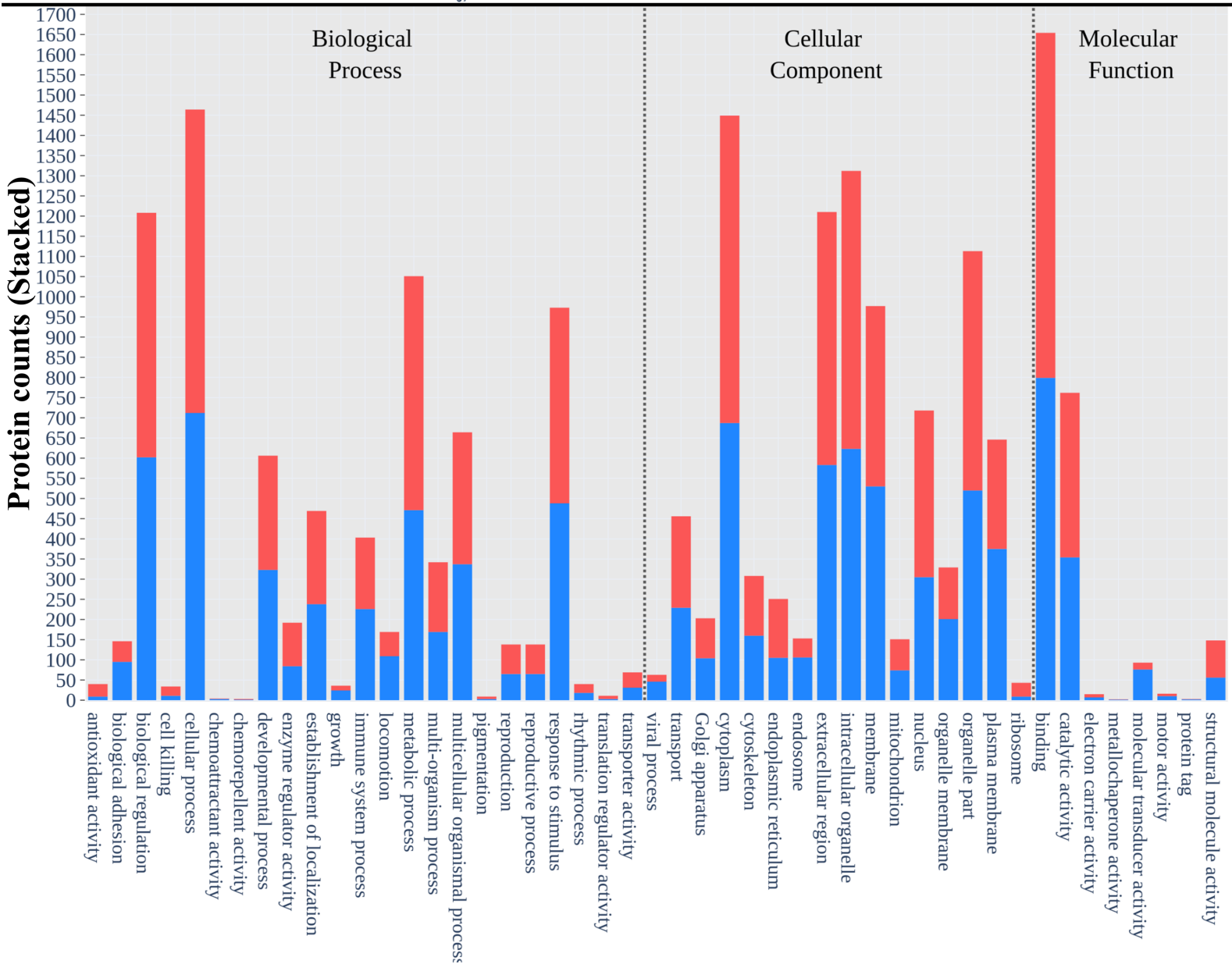
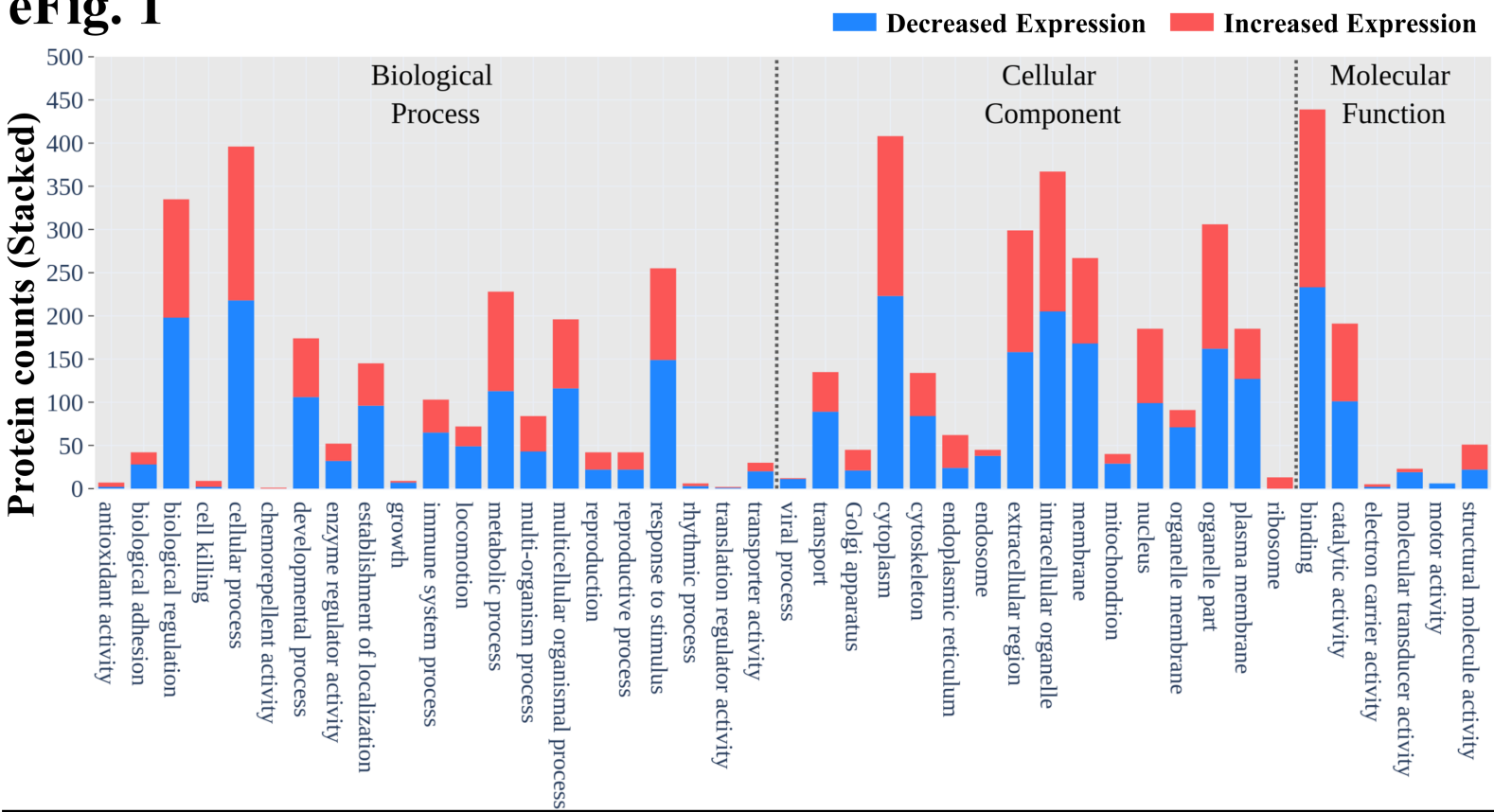


