Pan cancer pathway list corresponding to Figure 2

Row	Pathway/principle component	Row	Pathway/principle component
1	D-Glutamine and D-glutamate metabolism - 2	51	Complement and coagulation cascades - 1
2	Pyruvate metabolism - 2	52	RIG-I-like receptor signaling pathway - 1
3	Riboflavin metabolism - 2	53	Toll-like receptor signaling pathway - 1
4	Selenocompound metabolism - 2	54	Small cell lung cancer - 1
5	Histidine metabolism - 2	55	MicroRNAs in cancer - 1
6	Nicotinate and nicotinamide metabolism - 2	56	African trypanosomiasis - 1
7	cAMP signaling pathway - 1	57	Gap junction - 1
8	cGMP-PKG signaling pathway - 1	58	Taurine and hypotaurine metabolism - 1
9	Non-alcoholic fatty liver disease (NAFLD) - 1	59	Cyanoamino acid metabolism - 1
10	TNF signaling pathway - 1	60	Selenocompound metabolism - 1
11	Aldosterone-regulated sodium reabsorption - 1	61	Riboflavin metabolism - 1
12	Hematopoietic cell lineage - 1	62	Propanoate metabolism - 1
13	Olfactory transduction - 1	63	beta-Alanine metabolism - 1
14	Fanconi anemia pathway - 2	64	Tryptophan metabolism - 1
15	Glutathione metabolism - 2	65	Pyrimidine metabolism - 1
16	MAPK signaling pathway - 2	66	Glyoxylate and dicarboxylate metabolism - 1
17	Homologous recombination - 2	67	Nicotinate and nicotinamide metabolism - 1
18	Non-homologous end-joining - 2	68	Retinol metabolism - 1
19	Dorso-ventral axis formation - 2	69	Central carbon metabolism in cancer - 1
20	Valine, leucine and isoleucine biosynthesis - 2	70	Choline metabolism in cancer - 1
21	GnRH signaling pathway - 2	71	Metabolic pathways - 1
22	Nitrogen metabolism - 2	72	Glycine, serine and threonine metabolism - 1
23	Other types of O-glycan biosynthesis - 1	73	Ether lipid metabolism - 1
24	Biotin metabolism - 1	74	Caffeine metabolism - 1
25	Lipoic acid metabolism - 1	75	Inositol phosphate metabolism - 1
26	GABAergic synapse - 1	76	Glycerophospholipid metabolism - 1
27	Renal cell carcinoma - 1	77	Histidine metabolism - 1
28	Central carbon metabolism in cancer - 1	78	Fatty acid metabolism - 1
29	NOD-like receptor signaling pathway - 1	79	2-Oxocarboxylic acid metabolism - 1
30	Jak-STAT signaling pathway - 1	80	Glycerolipid metabolism - 1
31	Antigen processing and presentation - 1	81	Glycosylphosphatidylinositol - 1
32	Cell adhesion molecules (CAMs) - 1	82	Linoleic acid metabolism - 1
33	Amyotrophic lateral sclerosis (ALS) - 1	83	Terpenoid backbone biosynthesis - 1
34	Primary immunodeficiency - 1	84	Folate biosynthesis - 1
35	Longevity regulating pathway - mammal - 1	85	Ribosome - 1
36	Dilated cardiomyopathy - 2	86	PPAR signaling pathway - 1
37	Lipoic acid metabolism - 2	87	ECM-receptor interaction - 1
38	Protein export - 2	88	Acute myeloid leukemia - 1
39	Cysteine and methionine metabolism - 2	89	Salmonella infection - 1
40	Glycosphingolipid biosynthesis - ganglio - 2	90	Dilated cardiomyopathy - 1
41	Pantothenate and CoA biosynthesis - 2	91	Galactose metabolism - 1
42	Ovarian steroidogenesis - 2	92	Glycosaminoglycan biosynthesis- 1
43	Glycine, serine and threonine metabolism - 2	93	Prolactin signaling pathway - 1
44	Valine, leucine and isoleucine degradation - 2	94	MAPK signaling pathway - 1
45	Tyrosine metabolism - 1	95	Nucleotide excision repair - 1
46	Metabolism of xenobiotics by cytochrome - 1	96	Non-homologous end-joining - 1
