

## Supporting Materials

**TABLE 1.** Transcription profiles of selected genes at defined time points after primary and secondary immunizations as determined by both microarray and real-time RT-PCR. Numbers indicate the fold of change compared with the non-infected controls, except IBV spike gene, where the fold change is compared with d5. -, down-regulated compared to control; ND, not detectable. Di, i-day after primary immunization. Note: D22 and D24 mean 1 and 3 days after the secondary immunization.

Gene name	Reference Gene	Methods	D1	D3	D5	D8	D12	D21	D22	D24
Toll like receptor 2 type 1 precursor	Bu2004623	Array	2.91	4.17	1.53	1.02	1.39	-1.51	-1.67	-1.69
		Real PCR	11.51	12.88	5.47	4.14	-4.39	-1.1	-1.1	-4.39
Fas antigen	BU300974	Array	3.45	1.19	2.07	1.23	-1.15	1.08	1.11	1.25
		Real PCR	11.12	5.83	11.48	4.13	-3.57	2.98	4.51	-2.27
Mx	BU457953	Array	18.36	4.05	2.69	1.12	-1.33	1.03	1.66	-1.7
		Real PCR	65.17	15.88	19.11	6.47	4.68	3.95	3.81	-3.85
Interferon regulatory factor 1	AI980049	Array	4.32	2.01	2.42	1.05	1.32	1.06	1.25	-1.1
		Real PCR	5.6	3.12	3.07	-1.11	-14.3	-1.01	1.32	-1.02
Interleukin 1 beta	BG625387	Array	10.8	5.47	2.13	1.5	1.47	2.54	1.68	1.6
		Real PCR	10.43	6.34	-1.89	ND	ND	2.05	-2.78	-1.12
Suppressor of cytokine signaling 3	AI981631	Array	8.27	2.84	2.1	1.1	1.12	-1.03	-1.11	-1.02
		Real PCR	28.18	10.04	1.86	1.96	1.01	1.1	1.99	1.95
Osteopontin	BG625306	Array	5.25	1.58	1.95	-2.18	1.24	-1.69	-1.52	1.19
		Real PCR	33.21	2.07	3.04	-2.63	ND	-1.61	-1.61	1.03
Cytochrome C	BF845754	Array	1.45	-28.82	-7.41	-71	-1.41	-1.95	-2.01	-1.05
		Real PCR	2.18	2.46	3.6	2.94	1.46	1.13	1.87	1.64
Ig light chain precursor	M24403	Array	-1.64	-1.21	2.1	2.06	-9.07	1.34	1.63	1.54
		Real PCR	-1.01	1.79	2.36	4.88	0.21	3.42	7.47	1.92
Embryo fibroblast protein 1 precursor	AI980458	Array	18.66	6.53	5.61	1.25	2.68	3.84	1.04	1.65
		Real PCR	9.48	1.99	4.89	1.25	0.98	1.38	1.13	1.45
Ig mu chain IgM	AI980934	Array	-1.28	-1.08	1.16	1.28	1.72	1	1.11	1.03
		Real PCR	0.91	0.71	1.82	1.1	0.81	0.81	1.31	1.39
Interleukin 6	AI982185	Array	-1.18	-1.09	1.04	1.12	-1.15	-1.01	1.03	1.11
		Real PCR	-1.88	-1.82	-0.3	-1.79	-1.58	-2.24	-1.7	-1.8
Transforming growth factor beta	BU107503	Array	-1.28	-1.2	-2.35	-2.18	-3.6	-1.22	-1.14	-1.36
		Real PCR	-1.4	-1.32	-2.41	-1.24	-1.31	-1.36	1.62	-1.41
Ig alpha chain	S40610.1	Real PCR	-1.21	4.2	1.48	-27.3	-17.9	ND	-4.51	ND
IBV spike protein	AY851295	Real PCR	7.39	2.51	1	ND	ND	ND	ND	ND

**TABLE 2.** Numbers of host genes that were significantly changed at different time points after the primary and secondary immunization. Di, i-day after primary immunization. D22 and D24, 1 and 3 days after the secondary immunization.