**eFig. 1**







eTable 1, continued

Uniprot #	Uniprot ID	A1	A2	A3	A4	A5	A6	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	t-test	Significance
P54652	HSP72	-0.72	0.70	0.06	-0.06	1.66	-0.54	0.76	2.48	1.61	2.06	1.28	2.39	1.42	1.24	2.54	2.43	0.0007	**
P20061	TCO1	0.67	-0.34	0.34	-3.40	0.90	-0.81	2.18	2.12	2.16	2.96	2.63	1.56	1.06	0.03	0.14	0.48	0.0093	*
O43866	CD5L	-1.13	-1.35	-0.09	1.78	0.09	1.68	0.75	1.71	1.97	3.20	1.00	4.67	3.74	4.47	0.78	0.92	0.014	*
Q9H4B7	TBB1	1.48	-2.35	-0.65	0.65	1.85	-9.17	2.40	0.53	2.58	3.01	1.74	1.48	1.50	2.23	0.93	1.96	0.028	*
P48595	SPB10	-1.05	-0.65	0.65	-1.97	1.06	1.14	1.04	1.69	1.41	2.67	2.02	2.36	0.92	1.44	2.39	2.66	0.00092	***
Q5TD94	RSH4A	-1.29	0.06	0.25	-0.42	1.12	-0.06	1.42	1.72	1.78	2.21	1.35	1.97	2.26	2.49	1.15	2.71	<0.0001	****
P00966	ASSY	-1.07	-0.47	-0.29	0.29	1.20	0.42	3.14	0.20	2.35	2.50	0.86	1.85	1.28	2.02	1.73	1.92	0.00098	***
Q02878	RL6	2.15	0.97	-1.14	-0.09	0.09	-1.38	1.95	0.38	2.26	1.86	0.25	2.09	1.93	2.99	0.76	1.64	0.015	*
Q13247	SRSF6	2.19	-0.97	0.67	0.14	-0.14	-0.48	2.56	1.40	2.12	1.70	0.70	1.58	2.10	2.37	-0.60	2.25	0.019	*
Q14894	CRYM	-0.61	-1.34	0.18	-0.18	0.92	1.30	3.17	-0.77	2.87	3.12	1.38	2.14	1.83	1.93	1.91	1.61	0.0047	**
P19012	K1C15	-0.80	0.80	-1.46	0.99	1.12	-1.36	3.83	1.11	3.02	3.28	1.08	2.00	1.23	2.76	0.23	1.86	0.0032	**
P29508	SPB3	-0.96	-1.36	0.96	-1.67	2.16	1.52	0.47	2.14	1.64	2.84	1.73	2.33	1.58	1.51	3.10	2.82	0.007	**
P36578	RL4	2.43	0.33	-0.07	-0.27	0.07	-1.11	2.04	0.84	2.42	2.18	0.50	1.94	1.54	3.30	0.92	1.95	0.0089	**
P02743	SAMP	0.05	-1.54	-0.38	1.13	-0.05	0.68	1.03	2.25	1.76	1.43	2.55	2.98	3.38	2.13	-1.03	0.73	0.011	*
P59665	DEF1	0.76	-1.50	1.17	0.47	-2.62	-0.47	4.79	1.21	2.79	2.10	4.44	0.97	1.89	-0.70	2.80	-0.12	0.015	*
P80723	BASP1	0.52	2.27	-0.41	-0.22	0.22	-0.65	1.95	3.72	2.71	2.87	2.05	1.93	-0.72	0.96	1.44	2.50	0.016	*
Q96BQ1	FAM3D	0.79	0.28	-0.53	-0.91	1.60	-0.28	2.43	2.73	3.03	3.08	2.81	1.49	1.60	0.91	1.07	0.71	0.0019	**
Q8N142	PURA1	-1.20	1.30	-5.21	-2.40	1.73	1.20	1.11	0.44	1.26	2.62	1.02	1.94	2.25	2.68	2.45	2.08	0.013	*
P05090	APOD	-0.21	-0.23	-0.02	2.02	0.02	0.48	1.43	1.20	1.90	2.77	2.14	3.71	3.20	2.47	1.06	1.11	0.0021	**
Q92743	HTRA1	1.77	0.10	-0.10	-4.31	0.35	-1.15	2.43	2.30	2.69	2.80	3.05	1.74	0.88	0.27	-0.40	0.73	0.016	*
P02647	APOA1	-0.13	-1.03	-0.52	1.73	0.13	0.92	2.03	0.59	2.29	2.47	1.66	3.84	3.17	2.04	-0.91	1.85	0.016	*
P49913	CAMP	0.91	-0.83	0.83	2.32	-3.27	-1.10	4.40	1.82	2.09	2.26	4.45	2.02	2.11	0.08	2.62	-0.24	0.017	*
P06702	S10A9	1.22	1.31	0.46	-0.46	-2.20	-0.88	4.05	2.57	2.86	2.20	3.84	1.68	0.75	-0.73	2.03	1.01	0.012	*
P05787	K2C8	0.95	-0.48	-1.14	0.48	0.92	-0.87	3.75	0.94	3.20	3.56	1.29	2.22	2.01	2.88	-0.26	1.76	0.0028	**
O43852	CALU	-0.22	1.39	-2.37	-0.30	1.46	0.22	2.06	2.34	2.36	3.73	2.22	2.11	1.98	2.71	1.05	1.57	0.00093	***
P25815	S100P	-0.14	-0.13	0.13	-1.15	1.17	0.92	3.49	2.51	2.55	3.32	1.51	1.62	1.87	2.69	1.71	1.09	0.00019	****
P22894	MMP8	-0.75	-0.63	0.85	0.63	0.84	-1.52	3.25	2.16	2.22	1.85	4.36	0.97	2.59	-0.29	2.97	1.35	0.0028	**
P09238	MMP10	-1.14	-0.90	2.02	-1.08	0.90	1.12	1.74	2.79	1.70	3.36	4.76	3.36	1.90	-0.01	2.50	0.19	0.014	*
P55060	XPO2	1.12	-0.33	0.98	0.13	-0.39	-0.13	4.18	2.37	2.16	2.52	4.01	0.70	0.72	0.52	3.04	0.69	0.0087	**
P05164	PERM	0.24	-0.01	0.67	0.01	-1.97	-0.58	4.40	2.93	2.13	2.38	4.62	0.56	0.86	-0.84	3.02	-0.75	0.021	*
P01871	IGHM	-0.91	-1.28	-0.14	0.50	0.14	0.82	0.28	2.17	1.02	2.89	2.37	2.95	1.87	2.83	1.41	2.41	0.00024	****
O14791	APOL1	-1.03	-0.50	-0.42	2.08	0.81	0.42	1.11	-0.37	2.63	2.66	1.66	4.89	4.73	2.60	-0.91	1.95	0.046	*
P12724	ECP	0.89	0.05	-0.25	-0.01	0.01	-1.70	4.20	2.01	2.28	2.39	3.74	0.91	2.29	0.67	1.89	2.97	0.00031	****
O00533	NCHL1	-1.19	0.74	-1.11	-0.59	1.48	0.59	2.15	2.78	2.47	2.76	2.22	2.31	2.89	2.60	2.19	2.25	<0.0001	****
P15169	CBPN	-2.06	-0.73	0.10	3.98	-0.10	1.23	1.98	1.35	2.49	2.61	1.86	4.73	4.42	2.99	0.00	2.37	0.029	**
P35542	SAA4	-1.65	-0.42	-0.31	2.11	0.31	1.41	1.94	0.66	2.71	2.72	1.72	4.62	4.25	3.44	-0.06	2.27	0.01	*
P27169	PON1	-1.08	-1.90	0.05	3.05	-0.05	0.71	1.72	0.83	3.13	2.86	2.01	4.53	4.32	2.82	-1.60	2.34	0.031	*
P05783	K1C18	0.27	-1.99	-3.02	0.19	1.17	-0.19	3.22	0.85	2.80	3.32	0.36	3.31	2.70	3.27	-0.77	2.43	0.0033	**
O60814	H2B1K	1.92	-0.39	1.55	0.39	-0.90	-0.55	5.41	3.85	2.76	3.28	5.86	0.39	0.69	0.81	4.42	0.54	0.02	*
Q96FV0	LRC46	-1.53	0.48	-0.48	NA	3.23	1.97	2.41	3.03	3.90	3.69	1.88	3.04	2.39	3.15	3.53	3.44	0.0019	**
P62805	H4	1.90	-0.63	2.23	0.63	-1.60	-1.36	5.73	3.17	3.07	4.05	5.83	0.93	1.27	0.71	4.86	1.06	0.011	*
P24158	PRTN3	0.15	-0.61	0.95	0.00	0.00	-0.73	4.10	2.29	3.18	3.52	4.29	1.21	3.14	0.09	3.60	0.21	0.0016	**
P14780	MMP9	0.15	0.03	-0.03	0.53	-0.99	-1.56	4.55	3.16	3.74	2.44	4.87	1.62	3.39	1.22	3.99	0.07	0.00034	****
O75594	PGRP1	0.06	1.33	0.27	-0.06	-0.29	-0.65	4.70	4.47	3.29	2.91	6.09	1.38	3.76	0.83	4.55	0.96	0.00095	***
P20700	LMNB1	0.04	1.31	-0.53	4.25	-0.14	-0.04	3.76	4.33	3.15	3.47	4.53	2.72	3.78	1.14	3.59	0.67	0.0096	**
P46439	GSTM5	-1.09	-2.24	1.05	-1.05	5.50	4.83	3.81	3.07	4.15	3.83	3.43	3.73	3.62	4.40	4.60	3.17	0.024	*