47	Glycosaminoglycan biosynthesis - 1	97	Nitrogen metabolism - 1
48	Estrogen signaling pathway - 1	98	Carbon metabolism - 2
49	Leishmaniasis - 1	99	Inflammatory mediator regulation of TRP - 1
50	AMPK signaling pathway - 1	100	Fc gamma R-mediated phagocytosis - 1

Row	Pathway/principle component	Row	Pathway/principle component
101	Phenylalanine metabolism - 1	151	ABC transporters - 2
102	Insulin secretion - 1	152	Ribosome biogenesis in eukaryotes - 2
103	GnRH signaling pathway - 1	153	mRNA surveillance pathway - 2
104	N-Glycan biosynthesis - 1	154	ErbB signaling pathway - 2
105	Glycosaminoglycan biosynthesis - 1	155	Nicotinate and nicotinamide metabolism - 1
106	Pentose and glucuronate interconversions - 1	156	Basal transcription factors - 1
107	Cardiac muscle contraction - 1	157	DNA replication - 1
108	Butirosin and neomycin biosynthesis - 1	158	Gap junction - 2
109	Starch and sucrose metabolism - 1	159	Endocytosis - 2
110	Ascorbate and aldarate metabolism - 1	160	SNARE interactions in vesicular transport - 2
111	Citrate cycle (TCA cycle) - 1	161	Phagosome - 2
112	Other glycan degradation - 1	162	Autoimmune thyroid disease - 2
113	Fructose and mannose metabolism - 1	163	Antigen processing and presentation - 2
114	Biosynthesis of unsaturated fatty acids - 1	164	Toxoplasmosis - 2
115	ABC transporters - 1	165	Renin-angiotensin system - 2
116	Cholinergic synapse - 1	166	Steroid hormone biosynthesis - 2
117	HIF-1 signaling pathway - 1	167	Sulfur metabolism - 2
118	Hippo signaling pathway - 1	168	Glyoxylate and dicarboxylate metabolism - 2
119	Retrograde endocannabinoid signaling - 1	169	Propanoate metabolism - 2
120	FoxO signaling pathway - 1	170	Glycosphingolipid biosynthesis - globo series - 2
121	Cytokine-cytokine receptor interaction - 1	171	Ether lipid metabolism - 2
122	Chemokine signaling pathway - 1	172	Linoleic acid metabolism - 2
123	Phosphatidylinositol signaling system - 1	173	Glycosaminoglycan degradation - 2
124	Glyoxylate and dicarboxylate metabolism - 1	174	alpha-Linolenic acid metabolism - 2
125	Ether lipid metabolism - 2	175	Ribosome - 2
126	Linoleic acid metabolism - 2	176	Arginine and proline metabolism - 2
127	Glycosaminoglycan degradation - 2	177	PPAR signaling pathway - 2
128	alpha-Linolenic acid metabolism - 2	178	Glycosphingolipid biosynthesis - globo series - 1
129	Gap junction - 2	179	Retinol metabolism - 1
130	Peroxisome - 2	180	Pertussis - 1
131	Apoptosis - 2	181	Epstein-Barr virus infection - 1
132	Signaling pathways regulating pluripotency - 2	182	Sphingolipid signaling pathway - 1
133	Phagosome - 2	183	mTOR signaling pathway - 1
134	Regulation of autophagy - 2	184	Focal adhesion - 1
135	Cell cycle - 2	185	Toxoplasmosis - 1
136	Tight junction - 2	186	Chagas disease (American trypanosomiasis) - 1
137	p53 signaling pathway - 2	187	mRNA surveillance pathway - 2
138	Adherens junction - 2	188	ErbB signaling pathway - 2
139	Focal adhesion - 2	189	Fanconi anemia pathway - 2
140	Regulation of actin cytoskeleton - 2	190	Glutathione metabolism - 2
141	Ribosome - 2	191	MAPK signaling pathway - 2
142	Arginine and proline metabolism - 2	192	Homologous recombination - 2
143	PPAR signaling pathway - 2	193	Non-homologous end-joining - 2
144	p53 signaling pathway - 1	194	Dorso-ventral axis formation - 2
145	cAMP signaling pathway - 1	195	Valine, leucine and isoleucine biosynthesis - 2
