.76	0.65	0.82	0.74	0.52	0.77	0.86	0.92	1.08	0.83	0.75	1.36
Nc24	0.35	0.47	0.42	0.48	0.62	0.46	0.67	0.57	0.87	0.64	0.83	0.68	0.63	0.98	0.73	0.74	0.90	1.03	0.67	0.64
Nc04	0.61	0.45	0.29	0.74	0.87	0.94	0.95	0.81	0.60	0.65	1.09	0.62	1.44	0.71	0.55	0.40	0.58	1.56	0.62	0.67
Nc05	0.51	0.41	0.37	0.98	0.60	0.76	0.66	0.67	0.40	0.58	0.80	0.53	0.64	0.50	0.44	0.36	0.57	0.92	0.77	0.56
Nc07	0.42	0.50	0.34	0.70	0.61	0.35	0.96	0.51	1.01	0.64	1.09	0.98	0.55	1.56	0.79	0.43	0.86	1.10	1.12	0.95
Nc10	0.49	0.41	0.78	0.53	0.56	0.64	0.71	0.53	0.64	0.94	0.87	0.71	1.00	0.75	0.79	0.88	1.10	1.59	2.32	1.17
Nc18	0.51	0.59	0.63	0.45	0.60	0.56	0.85	0.47	1.05	0.82	1.31	0.93	0.60	1.17	1.06	0.78	1.36	1.50	1.41	1.42
Nc11	0.47	0.54	0.53	0.57	0.60	0.79	1.20	1.05	1.50	0.97	0.93	0.86	0.99	0.98	0.98	1.07	1.59	1.34	1.17	1.92
Nc12	0.59	0.76	0.75	0.86	0.77	0.79	0.90	0.72	1.22	0.93	1.14	1.28	1.16	0.91	0.94	0.98	1.36	1.95	1.53	2.00
Nc19	0.59	0.68	0.64	0.88	0.85	0.56	0.75	1.17	1.44	1.15	1.39	1.43	1.33	1.18	1.06	1.31	1.12	1.60	1.29	1.54
Nc13	0.49	0.55	0.55	0.69	0.77	0.56	0.75	0.88	1.18	0.73	0.94	1.01	1.42	0.85	0.92	0.74	1.08	1.51	1.16	1.69
Nc14	0.58	0.70	0.58	0.69	0.84	0.66	1.17	0.84	1.20	1.11	0.94	1.09	1.17	1.02	0.72	0.98	1.10	1.61	1.44	1.78
Nc15	0.56	0.54	0.62	0.67	0.72	0.57	0.57	0.78	1.16	0.65	0.98	0.94	1.05	0.85	0.94	0.77	1.66	1.85	1.36	1.89
Nc17	0.52	0.62	0.55	0.54	0.68	0.43	0.49	0.47	1.39	1.00	1.00	1.02	0.58	1.08	0.81	1.11	0.81	1.40	1.23	1.50
Nc21	0.57	0.74	0.67	0.87	0.69	0.61	0.78	0.89	0.58	1.02	1.15	0.83	0.88	1.38	0.96	0.77	1.13	2.13	1.46	0.81
Nc20	0.80	0.49	0.52	0.40	0.67	0.42	0.44	0.84	0.92	0.62	0.88	0.87	0.69	0.71	0.79	0.64	0.95	1.05	1.04	1.35

Fig 10

Gene / Case No.	HSBP1	P2Y5	KRAS2	TGFBR1	MAPK1	RPC62	ABCD2	TCFL5	TNFSF10	SCYB10	HSPA1L	HSPA10	CASP1	ABCE1	HSP105B	RBL1	EPOR	ABCB8	MST1R	MADH2
FK01	0.23	0.16	0.30	0.30	0.32	0.42	0.36	0.19	0.15	0.29	0.19	0.23	0.31	0.42	0.32	0.34	0.70	0.58	0.64	0.55
FK07	0.28	0.16	0.21	0.27	0.52	0.33	0.41	0.25	0.12	0.25	0.09	0.09	0.20	0.41	0.25	0.38	0.89	0.88	0.60	1.38
FK02	0.17	0.23	0.17	0.51	0.22	0.34	0.47	0.20	0.44	0.44	0.09	0.07	0.10	0.29	0.51	0.74	0.56	0.45	0.22	0.27
FK05	0.21	0.23	0.28	0.39	0.28	0.40	0.88	0.56	0.40	0.62	0.21	0.06	0.38	0.39	0.45	0.73	1.01	0.57	0.68	0.45
FK06	0.39	0.20	0.24	0.32	0.13	0.21	0.22	0.31	0.15	0.28	0.10	0.15	0.12	0.60	0.44	0.34	0.74	0.43	0.77	0.46
FK13	0.30	0.21	0.29	0.48	0.21	0.24	0.28	0.35	0.19	0.40	0.24	0.14	0.25	0.39	0.48	0.75	0.79	0.50	0.27	0.31
FK14	0.49	0.24	0.56	0.49	0.30	0.25	0.21	0.35	0.14	0.40	0.25	0.07	0.14	0.33	0.43	0.67	0.48	0.57	0.64	0.39
FK36	0.37	0.10	0.20	0.38	0.26	0.33	0.39	0.25	0.21	0.26	0.16	0.10	0.20	0.34	0.48	0.63	0.52	0.68	1.29	0.79
FK39	0.42	0.09	0.24	0.56	0.18	0.30	0.28	0.20	0.25	0.35	0.15	0.10	0.17	0.35	0.43	0.73	0.48	0.56	0.91	0.75
FK45	0.57	0.23	0.33	0.58	0.23	0.35	0.28	0.19	0.16	0.35	0.24	0.17	0.20	0.32	0.50	0.50	0.52	0.47	0.84	0.61
FK12	0.33	0.25	0.27	0.48	0.82	0.42	0.85	0.17	0.15	0.33	0.46	0.23	0.34	0.43	0.45	0.61	0.96	1.19	0.97	0.67
FK03	0.39	0.46	0.53	0.77	0.67	0.58	0.65	0.60	0.29	0.57	0.28	0.27	0.23	0.41	0.62	0.47	0.68	0.95	0.59	0.70
FK77	0.91	0.85	0.76	0.87	0.94	0.75	0.61	0.50	1.25	1.11	1.63	1.38	1.16	0.90	0.70	0.94	0.52	0.66	0.78	0.65
FK09	0.32	0.36	0.80	0.61	0.14	0.39	0.33	1.18	0.35	0.52	0.36	0.09	0.56	0.77	0.38	0.80	0.48	0.33	0.43	0.33
FK04	0.41	0.16	0.58	0.66	0.41	0.55	0.37	0.36	0.15	0.51	0.41	0.47	0.20	0.38	1.18	0.38	0.51	0.52	0.64	0.72
FK42	0.95	0.62	0.36	0.59	0.31	0.40	0.38	0.36	2.01	2.90	0.43	0.17	0.54	0.49	0.36	0.44	0.52	0.74	0.84	0.67
FK15	0.79	0.50	0.60	0.74	0.31	0.32	0.48	0.33	0.23	0.36	0.28	0.11	0.21	0.46	0.48	0.67	0.81	0.77	1.43	0.74
FK32	1.36	0.79	0.65	0.98	0.42	0.56	0.57	0.45	0.55	0.54	0.37	0.33	0.32	0.49	0.50	0.57	1.00	0.81	1.05	0.91
FK59	0.67	0.26	0.61	0.75	0.34	0.40	0.28	0.31	0.24	0.38	0.16	0.15	0.27	0.29	0.31	0.74	0.66	0.84	0.74	0.46
FK56	1.07	0.29	0.68	0.44	0.20	0.28	0.16	0.04	0.22	0.48	0.09	0.08	0.22	0.52	1.61	1.02	1.15	1.04	0.74	0.45
FK73	0.82	0.59	0.84	0.75	0.39	0.55	0.49	0.74	0.43	0.98	0.37	0.35	0.40	0.61	0.92	0.75	1.10	1.82	0.88	0.57
FK31	1.06	0.92	0.85	0.89	0.54	0.63	0.47	0.40	0.77	0.54	0.48	0.59	0.27	0.56	0.39	0.60	0.72	0.75	1.05	0.99
FK44	1.38	1.53	1.21	0.99	0.51	0.81	0.60	0.33	0.88	0.74	0.57	0.58	0.48	0.67	0.52	0.71	0.78	0.70	1.08	0.90
FK08	0.55	0.38	0.47	0.92	0.59	0.66	0.69	0.45	0.28	0.58	0.75	0.57	0.30	0.47	0.70	0.79	1.06	0.66	0.65	1.17
FK11	0.57	0.21	0.47	0.70	0.55	0.54	0.60	0.33	0.25	0.53	0.59	0.19	0.35	0.52	0.58	0.78	0.94	0.75	0.57	0.72
FK22	0.40	0.39	0.57	0.62	0.27	0.50	0.27	0.63	0.13	0.61	0.36	0.35	0.34	0.55	0.41	0.33	0.63	0.53	0.60	0.45
FK27	0.55	0.29	0.33	0.57	0.31	0.49	0.26	0.33	0.39	0.82	0.29	0.11	0.31	0.32	0.33	0.49	0.55	0.54	0.87	0.62
FK65	0.36	0.28	0.43	0.48	0.23	0.44	0.26	0.36	0.36	0.72	0.48	0.32	0.47	0.33	0.48	0.52	0.55	0.68	0.52	0.30
FK60	0.28	0.22	0.50	0.57	0.25	0.45	0.34	0.48	0.25	0.52	0.37	0.30	0.41	0.43	0.44	0.64	0.41	0.52	0.49	0.36
FK52	0.53	0.35	0.62	0.48	0.41	0.53	0.21	0.48	0.25	0.71	0.48	0.39	0.33	0.39	0.37	0.88	0.71	0.38	0.62	0.43
FK40	0.38	0.25	0.41	0.58	0.22	0.45	0.31	0.34	0.16	0.45	0.35	0.27	0.22	0.59	0.87	0.64	0.48	0.65	0.74	0.56
FK48	0.40	0.19	0.39	0.49	0.29	0.40	0.34	0.41	0.21	0.64	0.33	0.19	0.17	0.35	0.39	0.81	0.52	0.60	0.86	0.64
FK49	0.62	0.37	0.51	0.79	0.38	0.50	0.41	0.33	0.31	0.53	0.36	0.29	0.36	0.43	0.49	0.46	0.64	0.55	1.08	0.90
FK50	0.50	0.28	0.45	0.80	0.28	0.53	0.38	0.34	0.32	0.43	0.33	0.28	0.30	0.48	0.46	0.60	0.50	0.56	1.12	0.70
FK58	0.40	0.23	0.37	0.46	0.38	0.53	0.35	0.45	0.17	0.67	0.27	0.19	0.24	0.39	1.00	0.73	0.63	0.61	0.66	0.28
FK69	0.56	0.37	0.67	0.59	0.30	0.54	0.25	0.49	0.25	0.56	0.62	0.54	0.37	0.50	0.35	0.64	0.63	0.51	0.53	0.35
FK72	0.42	0.15	0.54	0.50	0.26	0.40	0.22	0.39	0.09	0.48	0.36	0.31	0.30	0.35	0.30	0.40	0.53	0.59	0.62	0.21
FK39	0.88	0.38	0.76	0.60	0.40	0.55	0.20	0.41	0.30	0.82	0.29	0.24	0.42	0.80	0.87	0.68	0.65	0.39	0.64	0.61
FK61	0.44	0.34	0.61	0.75	0.49	0.71	0.45	0.51	0.30	0.78	1.02	0.55	0.51	0.65	0.34	0.63	0.57	0.67	0.65	0.79
FK75	0.40	0.37	0.48	0.38	0.29	0.68	0.24	0.44	0.42	0.84	1.09	0.90	0.35	0.40	0.26	0.88	0.59	0.56	0.33	0.57
FK66	0.59	0.32	0.54	0.61	0.28	0.47	0.21	0.42	0.30	0.66	0.99	0.59	0.53	0.41	0.24	0.49	0.80	0.41	0.54	0.48
FK67	0.55	0.32	0.42	0.52	0.36	0.61	0.26	0.46	0.34	0.69	1.27	0.77	0.77	0.43	0.48	0.54	0.62	0.37	0.49	0.52
FK71	0.37	0.22	0.42	0.58	0.40	0.52	0.28	0.56	0.27	0.53	0.67	0.66	0.59	0.54	0.36	0.70	0.59	0.44	0.49	0.43
FK10	0.94	0.58	0.67	0.66	0.51	0.57	0.53	0.67	0.63	0.83	0.89	0.96	0.97	0.90	0.68	0.60	0.65	0.41	0.63	0.46
FK78	0.91	0.85	0.76	0.87	0.94	0.75	0.61	0.50	1.25	1.11	1.63	1.38	1.16	0.90	0.70	0.94	0.52	0.66	0.78	0.65
FK21	0.50	0.55	0.51	0.89	0.57	0.77	0.54	0.69	0.30	1.00	1.03	1.01	0.92	0.79	0.47	0.64	0.44	0.64	1.03	0.83
FK46	0.61	0.44	0.56	0.77	0.47	0.57	0.46	0.45	0.56	0.85	0.81	0.69	0.92	0.76	0.62	0.72	0.53	0.46	0.84	0.91
FK23	0.64	0.55	0.64	0.64	0.58	0.80	0.50	0.51	0.62	0.99	1.34	1.40	1.24	1.02	0.67	0.66	0.54	0.40	0.64	0.59
FK28	0.88	0.53	0.74	0.83	0.52	0.84	0.54	0.52	0.45	0.84	0.90	0.80	0.60	0.99	0.40	0.71	0.60	0.41	0.73	0.88
FK41	0.61	0.69	0.96	0.86	0.52	0.85	0.74	0.50	0.38	0.99	1.32	1.45	0.83	1.29	0.54	0.86	0.49	0.44	0.87	1.05
FK18	0.76	0.82	0.62	0.77	0.57	0.69	0.57	0.57	0.64	0.88	0.94	0.82	0.93	0.67	0.73	0.73	0.65	0.40	0.73	0.57
FK24	0.63	0.61	0.54	0.81	0.40	0.57	0.51	0.43	0.36	0.82	0.54	0.39	0.34	0.68	0.66	0.76	0.76	0.65	1.04	0.65
FK76	0.91	0.85	0.76	0.87	0.94	0.75	0.61	0.50	1.25	1.11	1.63	1.38	1.16	0.90	0.70	0.94	0.52	0.66	0.78	0.65
FK43	0.90	0.80	1.07	0.51	0.37	0.48	0.34	0.47	0.50	0.86	0.63	0.50	0.64	0.72	0.78	0.68	0.65	0.46	0.93	0.88
FK25	1.09	0.77	1.09	1.10	0.24	0.61	0.30	0.19	0.65	0.70	0.97	0.81	0.63	1.16	0.53	0.54	0.64	0.37	0.83	0.74
FK17	0.71	0.51	0.63	1.11	0.72	1.34	1.02	0.68	0.61	1.16	1.61	1.39	1.52	1.76	0.95	0.83	0.65	0.64	0.97	0.70
FK19	0.67	0.59	0.91	0.82	0.65	0.83	0.76	0.60	0.55	1.12	0.95	0.78	0.68	1.31	1.03	1.22	0.65	0.47	0.90	0.81
FK29	0.92	0.94	0.79	0.99	1.07	0.96	0.99	0.63	1.19	1.26	1.52	1.74	1.58	1.41	0.64	1.32	0.45	0.37	0.67	0.92
FK35	0.83	0.48	0.66	0.70	0.67	0.84	0.74	0.56	0.95	0.94	1.15	1.24	1.37	1.04	0.48	1.02	0.50	0.26	0.56	0.72
FK33	0.65	0.73	0.74	0.78	0.66	1.16	0.81	0.49	0.95	1.00	1.37	1.55	0.86	1.15	0.39	0.75	0.59	0.45	0.80	0.91
FK55	0.50	0.44	0.44	0.86	0.66	1.00	0.53	0.58	0.49	0.76	1.15	1.11	0.61	1.04	0.47	0.58	0.58	0.41	0.77	0.56
FK64	0.40	0.31	0.58	0.80	0.69	0.90	0.66	0.48	0.62	1.01	1.54	1.03	1.31	0.74	0.72	0.85	0.52	0.55	0.57	0.78
FK37	0.72	0.45	0.75	0.84	0.62	0.66	0.50	0.77	0.80	0.86	1.02	0.98	0.79	0.91	0.69	0.58	0.62	0.60	0.83	0.79
FK34	0.71	0.70	0.65	0.80	0.76	0.69	0.48	0.48	0.77	0.82	1.14	1.14	1.04	0.67	0.70	0.74	0.58	0.48	0.82	0.80
FK68	0.67	0.60	0.55	0.78	0.78	0.95	0.59	0.46	0.87	0.79	1.08	1.21	1.10	0.65	0.39	0.73	0.81	0.48	0.67	0.63
FK63	0.60	0.67	0.52	0.83	0.85	0.98	0.46	0.75	1.27	1.04	2.35	1.69	2.23	1.01	0.43	0.88	0.62	0.47	0.61	0.88
Nc22	0.67	0.34	0.58	0.61	0.64	0.76	0.58	0.44	0.48	1.16	1.12	1.34	0.84	0.85	0.24	0.74	0.58	0.32	0.57	0.65
Nc23	0.62	0.39	0.72	0.75	0.77	0.89	0.80	0.63	0.89	1.19	1.35	0.93	1.06	1.01	0.57	0.92	0.65	0.71	0.84	0.86
Nc24	0.91	0.85	0.76	0.87	0.94	0.75	0.61	0.50	1.25	1.11	1.63	1.38	1.16	0.90	0.70	0.94	0.52	0.66	0.78	0.65
Nc04	0.90	0.88	0.80	1.04	1.31	1.35	1.18	0.97	0.66	0.94	1.90	1.84	1.53	1.34	0.64	1.53	0.59	0.59	0.85	0.81
Nc05	0.93	0.84	0.64	0.92	0.96	0.85	1.01	0.69	1.07	0.86	1.57	1.50	1.36	0.99	0.62	1.16	0.77	0.57	0.78	0.70
Nc07	1.47	1.23	0.71	0.89	0.96	0.68	0.76	0.92	0.95	0.99	1.34	0.75	0.61	0.69	0.97	0.68	1.27	1.05	1.23	1.22
Nc10	1.17	0.68	0.80	0.87	1.02	0.78	0.40	0.78	1.55	1.02	1.56	0.72	1.18	0.62	0.89	0.93	1.19	1.00	0.76	0.93
Nc18	1.47	0.78	0.62	1.01	0.94	0.72	0.41	0.72	1.37	0.95	1.27	0.74	0.58	0.73	1.09	0.79	1.22	1.18	1.25	1.39
Nc11	1.20	1.50	1.17	1.12	1.09	0.88	0.73	1.13	1.85	1.69	1.96	1.17	1.21	1.07	1.22	1.39	1.07	0.68	0.80	1.17
Nc12	1.12	1.25	1.29	1.20	1.28	1.22	0.90	0.80	1.69	1.51	1.73	1.45	1.10	1.45	2.10	1.66	0.87	0.94	1.27	1.09
Nc19	1.35	1.21	1.31	1.23	1.06	0.99	0.79	1.31	1.54	1.73	1.96	1.16	1.28	1.33	1.44	1.20	0.99	0.86	1.74	1.12
Nc13	1.15	1.29	0.96	1.04	1.31	1.03	0.83	0.90	1.79	1.39	1.68	1.02	1.38	1.21	1.25	1.31	1.01	0.72	1.14	0.87
Nc14	1.24	1.97	1.06	1.18	1.31	1.13	0.81	0.73	2.50	1.59	1.89	1.18	1.31	1.42	1.78	1.53	1.11	0.79	1.18	1.05
Nc15	0.77	1.54	1.20	1.22	1.01	1.01	0.64	0.98	1.84	1.10	1.15	1.16	1.14	1.37	1.80	1.12	0.72	1.07	1.04	0.76
Nc17	0.79	0.97	1.04	1.31	1.13	0.98	0.81	0.84	1.56	1.09	1.28	1.19	0.88	1.35	1.44	0.83	0.76	0.97	1.39	0.89
Nc21	1.18	0.96	0.81	1.00	1.17	1.05	0.57	0.87	2.26	1.41	1.51	1.38	1.32	1.00	1.51	0.86	0.70	0.86	0.88	0.55
Nc20	0.68	0.53	0.70	1.27	0.69	1.07	0.74	0.76	0.69	0.98	1.40	0.94	1.15	0.79	0.79	0.57	0.88	0.80	1.20	0.92