eTable 2, continued

Uniprot #	Uniprot ID	A1	A2	A3	A4	A5	A6	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	t-test	Significance
Q32MZ4	LRRF1	0.68	0.73	-0.55	-0.05	-0.16	0.05	0.19	0.32	-0.77	-0.43	-0.84	-0.42	-1.59	-0.99	-0.37	-1.04	0.025	*
O00429	DNM1L	0.58	1.34	-0.34	-0.69	0.16	-0.16	-0.53	-2.47	-0.48	-0.64	-1.28	-0.65	-0.95	-0.39	0.61	-0.35	0.047	*
Q7L9L4	MOB1B	0.13	0.46	-0.10	-0.26	-0.36	0.10	-0.56	-0.65	-0.62	-1.14	-0.45	-0.59	-0.77	-0.42	-0.09	-0.04	0.0054	*
A0MZ66	SHOT1	1.16	1.53	-0.85	-0.54	0.54	-0.79	-0.47	-1.21	-0.34	-0.46	-1.76	-2.17	-1.48	-0.67	0.26	-0.29	0.038	*
Q92882	OSTF1	0.71	0.72	0.12	-0.37	-0.12	-0.15	-0.15	-0.72	-0.59	-1.13	-0.55	-1.01	-0.82	-0.52	0.29	-0.40	0.0067	*
Q9BR76	COR1B	0.46	0.67	-0.20	-0.82	0.15	-0.15	-0.39	-1.13	-0.47	-0.61	-1.38	-1.15	-0.75	-0.23	-0.01	-0.53	0.014	*
P61981	I433G	0.66	0.82	-0.25	-0.48	0.01	-0.01	-0.50	-0.82	-0.50	-0.63	-0.76	-0.75	-0.80	-0.08	0.16	-0.09	0.014	*
Q9H0E2	TOLIP	0.84	0.74	0.02	-0.15	-0.15	-0.02	-0.43	-0.57	-0.56	-0.43	-0.48	-0.63	-0.55	-0.75	0.12	-0.56	0.0011	**
O75351	VPS4B	0.31	0.21	-0.15	-0.39	0.14	-0.14	-0.65	-0.38	-0.22	-0.68	-0.58	-0.50	-0.86	-0.63	0.16	-0.49	0.0048	**
Q4G0F5	VP26B	1.26	0.41	-0.06	-0.21	-0.34	0.06	0.19	0.08	-0.25	-0.18	-1.82	-0.68	-1.00	-0.55	-2.21	-0.53	0.033	*
P43034	LIS1	0.51	0.76	-0.24	-0.99	0.24	-0.26	-0.79	-0.74	-0.43	-0.31	-1.13	-0.47	-0.59	-0.60	-0.16	-0.36	0.026	*
P55957	BID	0.92	0.64	-0.42	-0.01	-0.22	0.01	-0.76	-1.43	-0.27	-0.64	-0.47	-0.84	-0.06	-0.58	0.32	-0.40	0.02	*