146	cGMP-PKG signaling pathway - 1	196	GnRH signaling pathway - 2
147	Alzheimers disease - 2	197	Nitrogen metabolism - 2
148	Amphetamine addiction - 2	198	Other types of O-glycan biosynthesis - 1
149	Chemokine signaling pathway - 2	199	Biotin metabolism - 1
150	Purine metabolism - 2	200	Lipoic acid metabolism - 1

Row	Pathway/principle component	Row	Pathway/principle component
201	GABAergic synapse - 1	251	D-Glutamine and D-glutamate metabolism - 1
202	Renal cell carcinoma - 1	252	Arachidonic acid metabolism - 1
203	Amoebiasis - 1	253	Thyroid hormone synthesis - 1
204	Hepatitis C - 1	254	Cysteine and methionine metabolism - 1
205	Alanine, aspartate and glutamate metabolism - 1	255	Porphyrin and chlorophyll metabolism - 1
206	Staphylococcus aureus infection - 1	256	Degradation of aromatic compounds - 1
207	Pentose phosphate pathway - 1	257	Drug metabolism - cytochrome P450 - 1
208	Fatty acid biosynthesis - 1	258	Thiamine metabolism - 1
209	Oxidative phosphorylation - 1	259	Valine, leucine and isoleucine degradation - 1
210	Purine metabolism - 1	260	Salivary secretion - 1
211	Mucin type O-Glycan biosynthesis - 1	261	alpha-Linolenic acid metabolism - 1
212	Arginine biosynthesis - 1	262	Caffeine metabolism - 1
213	N-Glycan biosynthesis - 1	263	Inositol phosphate metabolism - 1
214	Glycosaminoglycan biosynthesis - 1	264	Lysine biosynthesis - 1
215	Pentose and glucuronate interconversions - 1	265	Glycerophospholipid metabolism - 1
216	Cardiac muscle contraction - 1	266	Peroxisome - 1
217	Butirosin and neomycin biosynthesis - 1	267	Gap junction - 1
218	Starch and sucrose metabolism - 1	268	Peroxisome - 1
219	Ascorbate and aldarate metabolism - 1	269	Apoptosis - 1
220	Citrate cycle (TCA cycle) - 1	270	Signaling pathways regulating pluripotency - 1
221	Other glycan degradation - 1	271	Phagosome - 1
222	Fructose and mannose metabolism - 1	272	Regulation of autophagy - 1
223	Biosynthesis of unsaturated fatty acids - 1	273	Proteasome - 1
224	ABC transporters - 1	274	Glycolysis / Gluconeogenesis - 1
225	TGF-beta signaling pathway - 1	275	D-Arginine and D-ornithine metabolism - 1
226	Lysosome - 1	276	Circadian rhythm - 1
227	Pathogenic Escherichia coli infection - 1	277	Dorso-ventral axis formation - 1
228	Tuberculosis - 1	278	RNA degradation - 1
229	Alzheimers disease - 1	279	mRNA surveillance pathway - 1
230	Pathways regulating pluripotency - 1	280	Base excision repair - 1
231	Gap junction - 1	281	RNA transport - 1
232	Notch signaling pathway - 1	282	Glutathione metabolism - 1
233	Chronic myeloid leukemia - 1	283	Biosynthesis of amino acids - 1
234	Tight junction - 1	284	RNA polymerase - 1
235	Neuroactive ligand-receptor interaction - 1	285	Ribosome biogenesis in eukaryotes - 1
236	Phospholipase D signaling pathway - 1	286	Homologous recombination - 1
237	Hypertrophic cardiomyopathy (HCM) - 1	287	Wnt signaling pathway - 1
238	Proximal tubule bicarbonate reclamation - 1	288	ErbB signaling pathway - 1
239	Adherens junction - 1	289	Fanconi anemia pathway - 1
240	Influenza A - 1	290	Mismatch repair - 1
241	Measles - 1	291	Aminoacyl-tRNA biosynthesis - 1
242	Endometrial cancer - 1	292	Amoebiasis - 1
243	Insulin signaling pathway - 1	293	Hepatitis C - 1
244	Sulfur metabolism - 1	294	Alanine, aspartate and glutamate metabolism - 1