Fig 11

Gene / Case No.	TNFRSF1A	CRADD	IL14	ABCF2	CDK4	SKIL	AGTRL2	MADH4	IL2RG	RPA1	PRKDC	MX2	PIM1	CDC16	RAB7L1	ITGB1	RBBP4	SGK2	TRAG	BAK1
FK01	0.54	0.68	0.95	0.68	1.06	1.04	0.98	0.96	2.13	1.13	1.60	1.13	0.55	1.26	0.69	0.71	0.93	0.96	0.93	1.11
FK07	1.17	0.63	1.50	1.94	1.54	1.22	0.88	1.10	1.15	1.00	0.67	0.62	0.42	0.68	0.41	0.30	0.66	0.57	0.23	0.31
FK02	0.31	0.54	0.36	0.37	1.29	1.67	0.65	1.69	1.05	0.48	0.47	0.32	0.70	0.76	0.40	0.20	0.50	0.43	0.11	0.34
FK05	0.66	0.87	0.53	0.66	1.67	2.06	0.60	1.19	1.52	0.90	0.49	1.13	0.87	0.53	1.07	0.18	0.53	0.59	0.24	0.31
FK06	0.78	0.66	0.55	0.51	1.01	1.24	0.89	1.24	1.90	0.79	0.54	0.50	0.60	0.43	0.46	0.22	0.70	0.45	0.20	0.61
FK13	0.36	0.70	0.30	0.35	0.24	1.17	1.22	1.01	1.91	1.40	1.09	1.24	0.81	0.74	0.77	0.60	0.58	0.62	0.72	0.99
FK14	0.54	0.57	0.37	0.31	0.26	0.98	1.03	0.91	1.39	0.80	1.34	1.11	0.89	0.88	0.80	0.77	0.84	0.57	0.64	0.87
FK35	0.69	1.28	0.36	0.59	0.27	0.70	0.97	0.79	1.35	1.04	0.86	1.19	0.64	0.58	0.89	0.27	0.66	0.51	0.39	0.75
FK39	0.84	0.85	0.28	0.38	0.24	0.78	0.97	0.70	1.28	1.02	1.00	0.83	1.20	0.48	0.98	0.35	0.72	0.50	0.46	0.83
FK45	0.74	0.63	0.32	0.37	0.31	0.75	1.23	0.79	1.38	1.07	1.34	1.14	1.31	0.92	1.00	0.51	0.72	0.64	0.70	0.82
FK12	0.33	1.17	1.18	1.85	0.96	0.69	1.38	1.03	2.13	1.74	0.84	1.49	0.78	0.73	0.82	0.54	0.70	0.72	0.86	0.88
FK03	0.48	0.86	0.95	1.02	1.42	1.35	0.91	1.45	1.37	0.82	1.40	1.06	1.24	1.27	1.25	1.00	0.71	0.83	1.28	0.69
FK77	1.13	0.80	1.33	1.37	0.81	1.28	2.30	3.43	6.11	7.16	4.99	2.57	4.37	3.07	4.23	4.12	2.83	1.92	9.01	2.26
FK09	0.58	1.03	0.33	0.35	1.40	1.67	0.51	0.94	1.75	0.63	0.55	1.21	1.43	1.19	1.16	0.32	0.51	0.55	0.71	0.38
FK04	0.74	0.55	0.72	0.73	0.89	0.72	1.11	0.98	1.74	0.90	1.58	0.88	1.11	0.72	0.97	0.32	0.51	0.74	0.63	1.06
FK42	0.98	0.51	0.51	0.52	0.61	0.81	0.98	0.77	1.91	1.02	1.70	2.99	2.77	0.85	1.13	0.56	0.77	1.00	1.17	0.77
FK15	0.52	1.51	0.74	0.49	0.59	0.61	0.69	0.57	0.97	0.60	0.69	0.62	0.73	0.80	1.32	0.79	0.41	0.68	0.34	0.65
FK32	1.32	1.08	0.62	0.70	0.98	0.83	1.22	0.73	1.32	0.56	0.38	0.84	0.95	1.22	1.54	0.62	0.46	0.99	0.80	1.28
FK59	0.80	0.60	0.34	0.28	0.72	0.76	0.94	0.68	1.40	0.47	0.36	0.74	0.75	1.46	1.54	0.68	0.38	0.74	0.48	1.19
FK56	1.73	1.10	0.32	0.22	0.23	1.00	0.91	0.86	1.28	0.66	0.49	1.50	0.72	1.52	1.11	0.49	0.29	0.38	0.14	0.93
FK73	0.66	0.68	0.64	0.80	0.89	1.32	0.88	0.80	1.50	1.30	1.02	0.91	1.04	1.58	1.69	0.85	0.58	0.92	0.91	1.34
FK31	0.71	0.93	0.82	0.66	1.47	1.08	0.97	0.65	1.45	0.54	0.39	0.61	1.88	1.71	1.27	1.49	0.75	1.35	1.18	1.32
FK44	0.83	0.99	0.50	0.70	1.19	0.62	1.52	0.84	1.59	0.60	0.38	0.85	2.21	1.58	2.21	1.43	0.73	1.44	1.28	1.56
FK08	1.07	1.06	0.74	0.79	1.16	0.47	1.40	1.22	1.83	3.25	1.74	1.11	1.63	0.88	1.15	2.16	1.23	1.60	2.11	1.27
FK11	0.56	0.74	0.60	0.74	0.72	0.80	2.17	2.06	2.51	2.01	2.05	2.05	1.71	1.16	1.12	0.79	0.78	1.44	1.42	1.52
FK22	0.59	0.72	0.50	0.49	0.34	0.60	0.86	0.93	3.95	2.56	2.34	1.05	2.58	0.82	0.86	2.55	1.53	1.67	2.59	1.29
FK27	0.86	0.59	0.45	0.39	0.50	0.93	1.68	1.15	2.59	1.41	2.31	1.87	1.58	1.49	1.75	1.07	1.01	1.18	1.67	1.62
FK65	0.60	0.52	0.35	0.55	0.37	1.05	1.10	1.79	3.12	2.06	3.02	1.79	1.62	1.13	2.12	1.17	0.86	0.97	1.90	1.44
FK60	0.49	0.46	0.51	0.67	0.54	0.67	1.28	1.17	3.21	2.03	2.76	1.56	1.83	1.15	1.86	1.00	1.06	1.02	3.02	1.31
FK52	0.79	0.90	0.68	0.56	0.50	0.85	1.39	1.61	4.15	3.83	1.99	1.36	2.13	0.88	1.93	2.65	1.80	2.23	4.71	1.61
FK40	0.66	0.58	0.29	0.39	0.34	0.64	1.48	1.78	1.96	1.84	3.39	1.79	1.57	1.22	1.16	0.71	0.89	0.99	1.34	1.41
FK48	0.63	0.54	0.40	0.43	0.55	0.72	1.28	1.07	1.83	1.98	2.48	1.40	2.25	1.15	1.39	0.83	0.91	0.93	1.62	1.03
FK49	1.61	1.16	0.64	0.57	0.48	0.66	1.56	1.29	1.89	1.17	1.46	1.13	1.63	1.00	1.12	0.91	1.06	1.53	1.67	1.53
FK50	0.91	1.00	0.44	0.46	0.42	0.59	1.14	1.19	2.25	1.77	1.67	1.09	2.40	0.99	1.51	1.17	1.15	1.28	1.98	1.49
FK58	0.74	0.67	0.68	0.60	0.30	0.92	1.60	1.25	2.14	1.49	2.21	2.12	1.13	0.87	1.30	0.69	0.54	0.96	0.89	1.33
FK69	0.98	0.60	0.43	0.59	0.39	0.74	1.42	1.54	2.67	2.43	2.48	1.28	1.54	1.50	1.28	0.92	1.02	1.45	1.62	1.43
FK72	0.70	0.43	0.41	0.57	0.43	0.89	0.80	1.00	2.97	1.92	2.91	1.58	1.25	1.20	0.76	0.71	0.78	1.51	1.28	1.17
FK38	0.88	0.82	0.36	0.33	0.28	0.61	1.66	2.13	2.76	2.07	3.02	1.72	1.69	1.15	2.14	1.33	1.48	1.33	1.50	1.92
FK61	0.78	0.68	0.75	0.82	0.65	0.73	1.31	2.03	3.56	2.88	4.93	1.63	1.65	1.90	2.08	1.84	2.08	1.89	4.08	1.73
FK75	0.50	0.71	0.61	0.83	0.40	0.66	1.72	1.41	3.80	3.78	2.46	1.09	2.39	1.16	1.13	1.93	1.62	1.61	2.61	1.59
FK66	0.91	0.86	0.55	0.74	0.35	1.19	2.08	2.06	4.53	2.50	2.35	1.37	2.00	0.90	1.81	1.79	1.71	2.46	3.45	2.89
FK67	0.74	0.72	0.77	0.79	0.39	1.04	1.56	1.74	6.75	3.49	3.48	2.22	2.59	1.31	2.34	2.14	2.18	2.86	3.21	2.13
FK71	0.52	0.53	0.72	0.62	0.44	0.86	1.43	1.29	5.71	3.23	3.20	1.42	1.77	1.53	1.62	1.80	2.29	2.65	3.05	1.53
FK10	0.90	0.49	0.84	0.92	0.87	1.16	1.70	1.52	5.45	4.72	4.44	2.91	2.02	2.24	2.56	2.24	1.69	2.57	5.97	2.02
FK78	1.13	0.80	1.33	1.37	0.81	1.28	2.30	3.43	6.11	7.16	4.99	2.67	4.37	3.07	4.23	4.12	2.83	1.92	9.01	2.26
FK21	0.57	0.78	0.89	0.93	0.75	0.72	1.82	1.74	3.08	3.62	3.85	1.75	2.68	1.32	2.39	3.54	1.77	2.03	4.72	1.89
FK46	0.64	0.98	0.66	0.88	0.78	0.79	1.59	1.69	3.63	3.66	3.56	2.52	3.33	1.33	2.96	1.88	1.67	1.98	4.65	2.19
FK23	0.55	0.78	0.94	1.08	0.77	0.81	1.93	2.20	6.20	5.06	4.21	2.49	1.83	2.08	2.41	3.39	2.48	2.41	5.84	1.97
FK28	0.93	0.86	0.62	0.73	0.51	1.54	2.44	2.75	6.62	5.67	4.17	3.14	4.41	2.05	2.74	2.81	2.23	2.45	5.33	1.83
FK41	0.49	0.88	0.70	0.88	0.49	0.65	1.83	3.13	4.87	4.56	4.52	1.97	2.91	2.23	2.51	5.55	2.46	1.75	6.17	2.27
FK18	0.45	0.68	0.82	0.97	0.80	0.89	1.62	1.75	4.20	5.17	3.96	2.50	3.77	1.61	2.46	2.87	1.51	1.06	2.94	1.13
FK24	0.65	0.45	0.57	0.63	0.94	0.88	2.54	2.58	1.87	2.04	4.01	3.35	3.29	1.86	1.90	1.07	0.96	1.42	2.08	1.29
FK76	1.13	0.80	1.33	1.37	0.81	1.28	2.30	3.43	6.11	7.16	4.99	2.67	4.37	3.07	4.23	4.12	2.83	1.92	9.01	2.26
FK43	1.13	0.85	0.56	0.51	0.50	1.37	1.85	1.53	3.05	1.68	2.49	1.60	4.98	1.25	2.13	3.45	1.81	1.23	3.11	1.78
FK25	0.41	0.74	0.49	0.30	0.39	1.12	3.15	3.75	3.01	3.06	1.26	1.28	5.16	1.19	0.73	2.46	1.79	3.17	3.09	3.05
FK17	0.56	1.07	1.09	1.37	0.88	1.01	2.38	3.14	13.18	9.25	3.14	3.20	2.52	3.34	1.64	3.36	3.27	5.16	7.70	2.69
FK19	0.64	0.74	1.07	0.95	0.81	0.82	2.47	2.67	7.43	7.87	4.27	3.39	2.98	2.75	3.11	3.09	1.98	2.32	4.58	1.47
FK29	0.57	1.17	0.86	1.43	0.61	1.23	2.86	3.65	10.61	7.70	5.23	3.94	4.18	2.96	3.06	6.01	3.83	2.07	9.10	2.13
FK35	0.72	0.91	0.60	1.20	0.48	0.77	2.42	3.02	9.11	7.05	3.50	3.85	2.05	2.34	2.98	4.45	2.64	1.96	10.33	2.15
FK33	0.55	1.24	0.75	1.00	0.57	0.74	2.90	3.00	7.21	5.09	3.17	4.73	4.82	2.25	2.00	3.43	2.70	2.61	7.32	2.15
FK55	0.50	0.79	1.02	0.99	0.48	0.80	1.76	2.38	8.77	8.78	3.20	2.13	4.20	1.94	1.61	3.52	3.18	2.94	7.30	2.40
FK64	0.62	0.86	1.21	1.15	0.57	1.05	2.61	3.90	5.73	6.87	4.87	2.67	2.69	2.59	3.14	2.09	2.29	2.35	5.70	2.15
FK37	0.89	1.00	1.10	1.16	0.88	0.86	1.55	1.73	5.35	4.26	5.01	2.16	4.25	1.97	3.11	2.34	1.87	2.28	6.27	1.79
FK34	0.81	0.78	1.03	1.21	0.90	0.87	1.55	1.37	4.69	3.99	4.26	1.88	3.27	1.63	3.84	2.61	1.85	2.24	5.54	2.11
FK68	0.80	0.78	1.19	1.37	0.79	1.04	1.49	1.59	5.18	5.45	3.45	2.62	2.72	1.82	1.71	4.72	2.41	2.91	4.89	1.48
FK63	0.81	0.95	1.76	1.92	0.92	1.07	2.08	2.39	9.79	8.26	3.26	4.20	3.92	2.41	4.30	3.54	3.75	3.77	6.70	2.86
Nc22	0.66	1.13	0.85	0.88	0.47	1.02	2.18	2.84	8.54	5.90	3.51	2.03	3.97	3.12	1.83	8.01	3.78	1.63	4.93	1.35
Nc23	0.96	1.12	1.04	1.11	0.62	0.96	2.47	2.80	6.74	4.02	3.48	3.25	3.77	2.28	3.66	4.90	3.46	1.78	6.25	1.98
Nc24	1.13	0.80	1.33	1.37	0.81	1.28	2.30	3.43	6.11	7.16	4.99	2.67	4.37	3.07	4.23	4.12	2.83	1.92	9.01	2.26
Nc04	0.68	1.32	1.14	1.43	0.79	0.74	3.33	2.62	6.70	3.87	3.35	5.26	2.86	2.21	3.13	9.54	3.33	2.44	9.04	1.50
Nc05	0.61	1.18	0.85	1.23	0.98	0.85	2.49	2.26	3.03	5.75	2.14	2.40	1.53	1.90	2.09	4.31	2.53	2.13	5.90	1.48
Nc07	1.57	1.81	1.06	1.08	1.53	1.52	2.27	1.77	4.33	4.31	3.52	2.37	5.15	1.44	2.21	2.39	1.77	2.36	5.33	1.68
Nc10	1.19	1.26	1.67	1.54	1.97	1.65	5.44	3.05	8.50	4.56	5.63	2.91	6.10	2.38	3.51	3.72	2.70	5.06	10.25	4.61
Nc18	1.13	0.88	1.14	1.48	1.45	1.64	2.66	1.81	5.32	5.43	2.84	2.70	4.29	2.62	4.26	2.51	2.39	2.21	5.61	2.94
Nc11	1.49	1.16	1.23	1.25	1.17	1.27	3.07	3.07	7.22	6.53	5.94	3.79	5.76	3.11	3.53	5.84	3.06	2.82	5.97	3.31
Nc12	1.35	1.15	1.32	1.80	1.35	1.52	4.25	4.98	8.59	6.85	5.24	4.08	4.91	4.13	4.44	5.99	3.40	3.63	8.53	3.60
Nc19	1.18	0.99	1.28	1.17	1.48	1.56	3.81	4.23	6.86	7.90	5.34	2.33	5.62	3.57	3.54	5.82	3.62	3.17	7.76	3.45
Nc13	1.10	1.10	1.45	1.36	1.23	1.23	4.05	4.66	9.13	10.17	7.66	6.03	6.62	3.35	3.98	6.79	3.10	3.07	7.75	2.82
Nc14	1.36	1.30	1.94	1.57	1.18	1.27	4.69	4.99	9.84	11.92	5.92	8.07	7.58	4.26	4.09	6.56	3.38	4.11	10.27	3.46
Nc15	0.82	1.31	1.70	1.45	1.15	1.15	4.72	3.65	11.68	6.74	2.93	4.42	7.66	3.81	4.10	4.15	3.48	3.74	9.85	2.67
Nc17	0.70	1.50	1.71	1.66	1.45	1.51	4.20	3.23	9.20	6.04	7.07	3.15	5.48	3.30	2.60	3.18	2.86	3.18	8.20	2.77
Nc21	1.41	0.51	1.54	1.50	1.28	1.33	3.87	2.35	11.56	7.68	6.85	5.40	3.63	2.69	3.56	3.19	3.26	3.10	7.51	2.70
Nc20	0.70	0.97	0.94	1.10	1.10	0.83	3.42	2.72	11.07	6.72	5.65	3.27	3.72	1.89	2.36	4.21	2.80	3.81	7.40	3.19

Fig 12

Gene / Case No.	CDK2	IFNAR1	CFLAR	SCYB5	ST1B2	ERBB4	POLE2	CD79B	PECAM1	ATP7A	ABCB10	VCAM1	STIP1	PAK2	ERBB2	ADH2	HRAS	PLCB2	ERCC3	NFRKB
FK01	1.16	0.44	0.56	0.64	1.12	0.86	0.92	1.81	1.28	1.73	1.79	1.49	3.14	1.50	1.34	1.31	1.41	3.28	2.06	1.24
FK07	0.47	0.37	0.18	0.28	0.72	0.63	0.91	1.65	2.07	2.12	2.56	1.62	4.52	1.95	0.78	1.35	1.46	4.68	1.47	1.35
FK02	0.47	0.21	0.20	0.27	0.51	1.81	0.87	1.10	0.62	2.10	1.99	1.10	2.05	2.01	1.63	2.40	0.93	0.77	0.63	0.67
FK05	0.64	0.29	0.18	0.33	0.85	1.25	1.01	1.05	0.81	1.70	1.41	1.14	1.84	2.65	1.17	1.49	1.41	0.84	0.71	0.70
FK06	0.58	0.23	0.21	0.43	1.49	1.04	0.84	1.20	1.02	2.04	1.90	1.01	3.02	1.75	1.34	1.83	1.90	1.50	0.94	1.25
FK13	0.92	0.81	0.54	0.71	0.93	1.05	0.86	0.89	0.82	1.33	1.60	1.11	1.72	0.86	1.43	2.38	2.22	1.53	1.11	1.30
FK14	1.00	0.97	0.71	1.88	1.18	0.65	0.96	0.75	0.32	0.87	1.47	0.84	2.41	0.85	1.33	1.48	1.38	1.45	1.41	1.07
FK36	0.78	1.15	0.86	0.60	1.50	0.72	0.99	0.86	0.80	0.89	1.07	1.12	3.40	1.11	1.17	2.52	1.34	1.06	1.44	1.40
FK39	0.90	0.71	0.90	0.57	0.90	0.76	0.91	0.60	0.56	1.01	2.05	1.19	2.54	1.13	1.21	1.36	1.68	1.55	0.94	1.27
FK45	1.00	1.25	0.92	1.53	1.00	0.68	1.09	0.68	0.66	0.84	1.54	1.08	1.51	1.00	1.09	1.51	1.20	1.96	1.25	1.04
FK12	1.26	0.77	0.87	0.67	0.89	1.15	0.93	0.74	1.31	1.67	1.84	1.23	3.14	1.77	2.09	4.55	2.77	2.59	1.18	1.30
FK03	1.19	0.44	0.52	1.01	0.82	0.98	0.95	1.12	1.07	1.65	1.06	1.03	2.01	2.04	1.06	1.20	0.95	1.53	1.29	0.93
FK77	3.01	2.10	1.65	4.42	1.26	1.28	1.28	1.94	3.76	3.86	2.59	3.82	7.69	2.16	1.40	3.53	2.17	18.18	2.75	2.32
FK09	0.72	0.37	0.26	0.35	0.49	1.60	0.83	1.24	0.39	2.05	1.38	1.70	1.15	2.49	0.81	1.27	0.98	1.06	1.10	0.35
FK04	1.22	1.06	0.59	1.87	1.06	0.87	1.06	2.13	1.08	1.57	1.36	0.90	2.52	1.69	1.06	1.18	1.14	2.87	2.08	1.35
FK42	1.50	1.22	0.83	1.18	0.83	0.64	1.20	0.80	1.09	1.06	0.87	1.02	3.17	2.10	1.17	1.56	1.15	1.83	1.34	1.05
FK15	0.75	0.74	0.81	0.59	1.22	0.58	0.79	0.52	0.54	0.48	0.97	1.09	1.02	0.53	0.90	1.20	1.29	0.82	0.59	1.28
FK32	0.92	0.83	1.02	0.66	1.02	0.66	0.92	0.93	0.88	1.28	0.72	1.22	1.07	0.82	1.20	1.14	1.35	1.00	0.54	1.17
FK59	1.07	0.50	1.00	0.33	1.04	0.79	0.92	0.85	1.28	0.84	0.59	0.80	0.93	0.67	1.52	1.47	2.31	2.17	0.66	0.72
FK56	0.47	0.80	0.99	1.04	1.36	0.76	0.84	0.70	0.90	0.30	0.94	0.79	1.21	0.82	1.60	1.65	1.28	0.00	3.56	1.29
FK73	1.72	0.88	0.88	0.92	1.53	1.28	1.06	1.17	0.97	0.60	0.89	0.62	0.63	0.95	0.99	1.04	1.39	1.84	1.01	1.24
FK31	0.85	0.77	1.08	0.51	1.05	0.60	0.92	0.69	0.96	2.17	0.46	1.27	0.92	0.72	1.13	1.15	1.51	1.33	0.57	0.97
FK44	0.88	1.39	1.23	0.86	1.12	0.98	0.97	1.06	0.55	0.77	0.81	1.34	0.82	0.58	0.95	1.00	1.40	1.55	0.65	1.08
FK08	0.96	1.25	0.81	2.57	1.23	1.28	1.26	1.68	1.74	1.40	1.28	1.10	1.87	1.42	1.19	1.46	1.45	1.41	1.35	1.54
FK11	1.13	1.28	1.48	2.18	1.86	1.77	1.13	1.04	1.09	1.27	1.70	1.51	2.82	1.31	1.50	0.41	2.22	1.88	1.79	1.87
FK22	1.48	0.70	0.98	3.52	0.76	0.71	0.91	0.99	1.05	1.28	1.00	1.64	2.19	0.92	0.72	0.64	1.40	2.37	2.13	0.81
FK27	1.53	1.53	1.72	1.42	0.97	0.75	0.99	0.70	0.82	1.36	1.04	1.56	2.67	1.10	2.56	2.55	1.81	2.31	1.51	1.30
FK65	2.60	1.14	1.05	1.34	1.22	1.03	1.12	0.72	0.95	0.94	1.69	1.24	2.12	1.34	1.36	3.32	2.32	3.17	1.81	1.17
FK60	1.45	0.97	1.53	0.97	0.81	0.75	1.04	0.82	1.06	0.96	1.65	1.97	3.74	1.08	1.36	1.63	1.48	1.74	1.35	0.99
FK52	1.70	0.92	1.54	1.89	0.89	1.29	0.80	1.20	1.12	2.20	0.90	2.04	2.72	1.14	1.16	1.91	2.22	2.38	1.41	1.66
FK40	2.47	1.33	1.72	1.64	1.30	0.83	1.09	1.00	1.79	0.57	1.44	0.99	2.33	1.00	1.50	2.40	1.29	2.63	2.51	1.98
FK48	2.64	1.59	1.73	0.59	1.20	0.76	1.08	0.79	1.35	0.70	1.06	0.67	2.23	1.27	1.38	2.18	1.51	2.34	1.80	1.71
FK49	1.28	0.90	1.05	1.64	1.05	0.96	1.00	0.95	1.08	0.78	0.81	1.32	1.65	1.23	1.18	1.99	1.24	1.50	0.99	1.83
FK50	1.36	0.89	1.14	1.02	1.09	0.93	1.08	0.98	0.78	0.57	0.89	1.57	2.22	0.89	1.04	1.57	1.36	1.62	1.23	1.39
FK58	1.19	1.36	2.05	2.41	0.83	0.84	1.04	0.67	0.87	1.06	1.09	1.13	2.66	1.21	1.53	2.50	2.23	1.81	1.87	1.49
FK69	1.15	1.25	0.93	3.34	1.00	1.08	1.02	0.81	0.99	2.07	1.15	1.38	2.14	1.63	1.00	1.69	1.46	2.72	1.95	1.32
FK72	1.82	0.68	0.89	1.26	1.21	1.07	1.42	0.98	1.03	2.68	1.17	1.30	3.06	1.53	0.89	1.47	3.65	7.10	2.39	1.05
FK38	1.38	1.38	1.91	5.92	0.99	0.84	0.94	0.93	0.74	1.09	1.05	2.38	3.13	1.08	1.31	1.77	1.55	2.09	2.21	1.62
FK61	2.60	1.30	1.41	2.03	1.49	1.03	1.40	1.22	1.45	1.48	1.68	2.22	3.16	1.67	1.36	1.79	1.60	8.04	3.40	2.07
FK75	1.95	1.18	1.16	4.03	1.26	1.24	0.78	1.37	2.00	1.40	1.30	1.15	3.01	1.78	1.36	2.38	2.64	3.54	2.58	1.80
FK66	1.18	1.13	0.88	2.14	1.33	1.27	0.99	1.33	0.84	2.21	1.57	2.48	2.12	1.44	2.10	2.48	2.95	1.71	1.29	1.55
FK67	1.74	0.99	1.20	0.99	1.38	1.20	1.16	1.52	2.22	2.67	1.64	2.82	2.95	1.71	1.89	3.80	4.34	4.61	2.10	1.80
FK71	1.34	0.81	1.11	0.90	1.06	1.20	1.35	1.01	1.61	0.85	1.63	2.75	3.60	1.60	1.71	2.25	1.52	2.52	1.27	1.36
FK10	1.05	1.49	0.97	2.16	1.18	1.09	0.96	1.67	1.85	2.83	1.53	1.73	7.24	2.37	1.16	1.20	1.01	2.19	1.81	1.29
FK78	3.01	2.10	1.65	4.42	1.26	1.28	1.28	1.94	3.76	3.86	2.59	3.82	7.69	2.16	1.40	3.53	2.17	18.18	2.75	2.32
FK21	1.50	1.11	1.76	1.43	1.06	0.84	1.25	1.29	2.06	1.43	1.57	2.28	4.99	1.25	1.33	1.82	1.49	2.21	1.59	1.22
FK46	1.26	1.41	1.81	1.05	1.15	1.08	1.01	1.30	2.54	1.35	1.46	3.11	5.53	1.49	1.43	2.63	1.18	1.36	1.30	1.76
FK23	1.68	1.76	1.46	2.46	0.80	1.05	1.00	1.34	2.20	1.17	1.55	3.61	8.07	1.41	1.15	2.14	1.65	2.47	1.95	1.31
FK28	1.79	2.55	2.22	2.76	1.35	1.19	1.29	1.71	4.19	1.69	1.50	3.12	2.96	1.72	1.25	2.78	1.71	3.44	2.48	1.66
FK41	2.02	1.88	1.91	2.09	1.11	1.10	1.01	1.52	1.76	1.38	1.72	2.69	4.18	1.44	1.20	2.21	1.01	2.13	1.92	1.99
FK18	1.85	1.50	1.21	1.42	1.09	1.13	1.25	1.73	1.73	2.71	1.41	1.15	2.84	1.90	0.89	0.77	2.09	1.95	1.68	1.21
FK24	1.93	2.45	1.40	2.18	1.33	1.11	1.18	1.12	0.94	0.95	1.81	0.82	4.17	1.31	1.32	1.68	1.42	1.99	1.85	1.82
FK76	3.01	2.10	1.65	4.42	1.26	1.28	1.28	1.94	3.76	3.86	2.59	3.82	7.69	2.16	1.40	3.53	2.17	18.18	2.75	2.32
FK43	1.16	1.52	1.57	3.58	0.95	0.85	0.79	0.88	1.01	1.10	1.29	1.66	2.77	1.04	1.06	1.61	0.88	1.68	1.14	1.49
FK25	0.73	0.89	2.92	2.15	1.09	1.32	0.74	0.65	1.97	0.89	1.68	3.22	9.12	0.87	1.12	1.95	1.92	1.06	1.73	0.96
FK17	1.75	1.37	2.12	1.50	1.69	1.51	1.79	2.25	4.16	4.76	2.14	5.83	5.34	2.60	1.64	2.32	1.56	3.87	2.95	2.38
FK19	1.87	1.87	1.45	2.07	1.41	1.19	1.25	1.29	3.12	1.69	1.80	2.09	1.71	2.36	1.32	1.61	2.20	2.78	3.18	1.57
FK29	2.38	2.35	3.39	2.34	1.36	1.23	1.31	2.66	5.38	2.85	2.35	5.41	7.15	1.97	1.62	2.53	2.19	1.58	2.00	2.09
FK35	1.30	2.33	2.38	2.04	0.98	1.32	1.00	1.67	4.23	3.35	2.29	4.95	6.34	1.61	1.31	3.09	1.14	2.37	2.03	1.73
FK33	1.85	1.91	3.18	4.76	1.10	1.71	1.25	1.53	3.23	1.21	2.19	4.31	3.26	1.71	1.41	2.28	1.46	1.54	1.81	1.85
FK55	1.20	1.08	1.78	2.06	1.25	1.36	1.55	1.85	3.24	2.06	1.71	2.16	2.19	2.24	1.26	1.11	1.93	3.53	2.59	1.66
FK64	1.80	1.78	1.27	1.68	1.37	1.84	1.40	1.77	4.96	1.38	2.49	3.94	3.77	2.08	1.43	4.09	1.54	5.39	2.34	1.87
FK37	2.42	1.52	2.09	1.53	1.41	1.17	1.49	1.56	1.90	0.93	1.90	2.46	5.29	1.74	1.35	1.82	1.92	4.56	2.56	1.93
FK34	1.57	1.54	2.16	1.47	1.26	0.98	1.28	1.44	2.12	2.79	1.49	3.07	6.31	1.72	1.38	2.44	1.62	2.55	1.77	1.88
FK68	1.50	1.24	1.15	1.61	1.60	1.33	1.32	1.79	2.27	3.26	1.74	4.16	4.93	2.26	1.37	2.49	1.87	4.15	2.05	1.69
FK63	1.95	1.53	1.08	1.30	1.73	1.71	1.48	2.58	5.26	3.19	1.75	6.37	7.00	2.54	1.73	3.24	2.30	3.91	1.98	2.02
Nc22	2.87	1.09	1.50	2.82	1.54	1.23	0.83	1.58	3.13	4.95	2.67	5.61	6.40	2.01	1.64	2.35	2.10	3.77	2.13	1.84
Nc23	3.08	2.00	2.65	2.41	1.41	1.23	1.12	1.65	3.37	2.42	2.50	3.59	5.33	2.26	1.32	1.95	1.16	8.00	3.88	2.60
Nc24	3.01	2.10	1.65	4.42	1.26	1.28	1.28	1.94	3.76	3.86	2.59	3.82	7.69	2.16	1.40	3.53	2.17	18.18	2.75	2.32
Nc04	1.70	2.00	1.58	3.32	1.15	1.32	1.09	2.54	2.67	1.16	2.73	2.53	6.86	2.79	1.15	2.30	0.95	1.42	2.08	1.47
Nc05	0.86	2.25	1.17	2.01	0.98	1.34	1.14	1.84	2.11	4.06	2.61	3.17	3.63	1.92	1.21	1.53	1.22	1.12	1.51	1.08
Nc07	2.93	2.24	1.85	2.15	2.20	1.89	1.57	1.11	1.99	3.41	1.55	2.02	3.03	2.20	1.93	3.65	3.98	5.24	2.08	1.83
Nc10	1.41	2.37	2.75	2.56	2.07	3.03	1.55	3.26	2.98	6.33	2.04	3.51	5.66	2.50	5.16	4.79	3.90	2.85	2.19	3.06
Nc18	2.02	2.59	2.58	2.83	2.60	2.18	1.64	2.16	2.14	3.35	2.07	1.90	4.12	2.24	2.71	2.49	2.71	5.82	2.84	2.47
Nc11	2.15	2.70	3.18	2.59	1.93	2.53	1.74	2.65	3.52	2.42	2.46	3.54	6.25	1.84	2.02	3.19	1.95	4.33	3.49	2.38
Nc12	2.70	3.10	3.08	3.17	1.81	2.55	2.03	2.15	5.70	2.05	2.23	3.73	7.05	3.09	2.38	5.27	2.93	3.50	3.13	2.84
Nc19	1.43	2.84	3.26	3.15	2.15	2.35	1.64	2.01	2.77	4.12	2.02	2.83	4.09	2.60	2.65	5.37	3.98	5.38	4.92	2.49
Nc13	2.82	2.29	3.67	3.30	1.87	1.93	1.97	2.13	4.08	2.61	2.60	6.36	14.80	3.05	3.08	3.97	4.42	5.77	4.68	2.37
Nc14	3.75	3.11	3.65	4.63	2.34	2.52	2.07	2.71	3.29	7.73	2.93	5.62	6.33	2.58	3.10	4.55	7.39	5.13	3.83	2.80
Nc15	3.17	2.34	2.83	2.92	1.13	2.31	2.03	2.62	3.58	2.05	1.76	3.89	6.27	2.04	2.28	4.43	3.14	3.01	3.47	2.08
Nc17	1.91	2.11	3.09	3.30	1.10	2.32	1.86	2.84	4.11	7.08	1.83	3.57	6.81	2.24	2.36	4.23	2.26	4.73	3.03	1.65
Nc21	3.55	2.51	2.25	3.59	1.21	1.46	1.83	1.67	4.49	3.02	1.44	2.93	9.17	2.56	1.79	1.29	4.16	6.83	3.92	1.78
Nc20	2.56	1.64	2.26	4.49	1.53	2.31	1.42	2.35	2.35	5.92	1.58	5.45	3.74	1.91	2.45	3.34	3.04	3.48	2.51	1.62