**eTable 3**

<b>Ingenuity Canonical Pathways</b>	<b>-log(p-value)</b>	<b>Ratio</b>	<b>z-score</b>
Actin Cytoskeleton Signaling	22.8	0.155	-4.004
Remodeling of Epithelial Adherens Junctions	20.8	0.324	-2.828
Integrin Signaling	15.9	0.136	-3.024
Signaling by Rho Family GTPases	14.9	0.116	-4.6
RHO GDI Signaling	14.9	0.13	3.273
Leukocyte Extravasation Signaling	14.2	0.135	-2.858
RHOA Signaling	13.6	0.169	-4.146
Regulation of Actin-based Motility by Rho	13.1	0.172	-3.153
Axonal Guidance Signaling	12.7	0.0771	NaN
RAC Signaling	12.6	0.152	-3.3
Clathrin-mediated Endocytosis Signaling	11.5	0.119	NaN
Germ Cell-Sertoli Cell Junction Signaling	10.8	0.123	NaN
Fcγ Receptor-mediated Phagocytosis in Macrophages and Monocytes	10.5	0.17	-3
EIF2 Signaling	10.2	0.103	1.387
Phagosome Maturation	8.76	0.113	NaN
Actin Nucleation by ARP-WASP Complex	8.56	0.151	-3.162
Sertoli Cell-Sertoli Cell Junction Signaling	8.48	0.0971	NaN
VEGF Signaling	8.2	0.141	-2.121
Epithelial Adherens Junction Signaling	8.01	0.108	-1.213
Ephrin Receptor Signaling	7.9	0.0945	-3.638
IL-8 Signaling	7.55	0.09	-1.886
Production of Nitric Oxide and Reactive Oxygen Species in Macrophages	7.49	0.0942	0.258
Semaphorin Neuronal Repulsive Signaling Pathway	7.44	0.106	0
Synaptogenesis Signaling Pathway	7.37	0.0737	-2.4
FAK Signaling	7.25	0.12	NaN
UDP-N-acetyl-D-galactosamine Biosynthesis II	7.14	0.462	-0.816
14-3-3-mediated Signaling	6.8	0.11	-1.89
Agranulocyte Adhesion and Diapedesis	6.74	0.0841	NaN
fMLP Signaling in Neutrophils	6.63	0.107	-3.464
Gap Junction Signaling	6.52	0.0859	NaN
Role of Tissue Factor in Cancer	6.44	0.112	NaN
Virus Entry via Endocytic Pathways	6.13	0.115	NaN
Paxillin Signaling	5.95	0.111	-1.897
Phagosome Formation	5.81	0.0479	-4.004
PFKFB4 Signaling Pathway	5.63	0.174	-0.707
LXR/RXR Activation	5.35	0.0976	2.111
Dilated Cardiomyopathy Signaling Pathway	5.3	0.089	0.905
ILK Signaling	5.16	0.0758	-1.941
G Beta Gamma Signaling	5.14	0.093	-2.309
tRNA Charging	5.09	0.179	-2.646
Regulation of eIF4 and p70S6K Signaling	5.01	0.0782	NaN
Caveolar-mediated Endocytosis Signaling	4.88	0.12	NaN
PAK Signaling	4.76	0.0932	-2.121

eTable 3, continued

<b>Ingenuity Canonical Pathways</b>	<b>-log(p-value)</b>	<b>Ratio</b>	<b>z-score</b>
Renin-Angiotensin Signaling	4.7	0.0917	-2.111
Coronavirus Replication Pathway	4.66	0.156	2.646
FXR/RXR Activation	4.5	0.0873	NaN
Reelin Signaling in Neurons	4.5	0.0873	-2.53
Cardiac Hypertrophy Signaling	4.38	0.062	-1.941
Acute Phase Response Signaling	4.21	0.0703	0.333
IL-12 Signaling and Production in Macrophages	4.19	0.0809	NaN
ERK/MAPK Signaling	4.15	0.0654	-2.111
CXCR4 Signaling	4.02	0.0719	-2.714
Estrogen Receptor Signaling	3.93	0.0495	-1.414
Mechanisms of Viral Exit from Host Cells	3.91	0.146	NaN
Natural Killer Cell Signaling	3.89	0.0653	-1.387
Cellular Effects of Sildenafil (Viagra)	3.84	0.0738	NaN
Tight Junction Signaling	3.76	0.0674	NaN
Semaphorin Signaling in Neurons	3.75	0.113	NaN
HIF1 $\alpha$ Signaling	3.7	0.0625	-1.732
Atherosclerosis Signaling	3.68	0.0769	NaN
Thrombin Signaling	3.66	0.0619	-3
Trehalose Degradation II (Trehalase)	3.64	0.429	NaN
Granulocyte Adhesion and Diapedesis	3.52	0.0635	NaN
Regulation of Cellular Mechanics by Calpain Protease	3.51	0.0899	0
Agrin Interactions at Neuromuscular Junction	3.42	0.1	-1.134
ERBB Signaling	3.35	0.0851	-2.121
Ephrin B Signaling	3.34	0.0972	-0.816
Glioma Invasiveness Signaling	3.31	0.0959	-1.633
Coagulation System	3.29	0.143	1.342
Colorectal Cancer Metastasis Signaling	3.13	0.052	-0.302
Pentose Phosphate Pathway	3.12	0.3	NaN
GP6 Signaling Pathway	3.11	0.0709	-0.707
Protein Kinase A Signaling	3.08	0.0448	0.277
Apoptosis Signaling	3.05	0.0769	1.414
Calcium Signaling	3	0.0556	NaN
$\alpha$ -Adrenergic Signaling	3	0.0755	-2.236
p70S6K Signaling	2.99	0.0682	-2.449
GDP-glucose Biosynthesis	2.99	0.273	NaN
GNRH Signaling	2.98	0.0585	-1.897
CCR3 Signaling in Eosinophils	2.92	0.0667	-1.633
Glycolysis I	2.91	0.16	0
Gluconeogenesis I	2.91	0.16	0
PPAR $\alpha$ /RXR $\alpha$ Activation	2.89	0.057	1.897
Hepatic Fibrosis Signaling Pathway	2.88	0.043	-2.84
Apelin Adipocyte Signaling Pathway	2.88	0.0814	-0.816
Glucose and Glucose-1-phosphate Degradation	2.87	0.25	NaN