245	Protein export - 1	295	Staphylococcus aureus infection - 1
246	Steroid biosynthesis - 1	296	Pentose phosphate pathway - 1
247	Synthesis and degradation of ketone bodies - 1	297	Fatty acid biosynthesis - 1
248	Fatty acid elongation - 1	298	Oxidative phosphorylation - 1
249	Glycosphingolipid biosynthesis - 1	299	Purine metabolism - 1
250	Valine, leucine and isoleucine biosynthesis - 1	300	Mucin type O-Glycan biosynthesis - 1

Row	Pathway/principle component	Row	Pathway/principle component
301	Arginine biosynthesis - 1	351	Legionellosis - 2
302	Ubiquinone and other terpenoid-quinone biosynthe	352	Asthma - 2
303	Fatty acid degradation - 1	353	Pathways regulating pluripotency - 2
304	Primary bile acid biosynthesis - 1	354	Focal adhesion - 2
305	Fatty acid metabolism - 1	355	Longevity regulating pathway - mammal - 2
306	2-Oxocarboxylic acid metabolism - 1	356	Proximal tubule bicarbonate reclamation - 2
307	Cytokine-cytokine receptor interaction - 2	357	Insulin signaling pathway - 2
308	Hippo signaling pathway - 2	358	PI3K-Akt signaling pathway - 2
309	Natural killer cell mediated cytotoxicity - 2	359	Allograft rejection - 2
310	Proteoglycans in cancer - 2	360	Endometrial cancer - 2
311	Complement and coagulation cascades - 2	361	TGF-beta signaling pathway - 2
312	Sphingolipid signaling pathway - 2	362	Cell cycle - 1
313	Circadian entrainment - 2	363	Alcoholism - 1
314	RNA degradation - 2	364	T cell receptor signaling pathway - 1
315	Colorectal cancer - 2	365	Collecting duct acid secretion - 1
316	Herpes simplex infection - 2	366	Endocytosis - 1
317	Legionellosis - 1	367	Natural killer cell mediated cytotoxicity - 1
318	Chemical carcinogenesis - 1	368	Pancreatic cancer - 1
319	Platelet activation - 1	369	Oocyte meiosis - 1
320	Allograft rejection - 1	370	Vitamin digestion and absorption - 1
321	Fc epsilon RI signaling pathway - 2	371	Bile secretion - 1
322	Alcoholism - 2	372	Fat digestion and absorption - 1
323	Non-small cell lung cancer - 2	373	Vasopressin-regulated water reabsorption - 1
324	Pathogenic Escherichia coli infection - 2	374	Rap1 signaling pathway - 1
325	Cell adhesion molecules (CAMs) - 2	375	Calcium signaling pathway - 1
326	Thyroid cancer - 2	376	Sulfur relay system - 1
327	Basal cell carcinoma - 2	377	VEGF signaling pathway - 1
328	Carbon metabolism - 1	378	Long-term depression - 1
329	Pentose phosphate pathway - 2	379	Aldosterone synthesis and secretion - 1
330	Hedgehog signaling pathway - 2	380	Renin secretion - 1
331	Circadian rhythm - 2	381	D-Arginine and D-ornithine metabolism - 2
332	Wnt signaling pathway - 2	382	Pyrimidine metabolism - 2
333	Nucleotide excision repair - 2	383	Melanoma - 2
334	Mismatch repair - 2	384	Cocaine addiction - 1
335	RNA transport - 2	385	Circadian entrainment - 1
336	Basal transcription factors - 2	386	ARVC - 1
337	Insulin resistance - 2	387	Viral carcinogenesis - 1
338	Arginine biosynthesis - 2	388	Type I diabetes mellitus - 1
339	Arachidonic acid metabolism - 2	389	Adrenergic signaling in cardiomyocytes - 1
340	Retinol metabolism - 2	390	Maturity onset diabetes of the young - 1
341	Chronic myeloid leukemia - 2	391	Morphine addiction - 1
342	Hepatitis B - 2	392	NF-kappa B signaling pathway - 1
343	Pertussis - 2	393	Herpes simplex infection - 1
344	Cytosolic DNA-sensing pathway - 2	394	Colorectal cancer - 1