Fig 13

Gene / Case No.	TGFB1	NBS1	STAC	AKAP9	NR4A2	TCF8	TNFAIP3	GADD45A	ATF3	SGK	SCYA3	DTR	CDC42	NFKBIE	NFKBIA	FGF5	PDGFRA	RIPK2	AVP	TNFRSF 10C	BRCA1
FK01	1.01	1.84	1.03	1.63	0.19	0.12	0.26	0.13	0.28	0.13	0.21	0.26	0.65	0.62	0.23	0.39	0.33	2.17	4.50	1.40	0.49
FK07	0.65	2.15	0.43	3.82	0.28	0.03	0.06	0.08	0.18	0.08	0.18	0.33	0.97	0.49	0.06	1.29	0.57	3.18	3.53	1.64	0.50
FK02	0.67	2.10	1.12	2.82	0.15	0.04	0.06	0.08	0.07	0.08	0.26	0.38	1.16	0.40	0.15	2.23	0.56	3.58	1.48	1.42	0.28
FK05	0.58	1.36	1.39	0.97	0.43	0.22	0.44	0.12	0.07	0.12	0.44	0.64	1.57	1.14	0.32	1.32	0.87	1.65	0.49	1.34	0.29
FK06	1.00	1.79	0.58	1.79	0.56	0.24	0.85	0.26	0.15	0.20	0.36	0.42	1.01	0.51	0.57	1.11	0.48	2.72	1.55	1.97	0.28
FK13	2.20	1.62	1.72	1.71	0.32	0.14	0.34	0.29	0.08	0.26	0.22	0.59	0.79	0.92	0.68	1.74	1.08	0.47	0.98	1.29	0.93
FK14	1.82	0.87	1.08	1.02	1.77	0.36	0.71	0.65	0.13	0.28	0.20	0.33	0.50	0.76	0.76	1.30	2.24	0.80	1.68	1.01	2.34
FK36	1.01	1.76	1.72	1.05	0.91	0.15	0.33	0.27	0.13	0.14	0.13	0.45	0.47	0.75	0.36	0.95	2.47	2.34	1.42	0.79	2.58
FK39	1.09	1.60	1.27	1.07	1.01	0.23	0.43	0.59	0.18	0.19	0.32	0.54	0.71	0.68	0.57	1.20	1.95	2.56	1.49	1.11	2.83
FK45	1.29	1.51	1.09	1.53	1.65	0.61	0.79	0.85	0.93	0.40	0.45	0.91	0.65	0.84	0.68	1.38	1.81	1.59	1.35	0.99	2.67
FK12	1.63	2.06	1.68	1.68	0.48	0.13	0.29	0.23	0.08	0.19	0.14	0.73	0.63	0.81	0.43	0.97	0.31	0.47	0.29	0.81	0.08
FK03	0.78	1.30	1.28	1.63	0.37	0.22	0.59	0.38	0.71	0.41	0.39	0.90	1.33	1.17	1.19	0.83	0.50	2.03	3.76	0.69	0.37
FK77	8.54	3.48	0.49	3.23	0.12	0.07	0.18	0.18	0.05	0.18	0.27	0.31	0.49	0.40	0.23	0.05	0.00	0.30	0.83	0.57	1.05
FK09	0.82	1.08	1.04	1.62	0.84	0.64	0.76	0.53	0.17	0.52	0.83	0.66	1.69	1.03	1.12	1.37	0.89	0.97	4.38	1.12	0.24
FK04	1.24	1.32	1.23	2.22	0.95	0.72	1.43	1.69	0.74	0.53	0.50	0.35	0.75	1.35	1.52	1.01	0.44	2.46	1.72	1.50	0.66
FK42	0.96	1.06	0.79	1.19	0.74	0.19	0.32	0.36	1.27	0.99	0.88	1.45	0.38	0.74	0.83	1.03	1.41	1.65	1.05	0.93	2.18
FK15	1.23	1.78	0.64	0.70	2.19	0.74	2.14	1.79	0.30	0.30	1.18	0.47	1.26	2.03	1.99	1.20	1.24	0.89	1.83	0.89	4.00
FK32	0.88	1.66	0.42	0.77	1.43	0.80	1.33	1.00	0.73	0.51	1.51	1.27	0.91	1.29	1.64	1.05	0.58	0.78	0.86	1.23	3.37
FK59	1.17	0.55	0.48	0.74	1.56	0.54	0.92	0.56	0.15	0.35	2.47	0.14	1.01	2.55	4.01	0.95	0.94	0.48	1.99	1.11	1.86
FK56	1.16	1.32	1.01	0.46	5.58	3.00	2.32	1.63	2.25	0.68	1.94	1.25	0.77	1.87	2.76	0.00	1.74	0.83	1.43	1.01	1.33
FK73	1.20	1.10	0.73	0.44	0.71	0.61	0.62	0.78	0.29	0.96	0.33	0.92	0.78	2.31	2.31	0.52	0.56	0.81	0.00	1.15	1.60
FK31	1.10	1.16	0.82	0.71	0.72	0.37	0.86	0.86	0.18	0.43	0.28	0.50	0.91	0.86	1.55	0.94	0.46	0.56	1.51	1.29	2.49
FK44	1.29	1.00	0.91	0.48	2.08	1.48	2.70	2.17	1.00	0.79	0.75	1.11	1.51	1.39	1.97	0.65	0.77	0.57	0.51	1.33	2.72
FK08	1.07	1.67	2.97	1.44	0.68	0.48	1.61	1.34	0.15	0.80	0.50	0.53	0.86	0.94	2.84	0.97	0.56	2.00	2.21	0.86	0.34
FK11	2.54	1.65	1.86	2.14	0.37	0.41	0.80	0.45	0.06	0.22	0.32	0.40	0.91	1.04	0.49	0.84	1.49	0.46	0.48	0.74	0.13
FK22	1.09	1.05	1.07	2.00	0.59	0.39	1.05	2.13	0.50	0.53	0.49	0.85	0.97	0.79	1.65	1.13	1.48	1.15	1.57	1.08	1.46
FK27	2.59	0.94	0.96	0.95	0.74	0.17	0.43	0.36	0.12	0.30	0.18	0.56	0.33	0.66	0.35	0.41	1.15	0.74	1.45	0.69	2.39
FK65	3.56	0.72	1.52	0.89	0.90	0.35	0.57	0.70	0.14	0.45	0.23	0.56	0.43	1.05	1.15	0.78	1.15	0.34	0.89	0.64	1.22
FK60	1.93	0.75	0.90	0.98	0.19	0.09	0.35	0.38	0.10	0.21	0.13	0.27	0.65	0.74	0.80	1.17	1.20	0.54	1.41	0.87	1.06
FK52	2.39	1.57	1.57	1.10	0.64	0.28	0.53	0.51	0.20	0.20	0.23	0.48	0.44	0.55	0.44	1.07	0.89	0.68	1.68	0.81	1.37
FK40	1.59	1.42	1.21	2.55	0.86	0.43	0.89	1.29	0.15	0.50	0.19	0.53	0.80	0.94	1.06	0.57	0.80	0.96	0.77	1.11	2.32
FK48	1.46	1.43	0.93	2.86	0.82	0.32	0.39	0.32	0.12	0.43	1.79	0.21	0.56	0.96	1.83	0.57	1.25	1.18	1.16	0.89	2.14
FK49	1.18	1.44	1.12	0.68	0.95	0.43	0.60	0.59	0.47	0.72	0.40	0.88	0.63	1.06	0.61	0.71	1.30	1.53	0.87	0.94	2.45
FK50	2.12	1.60	1.16	0.99	0.89	0.31	0.44	0.77	0.36	0.63	0.30	1.16	0.67	0.95	0.69	0.87	1.44	1.36	1.16	0.96	3.50
FK58	2.14	0.87	0.94	2.05	2.12	0.56	0.73	0.61	1.12	0.81	0.66	1.42	0.58	1.00	0.97	0.86	1.24	0.57	0.95	0.89	1.07
FK69	1.82	1.05	1.18	1.56	0.58	0.25	0.69	0.52	0.40	0.82	0.26	0.81	1.12	1.15	1.13	0.91	1.07	0.68	0.90	0.87	1.14
FK72	1.79	0.68	0.88	1.54	0.90	0.31	0.38	0.50	0.30	0.98	0.26	1.56	0.95	1.64	0.92	2.45	4.20	0.69	1.14	0.84	1.33
FK38	2.19	1.54	2.05	2.22	0.94	0.50	1.09	0.97	0.67	0.96	0.40	0.38	1.21	0.66	1.07	0.66	0.73	1.12	3.36	1.02	1.56
FK61	1.68	1.44	1.45	3.14	0.35	0.19	0.53	0.36	0.24	0.47	0.24	0.43	0.59	0.89	0.63	0.70	0.99	0.63	0.74	0.80	1.41
FK75	4.42	1.15	1.13	2.91	0.23	0.37	0.78	0.86	0.19	0.58	0.19	0.41	1.00	0.62	1.56	2.08	0.83	0.81	0.65	0.68	1.18
FK66	5.48	1.01	2.97	0.60	0.64	0.28	0.58	0.54	0.23	0.71	0.96	0.97	0.80	1.56	0.95	0.66	0.97	0.49	0.63	0.49	1.34
FK67	9.62	1.19	1.91	0.77	0.34	0.25	0.34	0.34	0.10	0.46	0.29	0.43	0.50	0.97	0.66	0.53	0.86	0.36	1.57	0.57	1.15
FK71	8.30	1.15	1.55	0.87	0.72	0.23	0.50	0.56	0.23	0.94	0.28	1.00	1.06	1.18	1.32	1.61	1.84	0.62	1.89	0.83	0.89
FK10	3.01	1.26	3.22	1.95	0.83	0.26	0.48	0.72	0.51	0.94	0.49	1.35	0.70	0.53	0.88	0.56	0.64	1.09	1.80	1.08	0.44
FK78	8.54	3.48	0.49	3.23	0.12	0.07	0.18	0.18	0.05	0.18	0.27	0.31	0.49	0.40	0.23	0.05	0.00	0.30	0.83	0.57	1.05
FK21	2.00	1.62	2.99	1.45	0.86	0.39	0.56	1.37	0.31	0.31	0.33	0.83	0.61	0.57	0.50	0.75	0.96	1.64	0.75	0.73	2.31
FK46	1.62	1.44	2.74	1.25	0.72	0.40	0.47	0.50	0.28	0.47	0.28	0.86	0.50	0.65	0.67	0.57	0.91	1.25	0.63	0.82	1.71
FK23	2.79	1.89	1.47	0.79	1.21	0.32	0.72	1.12	0.16	0.28	0.54	0.41	0.64	0.81	0.67	0.68	1.00	0.72	0.82	0.75	1.54
FK28	4.53	2.27	1.83	2.35	0.97	0.51	0.63	1.04	0.56	1.03	1.48	0.98	0.65	0.79	1.72	0.59	0.66	0.44	0.55	1.29	1.39
FK41	2.15	1.24	2.74	3.05	1.30	0.40	1.25	1.28	0.48	1.45	0.28	0.71	1.24	1.31	2.21	0.47	0.65	0.99	0.56	0.82	1.47
FK18	1.74	1.47	1.44	1.01	0.82	0.34	0.48	0.73	0.53	0.67	0.48	0.81	0.70	1.15	0.69	0.55	1.02	1.05	0.62	1.63	1.04
FK24	0.68	1.84	0.81	1.14	1.03	0.57	0.61	0.85	0.69	0.51	0.84	0.52	0.63	0.99	1.10	0.66	0.78	0.77	0.71	0.79	0.71
FK76	8.54	3.48	0.49	3.23	0.12	0.07	0.18	0.18	0.05	0.18	0.27	0.31	0.49	0.40	0.23	0.05	0.00	0.30	0.83	0.57	1.05
FK43	1.13	1.13	1.52	1.05	1.57	0.85	1.23	1.42	1.55	0.78	0.67	1.22	0.68	0.76	0.94	0.74	1.02	1.82	1.10	0.92	1.78
FK25	1.61	1.65	6.09	1.69	0.70	0.17	0.55	1.64	1.03	1.60	0.77	2.42	4.04	1.68	0.62	0.45	1.04	1.13	3.23	1.79	0.31
FK17	5.29	1.18	3.06	1.32	0.45	0.22	0.59	0.74	0.47	1.25	0.33	1.11	1.71	1.95	0.71	0.47	0.61	0.84	0.53	1.14	0.39
FK19	2.92	1.87	2.19	1.30	0.92	0.44	0.76	0.98	0.18	0.49	0.22	0.45	0.74	0.87	0.94	0.58	0.79	1.14	0.58	1.03	0.65
FK29	4.55	2.21	1.65	1.56	0.49	0.34	0.56	0.77	0.22	0.47	0.29	0.88	0.79	0.65	1.08	0.95	0.59	0.52	0.92	1.59	0.90
FK35	6.83	2.48	4.22	1.51	0.73	0.27	0.54	0.84	0.32	0.81	0.45	1.10	0.65	0.84	0.78	0.57	0.93	0.77	0.60	1.20	1.04
FK33	2.16	1.86	1.94	1.31	0.40	0.18	0.68	0.47	0.19	0.47	0.35	0.64	0.53	0.58	0.93	0.89	0.78	0.55	0.67	1.18	1.31
FK55	6.53	2.27	1.87	2.37	0.29	0.20	0.46	0.43	0.13	0.28	0.15	0.50	0.51	0.50	0.68	0.59	0.82	0.56	0.99	1.13	1.18
FK64	4.82	1.45	1.61	1.17	0.76	0.39	0.53	0.59	0.31	0.59	0.28	1.36	0.56	0.95	0.70	0.44	0.84	0.51	1.11	0.64	1.04
FK37	2.10	1.49	1.85	2.69	0.43	0.20	0.28	0.34	0.21	0.73	0.21	0.76	0.76	1.20	1.57	0.52	0.61	0.78	0.68	1.22	1.65
FK34	1.70	1.65	2.65	1.44	0.31	0.08	0.13	0.31	0.13	0.14	0.25	0.24	0.44	0.51	0.47	0.55	0.68	0.77	0.97	0.94	1.27
FK68	3.57	1.10	1.37	2.17	0.08	0.08	0.22	0.25	0.09	0.15	0.18	0.25	0.56	0.52	0.73	0.81	0.97	0.32	0.66	1.17	0.99
FK63	6.47	1.40	2.78	0.93	0.07	0.07	0.18	0.26	0.12	0.32	0.20	0.32	0.66	0.68	0.74	0.57	0.59	0.40	0.77	0.88	1.45
Nc22	7.72	1.57	1.21	2.98	0.25	0.28	0.48	0.33	0.12	0.41	0.30	0.22	1.03	0.66	1.05	0.88	0.84	0.34	0.64	1.07	0.95
Nc23	2.27	2.22	1.43	5.64	0.43	0.26	0.46	0.51	0.11	0.19	0.18	0.28	0.75	0.77	0.87	0.62	0.52	0.34	0.50	0.74	1.03
Nc24	8.54	3.48	0.49	3.23	0.12	0.07	0.18	0.18	0.05	0.18	0.27	0.31	0.49	0.40	0.23	0.05	0.00	0.30	0.83	0.57	1.05
Nc04	1.73	1.04	6.47	1.42	0.18	0.07	0.38	0.39	0.15	0.32	0.19	0.54	0.76	0.65	0.50	0.70	0.60	0.70	0.78	1.05	0.32
Nc05	1.61	1.69	2.85	0.81	0.19	0.13	0.39	0.37	0.46	0.44	0.36	1.17	0.70	0.68	0.38	0.49	0.51	1.15	0.61	0.96	0.34
Nc07	2.74	2.25	2.58	2.22	0.22	0.08	0.11	0.16	0.10	0.34	0.17	0.37	0.31	0.56	0.26	0.51	0.32	0.43	0.49	0.75	0.43
Nc10	9.74	2.11	2.59	1.17	0.14	0.05	0.20	0.16	0.04	0.11	0.18	0.28	0.35	0.44	0.51	0.44	0.52	0.44	0.57	0.69	0.30
Nc18	1.42	2.56	2.77	2.78	0.23	0.12	0.42	0.32	0.05	0.25	0.26	0.40	0.33	0.57	0.75	0.51	0.48	0.32	0.39	0.52	0.58
Nc11	3.64	1.85	4.48	4.90	0.14	0.09	0.14	0.18	0.13	0.21	0.07	0.51	0.49	0.48	0.21	0.60	0.38	0.43	0.44	0.52	0.47
Nc12	2.73	2.61	3.44	3.85	0.19	0.08	0.21	0.31	0.06	0.16	0.17	0.35	0.38	0.62	0.29	0.46	0.39	0.45	0.65	0.72	0.36
Nc19	2.51	2.89	3.34	2.89	0.20	0.07	0.16	0.27	0.12	0.34	0.22	0.39	0.38	0.60	0.24	0.49	0.43	0.45	0.41	0.65	0.49
Nc13	4.53	3.73	3.62	6.44	0.13	0.05	0.19	0.17	0.06	0.14	0.17	0.38	0.42	0.50	0.34	0.40	0.37	0.27	0.35	0.44	0.34
Nc14	5.28	2.79	5.87	5.46	0.15	0.09	0.49	0.28	0.06	0.17	0.08	0.31	0.37	0.41	0.78	0.45	0.50	0.35	0.27	0.77	0.38
Nc15	13.60	2.70	1.95	1.51	0.08	0.03	0.20	0.22	0.06	0.12	0.20	0.13	0.24	0.25	0.41	0.36	0.46	0.37	0.40	0.62	0.41
Nc17	5.90	2.94	3.78	3.90	0.10	0.04	0.12	0.18	0.06	0.17	0.05	0.27	0.27	0.45	0.19	0.49	0.48	0.26	0.85	0.80	0.44
Nc21	5.09	2.46	2.20	2.67	0.11	0.05	0.17	0.25	0.20	0.15	0.12	0.32	0.26	0.74	0.40	0.40	0.42	0.56	0.83	0.64	0.63
Nc20	7.43	2.05	4.75	1.21	0.19	0.13	0.61	0.39	0.11	0.51	0.12	0.30	0.59	0.75	0.94	0.58	0.60	0.25	0.44	0.55	0.31

Fig 14

Gene / Case No.	ARH1	THRB	ATP2B3	TGFB2	MAPK13	AADAC	PRKCM	NR1I2	CYP3A4	GHSR	PEMT	NFKB2	GJB1	GNG3	CYP2A6	IGF2	NOVA1	THY1	TERF1	CES1
FK01	3.07	2.68	7.02	5.78	2.24	3.59	1.25	1.26	1.29	8.00	2.73	0.00	4.65	2.93	3.80	2.58	1.99	2.10	0.89	2.45
FK07	5.34	8.26	13.19	9.91	8.05	6.91	1.87	2.45	2.70	30.81	8.74	0.00	5.55	3.78	3.14	2.53	3.53	4.24	1.71	4.01
FK02	2.77	4.54	5.88	4.01	6.70	3.10	3.51	4.84	4.72	3.21	2.06	2.78	3.74	3.90	2.44	2.13	6.08	2.99	1.34	3.76
FK05	1.46	1.56	2.47	3.01	3.67	2.43	2.07	1.40	2.44	2.68	1.83	2.16	2.06	1.75	2.85	1.97	2.84	2.25	0.98	2.05
FK06	2.01	2.52	6.29	7.94	3.53	2.51	2.11	1.68	1.41	4.39	4.52	12.05	5.06	4.28	5.04	3.01	3.95	3.13	1.73	3.58
FK13	3.07	3.00	2.59	2.64	3.47	3.70	3.93	1.18	2.09	5.23	3.30	1.10	1.46	1.99	2.60	1.69	2.13	3.75	1.80	3.17
FK14	1.51	0.65	1.95	1.93	0.59	3.30	2.78	2.15	1.54	1.68	1.98	12.18	2.67	2.80	3.70	2.66	3.84	1.20	1.53	2.31
FK36	1.48	1.85	3.58	2.23	3.97	2.76	1.25	2.41	2.17	1.56	1.62	4.94	3.49	2.02	3.98	2.99	2.67	6.06	2.52	1.14
FK39	2.10	1.53	4.56	2.79	4.85	1.96	2.38	1.48	1.37	3.85	1.79	6.34	4.37	2.06	4.44	2.91	3.57	5.47	2.81	2.11
FK45	2.20	2.07	3.00	1.99	3.71	2.07	1.59	1.38	1.02	3.58	1.77	6.14	3.55	2.13	3.81	2.82	2.59	3.95	2.51	1.94
FK12	2.88	3.23	3.91	4.50	2.45	3.28	2.91	3.94	3.53	6.84	3.04	1.84	2.30	2.93	2.60	2.67	1.83	3.64	1.17	2.60
FK03	1.23	2.03	1.89	1.93	2.93	1.37	1.15	1.30	1.58	2.23	1.44	1.60	1.32	1.28	1.41	1.57	1.84	1.43	1.15	1.34
FK77	0.70	0.74	0.71	0.56	1.02	0.90	0.50	0.82	2.65	1.00	1.50	5.85	0.77	1.10	1.33	1.83	1.45	0.00	1.40	1.38
FK09	1.74	2.36	1.80	3.69	1.42	1.84	1.59	1.63	2.67	4.08	5.70	10.96	1.53	1.27	1.92	1.86	2.39	1.91	1.06	2.09
FK04	1.92	4.22	8.92	6.25	7.59	8.99	1.64	1.08	0.99	4.71	1.99	69.31	2.50	2.44	3.00	1.74	1.29	1.49	1.53	1.66
FK42	1.49	2.08	2.77	1.94	3.57	3.37	1.38	1.15	1.49	1.44	1.09	1.97	1.72	1.25	2.19	1.88	2.01	1.41	1.61	1.87
FK15	0.83	2.17	1.17	1.94	1.05	0.90	1.35	1.47	1.50	1.28	1.78	2.74	1.66	1.36	1.49	2.15	1.15	1.22	1.21	1.97
FK32	1.72	1.04	1.29	2.80	1.60	1.02	0.79	0.79	1.00	1.45	1.35	1.90	1.42	1.60	1.68	1.42	1.19	1.83	1.06	1.19
FK59	1.43	1.25	1.24	1.38	1.15	1.13	1.33	2.24	2.74	1.39	2.12	9.39	1.27	1.53	1.35	1.46	1.40	3.22	1.19	2.22
FK56	1.24	1.23	2.23	2.12	2.26	1.28	2.21	1.37	1.31	1.99	1.40	3.06	1.73	1.79	1.11	1.25	1.74	1.88	1.22	4.23
FK73	1.25	1.35	1.07	0.83	1.35	1.00	0.82	1.81	2.56	0.97	8.42	2.50	1.13	1.18	0.85	1.40	1.20	0.70	1.53	5.39
FK31	1.17	1.22	1.29	1.77	1.51	0.89	0.91	1.15	1.06	1.46	1.59	1.66	1.39	2.22	1.30	1.24	0.92	1.19	1.15	1.55
FK44	0.89	0.58	0.79	1.59	1.22	0.86	0.87	0.89	1.24	1.29	0.97	3.87	1.33	1.55	1.64	1.11	0.65	0.93	1.13	1.85
FK08	0.65	1.84	2.58	2.05	3.09	1.01	1.25	1.14	1.42	2.14	0.79	0.50	1.34	1.26	2.12	0.65	2.07	2.11	1.30	1.40
FK11	1.23	1.06	1.17	1.94	1.50	1.48	1.67	1.13	1.61	2.86	0.97	2.01	1.35	1.32	1.45	1.28	1.19	1.72	1.09	1.18
FK22	1.66	2.23	2.33	1.58	2.64	2.04	1.81	2.59	8.76	2.12	2.82	6.60	1.48	1.35	1.74	1.71	1.96	3.14	1.45	4.26
FK27	1.21	1.39	1.81	2.02	0.75	1.59	1.69	1.47	3.22	3.69	1.89	5.56	1.34	1.79	2.53	2.00	2.13	1.77	1.80	2.17
FK65	1.17	1.16	2.22	0.69	0.60	1.56	1.51	1.95	1.48	1.91	1.31	7.85	1.62	1.24	1.94	1.63	1.86	1.52	1.51	1.83
FK60	1.19	1.93	1.54	1.15	1.93	2.02	1.81	2.78	2.21	4.21	2.82	6.35	1.92	1.97	2.04	2.01	2.42	6.93	1.33	2.73
FK52	1.42	1.70	2.07	1.23	1.53	2.19	1.14	3.67	7.12	2.85	4.40	9.70	1.43	1.48	2.25	1.93	1.01	3.98	1.67	2.21
FK40	1.94	1.01	1.57	1.50	1.84	1.39	1.15	0.90	1.07	5.14	1.12	7.54	2.05	1.76	2.08	1.61	3.22	1.65	1.91	1.07
FK48	1.69	1.52	2.26	1.88	2.44	1.36	1.29	1.42	1.44	2.06	2.03	5.36	2.07	2.15	1.97	1.84	2.94	3.94	1.85	1.54
FK49	1.36	0.86	2.27	2.25	4.14	1.29	1.35	1.03	0.00	1.74	1.48	2.31	3.01	2.04	2.64	2.63	2.36	2.11	1.87	1.57
FK50	1.65	1.96	2.66	2.24	3.21	1.44	1.15	1.52	1.70	3.14	2.34	5.52	2.73	2.29	2.77	2.46	2.24	2.47	2.11	1.18
FK58	1.74	1.49	1.98	1.18	1.50	1.85	1.79	1.21	2.03	5.52	2.05	12.63	1.91	1.55	1.68	1.50	1.88	6.79	1.37	0.85
FK69	1.07	1.33	1.97	1.58	1.15	1.18	1.34	1.20	1.00	1.77	1.16	7.15	1.06	1.14	1.71	1.26	1.45	1.51	1.58	0.86
FK72	1.29	1.28	1.26	1.26	0.92	1.16	1.41	1.56	1.48	3.11	1.57	18.37	1.11	1.17	2.08	1.84	1.49	3.14	1.34	1.43
FK38	1.51	1.13	1.19	1.17	1.21	0.68	0.94	1.08	1.11	3.39	1.60	6.83	1.70	1.41	2.24	1.50	2.47	2.22	1.81	1.31
FK61	1.02	0.98	1.20	0.75	0.67	1.15	1.12	1.33	1.26	1.33	1.65	6.14	0.86	1.03	1.26	1.45	0.87	1.06	1.12	1.25
FK75	1.06	1.49	1.65	1.39	0.71	1.24	1.49	1.30	2.31	1.19	1.45	5.92	2.18	1.01	1.37	1.17	2.09	1.09	1.16	1.18
FK66	0.91	0.91	1.35	0.75	0.57	0.89	1.02	1.57	3.94	1.39	2.06	6.32	1.30	1.09	1.84	1.21	1.61	1.60	1.12	1.33
FK67	0.71	0.84	1.41	0.61	0.50	0.81	0.76	1.53	2.12	3.52	2.45	9.83	1.60	1.08	2.06	1.41	1.50	1.27	1.22	1.57
FK71	1.23	1.52	0.91	0.85	0.81	1.24	1.59	1.95	12.48	1.56	1.97	8.90	2.72	1.56	1.79	1.65	5.00	1.31	1.39	2.04
FK10	1.20	1.03	1.89	1.89	3.11	0.95	0.61	0.66	0.97	2.08	1.75	5.96	1.26	1.43	2.20	1.20	1.46	1.07	1.34	1.27
FK78	0.70	0.74	0.71	0.56	1.02	0.90	0.50	0.82	2.65	1.00	1.50	5.85	0.77	1.10	1.33	1.83	1.45	0.00	1.40	1.38
FK21	0.91	0.92	1.75	1.33	1.32	0.99	0.63	1.38	1.35	2.10	1.59	3.05	1.79	1.87	1.99	1.25	1.04	1.39	1.92	1.21
FK46	0.93	0.93	1.37	1.30	2.01	1.01	0.76	1.25	1.12	2.95	1.53	2.88	2.05	1.64	2.11	1.68	1.66	1.37	1.78	1.87
FK23	0.81	1.01	0.67	1.14	0.78	1.12	0.92	1.35	1.24	1.30	2.32	5.04	0.92	1.15	1.62	1.29	1.17	1.30	1.29	1.15
FK28	1.21	0.81	1.59	1.17	0.93	1.06	0.95	0.61	0.76	1.68	1.45	8.81	1.83	1.64	2.72	1.53	2.30	1.89	1.64	1.85
FK41	1.00	0.82	1.72	1.44	1.19	0.97	0.93	0.66	0.71	1.75	1.30	8.98	1.20	1.16	1.55	1.35	1.19	0.62	1.81	1.04
FK18	1.01	0.51	2.78	2.13	1.33	0.85	1.00	0.79	0.98	1.14	0.73	1.33	1.48	1.49	0.80	1.13	1.22	1.13	0.78	1.55
FK24	0.98	0.89	1.01	1.37	2.09	1.00	0.61	0.62	0.52	1.06	1.19	1.89	1.99	2.03	0.82	1.16	1.32	1.30	0.79	1.05
FK76	0.70	0.74	0.71	0.56	1.02	0.90	0.50	0.82	2.65	1.00	1.50	5.85	0.77	1.10	1.33	1.83	1.45	0.00	1.40	1.38
FK43	1.33	1.17	2.26	1.65	2.71	1.18	0.81	0.65	0.86	4.90	1.21	4.23	2.79	1.77	2.43	1.74	1.95	1.73	1.87	1.66
FK25	0.53	0.42	0.35	0.56	0.39	0.95	0.94	1.69	0.75	0.80	0.77	0.00	0.63	0.76	0.00	1.98	1.82	0.85	0.57	1.76
FK17	0.23	0.39	0.28	0.66	0.62	0.40	1.23	0.74	0.78	0.68	0.82	2.02	0.86	1.18	1.17	0.93	0.72	0.97	0.59	5.94
FK19	0.74	0.75	0.92	1.53	1.51	0.49	0.77	0.77	0.67	0.66	0.89	1.88	0.79	0.80	0.83	1.02	0.71	2.00	1.50	1.03
FK29	0.75	0.48	1.29	1.06	0.78	0.58	0.73	0.77	1.17	2.01	2.14	6.47	1.73	2.24	2.28	1.48	2.05	1.71	1.36	1.10
FK35	0.88	0.60	1.08	0.90	0.79	0.80	0.88	0.98	1.10	3.28	3.76	10.70	1.71	1.76	1.60	1.08	1.07	1.29	1.56	0.97
FK33	0.86	1.02	1.16	1.29	0.92	0.68	0.77	1.27	1.47	1.16	2.22	4.16	1.78	1.56	2.77	1.74	1.86	1.88	1.10	1.34
FK55	1.06	0.62	1.83	1.30	1.53	1.00	0.94	1.23	1.01	1.67	1.59	6.47	1.53	1.35	1.67	1.80	0.97	0.94	1.39	1.33
FK64	0.68	0.83	0.73	0.49	0.52	0.76	0.75	1.14	0.78	1.08	2.34	5.46	1.05	1.28	1.28	1.44	0.98	1.38	1.24	2.63
FK37	1.08	0.59	1.07	1.25	1.33	0.79	0.59	0.82	0.78	2.29	1.25	8.66	1.49	1.61	2.74	1.84	2.88	1.81	1.77	1.89
FK34	0.95	0.77	1.08	1.11	1.69	0.91	0.62	0.63	0.73	1.84	2.04	3.18	1.74	1.68	2.98	1.74	1.71	1.87	1.60	1.35
FK68	0.87	0.87	0.92	1.31	0.98	1.09	0.82	1.09	0.95	2.01	1.37	2.73	0.96	1.32	1.04	1.42	1.10	1.49	1.17	1.11
FK63	0.66	0.73	0.79	0.56	0.55	0.68	0.68	0.90	0.98	5.28	2.48	3.54	0.70	0.84	1.13	0.93	0.67	0.88	1.05	2.28
Nc22	1.08	1.32	0.72	1.18	0.73	1.44	1.12	1.00	1.89	3.09	2.50	10.72	1.65	2.04	1.35	1.65	2.08	1.56	0.75	0.76
Nc23	0.77	0.93	0.90	0.62	1.00	0.79	0.85	0.78	0.83	1.76	1.17	5.78	0.86	1.17	1.67	1.75	1.03	1.06	1.07	0.67
Nc24	0.70	0.74	0.71	0.56	1.02	0.90	0.50	0.82	2.65	1.00	1.50	5.85	0.77	1.10	1.33	1.83	1.45	0.00	1.40	1.38
Nc04	1.01	0.64	1.23	0.89	1.00	1.10	0.76	1.07	1.44	1.07	1.30	1.21	0.79	1.65	1.02	1.19	0.88	0.61	0.91	1.18
Nc05	0.85	0.77	1.08	1.09	1.44	1.14	0.77	0.97	1.14	1.68	1.67	1.71	1.14	1.25	1.50	1.41	1.50	1.19	0.97	0.91
Nc07	0.40	0.44	0.75	0.95	0.77	0.73	0.58	0.86	0.94	0.50	0.82	1.61	0.99	1.25	0.93	1.18	0.96	1.85	0.94	1.00
Nc10	0.40	0.45	0.66	0.86	0.64	0.66	0.69	0.46	0.30	0.87	0.64	1.39	0.91	1.24	0.84	0.99	0.63	0.78	1.02	0.57
Nc18	0.46	0.38	0.63	0.95	0.91	0.70	0.90	0.42	0.58	0.53	0.67	2.07	1.29	1.09	1.85	0.82	1.10	0.90	0.64	0.55
Nc11	0.39	0.36	0.59	0.81	0.70	0.62	0.44	0.65	0.45	0.65	0.56	1.00	0.88	0.67	0.81	0.76	0.56	0.98	1.03	0.74
Nc12	0.79	0.23	0.41	0.67	0.65	0.52	0.36	0.33	0.48	0.69	0.91	1.63	0.76	0.88	0.90	1.16	0.65	0.64	1.17	0.79
Nc19	0.65	0.21	0.54	0.57	0.71	0.52	0.65	0.56	0.57	0.61	0.73	1.25	0.65	0.66	1.03	1.00	0.58	0.80	0.78	0.64
Nc13	0.23	0.25	0.65	0.50	0.56	0.60	0.38	0.44	0.84	0.24	0.90	1.14	0.76	1.04	1.02	0.93	0.64	0.86	0.76	0.74
Nc14	0.28	0.36	0.44	0.64	0.59	0.49	0.52	0.34	0.28	0.87	0.77	1.35	0.64	0.77	0.70	0.81	0.62	0.93	0.68	0.80
Nc15	0.27	0.20	0.77	0.89	0.50	0.76	0.73	0.37	0.56	0.46	0.73	1.38	0.49	0.55	0.61	0.87	0.63	0.55	0.89	0.98
Nc17	0.17	0.30	0.78	0.66	0.50	0.75	1.06	0.70	0.81	0.56	0.96	1.60	0.62	1.10	1.06	0.90	0.67	1.24	1.04	1.13
Nc21	0.62	0.33	0.63	0.74	0.66	0.65	0.76	0.74	0.92	0.80	0.70	2.07	0.72	0.51	0.97	0.77	0.60	0.64	0.98	1.24
Nc20	0.31	0.18	0.42	0.67	0.63	0.73	0.69	0.46	0.54	0.96	1.28	2.43	0.75	0.87	0.71	0.80	0.79	1.05	0.38	0.78