eTable 3, continued

<b>Ingenuity Canonical Pathways</b>	<b>-log(p-value)</b>	<b>Ratio</b>	<b>z-score</b>
Role of MAPK Signaling in Promoting the Pathogenesis of Influenza	2.84	0.0714	-2.828
Iron homeostasis signaling pathway	2.83	0.0647	NaN
Amyotrophic Lateral Sclerosis Signaling	2.77	0.0696	0
Fc Epsilon RI Signaling	2.7	0.0678	-2.828
Airway Pathology in Chronic Obstructive Pulmonary Disease	2.7	0.0678	NaN
Cholecystokinin/Gastrin-mediated Signaling	2.68	0.0672	-2.646
Pentose Phosphate Pathway (Oxidative Branch)	2.67	0.5	NaN
N-acetylglucosamine Degradation II	2.67	0.5	NaN
Role of IL-17A in Psoriasis	2.66	0.214	NaN
Colanic Acid Building Blocks Biosynthesis	2.66	0.214	NaN
Melanocyte Development and Pigmentation Signaling	2.66	0.0745	-1.134
Corticotropin Releasing Hormone Signaling	2.63	0.0604	-1.414
Molecular Mechanisms of Cancer	2.6	0.0404	NaN
Melatonin Signaling	2.59	0.0833	-1.633
Amyloid Processing	2.54	0.098	NaN
Apelin Cardiomyocyte Signaling Pathway	2.53	0.0707	-2.646
Extrinsic Prothrombin Activation Pathway	2.49	0.188	NaN
Macropinocytosis Signaling	2.47	0.0789	-1
Airway Inflammation in Asthma	2.46	0.121	NaN
CDC42 Signaling	2.41	0.0365	-3.771
IGF-1 Signaling	2.41	0.0673	-1.342
HGF Signaling	2.4	0.0606	-1.633
IL-3 Signaling	2.39	0.0759	-0.816
Chemokine Signaling	2.36	0.075	-1.633
Role of PKR in Interferon Induction and Antiviral Response	2.32	0.0588	-1.633
Urea Cycle	2.28	0.333	NaN
UDP-N-acetyl-D-glucosamine Biosynthesis II	2.28	0.333	NaN
Rapoport-Luebering Glycolytic Shunt	2.28	0.333	NaN
VEGF Family Ligand-Receptor Interactions	2.26	0.0714	-2.236
Gαq Signaling	2.25	0.0529	-1.633
Coronavirus Pathogenesis Pathway	2.22	0.0493	-3.162
Prolactin Signaling	2.21	0.0698	-2.236
Inhibition of Matrix Metalloproteases	2.19	0.103	-1
BMP signaling pathway	2.18	0.069	-1.633
Thrombopoietin Signaling	2.15	0.0794	-2.236
AMPK Signaling	2.14	0.0455	0.378
Neuregulin Signaling	2.13	0.0598	-2.236
Sphingosine-1-phosphate Signaling	2.11	0.0593	-1.342
NGF Signaling	2.11	0.0593	-2.646
Intrinsic Prothrombin Activation Pathway	2.08	0.0952	2
IL-1 Signaling	2.03	0.0638	0
Endocannabinoid Developing Neuron Pathway	2.02	0.0569	-2.236
ERBB4 Signaling	2.01	0.0735	-2.236

eTable 3, continued

<b>Ingenuity Canonical Pathways</b>	<b>-log(p-value)</b>	<b>Ratio</b>	<b>z-score</b>
Role of NFAT in Cardiac Hypertrophy	1.99	0.0455	-1.897
Tumoricidal Function of Hepatic Natural Killer Cells	1.98	0.125	NaN
Salvage Pathways of Pyrimidine Ribonucleotides	1.94	0.0612	-0.816
Endothelin-1 Signaling	1.94	0.0471	-2.333
Salvage Pathways of Pyrimidine Deoxyribonucleotides	1.92	0.222	NaN
P2Y Purigenic Receptor Signaling Pathway	1.91	0.0543	-1.134
RAR Activation	1.87	0.0459	NaN
Leptin Signaling in Obesity	1.86	0.0676	NaN
Gα12/13 Signaling	1.84	0.0526	-2.646
Insulin Secretion Signaling Pathway	1.83	0.041	-1.897
Adrenomedullin signaling pathway	1.83	0.0452	-2.333
Osteoarthritis Pathway	1.82	0.0427	1.342
MYC Mediated Apoptosis Signaling	1.82	0.08	-1
UVC-Induced MAPK Signaling	1.79	0.0784	-2
NRF2-mediated Oxidative Stress Response	1.78	0.0422	-2
Maturity Onset Diabetes of Young (MODY) Signaling	1.77	0.0641	NaN
Gαi Signaling	1.76	0.0507	-1.342
MSP-RON Signaling In Cancer Cells Pathway	1.76	0.0507	-1.89
Glucocorticoid Receptor Signaling	1.76	0.0327	NaN
Opioid Signaling Pathway	1.74	0.0399	-1.667
Renal Cell Carcinoma Signaling	1.73	0.0625	-1.342
Melatonin Degradation III	1.72	1	NaN
Glutamine Biosynthesis I	1.72	1	NaN
UDP-N-acetyl-D-galactosamine Biosynthesis I	1.72	1	NaN
PI3K Signaling in B Lymphocytes	1.69	0.049	-2.236
Endocannabinoid Cancer Inhibition Pathway	1.69	0.049	-1.134
mTOR Signaling	1.67	0.0425	-1.342
Tumor Microenvironment Pathway	1.65	0.0447	0
FcγRIIB Signaling in B Lymphocytes	1.63	0.0588	NaN
LPS-stimulated MAPK Signaling	1.63	0.0588	-1.342
GPCR-Mediated Nutrient Sensing in Enteroendocrine Cells	1.61	0.0517	-0.816
PDGF Signaling	1.61	0.0581	-1.342
Xenobiotic Metabolism AHR Signaling Pathway	1.59	0.0575	0.447
Neuroprotective Role of THOP1 in Alzheimer's Disease	1.58	0.0508	0.447
Inhibition of Angiogenesis by TSP1	1.57	0.0882	NaN
Nitric Oxide Signaling in the Cardiovascular System	1.57	0.0504	-0.447
Endometrial Cancer Signaling	1.55	0.0667	-2
Leukotriene Biosynthesis	1.54	0.143	NaN
Crosstalk between Dendritic Cells and Natural Killer Cells	1.51	0.0549	NaN
Necroptosis Signaling Pathway	1.5	0.0446	-1.134
D-myo-inositol-5-phosphate Metabolism	1.49	0.0417	-0.707
Superpathway of Citrulline Metabolism	1.49	0.133	NaN
Ovarian Cancer Signaling	1.48	0.0443	-0.816