345	Salmonella infection - 2	395	Phototransduction - 1
346	Acute myeloid leukemia - 2	396	Transcriptional misregulation in cancer - 1
347	Small cell lung cancer - 2	397	Pathways in cancer - 1
348	Hypertrophic cardiomyopathy (HCM) - 2	398	Thyroid hormone synthesis - 2
349	African trypanosomiasis - 2	399	Prolactin signaling pathway - 2
350	Chemical carcinogenesis - 2	400	Lysine biosynthesis - 2

Row	Pathway/principle component	Row	Pathway/principle component
401	Oxidative phosphorylation - 2	451	HTLV-I infection - 1
402	Inositol phosphate metabolism - 2	452	Adipocytokine signaling pathway - 1
403	Glycerolipid metabolism - 2	453	Type II diabetes mellitus - 1
404	Glycosaminoglycan biosynthesis - 2	454	p53 signaling pathway - 1
405	Mineral absorption - 2	455	Thyroid hormone signaling pathway - 1
406	Taurine and hypotaurine metabolism - 2	456	Oxytocin signaling pathway - 1
407	Notch signaling pathway - 2	457	Serotonergic synapse - 1
408	Oocyte meiosis - 2	458	Long-term potentiation - 1
409	Estrogen signaling pathway - 2	459	Regulation of autophagy - 1
410	Glycosphingolipid biosynthesis - 2	460	Pancreatic secretion - 1
411	Tyrosine metabolism - 2	461	Vascular smooth muscle contraction - 1
412	Drug metabolism - cytochrome P450 - 2	462	Protein processing in endoplasmic reticulum - 1
413	Fatty acid degradation - 2	463	Dopaminergic synapse - 1
414	Primary bile acid biosynthesis - 2	464	Glucagon signaling pathway - 1
415	Butirosin and neomycin biosynthesis - 2	465	Parkinsons disease - 2
416	Cholinergic synapse - 2	466	DNA replication - 2
417	Glycosylphosphatidylinositol(GPI)-anchor biosyntl	467	Choline metabolism in cancer - 2
418	Metabolic pathways - 2	468	Alzheimers disease - 2
419	Biosynthesis of amino acids - 2	469	Amphetamine addiction - 2
420	Staphylococcus aureus infection - 2	470	Chemokine signaling pathway - 2
421	Malaria - 1	471	Purine metabolism - 2
422	Alanine, aspartate and glutamate metabolism - 2	472	ABC transporters - 2
423	PI3K-Akt signaling pathway - 1	473	Ribosome biogenesis in eukaryotes - 2
424	Cytosolic DNA-sensing pathway - 1	474	Systemic lupus erythematosus - 1
425	Renin-angiotensin system - 1	475	Asthma - 1
426	Graft-versus-host disease - 1	476	Peroxisome - 1
427	Bladder cancer - 1	477	Autoimmune thyroid disease - 1
428	Inflammatory bowel disease (IBD) - 1	478	Amphetamine addiction - 1
429	Gastric acid secretion - 1	479	Parkinsons disease - 1
430	Hedgehog signaling pathway - 1	480	Intestinal immune network for IgA production - 1
431	Osteoclast differentiation - 1	481	Synaptic vesicle cycle - 1
432	Taste transduction - 1	482	Vibrio cholerae infection - 1
433	AGE-RAGE signaling pathway in diabetes - 1	483	Huntingtons disease - 1
434	Other types of O-glycan biosynthesis - 2	484	Shigellosis - 1
435	Vitamin B6 metabolism - 2	485	Osteoclast differentiation - 2
436	Biotin metabolism - 2	486	Apoptosis - 2
437	AGE-RAGE signaling pathway in diabetes - 2	487	Carbohydrate digestion and absorption - 2
438	Cyanoamino acid metabolism - 2	488	Vasopressin-regulated water reabsorption - 2
439	NF-kappa B signaling pathway - 2	489	Axon guidance - 2
440	Morphine addiction - 2	490	Amoebiasis - 2
441	Peroxisome - 2	491	Regulation of lipolysis in adipocytes - 2
442	Type I diabetes mellitus - 2	492	Type II diabetes mellitus - 2