Fig 15

Gene / Case No.	SCYA1	SLC6A2	CYP1A2	CSF3	SCYA24	TRAF4	KARP1	CYP8B1	CYP17	IL12B	ABL2	EGFR	TFAP2C	NR5A2	UGT2B4	TIMP3	GNA13	ALDH7	GRO2	GRO1
FK01	0.80	1.61	8.89	4.50	4.07	2.04	4.49	3.07	3.42	3.63	5.67	2.68	3.45	2.44	2.88	3.05	9.01	4.40	1.82	1.20
FK07	3.01	1.27	15.65	7.65	7.84	2.75	4.50	3.53	3.55	2.89	3.79	10.77	6.81	4.17	5.40	4.36	22.51	6.62	1.55	1.06
FK02	6.40	1.58	6.83	2.59	3.76	1.71	2.20	2.25	8.73	3.58	3.15	5.68	1.74	5.25	6.78	3.48	2.43	0.97	0.81	0.93
FK05	2.45	1.65	2.88	1.65	1.61	2.03	1.65	1.94	1.89	2.18	1.83	2.00	1.00	1.85	2.49	2.41	1.25	1.45	0.55	1.35
FK06	3.26	1.45	12.82	3.25	6.61	4.48	6.44	5.09	6.27	4.95	3.03	0.65	4.97	4.05	5.85	4.25	3.50	1.72	1.73	1.09
FK13	1.20	1.80	2.73	2.17	0.00	1.49	2.19	2.20	1.73	1.89	2.24	2.00	4.58	4.04	3.49	2.11	1.18	0.92	0.98	1.22
FK14	3.36	2.45	2.69	1.45	2.52	3.54	2.85	3.59	5.86	2.84	3.48	3.70	3.20	2.46	2.72	2.36	1.45	1.06	1.01	0.71
FK36	3.02	1.51	4.51	2.00	2.57	4.08	3.65	4.65	7.16	4.20	2.57	2.46	1.58	2.31	3.35	2.31	2.64	1.14	1.78	1.34
FK39	2.80	1.62	5.03	2.21	2.83	4.56	3.65	4.50	5.07	3.06	2.77	3.72	3.07	2.65	3.61	2.02	3.12	1.09	2.13	1.04
FK45	2.51	1.84	3.58	1.99	2.11	3.96	2.95	3.75	5.28	2.81	2.72	2.85	1.77	2.10	2.45	2.09	2.21	1.28	3.16	1.58
FK12	1.43	1.00	3.39	2.54	3.18	2.39	3.98	3.30	3.80	4.01	3.55	2.61	3.79	2.34	3.59	1.44	1.31	0.57	1.49	1.49
FK03	1.79	1.15	2.65	1.64	1.26	1.45	1.52	1.47	1.69	1.88	1.51	1.48	0.93	1.40	2.43	1.89	3.18	0.92	1.99	1.13
FK77	4.62	1.51	1.48	1.22	1.09	1.15	1.08	1.55	2.09	1.67	2.12	0.88	0.63	0.71	0.83	1.16	2.51	1.34	0.54	0.42
FK09	1.68	1.79	3.80	2.35	0.00	1.57	1.68	1.47	1.73	2.71	2.83	4.45	1.67	2.76	3.00	2.15	0.00	1.32	1.79	1.36
FK04	0.94	1.24	10.37	5.85	11.85	1.82	4.12	2.67	1.48	2.49	1.17	1.40	2.14	1.18	2.41	2.44	530.55	2.66	6.42	2.55
FK42	1.73	1.32	3.43	1.56	1.61	2.20	2.33	2.72	3.51	1.76	1.83	2.18	1.80	1.52	2.67	1.73	2.33	1.24	1.98	1.61
FK15	5.01	1.37	6.80	1.22	3.71	5.20	6.78	7.89	1.88	2.25	3.80	2.86	6.81	4.29	3.60	1.55	1.30	1.46	1.14	0.88
FK32	2.48	1.35	4.31	1.26	2.48	4.17	7.76	7.49	1.49	1.59	2.22	1.82	4.50	1.72	2.60	1.17	1.22	1.28	1.51	1.26
FK59	3.24	1.47	3.02	1.48	1.58	3.82	3.36	4.89	1.50	2.49	2.99	2.09	3.77	1.28	1.99	1.88	0.91	1.42	5.63	2.77
FK56	3.86	1.47	3.93	1.20	1.75	2.83	4.63	5.22	1.53	2.01	3.02	2.49	4.14	2.86	4.93	1.46	2.13	1.20	11.00	6.56
FK73	3.22	1.54	3.34	1.43	1.39	1.79	3.01	2.61	1.85	2.30	1.49	2.02	5.60	2.04	1.73	2.55	0.92	1.25	1.68	1.97
FK31	3.73	1.31	3.25	1.02	1.76	2.94	5.28	5.36	1.54	1.50	2.59	2.63	3.52	1.52	2.14	1.40	1.11	1.17	1.28	0.70
FK44	2.80	1.14	3.03	1.13	1.53	3.09	4.78	4.89	0.96	1.36	2.24	2.63	2.09	1.30	1.10	0.97	0.91	1.10	1.59	1.11
FK08	1.38	0.51	2.99	1.94	1.03	2.05	1.23	1.44	1.02	1.45	0.77	0.40	0.57	1.65	0.88	1.65	0.47	1.67	2.53	1.93
FK11	1.46	1.44	1.39	1.10	1.17	2.10	1.83	2.74	2.10	1.75	1.31	1.29	1.49	2.37	1.64	0.95	0.77	0.81	0.78	0.88
FK22	2.05	1.43	2.48	1.61	2.55	1.58	1.95	1.47	3.29	1.92	1.95	2.06	2.03	1.48	1.81	1.45	2.34	0.96	2.66	1.85
FK27	2.55	1.51	2.85	2.12	1.81	2.60	2.41	3.49	7.69	4.38	2.73	2.79	2.55	1.97	1.76	1.95	2.11	1.32	1.04	0.65
FK65	5.56	1.75	3.29	1.26	3.25	2.59	1.71	2.29	3.03	1.71	1.63	1.87	1.26	1.19	1.35	1.63	1.54	2.02	0.78	0.84
FK60	2.82	1.54	2.08	1.22	1.09	1.28	1.40	1.91	2.86	2.53	2.84	2.69	1.81	2.18	1.67	2.73	1.52	1.41	0.65	0.96
FK52	1.14	1.30	2.44	1.71	1.47	2.84	2.05	2.37	9.27	4.64	1.83	1.81	2.47	2.21	1.62	2.11	1.47	1.03	0.72	0.59
FK40	2.35	1.51	2.66	1.60	1.60	3.38	2.77	4.07	3.53	2.25	2.01	1.85	1.37	1.10	1.02	1.29	1.56	1.09	1.90	1.02
FK48	2.17	1.29	2.87	1.53	2.42	3.26	2.68	3.43	3.98	2.68	2.52	2.26	1.28	1.34	1.36	1.21	1.82	1.14	4.19	2.83
FK49	2.25	1.31	3.15	1.59	1.53	3.16	2.73	4.03	5.75	3.18	2.27	1.73	1.40	1.61	2.30	1.46	2.03	1.05	3.07	2.43
FK50	2.85	1.12	3.85	1.79	1.97	4.36	3.58	4.76	7.10	3.37	2.94	1.68	2.54	2.18	2.21	2.01	2.03	1.18	3.15	2.24
FK58	1.91	1.13	2.34	1.42	1.92	2.81	1.59	3.24	3.33	3.86	1.44	1.37	1.51	1.33	1.10	1.31	1.35	1.64	3.64	2.47
FK69	1.13	1.14	1.79	1.28	2.29	1.39	1.53	1.52	2.03	1.58	1.33	1.50	1.06	1.16	1.11	1.08	1.78	1.18	3.91	2.01
FK72	2.86	1.75	2.12	1.60	2.37	1.93	1.88	1.64	3.51	1.39	2.07	1.95	1.29	1.03	0.92	1.64	1.48	1.37	5.48	3.54
FK38	1.85	1.35	1.78	1.51	1.39	2.25	1.51	2.18	2.06	1.29	2.73	1.88	1.44	1.30	0.84	1.16	1.41	0.88	2.50	1.70
FK61	2.15	1.44	4.07	1.36	3.22	2.57	2.56	2.45	4.04	1.79	1.10	1.15	1.74	1.51	1.65	1.22	2.55	1.57	1.74	0.97
FK75	2.01	1.12	1.95	1.21	3.33	1.34	1.63	1.91	1.38	1.08	1.30	1.14	0.97	1.64	1.04	0.98	2.71	1.13	0.97	0.53
FK66	2.79	2.75	2.42	1.26	1.31	2.44	1.34	2.35	3.49	3.18	1.67	1.17	1.21	1.05	1.21	1.07	2.26	2.17	2.49	2.33
FK67	3.96	1.53	1.92	1.08	1.74	2.62	1.29	1.99	2.99	1.77	1.24	1.11	1.04	0.95	0.67	1.04	2.57	3.55	1.25	1.17
FK71	3.27	1.82	1.09	1.17	1.00	1.89	0.85	1.42	5.05	2.08	1.85	1.99	1.36	1.40	0.82	1.99	2.32	1.19	2.00	1.79
FK10	0.78	2.20	2.48	1.53	1.04	1.17	0.97	1.23	1.16	1.16	1.19	0.90	0.56	0.99	1.32	1.16	1.88	3.32	2.23	2.29
FK78	4.62	1.51	1.48	1.22	1.09	1.15	1.08	1.55	2.09	1.67	2.12	0.88	0.63	0.71	0.83	1.16	2.51	1.34	0.54	0.42
FK21	1.57	1.14	2.92	1.37	1.61	2.22	2.40	2.58	3.63	1.86	1.46	1.25	1.56	0.79	1.24	0.91	2.23	0.83	1.50	0.95
FK46	1.80	1.50	1.93	1.43	1.03	2.02	1.54	2.35	2.73	1.65	1.52	1.26	1.16	1.43	1.01	1.08	1.88	0.81	1.40	1.06
FK23	1.63	1.34	1.37	0.95	1.09	1.28	1.36	1.64	3.59	1.58	1.21	1.59	1.50	1.16	1.06	1.20	2.00	0.96	0.95	0.96
FK26	1.27	1.39	1.44	1.01	2.12	1.97	1.50	1.73	2.49	1.21	1.15	1.00	0.49	0.83	0.57	0.76	1.33	0.83	13.54	8.61
FK41	1.28	0.98	1.72	1.17	0.97	1.36	1.49	1.88	1.72	1.13	1.02	1.11	0.98	0.71	0.94	0.74	1.90	0.75	2.50	1.98
FK18	1.04	0.87	1.59	1.45	3.59	1.25	1.59	1.73	1.28	1.25	0.93	1.04	1.02	1.53	1.17	1.57	1.01	0.57	2.85	1.10
FK24	1.39	0.81	2.35	1.43	1.55	2.83	2.69	3.06	2.24	2.81	1.27	1.21	1.38	0.93	1.11	1.80	1.04	0.83	1.27	1.28
FK76	4.62	1.51	1.48	1.22	1.09	1.15	1.08	1.55	2.09	1.67	2.12	0.88	0.63	0.71	0.83	1.16	2.51	1.34	0.54	0.42
FK43	1.39	1.86	2.08	1.64	1.25	2.00	1.78	2.52	3.12	1.43	1.57	1.92	1.82	1.05	1.40	1.56	1.86	0.93	4.48	3.08
FK25	4.81	0.00	0.94	1.01	1.45	0.88	1.05	1.65	1.28	1.53	1.63	1.18	0.98	2.62	1.49	1.04	0.00	0.83	9.96	3.68
FK17	0.97	1.06	0.52	0.75	0.69	0.94	0.58	0.85	1.57	0.81	1.27	1.03	0.46	0.82	0.69	0.69	0.31	0.88	3.43	2.63
FK19	0.64	0.81	1.49	0.97	1.73	2.22	1.84	1.91	1.50	1.34	0.86	0.99	1.17	0.91	1.18	1.22	0.96	0.64	1.03	0.66
FK29	1.09	1.11	0.65	1.03	0.64	0.80	0.72	1.08	1.85	0.88	1.10	0.69	0.60	0.68	0.46	0.73	1.25	0.99	1.05	1.20
FK35	1.17	1.35	1.11	0.93	0.88	0.92	0.79	1.20	1.86	0.87	1.04	1.42	0.87	0.90	0.68	0.80	1.42	1.04	1.30	1.37
FK30	1.48	1.45	1.32	1.27	0.81	1.32	1.13	1.60	3.75	1.86	1.31	1.18	1.24	0.93	0.72	0.83	1.20	1.01	0.99	1.42
FK55	1.40	1.41	1.78	1.31	0.91	1.31	1.26	1.56	1.69	1.23	1.07	1.13	0.65	1.00	0.97	1.13	2.69	0.88	0.50	0.78
FK64	2.13	1.91	1.15	1.12	1.53	1.01	0.82	1.63	1.57	1.27	1.73	0.78	1.00	0.73	0.64	1.05	3.05	1.84	1.19	0.88
FK37	1.57	1.32	1.59	1.46	1.11	2.04	1.83	2.12	1.48	0.93	1.05	0.98	0.42	0.72	0.45	0.90	1.21	0.95	1.06	1.22
FK34	1.49	1.56	1.35	1.34	0.95	1.61	1.23	1.77	1.89	1.10	1.46	1.21	0.80	0.67	0.83	1.17	1.51	1.05	0.63	0.65
FK68	1.15	1.48	1.24	1.40	1.41	1.38	1.23	1.52	3.98	1.43	0.93	1.05	0.90	1.09	0.78	1.03	2.55	0.89	0.64	0.69
FK63	1.27	1.78	1.68	1.24	1.22	1.46	1.37	2.02	2.08	1.07	1.18	0.76	0.91	0.96	0.95	0.84	3.69	1.41	0.68	0.75
Nc22	2.99	0.90	1.19	1.02	1.02	0.94	1.10	1.43	2.07	0.91	1.56	1.00	0.53	1.18	0.60	0.91	2.48	1.12	0.47	0.54
Nc23	1.25	0.49	1.53	0.89	1.12	1.52	1.41	2.13	1.21	1.06	1.35	0.80	0.81	0.92	0.56	1.03	2.15	0.78	0.50	0.53
Nc24	4.62	1.51	1.48	1.22	1.09	1.15	1.08	1.55	2.09	1.67	2.12	0.88	0.63	0.71	0.83	1.16	2.51	1.34	0.54	0.42
Nc04	1.02	1.56	0.87	0.89	0.92	0.96	0.53	0.68	1.29	0.60	0.67	0.72	0.93	0.74	0.74	0.91	0.95	0.86	0.96	0.47
Nc05	2.10	1.73	0.97	1.11	1.03	0.96	0.59	0.78	1.07	0.74	0.93	0.77	0.58	0.81	0.83	1.12	2.22	1.23	2.08	2.58
Nc07	0.76	0.82	0.99	0.96	0.98	1.70	1.33	1.57	1.74	1.54	1.42	1.38	0.75	1.11	0.69	0.83	0.32	0.60	1.11	0.68
Nc10	0.72	0.79	0.87	0.92	0.67	1.42	1.07	1.84	2.13	1.40	1.08	0.74	0.72	0.75	0.63	0.82	0.43	0.52	0.55	0.58
Nc18	0.73	0.35	1.26	0.88	0.87	2.12	1.38	2.71	1.57	1.56	0.83	1.26	0.65	1.04	1.02	1.10	0.27	0.31	0.74	0.80
Nc11	1.51	1.08	0.61	0.70	0.77	1.38	0.79	1.23	1.14	0.99	0.80	0.90	0.65	0.95	0.65	0.67	0.44	0.71	0.92	0.85
Nc12	1.02	1.02	0.74	0.80	0.70	0.73	0.75	1.29	1.10	1.13	0.89	0.86	0.82	0.72	0.68	0.85	0.38	0.63	0.67	0.86
Nc19	0.57	1.13	1.13	0.97	1.01	1.01	1.47	1.57	1.01	1.30	0.83	0.94	0.60	0.67	0.80	0.83	0.66	0.89	0.82	0.81
Nc13	0.51	1.10	0.58	0.90	0.85	0.94	0.75	0.94	1.10	0.81	1.15	0.83	0.86	0.73	0.64	0.81	0.14	0.58	0.96	0.67
Nc14	0.84	0.75	0.67	0.97	0.80	1.27	0.77	1.03	1.22	0.81	1.08	0.69	0.65	0.66	0.48	0.70	0.08	0.58	0.73	0.89
Nc15	0.46	0.55	0.69	0.67	1.23	0.49	0.84	1.18	1.27	0.90	0.99	1.04	0.80	0.62	0.46	0.78	0.48	0.44	0.68	0.74
Nc17	0.83	1.06	0.61	1.13	0.68	0.35	0.73	1.06	1.12	0.80	0.99	0.90	0.75	0.90	0.59	0.96	0.42	0.58	0.44	0.70
Nc21	0.74	1.85	1.60	1.04	1.02	0.92	1.75	1.93	0.78	1.41	0.83	1.13	0.68	0.65	0.76	0.83	0.61	0.77	0.98	0.54
Nc20	0.74	0.86	0.95	1.27	0.93	1.10	1.10	1.53	1.03	1.23	0.79	1.24	0.99	0.89	1.28	0.71	0.27	0.83	1.22	0.71