eTable 3, continued

<b>Ingenuity Canonical Pathways</b>	<b>-log(p-value)</b>	<b>Ratio</b>	<b>z-score</b>
eNOS Signaling	1.47	0.044	-1.134
Granzyme B Signaling	1.43	0.125	NaN
Adenosine Nucleotides Degradation II	1.43	0.125	NaN
Death Receptor Signaling	1.43	0.0521	-1.342
Pyridoxal 5'-phosphate Salvage Pathway	1.42	0.0606	-1
Palmitate Biosynthesis I (Animals)	1.42	0.5	NaN
L-cysteine Degradation III	1.42	0.5	NaN
Sulfate Activation for Sulfonation	1.42	0.5	NaN
Fatty Acid Biosynthesis Initiation II	1.42	0.5	NaN
GDP-L-fucose Biosynthesis I (from GDP-D-mannose)	1.42	0.5	NaN
Synaptic Long Term Potentiation	1.42	0.0465	-1.633
Histamine Degradation	1.39	0.118	NaN
Glioblastoma Multiforme Signaling	1.33	0.0409	-2.449
Oncostatin M Signaling	1.31	0.0698	NaN
B Cell Development	1.31	0.0698	NaN
ERK5 Signaling	1.31	0.0556	-1
Netrin Signaling	1.31	0.0556	-1
Granzyme A Signaling	1.3	0.105	NaN
Purine Nucleotides Degradation II (Aerobic)	1.3	0.105	NaN
GPCR-Mediated Integration of Enteroendocrine Signaling Exemplified by an L Cell	1.29	0.0548	1
G Protein Signaling Mediated by Tubby	1.28	0.0682	NaN
Insulin Receptor Signaling	1.28	0.0429	-1.633
D-myo-inositol (1,4,5,6)-Tetrakisphosphate Biosynthesis	1.27	0.0398	-0.378
D-myo-inositol (3,4,5,6)-tetrakisphosphate Biosynthesis	1.27	0.0398	-0.378
Inflammasome pathway	1.26	0.1	NaN
Ascorbate Recycling (Cytosolic)	1.25	0.333	NaN
Glycerol-3-phosphate Shuttle	1.25	0.333	NaN
Glutamate Degradation II	1.25	0.333	NaN
N-acetylglucosamine Degradation I	1.25	0.333	NaN
Aspartate Biosynthesis	1.25	0.333	NaN
Xenobiotic Metabolism General Signaling Pathway	1.24	0.042	-1.633
GDNF Family Ligand-Receptor Interactions	1.24	0.0526	-2
TREM1 Signaling	1.22	0.0519	-1
Angiopoietin Signaling	1.22	0.0519	-1
nNOS Signaling in Neurons	1.21	0.0638	NaN
Ephrin A Signaling	1.21	0.0638	NaN
IL-7 Signaling Pathway	1.2	0.0513	0
Endocannabinoid Neuronal Synapse Pathway	1.19	0.0408	-1.633
CDK5 Signaling	1.19	0.0446	-0.447
Breast Cancer Regulation by Stathmin1	1.19	0.0287	-2.668
FLT3 Signaling in Hematopoietic Progenitor Cells	1.17	0.05	-2
PTEN Signaling	1.16	0.04	2
Role of MAPK Signaling in the Pathogenesis of Influenza	1.15	0.0494	NaN

eTable 3, continued

<b>Ingenuity Canonical Pathways</b>	<b>-log(p-value)</b>	<b>Ratio</b>	<b>z-score</b>
3-phosphoinositide Degradation	1.15	0.0372	-0.378
Cell Cycle: G2/M DNA Damage Checkpoint Regulation	1.15	0.06	NaN
Differential Regulation of Cytokine Production in Intestinal Epithelial Cells by IL-17	1.15	0.087	NaN
Vitamin-C Transport	1.15	0.087	NaN
Bladder Cancer Signaling	1.14	0.0431	NaN
JAK/STAT Signaling	1.14	0.0488	-1
CD28 Signaling in T Helper Cells	1.13	0.029	-2.138
Relaxin Signaling	1.13	0.0392	0
Heme Degradation	1.13	0.25	NaN
Arginine Degradation I (Arginase Pathway)	1.13	0.25	NaN
Oxidized GTP and dGTP Detoxification	1.13	0.25	NaN
L-cysteine Degradation I	1.13	0.25	NaN
MSP-RON Signaling In Macrophages Pathway	1.13	0.0427	-0.447
Xenobiotic Metabolism PXR Signaling Pathway	1.12	0.0366	0.378
TNFR1 Signaling	1.11	0.0577	NaN
UVB-Induced MAPK Signaling	1.11	0.0577	NaN
FGF Signaling	1.11	0.0476	-1
Superpathway of Inositol Phosphate Compounds	1.1	0.0345	-0.707
Synaptic Long Term Depression	1.09	0.0361	-2.646
Hepatic Fibrosis / Hepatic Stellate Cell Activation	1.09	0.0361	NaN
HIPPO signaling	1.09	0.0471	NaN
Gas Signaling	1.08	0.0413	NaN
Th1 Pathway	1.07	0.041	NaN
IL-17A Signaling in Gastric Cells	1.06	0.0769	NaN
Primary Immunodeficiency Signaling	1.05	0.0545	NaN
EGF Signaling	1.05	0.0545	NaN
PI3K/AKT Signaling	1.05	0.0352	-1.342
Glioma Signaling	1.04	0.0403	-2.236
Arsenate Detoxification I (Glutaredoxin)	1.04	0.2	NaN
Creatine-phosphate Biosynthesis	1.04	0.2	NaN
Serine Biosynthesis	1.04	0.2	NaN
CMP-N-acetylneuraminate Biosynthesis I (Eukaryotes)	1.04	0.2	NaN
Myo-inositol Biosynthesis	1.04	0.2	NaN
Citrulline-Nitric Oxide Cycle	1.04	0.2	NaN
Galactose Degradation I (Leloir Pathway)	1.04	0.2	NaN
Huntington's Disease Signaling	1.03	0.032	0.816
NAD Salvage Pathway II	1.03	0.0741	NaN
Unfolded protein response	1.02	0.0444	NaN
3-phosphoinositide Biosynthesis	1.02	0.0347	-0.378
Ferroptosis Signaling Pathway	1.02	0.0397	-1.342
CNTF Signaling	1.02	0.0526	NaN
Role of IL-17A in Arthritis	1.02	0.0526	NaN
MSP-RON Signaling Pathway	1	0.0517	NaN