<b>Time points</b>	<b>D1</b>	<b>D3</b>	<b>D5</b>	<b>D8</b>	<b>D12</b>	<b>D21</b>	<b>D22</b>	<b>D24</b>
No. of genes increased	701	700	1101	312	870	542	22	132
Percent of increase (%)	59.91	57.66	51.23	48.90	37.15	82.75	31.43	76.30
No. of genes decreased	469	514	1048	326	1472	113	48	41
Percent of decrease (%)	40.09	42.34	48.77	51.10	62.85	17.25	68.57	23.70
Total No. of alteration	1170	1214	2149	638	2342	655	70	173
Alteration in genome (%)	7.42	7.70	13.63	4.05	14.85	4.15	0.44	1.10

**TABLE 3. Log<sub>2</sub> fold changes of selected gene transcription levels used in clustering pathway analyses in Figures 2 and 3. D<sub>i</sub>, i-day after primary immunization. D22 and D24 mean 1 and 3 days after the secondary immunization.**

Gene ID	Gene Name	D1	D3	D5	D8	D12	D21	D22	D24
<b>Innate Immunity</b>									
<b>Virus Recognition</b>									
BU200466	Type 1 TLR2	1.54	2.06	0.61	0.02	0.47	-0.60	-0.74	-0.75
BU471724	TLR6	0.34	0.51	1.81	0.15	0.19	0.44	0.03	-0.04
BU242827	TLR3	2.02	0.71	0.45	-0.35	-0.14	-0.25	-0.33	-0.79
BU435893	TLR7	1.94	2.35	1.60	0.56	0.95	-0.20	-0.55	0.00
BU382078	RIG-1	3.03	2.61	2.77	1.82	-0.50	0.49	0.58	0.98
<b>Cytokine IL and IFN responses</b>									
BG625387	IL-1beta	3.43	2.45	1.09	0.58	0.56	1.34	0.75	0.68
BU324362	IL-4R	0.07	0.78	0.04	0.35	1.02	0.06	0.13	0.01
BU322177	IL10R	2.78	1.24	0.74	0.24	-1.19	0.19	0.37	0.19
BU468733	γc	1.28	2.02	2.14	1.51	-0.89	0.08	0.05	0.99
BU457953	Mx	4.20	2.02	1.43	0.17	-0.42	0.04	0.73	-0.77
BU425330	VLIG-1	4.34	2.41	3.14	0.44	0.29	-0.12	-0.28	-0.45
AI980049	IRF-1	2.11	1.01	1.27	0.07	0.41	0.08	0.32	-0.13
<b>Complement</b>									
BU247397	C1q	1.59	1.31	1.29	0.66	-0.43	-0.47	-0.24	-0.35
BU344075	C1s	3.11	2.65	3.08	0.86	-0.31	1.25	0.70	0.99
BU476741	C3a	2.25	2.47	2.05	1.06	1.23	0.02	0.05	0.18
BU375371	C4	0.40	1.02	0.82	1.57	-0.89	-0.45	0.28	0.56
AI981748	H Factor	-1.06	-0.84	-1.02	-0.36	-0.16	-0.09	0.07	-0.21
<b>Monocyte and macrophage</b>									
AI981644	Spi-1/PU.1	1.41	1.08	1.09	0.59	1.20	0.25	0.12	0.32
BU298713	GMF-beta	1.22	1.04	1.35	0.83	0.71	0.89	0.33	0.49
AI981893	M-CSFR	1.79	1.48	0.87	0.22	-0.12	-0.23	-0.12	-0.18
AI980743	Cathepsin S	1.12	1.27	1.01	0.61	-0.70	0.22	0.27	0.12
<b>Inflammation</b>									
AJ446979	ASHI	1.18	1.45	1.58	1.05	-0.40	-0.06	-0.14	0.23
AJ394103	p47-phox	1.00	1.50	1.40	1.53	1.43	0.62	0.66	0.71
BU419337	p40-phox	2.06	1.52	0.93	0.23	0.68	-0.42	-0.59	-0.23
BU133108	BPI	4.69	2.01	2.29	0.46	0.58	0.29	-0.34	0.09
BU376038	HMT	-0.33	-1.03	-2.39	-2.37	-0.76	-1.12	-0.41	-1.17
AI979826	HMG1	-0.06	1.29	1.61	0.69	-2.02	0.45	0.11	0.20
AI981624	P2X7	2.42	1.20	1.62	0.70	0.89	0.20	0.30	0.37
<b>Apoptosis related genes</b>									
BU377655	CD82	1.00	1.13	1.28	0.83	0.05	1.97	0.06	1.38
AI981754	STAT-1	2.57	1.77	1.89	0.49	-0.59	0.32	0.31	0.01
BU419580	STAT-4	1.75	1.33	1.56	0.51	-0.32	-0.24	-0.23	0.16
BU241925	CARD9	1.61	1.86	1.28	0.46	-0.64	-0.12	-0.18	-0.01
BU288166	CARMA1	0.48	1.06	1.24	0.29	1.54	-0.31	-0.46	0.05
BU114693	Caspase-3	1.50	0.49	0.85	0.28	-0.23	-0.04	-0.24	0.17
BU121710	Caspase-6	1.44	1.38	0.57	0.41	0.23	-0.02	0.11	-0.08
BF845754	Cytochrome c	0.53	-4.85	-2.89	-6.15	-0.50	-0.96	-1.01	-0.07
<b>Adaptive Immunity</b>									