Fig 16

Gene / Case No.	ICAM1	BCL3	CDC42	BAG4	RIPK2	MAD	TNFRSF10B	GRO2	DTR	TNFAIP6	IL1R2	SCYA2	TOP2A	NR1D1	STK9	ARHI	CSF1	GHSR	PEMT	TLF1	GNRH1	FGF7	IL18R1
FK01	1.27	2.34	3.02	0.61	0.93	2.50	1.50	0.09	0.11	0.59	0.88	4.24	1.04	0.65	1.14	1.97	2.37	3.88	2.17	0.28	2.10	5.92	1.28
FK02	1.37	0.86	1.89	1.10	2.20	0.98	1.10	0.15	0.16	0.82	1.04	2.86	3.02	0.90	1.12	1.54	1.70	1.84	1.27	1.93	1.28	1.29	0.95
FK03	0.89	0.69	1.33	0.45	0.25	0.76	0.49	0.05	0.17	0.38	0.68	2.67	2.53	2.37	1.46	1.88	1.24	1.58	1.57	1.73	1.34	2.78	0.53
FK11	0.48	0.71	0.98	0.68	0.26	1.48	0.56	0.20	0.26	0.95	0.69	0.88	5.04	3.37	2.57	1.33	0.98	1.67	1.31	2.42	1.25	1.24	0.61
FK12	0.88	0.82	0.81	0.94	0.35	0.76	0.93	0.38	0.28	1.53	2.98	2.30	3.34	3.08	2.15	2.04	1.53	1.25	1.65	3.07	1.38	2.54	0.52
FK13	0.84	0.71	0.85	0.94	0.71	0.50	0.86	0.35	0.24	1.03	0.98	1.42	2.93	1.46	1.61	1.53	1.02	1.19	1.61	2.36	1.51	1.59	0.89
FK04	1.00	1.58	1.74	0.22	1.41	0.76	1.59	0.14	0.13	0.81	0.62	3.49	0.80	1.44	1.25	2.60	2.07	3.84	1.69	1.29	2.11	15.53	0.68
FK07	1.23	1.35	1.76	0.16	0.44	0.87	1.12	0.21	0.16	0.63	1.08	3.01	1.78	1.28	1.09	1.86	0.96	1.89	1.39	1.97	1.72	7.18	0.67
FK09	0.77	1.17	1.27	0.23	0.32	0.87	0.86	0.27	0.18	0.52	0.80	1.56	1.76	2.05	1.74	1.44	1.90	1.85	1.47	2.84	1.22	2.13	0.51
FK05	1.12	1.24	1.44	0.50	0.89	0.98	1.06	0.54	0.24	1.17	5.72	1.84	2.28	3.04	0.89	3.03	1.67	2.83	2.37	1.10	0.87	2.83	0.66
FK08	1.14	1.43	1.49	0.42	0.78	1.72	1.46	0.47	0.21	1.33	6.96	2.68	1.29	2.40	0.99	2.87	1.65	2.68	1.79	1.13	1.45	1.60	0.64
FK06	1.13	1.44	1.47	0.62	1.56	1.36	1.60	0.98	0.37	0.93	5.69	2.03	1.70	1.13	1.20	1.36	1.57	3.14	1.88	2.66	1.38	3.40	0.51
FK14	0.28	0.27	0.25	0.28	0.65	0.30	0.42	0.50	0.20	1.31	3.29	2.34	1.98	2.88	0.70	5.42	1.46	2.66	5.29	1.93	1.48	2.74	0.21
FK15	0.26	0.59	0.25	0.24	0.84	0.28	0.42	0.27	0.14	0.63	0.45	0.61	0.62	0.82	0.83	4.85	1.85	3.71	6.76	1.76	2.50	12.05	0.71
FK65	0.88	0.20	0.71	0.52	0.47	0.38	1.24	0.18	0.12	1.06	0.31	1.55	0.90	1.04	1.13	4.60	1.75	3.33	5.77	0.61	2.05	1.87	0.57
FK67	0.45	0.63	0.88	0.87	0.37	0.86	0.58	0.24	0.14	0.75	0.78	0.33	1.57	1.38	0.66	2.63	0.91	1.58	7.36	3.40	2.21	2.82	0.65
FK31	1.15	0.87	0.86	2.37	0.47	0.40	0.58	0.89	0.58	0.39	0.63	1.32	3.15	1.93	2.44	0.65	1.57	1.19	1.47	1.01	0.77	0.48	0.73
FK32	0.60	0.73	0.73	2.05	0.40	0.41	0.73	0.38	1.37	1.00	1.44	0.54	3.08	1.90	2.96	1.25	1.40	1.71	1.81	1.50	0.83	0.41	0.59
FK39	2.08	1.34	2.51	1.80	0.36	0.45	1.75	1.80	0.76	0.81	1.76	3.39	3.81	2.20	1.21	0.90	1.20	1.59	1.16	2.64	0.94	0.23	0.80
FK49	0.92	0.74	1.03	2.01	0.37	1.01	2.57	1.21	0.39	3.01	4.45	0.64	4.23	1.94	1.25	1.39	1.84	2.21	1.74	2.39	0.65	0.61	0.54
FK56	1.29	1.10	1.16	1.72	0.35	0.50	0.82	2.05	0.68	2.57	6.90	3.57	2.54	1.26	1.88	1.02	1.50	1.26	2.16	2.85	0.94	0.60	0.60
FK60	1.43	1.01	0.82	5.02	0.23	0.65	0.86	0.72	0.42	0.42	1.23	1.37	2.35	1.89	1.52	1.15	3.72	1.31	3.89	2.06	2.45	0.61	0.26
FK72	1.01	1.19	1.11	2.00	0.59	0.91	1.37	0.82	0.40	1.18	0.92	2.70	2.39	1.32	1.43	1.84	2.76	1.32	2.69	1.70	1.85	0.94	0.81
FK66	1.37	1.86	1.21	2.00	0.39	0.32	0.96	1.25	0.57	0.32	1.88	3.98	2.35	1.34	1.00	1.05	1.27	1.31	1.71	2.64	1.84	0.56	0.91
FK37	1.20	0.83	0.70	1.25	0.24	0.72	0.36	0.51	0.39	1.02	1.09	0.87	5.14	4.18	3.38	2.09	3.73	1.80	0.00	0.00	0.00	1.27	0.38
FK50	1.13	0.86	0.72	1.41	0.42	0.51	0.72	1.59	0.66	0.89	2.53	0.88	2.99	2.08	1.35	1.79	2.39	1.43	1.43	1.32	1.75	1.94	0.48
FK61	0.51	0.39	0.40	0.95	0.15	0.49	0.52	0.27	0.14	0.44	0.37	0.89	2.21	1.89	1.80	1.08	1.89	1.29	2.47	1.32	1.35	0.87	0.38
FK73	0.43	0.35	0.44	0.51	0.09	0.36	0.50	0.18	0.21	0.55	0.39	1.38	4.41	1.54	4.18	2.14	4.43	1.58	1.78	0.79	1.38	1.79	0.25
FK43	0.92	0.76	0.81	2.52	0.17	0.83	0.90	1.02	0.59	1.27	4.35	1.51	5.89	1.83	4.17	0.71	2.65	1.15	1.15	1.19	3.65	0.39	0.07
FK48	5.97	0.83	0.83	2.04	0.44	1.01	1.27	1.70	0.09	3.20	0.59	0.42	4.62	2.40	2.55	1.89	1.95	2.25	0.93	1.09	0.49	0.83	0.23
FK59	4.46	1.98	1.05	0.88	0.59	0.38	0.89	6.33	0.13	16.53	1.87	1.98	3.40	3.09	2.01	1.10	2.15	1.45	1.49	1.75	1.25	1.13	0.36
FK22	1.47	1.14	2.15	1.98	0.58	0.81	0.95	1.74	1.42	1.30	54.19	0.29	1.62	1.20	0.71	1.15	0.68	2.10	1.88	2.77	0.94	0.53	0.68
FK71	3.02	2.42	3.88	1.37	0.85	0.53	1.24	4.08	1.81	0.41	2.89	3.34	1.37	0.89	0.78	0.99	2.48	1.24	1.98	2.16	1.27	0.55	1.04
FK34	1.50	1.25	1.34	1.90	0.50	0.47	0.68	0.56	0.33	0.40	0.84	0.62	2.09	1.07	1.09	0.56	0.79	1.08	1.14	1.34	1.55	0.50	1.22
FK52	0.87	1.64	1.15	1.19	0.37	0.43	0.99	0.68	0.72	0.85	2.48	0.52	1.60	1.00	0.58	1.26	0.83	1.18	1.28	1.93	1.62	0.77	1.51
FK17	1.49	1.06	1.77	1.12	0.73	0.26	0.69	2.77	0.67	0.32	1.98	0.78	0.71	0.57	0.57	0.82	2.81	1.02	2.71	1.84	0.71	0.87	0.42
FK46	1.81	0.92	0.87	1.91	0.71	0.76	0.52	1.61	0.65	0.72	0.95	0.58	1.13	0.89	0.92	0.84	1.13	2.92	1.18	2.01	1.07	0.91	0.62
FK28	2.31	2.12	0.57	0.91	0.76	0.88	0.64	5.55	1.06	0.98	1.62	0.71	1.48	1.02	0.86	0.84	1.16	1.58	1.04	1.74	1.08	0.75	0.77
FK41	0.88	1.20	0.95	0.98	0.63	1.00	0.64	1.52	0.66	0.35	1.22	1.73	1.37	1.05	1.51	0.60	2.42	1.40	1.35	1.21	0.78	0.65	0.83
FK18	1.00	0.89	0.81	1.06	0.45	0.41	0.87	0.54	0.54	0.44	0.67	0.23	1.35	0.93	0.62	0.81	0.61	1.04	0.71	1.07	0.92	1.39	0.50
FK24	1.22	0.81	0.41	1.09	0.34	0.68	0.88	0.50	0.32	0.78	0.80	0.84	1.12	1.37	0.61	1.32	1.72	1.85	1.45	1.21	0.82	0.90	0.83
FK44	0.84	1.14	0.76	1.51	0.31	0.24	0.38	0.25	0.59	0.44	2.74	1.98	1.56	0.73	1.19	1.47	3.58	2.10	2.16	1.81	0.93	1.00	0.78
FK75	1.53	0.91	1.35	1.79	0.38	0.47	1.32	0.37	0.45	0.20	2.51	1.28	0.89	0.56	0.68	1.06	1.55	1.28	0.88	0.85	1.18	0.79	0.86
FK27	0.47	0.72	0.50	0.43	0.72	0.67	0.78	0.41	0.47	0.39	0.50	0.65	0.75	0.58	0.62	1.36	1.40	1.88	2.50	1.79	1.71	1.41	0.85
FK78	0.39	0.86	0.60	0.53	0.20	0.47	0.43	0.41	0.25	0.38	0.38	0.69	0.81	0.70	0.47	0.97	0.77	0.32	0.94	0.81	2.66	1.97	4.19
FK40	1.05	1.27	1.47	2.59	0.82	0.84	1.00	1.65	0.75	0.39	1.97	1.38	1.12	0.88	0.62	0.75	1.95	30.83	0.71	0.80	0.60	0.80	0.90
FK19	0.50	0.45	0.42	0.49	0.28	0.70	0.63	0.35	0.32	0.64	0.48	6.80	1.65	1.13	0.71	0.94	1.77	1.16	1.40	0.93	1.00	0.64	0.75
FK38	0.32	0.37	0.53	0.26	0.30	0.51	0.49	0.40	0.16	0.31	0.68	5.31	2.27	1.62	1.22	0.98	2.53	1.80	0.75	0.71	0.63	0.92	0.33
FK58	0.68	0.76	1.38	0.55	0.31	0.46	0.84	0.79	0.47	0.68	1.19	0.83	1.58	1.22	0.72	1.19	1.27	2.27	1.09	1.09	0.57	0.87	0.42
FK76	0.39	0.68	0.60	0.53	0.20	0.47	0.43	0.41	0.25	0.38	0.38	0.69	0.81	0.70	0.47	0.97	0.77	0.92	0.94	0.81	2.66	1.97	4.19
FK77	0.39	0.68	0.60	0.53	0.20	0.47	0.43	0.41	0.25	0.38	0.38	0.69	0.81	0.70	0.47	0.97	0.77	0.92	0.94	0.81	2.66	1.97	4.19
FK69	1.32	1.11	1.33	0.67	0.26	0.90	1.35	1.95	0.64	0.39	1.79	4.84	0.89	1.50	0.41	0.99	1.28	0.98	1.08	1.67	2.13	1.24	0.75
FK21	1.26	1.41	0.78	1.75	0.94	1.09	0.76	0.89	1.99	0.48	2.57	0.66	0.90	0.69	1.02	2.19	2.02	2.83	1.41	0.97	1.39	2.22	0.75
FK45	1.04	1.27	1.03	1.22	0.86	0.77	0.63	0.87	1.39	2.52	7.65	1.71	1.38	1.01	1.10	2.05	6.29	1.45	1.59	2.15	0.74	0.48	0.76
FK38	1.70	0.93	2.76	1.38	0.64	1.08	0.38	1.07	0.53	0.38	31.09	15.64	1.03	15.53	0.76	49.02	4.79	1.51	0.69	3.10	0.37	0.00	0.87
FK42	1.90	1.82	1.13	3.22	1.16	1.39	0.61	0.72	1.16	0.81	0.43	11.54	1.34	0.73	0.84	0.88	1.57	2.80	1.38	0.84	0.91	1.05	0.42
FK25	3.10	2.14	4.17	0.85	1.03	1.22	1.18	3.92	1.06	1.82	1.22	7.41	0.75	0.61	0.53	0.81	1.38	1.58	2.19	1.88	0.72	1.08	0.71
FK35	1.62	1.87	1.41	0.79	0.71	0.78	0.69	1.04	0.99	1.18	1.45	3.30	2.33	1.00	0.84	1.09	1.10	0.97	1.17	1.34	1.14	0.73	1.03
FK33	1.95	2.48	1.40	1.07	0.68	0.95	0.87	1.01	0.95	3.08	10.22	1.58	1.65	0.94	1.15	0.81	0.95	0.93	1.35	1.07	0.72	0.83	0.81
FK10	0.71	1.16	1.00	0.45	0.93	0.51	1.14	2.16	0.85	0.45	0.50	1.32	0.76	0.60	0.95	1.34	1.02	1.84	1.23	1.09	1.88	4.44	1.21
FK23	1.41	1.18	0.87	0.84	0.51	1.12	0.78	0.95	1.09	1.00	0.72	0.38	0.75	0.75	0.57	1.16	0.99	2.50	1.37	1.94	1.21	0.52	1.08
FK29	1.14	1.08	0.73	0.87	0.63	0.95	1.24	0.75	1.13	0.62	0.87	0.19	0.98	0.39	0.81	0.77	0.76	1.03	2.32	1.52	1.19	0.74	1.10
FK63	1.04	0.89	0.87	0.43	0.25	0.86	8.05	0.25	0.14	0.43	0.25	0.84	0.38	0.49	0.33	0.69	1.98	0.89	3.78	1.31	0.99	1.05	2.77
FK64	1.64	1.34	0.80	0.71	0.65	0.93	1.46	1.17	1.33	0.38	0.50	0.72	0.30	0.38	0.54	0.82	1.05	1.38	3.40	1.58	1.05	1.01	4.05
Nc04	1.02	1.13	0.81	0.45	0.51	0.68	1.08	0.88	1.13	1.60	0.87	0.89	0.53	0.48	0.51	0.74	0.68	1.80	1.32	0.88	1.26	1.16	2.19
Nc05	0.71	0.82	0.93	0.37	0.72	0.99	0.81	1.61	0.89	0.83	0.48	0.77	0.77	0.47	0.41	0.80	0.83	1.23	0.99	1.08	1.17	1.30	2.88
FK68	0.90	0.66	0.72	0.43	0.18	0.64	0.88	0.30	0.18	0.45	0.39	0.80	0.82	0.96	0.35	0.75	0.79	1.20	2.20	1.89	1.49	0.92	1.81
FK55	1.38	1.37	0.75	1.19	0.69	0.50	0.32	0.59	0.65	0.53	0.83	0.42	0.90	1.01	0.88	0.88	0.70	1.04	0.84	2.23	1.20	0.44	2.83
Nc11	0.54	0.70	0.40	0.47	0.19	0.51	0.58	0.39	0.22	0.25	0.58	0.49	0.87	0.53	0.42	0.43	0.38	0.50	0.85	0.89	1.27	0.95	2.80
Nc12	0.43	0.63	0.38	0.35	0.12	0.35	0.37	0.21	0.18	0.30	0.24	0.29	0.69	0.40	0.32	0.35	0.41	0.41	0.89	1.18	4.74	2.51	4.08
Nc14	0.19	0.43	0.34	0.29	0.11	0.37	0.24	0.09	0.09	0.22	0.30	0.14	0.29	0.55	0.38	0.42	0.39	0.75	0.78	1.08	5.16	8.82	4.35
Nc24	0.29	0.66	0.60	0.53	0.20	0.47	0.43	0.41	0.25	0.38	0.38	0.89	0.81	0.70	0.47	0.97	0.77	0.92	0.94	0.81	2.66	1.97	4.19
Nc17	0.38	0.50	0.24	0.44	0.15	0.24	0.29	0.11	0.12	0.23	0.31	0.21	0.84	0.45	0.52	0.81	0.59	0.94	1.25	0.95	2.32	1.33	2.77
Nc21	0.71	0.61	0.27	0.23	0.25	0.14	0.38	0.24	0.14	0.26	0.21	0.39	0.86	0.56	0.36	1.18	0.87	1.97	1.11	0.78	1.99	2.48	1.48
Nc15	0.40	0.76	0.38	0.66	0.20	0.21	0.32	0.20	0.18	0.30	0.57	0.63	0.84	0.57	0.53	0.26	0.64	0.34	0.88	1.96	1.93	1.53	1.01
Nc16	0.36	0.67	0.45	0.42	0.10	0.48	0.16	0.04	0.11	0.09	0.47	0.38	1.05	0.53	0.60	0.19	0.62	0.54	0.58	0.51	1.52	1.21	3.31
Nc19	0.38	0.49	0.38	0.34	0.19	0.22	0.55	0.25	0.15	0.41	1.02	0.58	0.56	0.68	0.48	0.35	1.00	0.61	0.74	0.87	1.94	2.18	1.33
Nc13	0.53	0.76	0.38	0.63	0.21	0.17	0.44	0.38	0.30	0.31	0.32	0.52	0.54	0.40	0.66	0.25	0.44	0.82	0.54	1.03	3.50	1.67	2.17
Nc07	0.20	0.22	0.25	0.17	0.14	0.33	0.41	0.15	0.08	0.47	0.36	0.67	0.47	0.41	0.33	0.39	0.59	0.62	0.80	0.34	2.78	26.97	0.90
Nc20	0.32	0.60	0.42	0.18	0.32	0.92	0.22	0.15	0.18	0.54	0.87	0.87	0.84	0.68	0.38	0.39	0.90	0.83	0.49	1.77	1.83	3.95	1.03
Nc10	0.54	0.46	0.28	0.40	0.52	0.56	0.33	0.14	0.10	0.28	0.28	0.59	0.91	0.33	0.49	1.14	1.11	2.03	1.74	1.47	1.79	2.88	1.06
Nc22	0.37	0.62	0.54	0.59	0.25	0.50	0.45	0.21	0.12	0.18	0.26	0.67	1.38	1.65	1.31	1.01	2.10	1.47	0.96	0.81	0.98	1.42	1.01
Nc23	0.53	0.60	0.62	0.88	0.32	0.15	0.39	0.28	0.14	0.29	0.27	0.55	1.08	1.03	0.88	1.25	0.73	0.77	0.96	0.91	1.73	4.71	1.84

Fig 17

Gene / Case No.	NFATC3	RAB7L1	RPA1	PRKDC	AGTRL2	NPR2L	E2F4	CD3Z	ABCA1	ARHGEF1	TGFB1	CDK10	ATM	IL2RG	STIP1	CD3D	RASSF1	EGF	CD79B	SMARCA3	AKAP11	E2F5
FK01	1.34	0.86	1.00	0.89	2.02	0.71	1.36	1.80	1.69	1.05	0.62	2.80	2.63	0.97	1.73	1.27	0.66	1.40	0.79	0.29	0.11	0.10
FK02	1.33	0.68	0.47	0.98	0.96	0.55	0.58	1.12	0.89	0.77	0.53	1.27	1.82	0.87	1.49	1.61	0.80	0.99	0.99	0.75	0.27	0.13
FK03	0.78	0.74	0.54	0.79	0.59	0.69	0.72	2.05	1.67	0.92	0.77	1.80	1.24	0.58	1.32	0.94	0.59	0.90	0.57	0.25	0.32	0.19
FK11	0.25	0.32	0.57	0.22	0.70	0.84	0.73	2.00	1.81	0.69	2.03	1.50	0.99	1.18	0.61	0.61	0.55	0.72	0.35	0.31	0.15	0.09
FK12	0.29	0.40	0.53	0.29	0.56	0.44	0.48	2.13	1.50	1.87	1.89	1.09	1.39	0.90	1.64	0.69	0.54	0.51	0.57	0.27	0.17	0.12
FK13	0.38	0.68	0.35	0.40	0.57	0.74	0.89	0.98	1.55	1.10	1.38	1.66	1.12	0.73	1.96	1.16	0.67	0.78	0.99	0.41	0.18	0.13
FK04	1.32	0.61	0.80	0.64	0.65	0.52	1.05	1.31	1.76	0.97	0.53	1.76	1.29	0.99	2.30	1.58	0.39	1.54	1.38	0.16	0.18	0.13
FK07	1.17	0.42	0.52	0.61	0.41	0.43	0.69	1.35	1.86	0.43	1.01	1.77	0.68	1.01	1.01	1.85	0.45	1.18	0.83	0.28	0.25	0.12
FK09	0.74	0.57	0.64	0.30	0.44	0.37	0.95	1.13	1.59	1.04	0.66	1.59	0.66	0.87	1.91	1.26	0.47	0.78	0.58	0.23	0.18	0.08
FK05	0.80	0.37	0.49	0.60	0.81	0.56	0.88	1.25	1.52	1.00	0.60	1.45	0.95	0.75	2.13	1.05	0.37	1.15	1.44	0.14	0.14	0.12
FK06	1.01	0.80	0.69	0.59	1.06	0.55	0.96	2.54	1.57	0.83	0.49	1.44	1.10	0.90	2.00	1.18	0.54	0.93	1.55	0.22	0.13	0.14
FK08	0.99	0.87	0.53	0.45	0.80	0.63	0.74	1.65	1.63	1.05	1.87	1.97	1.18	1.05	1.51	1.11	0.55	1.29	0.73	0.20	0.24	0.08
FK14	0.28	1.68	0.72	0.42	0.53	1.19	0.55	2.33	3.95	1.37	2.03	0.76	0.99	0.70	1.02	1.23	0.25	1.11	0.35	0.17	0.10	0.09
FK15	0.38	1.25	0.94	1.32	0.94	0.82	0.69	3.84	2.32	4.26	2.23	1.34	1.62	0.78	2.96	1.27	0.34	1.33	0.41	0.22	0.07	0.13
FK65	0.54	1.19	0.81	0.55	0.69	0.53	1.03	2.62	2.18	1.48	1.57	1.16	0.93	0.76	0.52	0.58	0.44	0.74	0.42	0.18	0.09	0.09
FK67	0.40	0.36	0.72	1.30	0.48	0.50	0.69	1.85	2.22	2.21	1.82	1.83	1.79	0.57	1.15	0.68	0.93	0.61	0.38	0.38	0.14	0.22
FK31	0.50	1.42	0.52	0.40	0.64	1.01	1.68	1.22	0.98	1.05	1.67	2.34	0.75	1.04	1.21	1.11	1.42	0.98	0.85	0.45	0.39	0.26
FK32	0.39	1.09	0.31	0.29	0.45	1.02	1.04	1.48	1.20	1.00	2.02	1.76	0.89	1.15	0.98	0.73	0.83	0.67	0.76	0.31	0.27	0.12
FK39	0.34	0.32	0.44	0.30	0.37	0.80	1.34	2.92	1.56	0.35	1.40	1.29	0.51	0.91	0.54	1.08	0.77	1.22	0.79	0.24	0.17	0.16
FK49	0.39	0.48	0.50	0.84	0.47	0.70	1.05	3.11	1.38	0.95	1.18	1.80	0.55	0.65	1.11	0.77	0.75	0.89	0.63	0.26	0.15	0.14
FK58	0.30	0.96	0.67	0.51	0.76	0.89	0.70	2.35	1.52	1.76	1.23	1.22	0.98	1.03	0.93	0.81	1.30	0.71	0.53	0.29	0.31	0.19
FK60	0.23	0.63	0.42	0.44	0.68	0.68	0.90	1.55	1.83	2.42	1.49	1.74	0.94	0.77	1.20	0.70	0.87	0.56	0.62	0.29	0.26	0.24
FK72	0.27	0.23	0.34	0.61	0.48	0.47	0.25	1.98	1.01	1.36	1.54	1.23	0.71	0.66	1.59	0.60	1.26	1.06	1.00	0.27	0.12	0.19
FK66	0.42	0.69	0.38	0.30	0.78	0.59	1.09	1.40	1.42	1.68	1.68	2.18	0.75	1.27	0.58	0.55	1.75	0.98	0.79	0.39	0.52	0.17
FK37	0.19	0.79	0.77	0.00	0.67	0.89	0.68	2.50	0.00	1.03	2.50	1.52	1.73	1.26	3.00	1.37	0.84	0.58	1.28	0.43	0.15	0.13
FK50	0.31	1.32	0.63	0.46	0.84	0.82	0.55	1.54	0.33	0.87	2.08	1.21	2.54	1.12	1.85	0.89	0.92	0.74	1.88	0.53	0.18	0.17
FK61	0.38	0.44	1.09	0.56	0.50	1.63	0.85	1.44	1.33	3.54	12.72	1.71	1.02	1.49	2.47	0.73	0.58	0.81	1.86	0.22	0.11	0.09
FK70	0.18	0.46	0.58	0.39	0.30	0.67	0.55	5.01	2.34	1.48	5.42	1.62	0.79	0.86	0.97	0.83	0.79	0.80	1.04	0.27	0.08	0.09
FK43	0.25	1.11	0.60	0.62	0.92	1.25	1.08	2.92	1.42	2.74	11.53	1.66	1.01	1.47	1.33	1.17	0.76	0.88	0.40	0.22	0.16	0.10
FK48	0.29	0.45	0.60	0.31	0.37	1.01	1.17	0.96	1.11	0.95	1.94	2.26	0.63	0.72	0.91	0.95	0.47	1.01	1.18	0.17	0.15	0.15
FK59	0.24	0.44	0.85	0.35	0.66	0.85	0.74	0.88	1.20	1.01	2.57	1.58	0.63	1.23	1.24	1.33	0.73	0.85	0.92	0.25	0.24	0.19
FK22	0.35	0.56	0.24	0.12	0.65	0.86	0.77	1.62	10.78	1.45	1.28	1.85	0.58	1.28	0.47	0.78	1.31	1.10	0.45	0.32	0.35	0.18
FK71	0.54	0.57	0.48	0.82	0.82	0.78	0.82	0.90	1.95	1.52	1.01	2.08	1.17	1.20	0.84	0.92	1.50	0.92	0.64	0.67	0.48	0.40
FK34	0.83	1.69	0.37	0.48	0.89	1.07	1.25	1.77	1.14	1.30	1.06	2.56	1.30	1.07	0.90	0.98	4.34	1.27	0.73	0.73	0.81	0.36
FK52	0.76	1.91	0.41	0.30	0.86	0.88	2.21	1.81	2.17	1.23	0.99	2.31	1.26	0.97	0.73	0.92	1.86	1.37	0.85	0.73	0.67	0.36
FK17	1.48	1.11	1.35	2.38	1.26	0.92	0.90	2.94	1.68	7.40	5.75	2.34	3.80	1.60	1.57	1.75	1.78	1.38	1.70	0.42	0.53	0.45
FK46	1.25	1.46	1.12	2.00	1.07	1.12	1.10	1.53	1.58	8.38	2.07	2.63	2.77	1.66	2.52	2.00	2.33	1.15	2.46	0.56	0.53	0.46
FK28	0.98	1.14	1.24	2.23	2.00	1.25	1.16	2.73	2.51	12.29	22.43	3.11	2.66	2.38	2.23	3.38	2.57	0.98	1.43	0.44	0.23	0.23
FK41	1.24	1.26	1.37	2.02	1.12	1.55	1.46	0.46	0.88	5.00	10.66	3.23	2.19	2.24	2.92	1.74	2.10	1.42	2.76	0.44	0.30	0.27
FK18	1.16	1.19	1.73	1.59	1.34	0.58	0.96	1.95	0.88	8.44	14.61	3.89	3.20	1.98	3.03	2.09	1.84	1.53	1.95	0.53	0.40	0.37
FK24	0.87	0.59	1.01	1.32	0.85	1.05	0.91	1.47	1.38	5.98	12.82	3.51	1.69	1.61	2.30	1.82	1.27	1.51	1.28	0.35	0.28	0.22
FK44	0.95	2.03	0.98	1.85	1.31	0.95	0.94	2.78	3.51	17.77	7.20	4.12	3.02	2.43	1.41	1.94	2.56	0.84	0.76	0.37	0.37	0.15
FK75	0.65	0.87	1.35	1.19	1.20	0.65	1.14	2.04	4.92	17.15	8.38	3.78	2.46	1.61	2.21	1.11	1.54	0.89	1.22	0.31	0.29	0.25
FK27	1.15	1.09	1.54	1.43	1.09	0.93	0.89	3.83	3.16	13.52	4.52	2.00	2.79	1.96	3.81	1.74	1.28	1.55	1.78	0.40	0.23	0.24
FK78	2.43	2.88	1.86	2.66	1.59	1.25	1.52	16.23	3.58	15.04	9.71	3.15	4.43	2.05	3.04	3.10	4.90	1.44	1.37	0.86	0.68	0.41
FK40	1.11	1.01	1.30	2.26	1.28	0.89	1.78	2.25	0.00	11.73	4.17	2.15	2.78	1.73	1.20	2.45	6.02	1.57	1.13	0.55	0.28	0.15
FK19	0.79	0.85	1.24	1.20	0.78	0.90	1.15	2.89	2.74	5.14	3.41	2.49	1.42	1.58	1.83	1.12	1.24	1.17	1.71	0.85	0.31	0.22
FK26	0.37	0.41	2.42	0.54	0.60	1.70	1.27	3.19	1.08	1.27	32.35	2.22	0.63	1.60	2.90	2.14	0.84	1.36	2.81	0.19	0.16	0.07
FK58	0.56	0.41	2.11	0.79	0.72	1.25	1.16	3.51	2.27	1.80	24.02	2.53	1.18	2.13	2.35	1.85	0.99	1.36	1.28	0.24	0.19	0.09
FK76	2.43	2.88	1.86	2.66	1.59	1.25	1.52	16.23	3.58	15.04	9.71	3.15	4.43	2.05	3.04	3.10	4.90	1.44	1.37	0.86	0.68	0.41
FK77	2.43	2.88	1.86	2.66	1.59	1.25	1.52	16.23	3.58	15.04	9.71	3.15	4.43	2.05	3.04	3.10	4.90	1.44	1.37	0.86	0.68	0.41
FK69	0.51	0.59	1.19	0.96	1.05	0.79	1.21	2.63	2.19	4.73	6.96	2.01	1.85	1.26	1.73	1.48	2.26	1.05	0.47	0.28	0.27	0.13
FK21	0.83	0.71	0.72	1.13	1.29	0.97	1.06	2.72	0.93	3.31	4.12	2.55	3.05	1.71	1.58	0.93	1.97	0.90	0.57	0.43	0.32	0.19
FK45	0.67	1.22	1.05	1.18	1.34	1.24	0.83	2.66	1.80	2.08	1.52	2.31	2.63	2.23	1.41	1.17	1.87	0.97	1.05	0.37	0.29	0.17
FK38	0.57	0.68	0.63	1.32	3.30	1.22	0.71	1.21	0.63	6.75	0.00	2.39	1.47	1.56	1.02	1.02	1.14	1.29	1.03	0.34	0.41	0.15
FK42	0.73	1.18	1.12	0.98	1.43	1.08	1.40	1.22	1.19	9.67	1.70	3.15	1.50	2.89	1.88	0.80	2.61	1.07	0.57	0.47	0.39	0.24
FK25	1.34	1.44	1.81	1.00	2.83	1.21	1.15	24.31	2.54	8.06	14.29	1.11	0.87	2.55	3.43	3.51	2.74	1.02	1.41	0.34	0.30	0.36
FK35	1.10	0.97	0.91	0.51	1.58	1.00	0.99	3.58	1.08	1.53	1.23	1.14	1.41	1.15	0.91	1.12	2.14	1.00	1.47	0.86	0.75	0.56
FK33	1.17	2.01	1.23	0.99	1.94	0.97	1.13	1.21	0.94	1.77	1.69	1.48	1.28	1.38	0.84	1.11	1.46	1.27	1.07	0.60	0.74	0.53
FK10	1.38	1.38	2.38	3.05	1.01	0.82	1.02	2.51	1.47	3.21	1.46	0.92	2.24	1.97	3.25	1.38	1.03	1.10	1.67	0.83	0.91	0.68
FK23	1.93	1.96	1.16	1.73	1.31	1.06	1.18	5.43	1.61	3.59	2.77	2.43	5.78	2.13	1.97	1.66	2.44	1.53	1.02	0.73	0.54	0.31
FK29	2.43	1.81	4.26	4.67	2.57	1.84	1.47	12.23	2.68	12.38	6.87	1.48	9.54	4.18	7.90	2.75	2.21	1.03	1.60	0.44	0.35	0.35
FK53	3.49	2.77	3.80	4.12	1.88	1.87	1.54	10.19	4.35	37.01	29.70	2.85	6.59	4.61	6.52	2.08	3.20	1.40	3.34	0.37	0.33	0.41
FK54	3.01	2.84	4.21	4.09	1.98	1.42	1.58	6.77	5.60	11.61	9.86	3.06	5.13	4.98	5.70	1.71	3.50	1.49	2.86	0.53	0.48	0.42
Nc04	3.13	2.01	1.81	4.05	2.43	1.68	1.38	3.38	1.26	2.48	2.77	1.48	5.30	3.03	4.26	1.80	1.68	2.01	5.87	1.10	0.92	0.60
Nc05	3.04	2.50	2.60	5.61	2.43	1.88	1.80	22.93	3.18	9.84	2.08	1.43	9.78	3.24	5.52	1.92	2.34	1.71	2.52	1.00	0.81	0.34
FK68	1.81	0.81	1.54	3.71	1.24	1.24	0.61	2.01	1.75	4.38	1.11	1.84	2.84	1.62	4.39	1.54	4.07	1.20	2.06	0.48	0.78	0.34
FK55	1.78	1.48	1.88	3.72	1.20	1.65	1.52	3.07	21.03	7.31	5.72	6.30	3.00	1.98	2.92	3.53	2.84	1.57	1.04	0.98	0.52	0.37
Nc11	1.35	1.71	1.78	2.00	1.94	1.56	1.76	7.89	2.17	24.22	11.28	2.53	4.32	3.94	3.32	1.95	3.33	1.69	1.75	0.76	0.52	0.26
Nc12	2.38	2.95	1.96	3.54	1.89	1.92	1.15	11.01	6.71	22.32	12.44	4.40	4.43	2.91	4.20	2.75	3.80	2.54	1.84	0.98	1.00	0.48
Nc14	3.17	4.46	2.35	4.62	1.32	2.10	3.25	18.23	21.20	20.43	11.25	5.48	4.22	4.65	4.90	3.79	6.72	2.14	1.89	1.12	0.73	0.50
Nc24	2.43	2.88	1.86	2.66	1.59	1.25	1.52	16.23	3.58	15.04	9.71	3.15	4.43	2.05	3.04	3.10	4.90	1.44	1.37	0.86	0.68	0.41
Nc17	1.95	2.05	2.18	1.41	1.98	1.11	1.45	11.67	8.12	17.87	17.03	5.32	3.36	2.29	2.88	2.23	3.34	1.26	2.75	0.75	0.62	0.56
Nc21	1.55	1.93	1.49	1.56	1.41	0.85	1.20	6.13	6.20	10.62	6.19	4.82	3.26	1.65	2.95	1.48	3.76	1.47	2.75	0.81	0.53	0.40
Nc15	1.58	1.62	1.78	2.14	1.50	1.74	1.19	2.25	2.45	5.76	19.33	3.26	1.95	2.72	4.24	1.97	1.84	1.83	2.82	0.86	1.00	0.73
Nc18	2.00	1.70	2.12	2.16	1.70	1.84	1.57	5.01	3.99	7.22	18.68	2.74	2.56	2.95	2.44	2.28	3.84	1.42	3.01	0.82	0.97	0.59
Nc19	1.03	1.11	2.02	2.70	1.77	1.39	1.37	2.23	2.25	39.61	8.85	6.20	1.92	1.54	3.43	2.06	2.71	1.77	2.23	0.57	0.82	0.61
Nc13	2.86	4.03	2.84	3.66	2.28	2.05	2.12	4.58	47.35	4.01	8.84	6.13	5.20	3.21	4.18	2.38	4.46	1.95	2.38	1.15	1.11	0.75
Nc07	1.39	1.15	2.90	1.26	1.54	1.05	1.13	2.90	2.40	8.22	25.90	4.39	2.32	1.85	1.42	1.22	2.09	1.88	1.70	0.92	0.92	0.29
Nc20	0.62	0.72	1.31	1.43	1.60	1.40	1.21	2.60	1.83	5.93	5.99	1.53	1.48	1.12	2.53	1.97	1.21	1.19	0.86	0.36	0.31	0.24
Nc10	1.15	1.75	1.15	1.72	0.98	0.94	1.29	2.92	6.88	2.61	2.29	4.32	2.32	1.19	2.72	2.36	3.77	1.34	1.50	0.77	0.41	0.23
Nc22	1.16	0.95	1.97	1.09	1.20	1.83	1.05	4.63	1.85	4.43	10.86	2.37	1.96	2.16	3.02	2.09	1.10	1.65	2.18	0.41	0.38	0.31
Nc23	1.84	1.14	2.29	2.87	0.92	1.36	1.37	12.90	4.34	3.91	13.25	4.32	2.47	1.92	1.88	2.55	3.81	1.57	2.17	0.63	0.62	0.87