eTable 3, continued

<b>Ingenuity Canonical Pathways</b>	<b>-log(p-value)</b>	<b>Ratio</b>	<b>z-score</b>
IL-4 Signaling	0.987	0.043	NaN
Sonic Hedgehog Signaling	0.975	0.069	NaN
Androgen Signaling	0.971	0.0355	-1
SPINK1 Pancreatic Cancer Pathway	0.967	0.05	NaN
Arginine Biosynthesis IV	0.959	0.167	NaN
Arginine Degradation VI (Arginase 2 Pathway)	0.959	0.167	NaN
Pentose Phosphate Pathway (Non-oxidative Branch)	0.959	0.167	NaN
Glycerol Degradation I	0.959	0.167	NaN
Selenocysteine Biosynthesis II (Archaea and Eukaryotes)	0.959	0.167	NaN
Tryptophan Degradation to 2-amino-3-carboxymuconate Semialdehyde	0.959	0.167	NaN
GDP-mannose Biosynthesis	0.959	0.167	NaN
IL-2 Signaling	0.951	0.0492	NaN
TGF- $\beta$ Signaling	0.947	0.0417	-2
Sperm Motility	0.932	0.0315	-1
p53 Signaling	0.924	0.0408	NaN
White Adipose Tissue Browning Pathway	0.917	0.0368	-0.447
Glutathione-mediated Detoxification	0.903	0.0625	NaN
Ethanol Degradation II	0.903	0.0625	NaN
Erythropoietin Signaling Pathway	0.9	0.0339	-1.633
Superpathway of Serine and Glycine Biosynthesis I	0.896	0.143	NaN
Adenine and Adenosine Salvage III	0.896	0.143	NaN
Ceramide Degradation	0.896	0.143	NaN
Aspartate Degradation II	0.896	0.143	NaN
Neuropathic Pain Signaling In Dorsal Horn Neurons	0.889	0.0396	-1
ERB2-ERBB3 Signaling	0.889	0.0462	NaN
Apelin Endothelial Signaling Pathway	0.889	0.036	-2.236
Dopamine-DARPP32 Feedback in cAMP Signaling	0.87	0.0331	-0.447
IL-17A Signaling in Airway Cells	0.863	0.0448	NaN
4-1BB Signaling in T Lymphocytes	0.86	0.0588	NaN
Mouse Embryonic Stem Cell Pluripotency	0.857	0.0385	-2
Purine Ribonucleosides Degradation to Ribose-1-phosphate	0.845	0.125	NaN
Noradrenaline and Adrenaline Degradation	0.842	0.0571	NaN
Retinoate Biosynthesis I	0.821	0.0556	NaN
Interferon Signaling	0.821	0.0556	NaN
GM-CSF Signaling	0.821	0.0429	NaN
Neuroinflammation Signaling Pathway	0.815	0.0286	-1.89
Xenobiotic Metabolism CAR Signaling Pathway	0.815	0.0319	0.816
Cardiac Hypertrophy Signaling (Enhanced)	0.812	0.026	-2.714
Growth Hormone Signaling	0.81	0.0423	NaN
Complement System	0.801	0.0541	NaN
Sphingosine and Sphingosine-1-phosphate Metabolism	0.796	0.111	NaN
Citrulline Biosynthesis	0.796	0.111	NaN
Antioxidant Action of Vitamin C	0.785	0.036	NaN

eTable 3, continued

<b>Ingenuity Canonical Pathways</b>	<b>-log(p-value)</b>	<b>Ratio</b>	<b>z-score</b>
Docosahexaenoic Acid (DHA) Signaling	0.783	0.0526	NaN
IL-17A Signaling in Fibroblasts	0.783	0.0526	NaN
Neurotrophin/TRK Signaling	0.747	0.0395	NaN
Role of MAPK Signaling in Inhibiting the Pathogenesis of Influenza	0.747	0.0395	NaN
Antiproliferative Role of Somatostatin Receptor 2	0.738	0.039	NaN
Aryl Hydrocarbon Receptor Signaling	0.721	0.0314	NaN
Xenobiotic Metabolism Signaling	0.721	0.0278	NaN
Purine Nucleotides De Novo Biosynthesis II	0.717	0.0909	NaN
Inhibition of ARE-Mediated mRNA Degradation Pathway	0.706	0.0311	-0.447
HOTAIR Regulatory Pathway	0.69	0.0307	1.342
Aldosterone Signaling in Epithelial Cells	0.684	0.0305	NaN
NAD biosynthesis II (from tryptophan)	0.684	0.0833	NaN
Glycogen Degradation II	0.684	0.0833	NaN
LPS/IL-1 Mediated Inhibition of RXR Function	0.682	0.0279	NaN
Senescence Pathway	0.674	0.0269	0.378
Role of IL-17F in Allergic Inflammatory Airway Diseases	0.672	0.0444	NaN
HMGB1 Signaling	0.664	0.0299	-2
TR/RXR Activation	0.662	0.0357	NaN
PEDF Signaling	0.662	0.0357	NaN
Apelin Pancreas Signaling Pathway	0.658	0.0435	NaN
Acyl-CoA Hydrolysis	0.654	0.0769	NaN
NAD Phosphorylation and Dephosphorylation	0.654	0.0769	NaN
Guanosine Nucleotides Degradation III	0.654	0.0769	NaN
Pancreatic Adenocarcinoma Signaling	0.652	0.0317	0
Phospholipase C Signaling	0.65	0.0237	-2.714
Role of Hypercytokinemia/hyperchemokine in the Pathogenesis of Influenza	0.642	0.0349	NaN
IL-6 Signaling	0.636	0.0312	-2
Apelin Muscle Signaling Pathway	0.631	0.0417	NaN
Th1 and Th2 Activation Pathway	0.629	0.0291	NaN
Glycogen Degradation III	0.625	0.0714	NaN
Urate Biosynthesis/Inosine 5'-phosphate Degradation	0.625	0.0714	NaN
Phenylalanine Degradation IV (Mammalian, via Side Chain)	0.625	0.0714	NaN
Cardiac $\beta$ -adrenergic Signaling	0.616	0.0287	NaN
Melanoma Signaling	0.604	0.04	NaN
Choline Biosynthesis III	0.599	0.0667	NaN
Acute Myeloid Leukemia Signaling	0.597	0.033	NaN
STAT3 Pathway	0.585	0.0296	-1
Chondroitin Sulfate Degradation (Metazoa)	0.575	0.0625	NaN
Parkinson's Signaling	0.575	0.0625	NaN
Th2 Pathway	0.572	0.0292	NaN
Non-Small Cell Lung Cancer Signaling	0.57	0.0319	NaN
Stearate Biosynthesis I (Animals)	0.569	0.0377	NaN
Phototransduction Pathway	0.558	0.037	NaN