<b>T cell signaling</b>									
BG625359	L-plastin	3.51	3.28	3.24	1.87	0.73	0.85	0.87	1.13
BU376258	MMP3	7.36	5.57	4.81	4.00	2.64	1.24	0.68	0.46
	Tyrosine								
AI979785	kinase	1.47	1.09	1.40	0.55	0.47	0.58	0.41	0.48
BU374370	GRAP	0.94	1.27	1.51	1.20	-0.57	0.01	-0.06	0.52
AI980859	ZAP-70	1.27	1.31	2.03	1.14	0.41	-0.10	0.12	0.52
BG625390	TCR zeta	1.33	1.93	2.11	1.58	1.43	-0.21	0.42	0.87
BG625372	TCR beta	2.01	2.49	3.01	2.74	2.64	0.82	0.97	1.76
	CD3								
BU492201	delta/gamma	1.84	2.27	3.01	2.79	1.19	0.94	1.06	1.70
AI980528	CD3 epsilon	1.62	1.83	2.80	1.79	0.46	0.67	0.64	1.33
AI981465	CD83	2.13	0.88	1.01	0.65	0.22	0.57	0.55	0.32
BU245144	CD80	1.41	0.48	1.47	0.00	0.12	1.97	0.43	0.84
	MHC II-M								
BU294829	beta	1.61	1.39	1.01	0.86	-0.61	0.20	0.02	0.08
	MHC II								
BU119964	invariant	1.16	1.24	1.32	0.97	-0.66	0.32	0.38	0.58
<b>Th1 response effectors</b>									
BG625689	MHC I B-F	0.75	1.21	0.83	0.91	-0.92	-0.40	0.48	0.67
BU233555	Ikaros	0.62	1.33	1.97	0.56	0.22	0.00	-0.43	0.20
AI980159	CD8 alpha	0.06	0.56	1.19	1.65	0.25	-0.40	-0.14	0.31
BG625508	Granzyme A	2.20	1.03	4.18	2.69	2.05	-0.21	-0.19	-0.31
BU299622	Granzyme K	1.02	0.70	2.09	2.28	1.23	0.46	0.56	0.92
BU447879	Porimin	2.49	1.16	2.46	0.38	-0.77	1.78	0.83	0.31
AI981685	Fas	2.17	0.44	1.07	0.48	0.33	0.09	0.25	0.17
BU212557	Fas L	1.25	0.25	1.18	0.44	0.04	0.32	0.17	0.12
<b>Th1 molecular markers</b>									
BU242857	WC1.1	2.42	2.15	1.21	0.11	-1.45	-0.44	-0.22	-0.08
BG625445	Rac2	1.84	1.71	2.15	1.82	0.51	0.61	0.69	1.22
BU207995	Tim3	1.34	1.28	1.33	1.22	1.23	-0.03	-0.01	0.29
AW773238	Mg11	2.93	1.70	2.07	0.92	0.55	0.59	0.51	0.68
<b>B cell signaling</b>									
AI981631	SOCS-3	3.05	1.50	1.07	0.14	0.16	-0.04	-0.15	-0.03
BU294989	PBEF	2.48	1.18	1.32	-0.17	1.02	0.26	0.29	0.17
BU249559	SAMSN-1	1.86	1.61	2.47	0.75	0.78	0.30	-0.21	0.67
BU481163	ChB1	1.71	1.96	1.64	0.65	-0.09	-0.17	-0.15	0.30
BU249956	EZH2	1.07	1.51	2.71	0.92	-0.10	1.44	0.20	0.34
BU483469	CD138	2.15	1.19	2.07	0.13	-0.55	1.78	0.14	0.39
BF845749	BCAP	0.46	1.46	2.33	1.36	-1.43	2.67	0.07	1.58
<b>Ig molecules</b>									
BG625356	Ig gamma	-1.07	0.23	2.35	2.73	0.02	2.35	2.31	2.96
BG625386	Ig mu	-1.11	-0.63	0.95	0.79	-3.08	-0.22	0.52	-0.52
AW773313	Ig J	-1.49	-1.03	1.31	0.97	0.51	0.33	0.35	-0.09
<b>Regulatory factors</b>									
BU107503	TGF-beta	-0.35	-0.27	-1.23	-1.13	-1.85	-0.28	-0.19	-0.44
BU108381	TGFR	-0.92	-1.16	-1.78	-1.17	0.37	-0.30	-0.05	-0.34