Fig 18

Gene / Case No.	HSPA1A	ADPRT	MSH2	CR2	BCL2	DAXX	GZMA	POLR2H	RAB9	GABPB1	CDC25B	ISGF3G	RGS14	COX15	PPP3CB	HSPA1L	RBBP4	ATP2C1	TCF17	CHST4
FK01	0.07	0.16	1.00	0.60	0.33	0.78	0.16	0.28	0.79	0.29	0.44	0.11	1.91	0.45	0.58	0.29	0.51	0.75	0.98	0.86
FK02	0.08	0.70	1.14	0.69	0.76	0.69	0.59	0.44	0.84	0.74	0.64	0.25	1.14	0.74	0.84	0.21	0.42	0.75	0.23	0.68
FK03	0.10	0.37	0.33	0.37	0.63	0.67	0.53	0.33	0.25	0.21	0.57	0.31	0.60	0.39	1.02	0.22	0.32	0.53	0.24	0.60
FK11	0.19	0.32	0.37	0.42	0.19	0.71	0.24	0.58	0.19	0.27	0.74	0.55	0.51	0.20	0.29	0.45	0.34	0.54	0.50	0.51
FK12	0.10	0.27	0.33	0.48	0.25	0.46	0.16	0.27	0.15	0.32	0.58	0.29	0.41	0.18	0.36	0.44	0.30	0.52	0.49	0.49
FK13	0.07	0.44	0.39	0.48	0.49	0.41	0.29	0.42	0.45	0.54	1.26	0.48	0.43	0.32	0.75	0.19	0.37	0.64	0.36	0.49
FK04	0.04	0.13	0.25	0.41	0.40	0.40	0.08	0.10	0.37	0.15	0.25	0.13	0.53	0.38	0.44	0.38	0.38	0.63	0.55	1.00
FK07	0.06	0.24	0.23	0.41	0.46	0.55	0.11	0.24	0.14	0.39	0.46	0.43	0.35	0.29	0.60	0.26	0.30	0.73	0.31	0.67
FK09	0.08	0.16	0.18	0.38	0.30	0.52	0.09	0.29	0.10	0.18	0.31	0.37	0.35	0.17	0.38	0.68	0.20	0.76	0.42	0.53
FK05	0.15	0.20	0.26	0.18	0.20	0.79	0.18	0.21	0.36	0.21	0.33	0.55	0.54	0.21	0.40	0.23	0.25	0.47	0.22	0.56
FK06	0.13	0.45	0.32	0.40	0.27	0.59	0.14	0.21	0.49	0.21	0.37	0.41	0.83	0.32	0.31	0.34	0.31	0.54	0.21	0.48
FK08	0.09	0.20	0.29	0.27	0.40	0.64	0.14	0.31	0.27	0.27	0.46	0.52	0.76	0.29	0.42	0.25	0.33	0.68	0.43	0.53
FK14	0.10	0.16	0.24	0.24	0.09	0.19	0.08	0.18	0.17	0.13	0.18	0.15	0.26	0.44	0.27	0.30	0.22	0.31	0.43	1.18
FK15	0.05	0.10	0.30	0.42	0.14	0.16	0.07	0.17	0.27	0.16	0.29	0.10	0.98	0.71	0.26	0.40	0.56	0.45	1.20	2.08
FK65	0.02	0.19	0.30	0.62	0.16	0.25	0.15	0.19	0.01	0.22	0.28	0.11	0.33	0.38	0.47	0.37	0.27	0.42	0.99	0.89
FK67	0.05	0.24	0.44	0.76	0.38	0.42	0.33	0.47	0.31	0.86	1.08	0.45	0.41	0.30	0.34	0.27	0.37	0.35	0.61	0.64
FK31	0.19	0.55	0.59	0.68	0.74	0.71	0.65	0.89	0.47	0.36	1.29	0.86	0.73	0.44	0.46	0.32	0.42	0.71	0.56	0.74
FK32	0.25	0.48	0.28	0.25	0.66	0.64	0.45	0.69	0.31	0.18	0.73	1.29	0.56	0.31	0.38	0.26	0.25	0.54	0.41	0.68
FK39	0.09	0.23	0.12	0.16	0.48	0.68	0.55	0.39	0.26	0.73	1.10	0.66	0.42	0.20	0.25	0.15	0.29	0.46	0.34	0.60
FK49	0.16	0.25	0.17	0.22	0.29	0.50	0.45	0.40	0.21	0.42	0.72	0.58	0.69	0.29	0.24	0.21	0.22	0.38	0.56	0.51
FK56	0.07	0.16	0.35	0.17	0.38	0.45	0.13	0.37	0.37	0.73	0.75	0.56	1.15	0.20	0.28	0.47	0.25	0.44	0.76	0.64
FK60	0.13	0.30	0.27	0.50	0.60	0.78	0.14	0.53	0.24	0.35	1.15	0.87	0.88	0.28	0.24	0.20	0.23	0.39	0.57	0.67
FK72	0.04	0.20	0.37	0.38	0.25	0.35	0.47	0.44	0.29	0.50	1.43	1.13	0.52	0.29	0.32	0.16	0.33	0.30	0.35	0.30
FK66	0.08	0.39	0.32	0.34	0.78	0.62	0.67	0.65	0.33	0.67	1.62	0.69	0.50	0.38	0.37	0.47	0.43	0.44	0.44	0.75
FK37	0.28	0.30	0.42	0.25	0.19	0.66	0.26	0.62	0.18	0.23	0.82	0.69	0.96	0.23	0.33	0.24	0.63	0.68	0.90	0.87
FK50	0.11	0.33	0.71	0.50	0.33	0.51	0.15	0.52	0.41	0.43	0.91	0.60	0.97	0.33	0.40	0.21	0.57	0.72	0.86	0.77
FK61	0.04	0.12	0.36	0.42	0.23	0.35	0.11	0.49	0.23	0.18	0.52	0.63	0.58	0.31	0.47	0.40	0.92	0.69	0.83	0.44
FK73	0.08	0.16	0.30	0.35	0.16	0.35	0.15	0.47	0.16	0.13	0.39	0.39	0.35	0.17	0.40	0.26	0.57	0.72	0.83	0.56
FK43	0.16	0.34	0.36	0.45	0.79	0.73	0.68	0.39	0.26	0.27	0.74	0.76	0.97	0.31	0.39	0.34	0.67	0.65	0.72	0.75
FK48	0.16	0.29	0.15	0.30	0.38	0.60	0.18	0.39	0.16	0.17	0.77	0.44	0.57	0.21	0.20	0.17	0.26	0.52	0.50	0.64
FK59	0.15	0.35	0.32	0.36	0.49	0.71	0.12	0.56	0.24	0.32	0.53	0.60	0.52	0.28	0.35	0.18	0.36	0.54	0.47	0.61
FK22	0.11	0.31	0.22	0.14	0.75	0.58	0.28	0.57	0.28	0.55	0.81	0.41	0.65	0.44	0.31	0.27	0.24	0.42	0.48	0.66
FK71	0.14	0.42	0.51	0.54	0.76	0.56	0.64	0.87	0.63	1.10	1.27	0.66	0.86	0.60	0.67	0.48	0.52	0.43	0.57	0.58
FK34	0.73	0.81	0.71	0.38	0.85	1.61	1.73	1.49	0.72	0.36	2.06	0.88	1.54	0.78	0.67	0.77	0.35	0.50	0.76	0.81
FK52	0.24	0.85	0.64	0.51	1.24	0.95	1.56	0.88	0.63	0.44	1.44	0.70	0.89	0.59	0.65	0.32	0.40	0.46	0.84	1.10
FK17	0.06	0.34	0.45	0.92	0.84	0.37	0.14	0.65	0.84	0.83	0.75	0.53	0.82	1.05	1.48	0.46	1.13	0.89	0.95	0.65
FK46	0.09	0.40	0.60	1.21	0.78	0.73	0.34	0.63	0.50	0.95	1.08	0.81	1.07	0.87	1.22	0.63	1.01	1.13	1.14	0.92
FK28	0.12	0.30	0.24	0.45	0.41	0.52	0.32	0.59	0.40	0.78	0.74	1.10	1.46	0.53	0.93	0.90	0.98	1.09	1.10	0.77
FK41	0.07	0.34	0.34	0.65	0.55	0.62	0.50	0.77	0.59	0.95	0.81	0.76	0.93	0.83	0.62	0.74	1.15	1.37	0.90	1.17
FK18	0.16	0.50	0.73	0.71	1.00	0.65	0.30	0.73	0.36	0.47	0.88	0.84	1.11	1.08	1.19	0.67	1.14	1.34	1.02	0.77
FK24	0.15	0.32	0.38	0.48	0.51	0.58	0.29	0.63	0.68	0.56	0.97	0.83	0.80	0.64	0.79	0.63	0.90	1.41	1.13	0.69
FK44	0.12	0.30	0.49	0.48	1.14	0.69	0.75	0.56	0.60	0.70	1.25	0.70	0.65	0.42	0.79	0.61	1.12	1.03	1.07	1.02
FK75	0.05	0.25	0.39	0.87	0.46	0.40	0.22	0.81	0.57	0.88	1.32	0.82	0.69	0.45	0.93	0.68	0.91	1.07	1.10	0.77
FK27	0.14	0.28	0.42	1.05	0.30	0.39	0.50	0.42	0.51	0.40	0.79	0.43	1.32	0.77	0.80	0.81	1.47	0.87	1.13	1.04
FK78	0.83	0.51	0.78	0.55	0.92	1.26	2.50	1.24	1.28	1.30	1.27	1.16	1.81	1.22	1.57	1.91	1.58	1.08	1.52	1.25
FK40	0.05	0.24	0.42	0.94	0.70	0.48	0.20	0.74	0.45	1.69	0.93	0.92	0.71	0.73	0.85	0.77	0.52	0.80	0.71	0.88
FK19	0.10	0.46	0.48	0.65	0.77	0.61	0.61	0.67	0.53	0.80	1.08	0.79	0.74	0.69	0.84	0.41	1.09	1.79	0.83	0.69
FK38	0.08	0.16	0.14	0.13	0.14	0.32	0.18	0.46	0.36	0.75	0.49	0.58	0.71	0.34	0.87	0.23	1.56	1.97	0.86	0.74
FK58	0.07	0.10	0.16	0.16	0.25	0.33	0.18	0.36	0.27	0.43	0.33	0.50	0.28	0.27	0.62	0.40	1.27	2.16	0.67	0.82
FK76	0.63	0.51	0.78	0.55	0.92	1.26	2.50	1.24	1.28	1.30	1.27	1.16	1.81	1.22	1.57	1.91	1.58	1.08	1.52	1.25
FK77	0.63	0.51	0.78	0.55	0.92	1.26	2.50	1.24	1.28	1.30	1.27	1.16	1.81	1.22	1.57	1.91	1.58	1.08	1.52	1.25
FK69	0.04	0.15	0.29	0.39	0.31	0.30	0.14	0.45	0.29	2.06	0.79	0.70	0.53	0.39	0.65	1.23	0.72	0.69	1.00	0.90
FK21	0.19	0.19	0.32	0.33	0.32	0.54	0.16	0.64	0.48	0.30	0.66	0.44	1.44	0.72	0.83	0.53	0.68	0.72	1.93	1.10
FK45	0.19	0.19	0.30	0.23	0.42	0.49	0.27	0.41	0.65	0.96	0.68	1.08	0.69	0.49	0.71	0.75	0.93	1.10	0.85	0.95
FK36	0.06	0.15	0.35	0.37	0.38	0.55	0.16	0.49	0.43	2.25	1.11	0.91	2.69	0.26	0.41	0.41	0.85	0.87	0.64	1.33
FK42	0.57	0.27	0.43	0.34	0.53	1.55	0.26	1.02	0.49	0.31	1.09	1.36	2.28	0.55	0.69	1.68	0.41	0.70	1.45	0.94
FK25	0.10	0.15	0.19	0.11	0.09	0.36	0.80	0.74	1.17	4.18	0.33	0.60	0.33	0.39	0.60	0.87	1.32	0.71	0.70	0.71
FK35	0.33	0.82	0.78	0.58	0.85	0.65	2.32	0.93	1.03	0.48	0.86	0.69	0.74	0.87	0.87	0.69	0.98	0.73	0.73	0.85
FK33	0.94	0.92	0.45	0.71	0.88	0.59	1.08	0.90	1.11	1.32	0.71	1.62	0.90	1.26	1.16	1.01	1.50	0.80	0.81	0.93
FK10	0.20	0.60	0.87	0.80	1.01	0.70	0.39	0.78	0.69	0.98	0.64	0.54	0.75	1.74	1.48	0.80	1.03	1.07	1.50	0.84
FK23	0.26	0.43	0.56	0.40	0.62	0.71	0.85	0.81	1.09	0.79	1.27	1.27	1.00	1.20	1.41	1.36	1.07	1.18	1.58	0.92
FK29	0.25	0.32	0.51	0.36	0.34	0.48	1.42	0.64	1.47	0.72	0.49	0.63	1.10	1.55	2.27	1.68	2.69	1.60	1.70	0.85
FK63	0.17	0.48	0.58	0.59	0.73	0.52	2.46	0.75	1.12	0.60	1.14	0.74	1.11	1.43	2.90	1.91	3.59	2.38	1.42	0.65
FK64	0.10	0.44	0.77	0.65	0.57	0.50	2.95	0.80	0.97	0.87	1.40	0.76	1.13	1.14	2.47	1.89	3.80	1.80	1.17	0.85
Nc04	0.47	0.87	0.94	1.32	1.03	0.80	1.44	1.00	2.01	1.19	1.06	0.96	1.06	1.58	2.70	1.72	3.31	2.18	1.83	0.98
Nc05	0.33	0.58	1.15	1.15	0.81	0.77	3.13	0.85	1.42	1.27	1.26	0.77	0.92	1.75	2.49	1.71	2.84	1.42	2.14	1.05
FK68	0.17	0.47	1.02	0.54	0.84	0.63	1.04	1.02	1.08	0.69	1.13	1.02	0.49	1.15	2.61	1.38	2.76	1.40	0.83	0.67
FK55	0.11	0.35	0.58	0.85	0.77	0.90	0.87	0.70	0.90	1.74	1.46	1.97	1.28	0.89	1.43	1.00	1.17	1.13	0.98	0.85
Nc11	0.81	0.48	0.85	0.68	0.69	0.92	1.19	1.16	0.97	1.13	1.72	1.45	3.13	1.20	1.11	2.12	1.72	1.14	1.91	1.08
Nc12	0.56	0.55	1.04	0.79	1.19	1.27	1.72	1.28	0.74	1.99	1.79	2.21	2.00	1.79	2.28	2.00	1.82	1.83	1.58	1.39
Nc14	0.27	0.70	0.79	0.69	1.42	0.96	4.12	1.41	0.91	1.58	2.20	0.87	1.65	1.07	1.63	1.18	1.70	1.64	1.76	1.37
Nc24	0.83	0.51	0.78	0.55	0.92	1.26	2.50	1.24	1.28	1.30	1.27	1.16	1.81	1.22	1.57	1.91	1.58	1.08	1.52	1.25
Nc17	0.35	0.71	0.85	1.50	1.15	1.08	1.28	1.12	1.04	0.85	1.34	1.19	1.53	1.18	1.25	1.23	1.43	1.22	1.14	1.09
Nc21	0.34	0.81	0.79	1.17	0.74	0.97	1.31	0.97	0.44	0.86	1.80	1.52	0.95	1.11	1.28	0.89	1.36	1.06	1.11	1.25
Nc15	0.47	0.81	0.71	1.62	1.24	1.09	0.62	1.14	0.87	1.75	1.25	2.01	1.87	1.67	1.38	1.28	1.66	1.33	1.28	1.38
Nc18	0.26	0.64	0.93	0.95	1.64	1.12	1.52	1.25	0.63	1.56	1.68	1.68	2.20	1.49	1.78	1.05	1.63	1.72	1.64	1.28
Nc19	0.26	0.50	0.53	0.76	1.01	0.82	0.38	1.03	0.61	0.88	1.19	0.92	2.09	1.22	0.78	1.26	1.37	1.55	1.54	1.31
Nc13	0.52	0.71	1.00	1.45	1.24	1.38	1.62	1.51	0.57	1.60	2.12	2.14	2.29	1.69	2.11	1.67	1.57	1.34	1.99	1.40
Nc07	0.14	0.25	0.26	0.46	0.50	0.48	0.98	0.38	0.62	0.40	0.84	0.48	1.15	0.70	0.84	0.78	0.76	1.28	1.11	2.24
Nc20	0.06	0.27	0.38	0.59	0.46	0.31	0.34	0.44	0.60	0.68	0.77	0.55	1.31	0.77	0.64	0.61	0.87	1.01	1.48	1.27
Nc10	0.18	0.37	0.51	0.73	0.66	0.79	1.02	0.74	0.73	0.73	1.34	0.74	1.26	0.77	1.01	0.80	1.15	0.73	1.29	1.10
Nc22	0.09	0.38	0.39	0.88	0.60	0.71	0.52	0.61	1.06	0.91	0.99	1.10	0.75	0.72	0.87	0.47	1.68	1.46	1.30	0.82
Nc23	0.08	0.46	0.62	1.37	0.97	0.77	0.77	0.81	0.77	1.26	1.70	1.18	1.07	0.88	1.09	0.78	1.25	0.87	0.90	0.80

METHOD FOR EVALUATING MULTIPLE SCLEROSIS

[0001] The present application claims the priority from Japanese Patent Application No. 2003-406750 filed on Dec. 5, 2003, the content of which is hereby incorporated by reference into this application.

TECHNICAL FIELD

[0002] The present invention relates to a method of evaluation for assisting in the diagnosis of multiple sclerosis. More particularly, the present invention relates to a method for analyzing the expression of genes associated with multiple sclerosis, a chip for analyzing the expression of multiple sclerosis-associated genes, and a gene group for determining whether or not multiple sclerosis has been developed.

BACKGROUND ART

[0003] Multiple sclerosis (hereafter abbreviated as "MS") develops a variety of symptoms, such as visual motor sensory, and cognitive disturbances. This is because the "myelin" that covers the nerve fibers of the brain and the spinal cord become inflamed, and the transmission of neural information becomes insufficient. The cause of MS has not yet been elucidated, and MS is a chronic disease that cannot be completely cured by contemporary medicine. MS is regarded as an "autoimmune disease," whereby the immune system erroneously attacks itself, although the mechanism of disease development has not yet been elucidated. At present, it is estimated that at least 5,000 patients with MS are present in Japan and that as many as about 1,000,000 MS patients are present in the world.

[0004] One feature of MS is that a majority of patients suffer from relapses many times. The severity and duration of relapse varies depending on the patient, and the rate of a patient recovering from MS becomes relatively high during remission after the acute stage. This type of MS is referred to as "relapsing-remitting MS." Some patients suffer from increased neurological deficits MS as they experience repeated relapse. In contrast, there is another form of MS in which the disease conditions gradually progress after development of MS. This type of MS is referred to as "progressive MS." The number of patients affected with the latter type is considered to be small in Japan.

[0005] MS is roughly classified in two categories in terms of the affected areas: conventional MS (C-MS) that extensively affects the entire central nervous system including the brain, the cerebellum, and the brain stem; and opticospinal MS (OS-MS) that relatively selectively affects the optic nerve and the spinal cord. While a majority of western Caucasians contract C-MS but rarely contract OS-MS, approximately one third of Asian patients with MS, including Japanese patients, contract OS-MS.

[0006] Up to the present, magnetic resonance imaging (MRI), cerebrospinal fluid (CSF) examination, and other techniques have been employed as the methods for diagnosis of MS. MRI is very useful in terms of, distinguishing active lesions from inactive lesions by the use of a contrast medium (gadolinium), although not all the lesions can be detected. In the case of OS-MS where there is no substantial development of lesions in the brain or in the cerebellum, MRI testing is particularly difficult. In addition, diagnosis needs to be made by a well-trained neuroradiologist in order to evaluate the development of the disease based on images. In the case of the cerebrospinal fluid (CSF) test, the cerebrospinal fluid that flows around the brain and the spinal cord is collected, and the quantity of lymphocytes, antibodies (the immunoglobulin G; IgG), and myelin basic protein are analyzed, thereby allowing inspection regarding the presence of an inflammatory lesion. Although this technique is useful, it inflicts a great burden on the patients, because of the necessity of sticking a needle into the back of a patient. Accordingly, it has been very difficult to determine whether or not MS has been developed in a simple accurate, and less time-consuming manner by conventional testing techniques, from the viewpoint of detection sensitivity and the burdens on test subjects.

DISCLOSURE OF THE INVENTION

[0007] An object of the present invention is to provide a method of evaluation for assisting in the diagnosis of multiple sclerosis that provides useful information, inflicts fewer burdens on a subject, is simple, and is highly reliable.

[0008] In order to attain the above object, the present inventors have conducted concentrated studies. As a result, they have found that analysis of the expression level of a specific gene in the peripheral blood lymphocytes of the test subject enables the evaluation of whether or not MS has been developed. This has led to the completion of the present invention.

[0009] Hereafter, specific means for attaining the object are described.

[0010] The present invention relates to a method for evaluating whether or not a subject has been affected with MS by analyzing the gene expression levels of proteins associated with apoptosis inhibition or activation using messenger RNA isolated from peripheral blood lymphocytes of the subject.

[0011] The present invention also relates to a method for evaluating whether or not a subject has contracted MS by analyzing the expression level of a gene selected from among those indicated by the symbols RIPK2, NFKBIE, TNFAIP3, DAXX, TNFSF10, BAG1, TOP1, ADPRT, CREB1, MYC, BAG4, RBBP4, GZMA, BCL2, and E2F5 using messenger RNA derived from peripheral blood lymphocytes of the subject.

[0012] Also, the present invention relates to a method for evaluating whether or not a subject has contracted MS by analyzing the expression level of any of the genes, the symbols of which are shown in Table 1, using messenger RNA derived from peripheral blood lymphocytes of the subject.

[0013] Also, the present invention relates to a method for evaluating whether or not a subject has contracted MS by analyzing the expression level of any of the genes, the symbols of which are shown in Table 2, using messenger RNA derived from peripheral blood lymphocytes of the subject.

[0014] Further, the present invention relates to a method for evaluating whether or not a subject has contracted MS by

isolating $CD3^+$ T-cells from the peripheral blood lymphocytes of the subject and analyzing gene expression in the T-cells.

[0015] The present invention relates to a method for evaluating whether or not a subject has contracted MS wherein a DNA chip is used as a means for analyzing gene expression.

[0016] The present invention further relates to a DNA chip for evaluating whether or not MS has been developed, which has the aforementioned gene mounted thereon.

[0017] The present invention has been completed based on the results of studying the method for evaluating whether or not MS has been developed by analyzing the expression levels of a specific gene group in the peripheral blood lymphocytes of the subject via a simple means such as a DNA chip. The use of the method of evaluation according to the present invention enables the diagnosis of MS in a simple and accurate manner.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] **FIG. 1** shows the results of cluster analysis of T-cell-derived samples obtained from 66 MS patients and 17 healthy volunteers.

[0019] **FIG. 2** shows the results of cluster analysis of non-T-cell-derived samples obtained from 66 MS patients and 17 healthy volunteers.

[0020] **FIG. 3** shows the results of cluster analysis of T-cell-derived samples further comprising samples obtained from five test subjects.

[0021] **FIG. 4** shows the results of cluster analysis of non-T-cell-derived samples further comprising samples obtained from five test subjects.

[0022] **FIG. 5** shows data (1) related to the cluster analysis shown in **FIG. 1**.

[0023] **FIG. 6** shows data (2) related to the cluster analysis shown in **FIG. 1**.

[0024] **FIG. 7** shows data (3) related to the cluster analysis shown in **FIG. 1**.

[0025] **FIG. 8** shows data (4) related to the cluster analysis shown in **FIG. 1**.

[0026] **FIG. 9** shows data (5) related to the cluster analysis shown in **FIG. 1**.

[0027] **FIG. 10** shows data (6) related to the cluster analysis shown in **FIG. 1**.

[0028] **FIG. 11** shows data (7) related to the cluster analysis shown in **FIG. 1**.

[0029] **FIG. 12** shows data (8) related to the cluster analysis shown in **FIG. 1**.

[0030] **FIG. 13** shows data (9) related to the cluster analysis shown in **FIG. 1**.

[0031] **FIG. 14** shows data (10) related to the cluster analysis shown in **FIG. 1**.

[0032] **FIG. 15** shows data (11) related to the cluster analysis shown in **FIG. 1**.

[0033] **FIG. 16** shows data (1) related to the cluster analysis shown in **FIG. 2**.

[0034] **FIG. 17** shows data (2) related to the cluster analysis shown in **FIG. 2**.

[0035] **FIG. 18** shows data (3) related to the cluster analysis shown in **FIG. 2**.

BEST MODE FOR CARRYING OUT THE INVENTION

[0036] Multiple sclerosis (MS) is an autoimmune disease, and malfunction of the immune system is deduced to be the cause thereof. The immune system is an extremely complicated system in which an extensive signal transducing network exists among a variety of cells, centering on T-cells and B cells. Accordingly, it is very dangerous to judge abnormality in such immune system or the repaired state thereof simply by observing individual functions of T-cells producing various cytokines such as lymphotoxin, tumor necrosis factor (TNF), interferon γ (INFγ), or transforming growth factor β (TGFβ). Thus, the present inventors have developed a method for studying the conditions of the immune system by observing the functions of a wider range of gene groups.

[0037] Recently, a method for analyzing gene expression in a sample cell has drawn attention. In this method, a large number of DNA fragments having different sequences are independently immobilized on different sites on a substrate, the resultant is referred to as a "DNA chip" or "DNA array." A reverse transcript of messenger RNA (fluorescence-labeled or radioisotope-labeled) that had been isolated from the target cell are sprinkled on the DNA chip or DNA array, hybridization is carried out, and the degree of hybridization of the reverse transcript to the site at which DNA fragments are immobilized relating to each sequence is determined, thereby analyzing the gene expression in the sample cell. The present inventors used this DNA chip technique to extensively determine the differences in the gene expression patterns in the peripheral blood lymphocytes of healthy volunteers and in those of MS patients.

[0038] This study was conducted to use lymphocytes responsible for the immune system obtained from peripheral blood as a sample. The use of peripheral blood lymphocytes is important from the viewpoint of the less invasive way on a subject. The 72MS patients who had been diagnosed as having relapsing-remitting MS based on comprehensive evaluation via MRI test, an evoked potential test, a cerebrospinal fluid test, and clinical findings, along with 22 healthy volunteers, were asked for their cooperation. The gene expression patterns in peripheral blood lymphocytes between MS and healthy volunteers were thoroughly compared. A DNA chip (DNA chip for analyzing drug responses, Hitachi Co., Ltd.) having approximately 1,260 types of human genes associated with cytokine, signal transmission, growth factor, oncogene, or apoptosis mounted thereon was used. After approximately 10 ml of blood was taken from the subjects, lymphocytes were separated using a density gradient centrifugation medium (Ficoll-Paque PLUS®, Amersham Biosciences), and the lymphocytes were divided into $CD3^+$ T-cells and $CD3^-$ non-T-cells (monocytes, B cells, and NK cells) using the AutoMACS® magnetic cell separation system (Miltenyi). Subsequently, total RNA was extracted from the separated cell fractions using the RNeasy Mini Kit

(Qiagen). The yield of total RNA derived from $CD3^+$ T-cells was 3 to 6 μg, and that of total RNA derived from $CD3^-$ non-T-cells was 2 to 4 μg, per subject. Blood was sampled from the patients before the initiation of interferon β therapy.