eTable 3, continued

<b>Ingenuity Canonical Pathways</b>	<b>-log(p-value)</b>	<b>Ratio</b>	<b>z-score</b>
RAN Signaling	0.553	0.0588	NaN
Dermatan Sulfate Degradation (Metazoa)	0.553	0.0588	NaN
ATM Signaling	0.547	0.0309	NaN
IL-17 Signaling	0.539	0.0267	0.447
UVA-Induced MAPK Signaling	0.538	0.0306	NaN
CSDE1 Signaling Pathway	0.536	0.0357	NaN
Differential Regulation of Cytokine Production in Macrophages and T Helper Cells b	0.532	0.0556	NaN
CD27 Signaling in Lymphocytes	0.526	0.0351	NaN
Cancer Drug Resistance By Drug Efflux	0.516	0.0345	NaN
Regulation Of The Epithelial Mesenchymal Transition By Growth Factors Pathway	0.511	0.026	-1.342
Sumoylation Pathway	0.5	0.0291	NaN
TEC Kinase Signaling	0.496	0.0225	-2.121
Methylglyoxal Degradation III	0.493	0.05	NaN
Fatty Acid $\alpha$ -oxidation	0.493	0.05	NaN
Putrescine Degradation III	0.476	0.0476	NaN
Endoplasmic Reticulum Stress Pathway	0.476	0.0476	NaN
Chronic Myeloid Leukemia Signaling	0.472	0.028	NaN
Telomerase Signaling	0.472	0.028	NaN
PPAR Signaling	0.472	0.028	NaN
Systemic Lupus Erythematosus In T Cell Signaling Pathway	0.466	0.0219	-2.138
Pyrimidine Deoxyribonucleotides De Novo Biosynthesis I	0.46	0.0455	NaN
Role of Pattern Recognition Receptors in Recognition of Bacteria and Viruses	0.456	0.0256	-1
PXR/RXR Activation	0.45	0.0308	NaN
Induction of Apoptosis by HIV1	0.45	0.0308	NaN
Ethanol Degradation IV	0.445	0.0435	NaN
Role of PI3K/AKT Signaling in the Pathogenesis of Influenza	0.442	0.0303	NaN
Phospholipases	0.442	0.0303	NaN
Prostate Cancer Signaling	0.44	0.0268	NaN
CD40 Signaling	0.434	0.0299	NaN
Serotonin Degradation	0.434	0.0299	NaN
Eicosanoid Signaling	0.434	0.0299	NaN
IL-22 Signaling	0.431	0.0417	NaN
TCA Cycle II (Eukaryotic)	0.431	0.0417	NaN
Tryptophan Degradation III (Eukaryotic)	0.431	0.0417	NaN
Role of JAK1 and JAK3 in $\gamma$ c Cytokine Signaling	0.418	0.029	NaN
SPINK1 General Cancer Pathway	0.418	0.029	NaN
Role of JAK family kinases in IL-6-type Cytokine Signaling	0.416	0.04	NaN
Glutathione Redox Reactions I	0.416	0.04	NaN
Tryptophan Degradation X (Mammalian, via Tryptamine)	0.416	0.04	NaN
Role of JAK1, JAK2 and TYK2 in Interferon Signaling	0.403	0.0385	NaN
D-myo-inositol (1,4,5)-Trisphosphate Biosynthesis	0.403	0.0385	NaN
IL-10 Signaling	0.396	0.0278	NaN
Role of NANOG in Mammalian Embryonic Stem Cell Pluripotency	0.393	0.025	NaN

eTable 3, continued

<b>Ingenuity Canonical Pathways</b>	<b>-log(p-value)</b>	<b>Ratio</b>	<b>z-score</b>
Dopamine Degradation	0.368	0.0345	NaN
Role of p14/p19ARF in Tumor Suppression	0.368	0.0345	NaN
B Cell Receptor Signaling	0.367	0.0207	-1.897
G-Protein Coupled Receptor Signaling	0.362	0.0217	NaN
Dopamine Receptor Signaling	0.361	0.026	NaN
HER-2 Signaling in Breast Cancer	0.357	0.022	-2.236
VDR/RXR Activation	0.355	0.0256	NaN
NF- $\kappa$ B Activation by Viruses	0.355	0.0256	NaN
Toll-like Receptor Signaling	0.355	0.0256	NaN
Thyroid Cancer Signaling	0.348	0.0253	NaN
GABA Receptor Signaling	0.337	0.0229	NaN
BAG2 Signaling Pathway	0.319	0.0238	NaN
Role of JAK2 in Hormone-like Cytokine Signaling	0.317	0.0294	NaN
Pyrimidine Ribonucleotides Interconversion	0.317	0.0294	NaN
Sirtuin Signaling Pathway	0.311	0.0205	2
DNA Methylation and Transcriptional Repression Signaling	0.308	0.0286	NaN
Pyrimidine Ribonucleotides De Novo Biosynthesis	0.299	0.0278	NaN
TWEAK Signaling	0.292	0.027	NaN
Superpathway of Methionine Degradation	0.292	0.027	NaN
Hereditary Breast Cancer Signaling	0.29	0.0211	NaN
Regulation of the Epithelial-Mesenchymal Transition Pathway	0.288	0.0205	NaN
Ceramide Signaling	0.287	0.0222	NaN
RANK Signaling in Osteoclasts	0.281	0.022	NaN
Antigen Presentation Pathway	0.276	0.0256	NaN
Factors Promoting Cardiogenesis in Vertebrates	0.256	0.0199	NaN
April Mediated Signaling	0.255	0.0238	NaN
B Cell Activating Factor Signaling	0.248	0.0233	NaN
BER (Base Excision Repair) Pathway	0.242	0.0227	NaN
iNOS Signaling	0.224	0.0213	NaN
nNOS Signaling in Skeletal Muscle Cells	0.218	0.0208	NaN