[0039] Healthy volunteers (three individuals) were recruited, blood was taken, $CD3^+$ T-cells and $CD3^-$ non-T-cells were isolated, RNA was extracted therefrom, equivalent amounts of samples obtained from three volunteers were pooled, the resulting mixture was twice subjected to RNA amplification via in vitro transcription, and the amplified RNA was designated as a reference. This reference was used as a universal reference sample among all healthy volunteers and MS patients.

[0040] Total RNA extracted from $CD3^+$ T-cells and $CD3^-$ non-T-cells obtained from the healthy volunteer group and the patient group was subjected to RNA amplification via in vitro transcription. Thereafter, Cy5-labeled cDNA was synthesized via reverse transcription utilizing Cy5-dCTP. In contrast, the reference CD3+T-cell and $CD3^-$ non-T-cell samples derived from healthy volunteers were independently subjected to reverse transcription using Cy3-dCTP to synthesize Cy3-labeled cDNA. The cDNA of the patients and healthy volunteers was mixed with the same amount of the reference cDNA, the resultant was applied to the DNA chip, and hybridization was carried out at 62° C. for 12 hours. After the washing, the fluorescence intensity at each spot was analyzed using a scanner (ScanArray 5000, GSI-Lumonics), and the ratio of the expression level of each gene between the samples obtained from the healthy volunteer or the patient and the reference was determined. Since the gene expression levels are expressed as a relative value to a common reference sample in this experiment utilizing DNA chips, differences in each gene expression level between the healthy volunteers and the patients can be easily determined.

[0041] The method of analysis is as follows. The data of the patient group and the healthy volunteer group were subjected to T-test. The gene group that exhibited statistically significant differences in expression levels between the aforementioned two groups even after considering individual (sample-sample) differences was selected. The T-test was carried out by the Bayes' estimation reported by A. Long et al. in combination with the T-test (Journal of Biochemistry, vol. 276, pp. 19937-19944, 2001), and the acceptable false positive value was determined to be 0.05. The results attained from $CD3^+$ T-cell samples are shown in Table 1, and the results attained from $CD3^-$ non-T-cell samples are shown in Table 2. The P values for expression ratio logarithmic values are shown in the tables. As the p value becomes smaller, the sample is determined to belong to a gene group that exhibits more significant differences in the expression level between healthy volunteers and MS patients, i.e., representing a MS-specific peripheral blood marker. All the p values for the groups of genes listed in Table 1 and in Table 2 are smaller than 1E-4, which are statistically significantly different. Thus, the gene group is determined to be reliable MS-specific peripheral blood gene signature.

[0042] Among the variable gene group shown in Table 1 or 2, the groups of genes indicated by the symbols RGS14, CHST2, NR4A2, MAPK1, SMARCA3, TPST2, ATP6D, TCF17, ARH1, HSPA1A, AGTRL2, and PTPN6 that have the p values of less than 1E-10 can be selected as the groups of genes exhibiting significant differences in expression levels. These are the most useful MS-specific peripheral blood markers.

[0043] The groups of genes indicated by the symbols CHST4, GHSR, COX15, IL18R1, AKAP11, CDC42, HSPA1L, RAB7L1, POLR2H, GRO2, PEMT, RPA1, and NFATC3 that have p values of less than 1E-5 in Table 1 and in Table 2 are also valuable as MS-specific peripheral blood markers.

[0044] The groups of genes indicated by the symbols ICAM1, CDC25B, IL1R2, CR2, CD3Z, MAD, CSF1, ARHGEF1, PRKDC, RASSF1, SCYA2, and ABCA1 that have p values of less than 1E-5 in Table 2 are also valuable as MS-specific peripheral blood markers.

[0045] Further, Table 1 and Table 2 contain a large number of groups of genes that are associated with apoptosis regulation and activation. The groups of apoptosis-associated genes indicated by the symbols RIPK2, NFKBIE, TNFAIP3, DAXX, TNFSF10, BAG1, TOP1, ADPRT, CREB1, MYC, BAG4, RBBP4, GZMA, BCL2, and E2F5 are identified as MS-specific peripheral blood markers.

[0046] According to the test comparing the healthy volunteer group and the MS patient group, the number of marker genes selected using the $CD3^+$ T-cellsamples was approximately two times that selected using the $CD3^-$ non-T-cellsamples. This indicates that T-cells are more useful for distinguishing MS from healthy subjects patients than non-T-cells.

[0047] Subsequently, cluster analysis was carried out based on the expression level of the selected genes in order to group 66 MS patients and 17 healthy volunteers. The hierarchical clustering method was employed for this analysis. The resulting dendrograms are shown in **FIGS. 1 and 2**, the analytical data concerning **FIG. 1** are shown in FIGS. **5** to **15**, and the analytical data concerning **FIG. 2** are shown in FIGS. **16** to **18**. The vertical axis (height) is an indication of the inter-cluster distance. As is apparent from **FIG. 1** and **FIG. 2**, the cluster of the MS patient group is clearly distinguished from that of the healthy volunteer group.

[0048] Thus, it was found that analysis of gene expression in peripheral blood lymphocytes of the subject with the use of a specific gene group as a marker enabled us to clearly distinguish of the healthy volunteer group from the patient group.

[0049] The method for analyzing the gene expression level employed in the present invention is not limited to one involving DNA chip technology. It is evident that quantitative PCR, Northern blotting, and other means can also be employed.

[0050] The method for analyzing data is not limited to one involving clustering. Machine learning algorithms, such as the Support Vector Machine, can also be employed.

[0051] The embodiments of the present invention are hereafter described in detail with reference to the examples.

EXAMPLES

[0052] The data concerning the gene expression of the group of patients who had been clinically proved to have contracted MS and the group of healthy volunteers were stored in a database. The results of gene expression analysis of the subjects who were to be evaluated concerning the development of MS were analyzed with reference to the aforementioned database. Thus, examples of evaluation of whether or not the subjects had contracted MS were shown.

[0053] The database containing data concerning the aforementioned 66 patients and 17 healthy volunteers was employed. A total of five subjects among which three patients had been recognized as having relapsing-remitting MS based on comprehensive evaluation via MRI test, an evoked potential test, a cerebrospinal fluid test, and clinical findings and two healthy volunteers were employed. After 10 ml of peripheral blood had been taken from each subject, the origins of the samples, i.e., whether the sample was obtained from a patient or a healthy volunteer, were kept unknown via management based only on case numbers.

[0054] After lymphocytes had been separated from each blood sample using a density gradient centrifugation medium (Ficoll-Paque PLUS®, Amersham Biosciences), the lymphocytes were divided into $CD3^+$ T-cells and $CD3^-$ non-T-cells (monocytes, B cells, and NK cells) using the AutoMACS® magnetic cell separation system (Miltenyi). Subsequently, total RNA was extracted from the separated cell fractions using the RNeasy Mini Kit (Qiagen). The yield of total RNA derived from $CD3^+$ T-cells was 3 to 6 μg, and that of total RNA derived from $CD3^-$ non-T-cells was 2 to 4 μg, per subject.

[0055] At the outset, an oligo (dT) 24 primer comprising a T7 promoter sequence added thereto was annealed to 2 μg of total RNA to synthesize the first strand DNA. Subsequently, this first strand DNA was used as a template to synthesize second strand DNA having a T7 promoter sequence. Finally, the second strand DNA was used as a template to synthesize RNA with the aid of T7 RNA polymerase. A random hexamer was annealed to 4 μg of the amplified RNA to conduct reverse transcription reaction, and Cy5-dCTP was incorporated into the strand to label it with fluorescence.

[0056] The control sample was prepared in the following manner. Healthy volunteers (three individuals) were recruited, 15 ml of peripheral blood was taken from each volunteer, and $CD3^+$ T-cell-derived and $CD3^-$ non-T-cell-derived total RNAs were extracted, by the utilization of the aforementioned density gradient centrifugation, magnetic cell separation system, and RNA extraction kit. After 3 μg samples of total RNA obtained from each of three volunteers were pooled, Cy3-fluorescence labeled cDNA was synthesized via the aforementioned RNA amplification and reverse transcription, and the resultant was designated as the universal reference.

[0057] Cy5-cDNA prepared from each patient's sample was mixed with the same amount (4 μg) of Cy3-cDNA that was a universal reference, the mixture was applied to the aforementioned DNA chip (the DNA chip for analyzing drug responses, Hitachi Co., Ltd.), and hybridization was carried out at 62° C. for 12 hours. After washing, the fluorescence intensity at each spot was analyzed using a scanner (ScanArray® 5000, GSI-Lumonics), and quantification software (QuantArray, GSI-Lumonics) was used to determine the ratios of the gene expression intensity between the control sample and the subject sample.

[0058] The data for these five subjects were combined with the database comprising the data concerning the aforementioned 66 patients and 17 healthy volunteers, and hierarchical clustering analysis was carried out concerning the genes shown in Table 1 and Table 2. The results attained from $CD3^+$ T-cell samples utilizing the gene group shown in Table 1 are shown in **FIG. 3**, and the results attained from $CD3^-$ non-T-cell samples utilizing the gene group shown in Table 2 are shown in Table 4. As is apparent from these figures, subjects A, D, and E among the subjects A, B, C, D, and E were classified as MS patients, and subjects B and C were classified as healthy volunteers. When the origins of the samples were traced, subjects A, D, and E were confirmed to be MS patients, and subjects B and C were confirmed to be healthy volunteers.

[0059] These results clearly indicate that analysis of the gene expression data with the utilization of the gene group shown in Table 1 and Table 2 as gene markers enables us to distinguish MS patients from healthy volunteers. This indicates that the effectiveness on diagnosis of MS by the present invention is very high. Based on the comparison of the results attained from $CD3^+$ T-cells and those from $CD3^-$ non-T-cells, the distinction of MS patients from healthy subjects was accurately carried out in accordance with the origins of the samples. Since $CD3^+$ T-cell samples provide more accuratedistinction, the use of T-cells as peripheral blood lymphocytes was found to be the most valuable.

[0060] Among the groups of variable genes shown in Table 1 and in Table 2, the groups of genes indicated by the symbols RGS14, CHST2, NR4A2, MAPK1, SMARCA3, TPST2, ATP6D, TCF17, ARHI, HSPA1A, AGTRL2, and PTPN6 that have p values of less than 1E-10; the groups of genes indicated by the symbols CHST4, GHSR, COX15, IL18R1, AKAP11, CDC42, HSPA1L, RAB7L1, POLR2H, GRO2, PEMT, RPA1, and NFATC3 that have p values of less than 1E-5 in Table 1 and in Table 2; and the groups of genes indicated by the symbols ICAM1, CDC25B, IL1R2, CR2, CD3Z, MAD, CSF1, ARHGEF1, PRKDC, RASSF1, SCYA2, and ABCA1 that have p values of less than 1E-5 in Table 2 be considered as particularly useful gene markers for evaluating whether or not MS has been developed.

[0061] The groups of apoptosis-associated genes indicated by the symbols RIPK2, NFKBIE, TNFAIP3, DAXX, TNFSF10, BAG1, TOP1, ADPRT, CREB1, MYC, BAG4, RBBP4, GZMA, BCL2, and E2F5 are also particularly useful as gene markers for evaluating whether or not MS has been developed.

[0062] The groups of genes shown in Table 1 are useful as gene markers for evaluating whether or not MS has been developed in the case of T-cell-derived samples. The groups of genes shown in Table 2 are useful as gene markers for the aforementioned purpose in the case of non-T-cell-derived samples.

[0063] The thus selected groups of genes can be employed for diagnosing MS if a chip having a probe that specifically binds to the gene group immobilized on the surface thereof is prepared for at least some of those genes.

TABLE 1

List of genes exhibiting variable expression in T-cell-derived samples

Symbol	Name	Category	GenBank (Acc. No.)	p-log
RGS14	*Homo sapiens* regulator of G protein signaling RGS14 mRNA, complete cds.	Signal	AF037195	1.51E−13
CHST2	*Homo sapiens* carbohydrate (N-acetylglucosamine-6-O) sulfotransferase 2 (CHST2)	sulfotransferase	NM_004267	6.43E−13
NR4A2	*H. sapiens* mRNA for NOT	NR4, TF	X75918	2.55E−12
MAPK1	Human extracellular signal-regulated kinase 2 mRNA; ERK2	Signal	M84489	6.02E−12
SMARCA3	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily a, member 3	ATPase	Z46606	1.70E−11
TPST2	*Homo sapiens* tyrosylprotein sulfotransferase-2 mRNA	sulfotransferase	AF049891	2.31E−11
ATP6D	ATPase, H+ transporting, lysosomal (vacuolar proton pump) 42 kD; Vacuolar proton-ATPase, subunit C; V-ATPase, subunit C	ATPase	J05682	2.46E−11
TCF17	*Homo sapiens* HKL1 mRNA, complete cds	Signal, TF	D89928	3.14E−11
ARHI	*Homo sapiens* putative tumor supressor NOEY2 mRNA; Ras homolog gene family, member I	Signal, suppressor	U96750	3.82E−11
HSPA1A	*Homo sapiens* heat shock 70 kD protein 1 (HSPA1A), mRNA; Heat shock 70 kD protein 1	hsp	NM_005345	4.67E−11
AGTRL2	*Homo sapiens* angiotensin receptor-like 2 (AGTRL2)	angiotensin	NM_005162	3.51E−10
TNFSF10	Human TNF-related apoptosis inducing ligand TRAIL mRNA, complete cds	Cytokine	U37518	5.19E−10
TOP1	Human topoisomerase I mRNA, complete cds	topoiosomerase	J03250	7.03E−10
PTPN6	*H. sapiens* PTP1C mRNA for protein-tyrosine phosphatase 1C.; Protein tyrosine phosphatase, non-receptor type 6; SHP-1	Signal	X62055	7.77E−10
CCR5	Human CC chemokine receptor 5 (CCR5) mRNA, complete cds	Signal	U54994	1.10E−09
TCF8	Human mRNA for transcription factor AREB6; Transcription factor 8 (represses interleukin 2 expression)	Cytokine, Signal, TF	D15050	1.17E−09
CHST4	*Homo sapiens* carbohydrate (N-acetylglucosamine 6-O) sulfotransferase 4 (CHST4)	sulfotransferase	NM_005769	1.84E−09
ERBB4	*Homo sapiens* receptor tyrosine kinase (ERBB4) gene, complete cds	oncogene	L07868	2.22E−09
GHSR	*Homo sapiens* growth hormone secretagogue receptor (GHSR)	GH	NM_004122	4.60E−09
TCF21	*Homo sapiens* epicardin mRNA, complete cds.	Signal, TF	AF047419	4.99E−09
ATP6B2	ATPase, H+ transporting, lysosomal (vacuolar proton pump), beta polypeptide, 56/58 kD, isoform 2	ATPase	L35249	5.10E−09
CREB1	*Homo sapiens* cAMP responsive element binding protein 1 (CREB1)	ATF/CREB	NM_004379	6.58E−09
ITGB1	Integrin, beta 1 (fibronectin receptor, beta polypeptide, antigen CD29 includes MDF2, MSK12);	Signal	X07979	7.16E−09
THRB	Human c-erb-A mRNA for thyroid hormone receptor	oncogene	X04707	9.10E−09
COX15	*Homo sapiens* COX15 (yeast) homolog, cytochrome c oxidase assembly protein (COX15)	mitochondria & stress	NM_004376	1.13E−08
MYC	Human mRNA encoding the c-myc oncogene	oncogene, Signal, TF	V00568	1.18E−08
BAG1	*Homo sapiens* Bcl-2-binding protein (BAG-1) mRNA	glucocorticoids (Cortisol)	AF022224	1.51E−08
CYP1A2	*Homo sapiens* cytochrome P450, subfamily I (aromatic compound-inducible), polypeptide 2 (CYP1A2) mRNA	P450	NM_000761	1.64E−08
CDC16	Human CDC16Hs mRNA, complete cds	CellCycle	U18291	1.99E−08
SLC35A1	solute carrier family 35 (CMP-sialic acid transporter), member 1	polymerase	D87969	2.06E−08
DAXX	*Homo sapiens* Fas-binding protein Daxx mRNA, complete cds	Signal	AF015956	2.23E−08
TSC22	Human putative regulatory protein TGF-beta-stimulated clone 22 homolog (TSC22)	GF	U35048	2.34E−08

TABLE 1-continued

List of genes exhibiting variable expression in T-cell-derived samples

Symbol	Name	Category	GenBank (Acc. No.)	p-log
GABPB1	*Homo sapiens* GA-binding protein transcription factor, beta subunit 1 (53 kD); nuclear respiratory factor-2	mitochondria & stress	NM_005254	6.16E-08
ADPRT	Human poly(ADP-ribose) polymerase mRNA (ADPRT), PARP	Signal	M18112	6.72E-08
MCM3	minichromosome maintenance deficient (*S. cerevisiae*) 3	polymerase	D38073	6.97E-08
IL14	*Homo sapiens* clone 24607 mRNA sequence	Cytokine	AF070546	7.69E-08
IL18R1	Human putative transmembrane receptor IL-1Rrp mRNA, complete cds	Cytokine, Signal	U43672	8.57E-08
ATP2B3	ATPase, Ca++ transporting, plasma membrane 3	ATPase	U57971	8.64E-08
GJB1	gap junction protein, beta 1, 32 kD (connexin 32, Charcot-Marie-Tooth neuropathy, X-linked)	Gap-junciton	X04325	1.03E-07
PIM1	Human h-pim-1 protein (h-pim-1) mRNA, complete cds	oncogene	M54915	1.20E-07
CYP2A6	Human cytochrome P450IIA3 (CYP2A3) mRNA, complete cds	P450	M33318	1.28E-07
CES1	Human carboxylesterase mRNA	esterase	L07765	1.36E-07
NR1I2	*Homo sapiens* orphan nuclear receptor PXR mRNA, complete cds	NR1(PXR)	AF061056	1.43E-07
AKAP11	A kinase (PRKA) anchor protein 11 (AKAP11); *Homo sapiens* mRNA for KIAA0629 protein, partial cds	Signal	AB014529	1.56E-07
CD79B	Human immunoglobulin superfamily member B cell receptor complex cell surface glycoprotein (IGB) mRNA, CD79B	Signal	M89957	1.64E-07
MSH2	Human DNA mismatch repair protein MSH2	DNArepair	U04045	1.82E-07
CDC42	Human GTP-binding protein (G25K) mRNA, complete cds	CellCycle	M35543	1.91E-07
MAP3K7	*Homo sapiens* mitogen-activated protein kinase kinase kinase 7 (MAP3K7), mRNA, TAK1	Signal	NM_003188	2.22E-07
RBBP4	Human chromatin assembly factor 1 p48 subunit (CAF1 p48 subunit); retinoblastoma-binding protein 4	Signal	X74262	2.36E-07
GNA13	Human guanine nucleotide regulatory protein (G13) mRNA; Guanine nucleotide binding protein (G protein), alpha 13	Signal	L22075	2.45E-07
TCF12	*Homo sapiens* transcription factor (HTF4) mRNA, complete cds	Signal, TF	M83233	2.48E-07
TIM	Human guanine nucleotide regulatory protein (tim1) mRNA, complete cds.	oncogene	U02082	2.54E-07
TNFAIP3	Human tumor necrosis factor alpha inducible protein A20 mRNA complete cds	Cytokine, Signal	M59465	2.59E-07
HSPA1L	*Homo sapiens* HSPA1L mRNA for Heat shock protein 70 testis variant, complete cds; Heat shock 70 kD protein-like 1	hsp	D85730	3.18E-07
TCFL5	*Homo sapiens* TCFL5 mRNA for transcription factor-like 5, complete cds	Signal, TF	AB012124	3.28E-07
RAB7L1	*Homo sapiens* mRNA for small GTP-binding protein, complete cds	oncogene	D84488	3.86E-07
POLR2H	Human RNA polymerase II subunit (hsRPB8) mRNA; polymerase (RNA) II (DNA directed) polypeptide H	polymerase	U37689	4.21E-07
ATP2C1	ATPase, Ca++-sequestering	ATPase	AF225981	4.28E-07
ATP7A	ATPase, Cu++ transporting, alpha polypeptide (Menkes syndrome)	ATPase	L06133	5.01E-07
RIPK2	*Homo sapiens* serine/threonine kinase RICK (RICK) mRNA; RIP2	Appoptosis, Signal	AF027706	5.31E-07
NFKBIE	Human I kappa B epsilon (IkBe) mRNA, complete cds	Signal	U91616	5.72E-07
TNFRSF11A	*Homo sapiens* receptor activator of nuclear factor-kappa B (RANK) mRNA, complete cds	Cytokine	AF018253	6.14E-07
ERBB2	Human tyrosine kinase-type receptor (HER2) mRNA; ERBB2; neu proto-oncogene	oncogene	M11730	6.16E-07
CASP10	Human apoptotic cysteine protease Mch4 (Mch4) mRNA, complete cds	Appoptosis, Signal	U60519	6.86E-07

TABLE 1-continued

List of genes exhibiting variable expression in T-cell-derived samples

Symbol	Name	Category	GenBank (Acc. No.)	p-log
GZMA	Human Hanukah factor serine protease (HuHF) mRNA (cytotoxic T-lymphocyte-associated serine esterase 3)	esterase	M18737	6.89E-07
PSMC4	Proteasome (prosome, macropain) 26S subunit, ATPase, 4	ATPase	AF020736	7.18E-07
IFNAR1	Human interferon-alpha receptor (HuIFN-alpha-Rec) mRNA, complete cds	Cytokine, Signal	J03171	7.39E-07
TRAF4	*H. sapiens* MLN62 mRNA (TNF receptor-associated factor 4)	Cytokine	X80200	7.44E-07
NOVA1	Human onconeural ventral antigen-1 (Nova-1) mRNA, complete cds	oncogene	U04840	7.84E-07
ABCF2	*Homo sapiens* clone 203 ABC transporter mRNA, complete cds	ABC transporter	AF091073	8.15E-07
DOK1	Docking protein 1, 62 kD (downstream of tyrosine kinase 1)	Gap-junciton	U70987	8.73E-07
HSBP1	*Homo sapiens* heat shock factor binding protein 1 HSBP1 mRNA; Heat shock factor binding protein 1	hsp	AF068754	8.73E-07
GRO2	Human mRNA for macrophage inflammatory protein-2alpha (MIP2alpha,; GRO2 oncogene	Cytokine	X53799	1.07E-06
PEMT	*Homo sapiens* mRNA for phosphatidylethanolamine N-methyltransferase, complete cds	methytransferase	AB029821	1.11E-06
RUNX1	Human AML1 mRNA for AML1b protein (alternatively spliced product), complete cds	oncogene	D43968	1.13E-06
VAV2	VAV2 = VAV oncogene homolog [human, fetal brain, mRNA Partial, 2753 bp	oncogene	S76992	1.14E-06
ATF3	Human activating transcription factor 3 (ATF3) mRNA	ATF/CREB	L19871	1.21E-06
P2Y5	*Homo sapiens* purinergic receptor P2Y5 mRNA	Signal	AF000546	1.23E-06
HDGF	Human mRNA for hepatoma-derived growth factor, complete cds	GF	D16431	1.38E-06
PCNA	*Homo sapiens* proliferating cell nuclear antigen (PCNA) mRNA	CellCycle, Signal	NM_002592	1.42E-06
NBS1	Nijmegen breakage syndrome 1 (nibrin)	Signal	AF058696	1.45E-06
TFAP2C	Human transcription factor ERF-1 mRNA; Transcription factor AP-2 gamma (activating enhancer-binding protein 2 gamma)	TF	U85658	1.49E-06
MAPKAPK3	*Homo sapiens* mitogen-activated protein kinase-activated protein kinase 3	Signal	NM_004635	1.50E-06
TOPBP1	*Homo sapiens* mRNA for DNA topoisomerase II binding protein, complete cds	topoiosomerase	AB019397	1.60E-06
AVP	Human vasopressin mRNA; Arginine vasopressin (neurophysin II, antidiuretic hormone, diabetes insipidus, neurohypophyseal)	vasopressin	M25647	1.61E-06
HSP105B	Molecular cloning, expression and localization of human 105 kDa heat shock protein, hsp105D	hsp	AB003333	1.77E-06
IL2RG	Human mRNA for interleukin 2 receptor gamma chain	Cytokine, Signal	D11086	1.90E-06
CYP17	Human cytochrome P450c17 (steroid 17-alpha-hydroxylase/17,20 lyase) mRNA, complete cds.	glucocorticoids (Cortisol)	M14564	1.93E-06
IL16	*Homo sapiens* putative IL-16 protein precursor, mRNA, complete cds	Cytokine	M90391	2.03E-06
ST1B2	*Homo sapiens* mRNA for ST1B2	sulfotransferase	D89479	2.11E-06
E2F4	*Homo sapiens* E2F transcription factor 4, p107/p130-binding (E2F4)	TF	NM_001950	2.13E-06
YWHAH	Human 14-3-3n protein mRNA; Tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, eta polypeptide	Tyrosine Hydroxylase	L20422	2.23E-06
COX10	*Homo sapiens* COX10 (yeast) homolog, cytochrome c oxidase assembly protein (heme A: farnesyltransferase)	mitochondria & stress	NM_001303	2.28E-06
SCYB10	Human mRNA for gamma-interferon inducible early response gene (with homology to platelet proteins).	Cytokine	X02530	2.60E-06
TGFBR2	*Homo sapiens* mRNA for TGF-betaIIR alpha, complete cds	GF, Signal	D50683	2.82E-06

TABLE 1-continued

List of genes exhibiting variable expression in T-cell-derived samples

Symbol	Name	Category	GenBank (Acc. No.)	p-log
PMS1	Human DNA mismatch repair protein PMS1 (PMS1 protein homolog 1)	DNA repair	U13695	2.90E-06
FGF5	Human fibroblast growth factor-5 (FGF-5) mRNA, complete cds	GF	M37825	3.03E-06
PSMC6	Proteasome (prosome, macropain) 26S subunit, ATPase, 6	ATPase	AF006305	3.06E-06
CDC10	hCDC10 = CDC10 homolog [human, fetal lung, mRNA, 2314 nt].	CellCycle	S72008	3.08E-06
RPA1	Replication protein A1 (70 kD)	Signal	M63488	3.15E-06
BAK1	Human bc12 homologous antagonist/killer (BAK)	Appoptosis	U23765	3.25E-06
PPP3CB	Human calcineurin A2 mRNA;	Signal	M29551	3.73E-06
PECAM1	Platelet/endothelial cell adhesion molecule (CD31 antigen), neutrophil; CD31	Signal	M28526	3.77E-06
NFKBIA	*Homo sapiens* MAD-3 mRNA encoding IkB-like activity, complete cds, IkBalpha	Signal	M69043	3.80E-06
NFATC3	*Homo sapiens* NF-AT4c mRNA, complete cds	Signal, TF	L41067	4.10E-06
EPOR	Human erythropoietin receptor mRNA, complete cds	Cytokine, Signal	M60459	4.39E-06
GADD45A	Human growth arrest and DNA-damage-inducible protein (gadd45) mRNA	DNA-damage-inducible	M60974	4.55E-06
TCFL1	Human YL-1 mRNA for YL-1 protein (nuclear protein with DNA-binding ability), complete cds	Signal, TF	D43642	4.86E-06
TP53BP1	Human clone 53BP1 p53-binding protein mRNA, partial cds.	Supressor	U09477	5.32E-06
IFI16	*Homo sapiens* interferon, gamma-inducible protein 16 (IFI16) mRNA	Cytokine	NM_005531	5.40E-06
IL12B	Human natural killer cell stimulatory factor (NKSF) mRNA, complete cds, clone p40	Cytokine, Signal	M65290	5.48E-06
SCYA24	Human myeloid progenitor inhibitory factor-1 MPIF-2 mRNA	Cytokine	U85768	5.53E-06
POLE2	polymerase (DNA directed), epsilon 2	polymerase	AF025840	5.63E-06
ATRX	Alpha thalassemia/mental retardation syndrome X-linked	ATPase	U72938	6.06E-06
CRADD	Human death domain containing protein CRADD mRNA; CASP2 and RIPK1 domain containing adaptor with death domain	Appoptosis, Signal	U84388	6.12E-06
GRO1	Human mRNA for melanoma growth stimulatory activity (MGSA), groucho	Signal, TF	X12510	6.55E-06
GNB5	*Homo sapiens* G protein beta 5 subunit mRNA; Guanine nucleotide binding protein (G protein), beta 5	Signal	AF017656	6.78E-06
SGK2	*Homo sapiens* serum/glucocorticoid regulated kinase 2	hyperosmotic stress	NM_016276	6.96E-06
NFKB2	*H. sapiens* mRNA for NF-kB subunit (p49/p100)	Signal	X61498	7.06E-06
IRS4	*Homo sapiens* insulin receptor substrate 4 (IRS4)	Insulin	NM_003604	7.17E-06
SLC6A2	*Homo sapiens* solute carrier family 6 (neurotransmitter transporter, noradrenalin), member 2 (SLC6A2)	norepinephrine	NM_001043	7.61E-06
RBL1	Human retinoblastoma related protein (p107) mRNA; Retinoblastoma-like 1	CellCycle	L14812	8.03E-06
CASP1	Human interleukin 1-beta converting enzyme isoform delta (IL1BCE) mRNA, complete cds	Appoptosis, Signal	U13699	8.23E-06
KARP1	Ku86 autoantigen related protein 1	Signal	AF039597	8.49E-06
NHP2L1	Non-histone chromosome protein 2 (*S. cerevisiae*)-like 1	Signal	D50420	8.50E-06
SGK	*Homo sapiens* serum/glucocorticoid regulated kinase	hyperosmotic stress	NM_005627	8.54E-06
PLCB2	*Homo sapiens* phospholipase C-beta-2 mRNA; Phospholipase C, beta 2	Signal	M95678	8.56E-06
CDK4	Human (clone PSK-J3) cyclin-dependent protein kinase mRNA; cyclin-dependent kinase 4 (CDK4)	CellCycle, Signal	M14505	8.84E-06
PRKCM	*H. sapiens* mRNA for protein kinase C mu; Protein kinase C, mu	Signal	X75756	8.93E-06
TNFRSF10C	*Homo sapiens* TRAIL receptor 3 mRNA, complete cds	Cytokine	AF016267	9.08E-06
TERF1	*Homo sapiens* telomeric repeat binding factor (NIMA-interacting) 1	oncogene	NM_003218	9.35E-06
TGFB2	Human transforming growth factor-beta-2 mRNA; glioblastoma-derived T-cell suppressor factor (G-TSF); bsc-1 cell growth inhibitor; polyergin; cetermin	GF	M19154	9.62E-06

TABLE 1-continued

List of genes exhibiting variable expression in T-cell-derived samples

Symbol	Name	Category	GenBank (Acc. No.)	p-log
ALDH7	Human aldehyde dehydrogenase ALDH7 mRNA	ALDH	U10868	1.01E−05
TTF1	transcription termination factor, RNA polymerase	polymerase, TF	X83973	1.05E−05
TGFBR1	Human activin receptor-like kinase (ALK-5) mRNA, complete cds	GF, Signal	L11695	1.05E−05
ERCC3	Human DNA repair helicase (ERCC3) mRNA, complete cds	TF	M31899	1.11E−05
CSF1R	Human macrophage colony stimulating factor I receptor precursor (CSF1R); fms proto-oncogene (c-fms)	oncogene	X03663	1.18E−05
ABCB10	Human ATP-binding cassette protein mRNA 06B09 clone, partial cds	ABC transporter	U18237	1.19E−05
STAT1	*Homo sapiens* transcription factor ISGF-3 mRNA, complete cds	Signal, TF	M97935	1.19E−05
MX2	Human interferon-induced cellular resistance mediator protein (MxB) mRNA	Cytokine	M30818	1.22E−05
SCYA1	Human secreted protein (I-309) mRNA; Small inducible cytokine A1 (I-309, homologous to mouse Tca-3)	Cytokine	M57502	1.28E−05
RBL2	Human retinoblastoma-like protein 2 (RBL2; RB2); 130-kDa retinoblastoma-associated protein (p130)	Signal, TF	X74594	1.32E−05
VCAM1	*Homo sapiens* vascular cell adhesion molecule 1 (VCAM1)	glucocorticoids (Cortisol)	NM_001078	1.38E−05
MADH4	Human homozygous deletion target in pancreatic carcinoma (DPC4); mothers against dpp homolog 4 (SMAD4)	Signal, Supressor, TF	U44378	1.39E−05
ADH2	Human class I alcohol dehydrogenase (ADH2) beta-1 subunit mRNA	ADH	M21692	1.46E−05
ISGF3G	Human IFN-responsive transcription factor subunit mRNA; Interferon-stimulated transcription factor 3, gamma (48 kD); p48	Signal, TF	M87503	1.48E−05
SCYA3	Human macrophage inflammatory protein (G0S19-1) mRNA, Small inducible cytokine subfamily A (Cys—Cys), member 3; Mip-1a	Cytokine, Signal	M23452	1.48E−05
RAB11A	*Homo sapiens* rab11a GTPase mRNA, complete cds.	oncogene	AF000231	1.50E−05
ABL2	Human tyrosine kinase arg gene mRNA	oncogene	M35296	1.55E−05
IL6R	Human mRNA for interleukin-6 (IL-6) receptor	Cytokine, Signal	X12830	1.77E−05
DTR	Human heparin-binding EGF-like growth factor mRNA (HBEGF); diphtheria toxin receptor (DTR)	GF	M60278	1.81E−05
ALDH9	Human gamma-aminobutyraldehyde dehydrogenase mRNA	ALDH	U34252	1.85E−05
SKIL	Human sno oncogene mRNA for snoN protein, ski-related	oncogene, Signal	X15219	1.85E−05
AKR1B1	*Homo sapiens* aldo-keto reductase family 1, member B1 (aldose reductase)	hyperosmotic stress	NM_001628	1.90E−05
CDK2	Human cdc2-related protein kinase mRNA, complete cds	CellCycle, Signal	M68520	1.92E−05
ABCE1	*H. sapiens* mRNA for 2'–5' oligoadenylate Binding protein	ABC transporter	X74987	2.01E−05
ST13	*Homo sapiens* putative tumor suppressor ST13 (ST13) mRNA, complete cds	Supressor	U17714	2.03E−05
CFLAR	*Homo sapiens* Casper mRNA; CASP8 and FADD-like apoptosis regulator; I-FLICE	Appoptosis, Signal	AF010127	2.08E−05
NR5A2	*Homo sapiens* hepatocytic transcription factor (hB1F) mRNA, complete cds	NR5, TF	U80251	2.14E−05
PDGFRA	Human platelet-derived growth factor receptor alpha (PDGFRA) mRNA; CD140A antigen	GF, Signal	M21574	2.19E−05
IGF2	Human insulin-Ikegrowth factor II mRNA, complete cds	GF	J03242	2.21E−05
AADAC	Human arylacetamide deacetylase mRNA	esterase	L32179	2.22E−05
EP300	Human p300 protein mRNA, complete cds	Signal, TF	U01877	2.30E−05
TPR	*H. sapiens* tpr mRNA; Translocated promoter region (to activated MET oncogene)	oncogene	X66397	2.32E−05
CYP3A4	*Homo sapiens* cytochrome P450-3A4 (CYP3A4) mRNA, complete cds	p450	AF182273	2.32E−05
POLR2G	polymerase (RNA) II (DNA directed) polypeptide G	polymerase	U20659	2.44E−05
SELL	selectin L (lymphocyte adhesion molecule 1)	Selectin	M25280	2.45E−05
HRAS	*Homo sapiens* v-Ha-ras Harvey rat sarcoma viral oncogene homolog (HRAS)	oncogene, Signal	NM_005343	2.46E−05
CSNK2A1	Human casein kinase II alpha subunit mRNA, complete cds.	Signal	M55265	2.54E−05

TABLE 1-continued

List of genes exhibiting variable expression in T-cell-derived samples

Symbol	Name	Category	GenBank (Acc. No.)	p-log
GNG3	*Homo sapiens* guanine nucleotide binding protein (G protein), gamma 3 (GNG3), mRNA	Signal	NM_012202	2.54E-05
TGFB1	Human transforming growth factor-beta (TGF-beta; TGFB)	GF, Signal	X02812	2.61E-05
TNFRSF1A	*H. sapiens* TNF-R mRNA for tumor necrosis factor receptor type 1.	Cytokine, Signal	X55313	2.62E-05
ABCB1	*Homo sapiens* P-glycoprotein (PGY1) mRNA (MDR1)	glucocorticoids (Cortisol)	M14758	2.63E-05
BRCA1	Human breast and ovarian cancer susceptibility (BRCA1)	Signal, Supressor	U14680	2.67E-05
MAPK13	*Homo sapiens* stress-activated protein kinase 4 (SAPK4) mRNA, complete cds	Stress	AF004709	2.82E-05
RPC62	polymerase (RNA) III (DNA directed) (62 kD)	polymerase	U93867	2.87E-05
SCYB5	*H. sapiens* ENA-78 mRNA; Small inducible cytokine subfamily B (Cys-X-Cys), member 5 (epithelial-derived neutrophil-activating peptide 78)	Cytokine, Signal	X78686	3.10E-05
ATP6H	ATPase, H+ transporting, lysosomal (vacuolar proton pump) 9 kD	ATPase	Y15286	3.12E-05
THY1	*Homo sapiens* Thy-1 cell surface antigen (THY 1), mRNA	Signal	NM_006288	3.13E-05
ABCB6	*Homo sapiens* clone 24410 ABC transporter mRNA, partial cds	ABC transporter	AF070598	3.26E-05
STIP1	*Homo sapiens* stress-induced-phosphoprotein 1 (Hsp70/Hsp90-organizing protein)	stress	NM_006819	3.28E-05
IL2RB	Human interleukin 2 receptor beta chain (p70-75) mRNA, complete cds	Cytokine, Signal	M26062	3.31E-05
AP1S2	*Homo sapiens* adaptor-related protein complex 1, sigma 2 subunit (AP1S2)	AP-1	NM_003916	3.41E-05
TRA@	Human mRNA for T-cell receptor alpha chain (TCR-alpha).	Signal	X02592	3.46E-05
EGFR	Human mRNA for precursor of epidermal growth factor receptor	oncogene, Signal	X00588	3.55E-05
CSF3	Human mRNA for granulocyte colony-stimulating factor (G-CSF).	Cytokine, Signal	X03438	3.73E-05
GSTM3	Human glutathione transferase M3 (GSTM3) mRNA	GSTM	J05459	3.74E-05
CYP8B1	*Homo sapiens* sterol 12-alpha hydroxylase CYP8B1 (Cyp8b1) mRNA, partial cds	P450	AF090318	3.80E-05
TIMP3	Human tissue inhibitor of metalloproteinase-3 precursor (TIMP-3) mRNA, complete cds	Signal	U02571	3.80E-05
UGT2B4	Human mRNA for liver microsomal UDP-glucuronosyltransferase (UDPGT).	UGT	Y00317	3.83E-05
PAK2	Human p21-activated protein kinase (PAK-gamma; PAK2); PAK65; S6/H4 kinase	Signal	U24153	3.90E-05
AFG3L2	AFG3 (ATPase family gene 3, yeast)-like 2	ATPase	NM_006796	3.97E-05
MST1R	*H. sapiens* RON mRNA for tyrosine kinase; Macrophage stimulating 1 receptor (c-met-related tyrosine kinase)	Signal	X70040	4.05E-05
HSPA10	*Homo sapiens* heat shock 70 kD protein 10 (HSC71) (HSPA10), mRNA	hsp	NM_006597	4.15E-05
AKAP2	*Homo sapiens* A kinase (PRKA) anchor protein 2 (AKAP2)	Signal	NM_007203	4.44E-05
ABCB7	*Homo sapiens* ATP binding cassette transporter mRNA, complete cds	ABC transporter	AF038950	4.55E-05
CCNC	Human cyclin mRNA	CellCycle	M74091	4.95E-05
NPR2L	*Homo sapiens* candidate tumor suppressor gene 21 protein mRNA, complete cds	Supressor	AF040708	5.01E-05
JAK1	Human protein-tyrosine kinase (JAK1) mRNA, Janus kinase 1	Signal	M64174	5.04E-05
AKAP9	*Homo sapiens* A kinase (PRKA) anchor protein (yotiao) 9 (AKAP9)	Signal	NM_005751	5.09E-05
ABCC5	*Homo sapiens* SMRP mRNA, complete cds	ABC transporter	AB005659	5.19E-05
STAC	*Homo sapiens* mRNA for stac, (src homology three (SH3) and cysteine rich domain)	Signal	D86640	5.19E-05
PRKDC	*Homo sapiens* DNA-dependent protein kinase catalytic subunit (DNA-PKcs) mRNA	Signal	U47077	5.70E-05
ABCD2	*Homo sapiens* mRNA for adrenoleukodystrophy related protein (ALDR).	ABC transporter	AJ000327	6.10E-05
MAP2K1	*Homo sapiens* ERK activator kinase (MEK1) mRNA	Signal	L11284	6.21E-05

TABLE 1-continued

List of genes exhibiting variable expression in T-cell-derived samples

Symbol	Name	Category	GenBank (Acc. No.)	p-log
RAP1A	Human ras-related protein (Krev-1) mRNA, complete cds	Supressor	M22995	6.33E−05
GNG10	Human G protein gamma-10 subunit mRNA; Guanine nucleotide binding protein 10	Signal	U31383	6.48E−05
MADH2	Human mad protein homolog (hMAD-2) mRNA; JV18-1.MADR2 OR SMAD2	Signal, TF	U68018	6.65E−05
NR3C1	Human glucocorticoid receptor alpha mRNA, complete cds	glucocorticoids (Cortisol)	M10901	6.73E−05
RBBP1	*Homo sapiens* retinoblastoma-binding protein 1 (RBBP1) mRNA	Signal	NM_002892	7.10E−05
PTPRC	Human mRNA for T200 leukocyte common antigen (CD45, LC-A).	Signal	Y00062	7.43E−05
CDC27	Human homologue of *S. pombe* nuc2+ and *A. nidulans* bimA; Cell division cycle 27	CellCycle	U00001	7.77E−05
HSPCA	*Homo sapiens* Hsp89-alpha-delta-N mRNA; Heat shock 90 kD protein 1, alpha	hsp	AF028832	7.88E−05
RAB9	Human small GTP binding protein Rab9 mRNA, complete cds.	oncogene	U44103	9.21E−05
ING1	*Homo sapiens* growth inhibitor p33ING1 (ING1) mRNA, complete cds	Signal, Supressor	AF001954	1.18E−04
KRAS2	Human K-ras oncogene protein mRNA (KRAS2)	oncogene	M54968	1.31E−04
RAB4	*Homo sapiens* GTP-binding protein (RAB4) mRNA, complete cds.	oncogene	M28211	1.47E−04
NTF5	Human neurotrophin-4 (NT-4) gene; neurotrophin 5 (neurotrophin 4/5) (NTF5)	GF	M86528	1.99E−04
NFRKB	Human R kappa B mRNA, complete cds	Signal	U08191	2.29E−04
TAF2F	TATA box binding protein (TBP)-associated factor, RNA polymerase II, F, 55 kD	polymerase, TF	U18062	2.79E−04
CDC25B	Human cdc25B mRNA, complete cds.	CellCycle	M81934	5.63E−04

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TABLE 2

List of genes exhibiting variable expression in non-T-cell-derived samples

Symbol	Name	Category	GenBank (Acc. No.)	p-log
ICAM1	Human intercellular adhesion molecule-1 (ICAM-1) mRNA, CD54	Signal	J03132	1.11E−09
IL18R1	Human putative transmembrane receptor IL-1Rrp mRNA, complete cds	Cytokine, Signal	U43672	1.14E−09
CDC42	Human GTP-binding protein (G25K) mRNA, complete cds	CellCycle	M35543	1.49E−08
SMARCA3	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily a, member 3	ATPase	Z46606	3.95E−08
RGS14	*Homo sapiens* regulator of G protein signaling RGS14 mRNA, complete cds.	Signal	AF037195	5.44E−08
COX15	*Homo sapiens* COX15 (yeast) homolog, cytochrome c oxidase assembly protein (COX15)	mitochondria & stress	NM_004376	6.43E−08
AKAP11	A kinase (PRKA) anchor protein 11 (AKAP11); *Homo sapiens* mRNA for KIAA0629 protein, partial cds	Signal	AB014529	1.68E−07
RIPK2	*Homo sapiens* serine/threonine kinase RICK (RICK) mRNA; RIP2	Appoptosis, Signal	AF027706	1.88E−07
TCF17	*Homo sapiens* HKL1 mRNA, complete cds	Signal, TF	D89928	1.92E−07
CDC25B	Human cdc25B mRNA, complete cds.	CellCycle	M81934	2.40E−07
GZMA	Human Hanukah factor serine protease (HuHF) mRNA (cytotoxic T-lymphocyte-associated serine esterase 3)	esterase	M18737	2.49E−07
CHST4	*Homo sapiens* carbohydrate (N-acetylglucosamine 6-O) sulfotransferase 4 (CHST4)	sulfotransferase	NM_005769	3.46E−07

TABLE 2-continued

List of genes exhibiting variable expression in non-T-cell-derived samples

Symbol	Name	Category	GenBank (Acc. No.)	p-log
IL1R2	*H. sapiens* IL-1R2 mRNA for type II interleukin-1 receptor, (cell line CB23).	Cytokine	X59770	4.56E−07
BCL2	Human bcl-2 mRNA; apoptosis regulator bcl2	oncogene, Signal	M14745	4.81E−07
ARHI	*Homo sapiens* putative tumor supressor NOEY2 mRNA; Ras homolog gene family, member I	Signal, suppressor	U96750	4.88E−07
CR2	Complement component (3d/Epstein Barr virus) receptor 2; CD21	Signal	M26004	5.88E−07
RPA1	Replication protein A1 (70 kD)	Signal	M63488	6.72E−07
CD3Z	Human T cell receptor zeta-chain mRNA, complete cds	Signal	J04132	7.14E−07
POLR2H	Human RNA polymerase II subunit (hsRPB8) mRNA; polymerase (RNA) II (DNA directed) polypeptide H	polymerase	U37689	7.28E−07
PEMT	*Homo sapiens* mRNA for phosphatidylethanolamine N-methyltransferase, complete cds	methytransferase	AB029821	9.72E−07
E2F5	Human transcription factor E2F-5 mRNA, complete cds	TF	U15642	1.00E−06
MAD	*Homo sapiens* antagonizer of myc transcriptional activity (Mad) mRNA, complete cds	TF	L06895	1.00E−06
CSF1	Human macrophage-specific colony-stimulating factor (CSF-1) mRNA, complete cds	Cytokine, Signal	M37435	1.34E−06
RAB7L1	*Homo sapiens* mRNA for small GTP-binding protein, complete cds	oncogene	D84488	1.49E−06
NFATC3	*Homo sapiens* NF-AT4c mRNA, complete cds	Signal, TF	L41067	1.66E−06
HSPA1L	*Homo sapiens* HSPA1L mRNA for Heat shock protein 70 testis variant, complete cds; Heat shock 70 kD protein-like 1	hsp	D85730	1.87E−06
GR02	Human mRNA for macrophage inflammatory protein-2alpha (MIP2alpha,; GRO2 oncogene	Cytokine	X53799	1.91E−06
ARHGEF1	Human guanine nucleotide exchange factor p115-RhoGEF mRNA, partial cds; Rho guanine nucleotide exchange factor (GEF) 1	Signal	U64105	2.01E−06
GHSR	*Homo sapiens* growth hormone secretagogue receptor (GHSR)	GH	NM_004122	2.14E−06
BAG4	*Homo sapiens* silencer of death domains (SODD) mRNA; BCL2-associated athanogene 4	Signal	AF111116	3.13E−06
RBBP4	Human chromatin assembly factor 1 p48 subunit (CAF1 p48 subunit); retinoblastoma-binding protein 4	Signal	X74262	3.13E−06
PRKDC	*Homo sapiens* DNA-dependent protein kinase catalytic subunit (DNA-PKcs) mRNA	Signal	U47077	3.36E−06
RASSF1	*Homo sapiens* putative tumor suppressor protein (RDA32) mRNA, complete cds	Supressor	AF061836	3.49E−06
SCYA2	monocyte chemoattractant protein-1 [human, mRNA, 739 nt], MCP-1	Cytokine, Signal	S71513	3.70E−06
ABCA1	*Homo sapiens* mRNA for ATP-binding cassette transporter-1 (ABC-1)	ABC transporter	AJ012376	4.57E−06
TOP2A	Human DNA topoisomerase II (top2) mRNA, complete cds	topoiosomerase	J04088	4.82E−06
DAXX	*Homo sapiens* Fas-binding protein Daxx mRNA, complete cds	Signal	AF015956	5.16E−06
EGF	Human mRNA for kidney epidermal growth factor (EGF) precursor; urogastrone	GF, Signal	X04571	5.74E−06
GNRH1	Human placenta mRNA for luteinizing hormone releasing hormone precursor (LHRH).	LH	X01059	5.74E−06
TNFAIP6	Tumor necrosis factor, alpha-induced protein 6	Cytokine, Signal	M31165	6.14E−06
TNFRSF10B	*Homo sapiens* death receptor 5 (DR5) mRNA, Tumor necrosis factor receptor superfamily, member 10b	Appoptosis	AF016268	6.95E−06

TABLE 2-continued

List of genes exhibiting variable expression in non-T-cell-derived samples

Symbol	Name	Category	GenBank (Acc. No.)	p-log
STK9	serine/threonine kinase 9	Gap-junciton	X89059	8.86E-06
NPR2L	*Homo sapiens* candidate tumor suppressor gene 21 protein mRNA, complete cds	Supressor	AF040708	1.13E-05
ATM	Human ataxia telangiectasia (ATM) mRNA	Signal, Supressor	U33841	1.26E-05
PPP3CB	Human calcineurin A2 mRNA;	Signal	M29551	1.32E-05
FGF7	Human keratinocyte growth factor mRNA; fibroblast growth factor 7 (FGF-7)	GF	M60828	1.37E-05
CD79B	Human immunoglobulin superfamily member B cell receptor complex cell surface glycoprotein (IGB) mRNA, CD79B	Signal	M89957	1.68E-05
HSPA1A	*Homo sapiens* heat shock 70 kD protein 1 (HSPA1A), mRNA; Heat shock 70 kD protein 1	hsp	NM_005345	1.74E-05
IL2RG	Human mRNA for interleukin 2 receptor gamma chain	Cytokine, Signal	D11086	1.90E-05
E2F4	*Homo sapiens* E2F transcription factor 4, p107/p130-binding (E2F4)	TF	NM_001950	1.95E-05
NR1D1	*Homo sapiens* mRNA for Rev-ErbAalpha protein (hRev gene).	NR1	X72631	2.15E-05
DTR	Human heparin-binding EGF-like growth factor mRNA (HBEGF); diphtheria toxin receptor (DTR)	GF	M60278	2.36E-05
MSH2	Human DNA mismatch repair protein MSH2	DNArepair	U04045	2.48E-05
BCL3	Human B-cell lymphoma 3-encoded protein (bcl-3) mRNA, complete cds	oncogene, Signal	M31732	2.49E-05
TGFB1	Human transforming growth factor-beta (TGF-beta; TGFB)	GF, Signal	X02812	2.52E-05
ILF1	Human mRNA for transcription factor ILF	Cytokine, TF	X60787	2.58E-05
GABPB1	*Homo sapiens* GA-binding protein transcription factor, beta subunit 1 (53 kD); nuclear respiratory factor-2	mitochondria & stress	NM_005254	2.90E-05
CDK10	*Homo sapiens* CDC2-related protein kinase (PISSLRE) mRNA; Cyclin-dependent kinase (CDC2-like) 10	CellCycle	L33264	3.06E-05
ADPRT	Human poly(ADP-ribose) polymerase mRNA (ADPRT), PARP	Signal	M18112	3.24E-05
CD3D	*Homo sapiens* CD3D antigen, delta polypeptide (TiT3 complex) (CD3D), mRNA	Signal	NM_000732	3.56E-05
ATP2C1	ATPase, Ca++-sequestering	ATPase	AF225981	3.59E-05
STIP1	*Homo sapiens* stress-induced-phosphoprotein 1 (Hsp70/Hsp90-organizing protein)	stress	NM_006819	3.66E-05
AGTRL2	*Homo sapiens* angiotensin receptor-like 2 (AGTRL2)	angiotensin	NM_005162	3.96E-05
ISGF3G	Human IFN-responsive transcription factor subunit mRNA; Interferon-stimulated transcription factor 3, gamma (48 kD); p48	Signal, TF	M87503	4.60E-05
RAB9	Human small GTP binding protein Rab9 mRNA, complete cds.	oncogene	U44103	1.36E-04

[0065] All publications, patents, and patent applications cited herein are incorporated herein by reference in their entirety.

INDUSTRIAL APPLICABILITY

[0066] The present invention can be utilized for diagnosis of multiple sclerosis.

1. A method for evaluating multiple sclerosis comprising analyzing the expression levels of the gene group selected from among those shown in Table 1 or 2 using messenger RNA derived from the peripheral blood lymphocytes of a subject and evaluating the conditions of multiple sclerosis of the subject based on the results of the analysis.

2. The method according to claims 1, wherein the gene group includes those indicated by the symbols RGS14, CHST2, NR4A2, MAPK1, SMARCA3, TPST2, ATP6D, TCF17, ARHI, HSPA1A, AGTRL2, and PTPN6.

3. The method according to claim 2, wherein the gene group further includes at least one gene selected from among those indicated by the symbols CHST4, GHSR, Cox15, IL18R1, AKAP11, CDC42, HSPA1L, RAB7L1, POLR2H, GRO2, PEMT, RPA1, and NFATC3:

4. The method according to claim 3, wherein the gene group further includes at least one gene selected from among those indicated by the symbols ICAM1, CDC25B, IL1R2, CR2, CD3Z, MAD, CSF1, ARHGEF1, PRKDC, RASSF1, SCYA2, and ABCA1.

5. The method according to claim 4, wherein the gene group further includes at least one gene selected from among those indicated by the symbols RIPK2, NFKBIE, TNFAIP3, DAXX, TNFSF10, BAG1, TOP1, ADPRT, CREB1, MYC, BAG4, RBBP4, GZMA, BCL2, and E2F5.

6. The method according to claim 2, wherein the messenger RNA is derived from $CD3^+$ T-cells separated from the peripheral blood lymphocyte.

7. The method according to claim 3, wherein the messenger RNA is derived from $CD3^+$ T-cells separated from the peripheral blood lymphocyte.

8. The method according to claim 1, wherein the gene group includes those indicated by the symbols ICAM1, CDC25B, IL1R2, CR2, CD3Z, MAD, CSF1, ARHGEF1, PRKDC, RASSF1, SCYA2, and ABCA1.

9. The method according to claim 8, wherein the messenger RNA is derived from $CD3^-$ non-T-cells separated from the peripheral blood lymphocyte.

10. The method according to claim 1, wherein the gene group includes those indicated by the symbols RIPK2, NFKBIE, TNFAIP3, DAXX, TNFSF10, BAG1, TOP1, ADPRT, CREB1, MYC, BAG4, RBBP4, GZMA, BCL2, and E2F5.

11. A chip for evaluating the condition of multiple sclerosis, which has probes that specifically bind to each gene in the gene group selected from among those shown in Table 1 or 2 immobilized on its surface.

12. The chip according to claim 11, wherein the gene group includes those indicated by the symbols RGS14, CHST2, NR4A2, MAPK1, SMARCA3, TPST2, ATP6D, TCF17, ARHI, HSPA1A, AGTRL2, and PTPN6.

13. The chip according to claim 12, wherein the gene group further includes at least one gene selected from among those indicated by symbols CHST4, GHSR, COX15, IL18R1, AKAP11, CDC42, HSPA1L, RAB7L1, POLR2H, GRO2, PEMT, RPA1, and NFATC3.

14. The chip according to claim 13, wherein the gene group further includes at least one gene selected from among those indicated by symbols ICAM1, CDC25B, IL1R2, CR2, CD3Z, MAD, CSF1, ARHGEF1, PRKDC, RASSF1, SCYA2, and ABCA1.

15. The chip according to claim 11, wherein the gene group includes those indicated by the symbols RIPK2, NFKBIE, TNFAIP3, DAXX, TNFSF10, BAG1, TOP1, ADPRT, CREB1, MYC, BAG4, RBBP4, GZMA, BCL2, and E2F5.

16. A commercial package for evaluating the conditions of multiple sclerosis, which comprises a primer or probe specific for each gene in the gene group shown in Table 1 or 2.

17. The commercial package according to claim 16, wherein the gene group includes those indicated by the symbols RGS14, CHST2, NR4A2, MAPK1, SMARCA3, TPST2, ATP6D, TCF17, ARHI, HSPA1A, AGTRL2, and PTPN6.

18. The commercial package according to claim 17, wherein the gene group includes at least one gene selected from among those indicated by the symbols CHST4, GHSR, COX15, IL18R1, AKAP11, CDC42, HSPA1L, RAB7L1, POLR2H, GRO2, PEMT, RPA1, and NFATC3.

19. The commercial package according to claim 18, wherein the gene group includes at least one gene selected from among those indicated by the symbols ICAM1, CDC25B, IL1R2, CR2, CD3Z, MAD, CSF1, ARHGEF1, PRKDC, RASSF1, SCYA2, and ABCA1.

20. The commercial package according to claim 16, wherein the gene group includes those indicated by the symbols RIPK2, NFKBIE, TNFAIP3, DAXX, TNFSF10, BAG1, TOP1, ADPRT, CREB1, MYC, BAG4, RBBP4, GZMA, BCL2, and E2F5.

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专利名称(译)	评估多发性硬化的方法		
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摘要(译)

本发明提供了一种辅助诊断多发性硬化的方法和装置。更具体地，本发明提供了用于评估是否已经开发出多发性硬化的基因标记（表1和2中所示），使用这种基因标记评估多发性硬化的方法，芯片等。

Fig 1