443	Maturity onset diabetes of the young - 2	493	Aldosterone-regulated sodium reabsorption - 2
444	Tuberculosis - 2	494	Long-term potentiation - 2
445	B cell receptor signaling pathway - 1	495	Long-term depression - 2
446	Taurine and hypotaurine metabolism - 1	496	Aldosterone synthesis and secretion - 2
447	Cyanoamino acid metabolism - 1	497	Synaptic vesicle cycle - 2
448	Selenocompound metabolism - 1	498	Olfactory transduction - 2
449	Leukocyte transendothelial migration - 1	499	Hematopoietic cell lineage - 2
450	Regulation of lipolysis in adipocytes - 1	500	cAMP signaling pathway - 2

Row	Pathway/principle component
501	Huntingtons disease - 2
502	GABAergic synapse - 2
503	Toll-like receptor signaling pathway - 2
504	Glycosaminoglycan degradation - 1
505	Drug metabolism - other enzymes - 1
506	Vitamin B6 metabolism - 1
507	Pantothenate and CoA biosynthesis - 1
508	One carbon pool by folate - 1
509	Arginine and proline metabolism - 1
510	Glycosphingolipid biosynthesis - ganglio - 1
511	Butanoate metabolism - 1
512	Pyruvate metabolism - 1
513	Carbohydrate digestion and absorption - 1
514	Epithelial cell signaling in Helicobacter - 1
515	Prion diseases - 1
516	Bacterial invasion of epithelial cells - 1
517	Nicotine addiction - 1
518	Neurotrophin signaling pathway - 1
519	Protein digestion and absorption - 1
520	Fc epsilon RI signaling pathway - 1
521	Glutamatergic synapse - 1
522	Ras signaling pathway - 1
523	Endocrinecalcium reabsorption - 1
524	Proteoglycans in cancer - 1
525	Ovarian steroidogenesis - 1
526	Hepatitis B - 1
527	Basal cell carcinoma - 1
528	Melanoma - 1
529	Prostate cancer - 1
530	Longevity regulating pathway - - 1
531	Histidine metabolism - 1
532	SNARE interactions in vesicular transport - 1
533	Apoptosis - 1
534	Progesterone-mediated oocyte maturation - 1
535	Non-small cell lung cancer - 1
536	Thyroid cancer - 1
537	Rheumatoid arthritis - 1
538	Spliceosome - 1
539	Steroid hormone biosynthesis - 1
540	Glioma - 1
541	Insulin resistance - 1
542	Axon guidance - 1
543	Phenylalanine, tyrosine and tryptophan biosynthesi
544	Ether lipid metabolism - 1
545	Ubiquitin mediated proteolysis - 1
546	Glycine, serine and threonine metabolism - 1
547	Phagosome - 1
548	Melanogenesis - 1
549	Mineral absorption - 1
550	Adherens junction - 2
551	Platelet activation - 2
552	Chagas disease (American trypanosomiasis) - 2
553	MicroRNAs in cancer - 2
554	Malaria - 2
555	Leishmaniasis - 2
556	Systemic lupus erythematosus - 2
557	Primary immunodeficiency - 2
558	Rheumatoid arthritis - 2
559	AMPK signaling pathway - 2
560	Longevity regulating pathway - - 2
561	Pentose and glucuronate interconversions - 2
562	Cardiac muscle contraction - 2
563	Glioma - 2
564	Progesterone-mediated oocyte maturation - 2
565	Prion diseases - 2
566	Influenza A - 2
567	Base excision repair - 2
568	Fatty acid elongation - 2
569	Citrate cycle (TCA cycle) - 2
570	Fructose and mannose metabolism - 2
571	Ascorbate and aldarate metabolism - 2
572	Other glycan degradation - 2
573	Porphyrin and chlorophyll metabolism - 2
574	Lysine degradation - 1
575	Renal cell carcinoma - 2
576	Terpenoid backbone biosynthesis - 2
577	Spliceosome - 2
578	Pathways in cancer - 1
579	Proteasome - 2
580	RNA polymerase - 2
581	Adrenergic signaling in cardiomyocytes - 2
582	Leukocyte transendothelial migration - 1
583	Regulation of lipolysis in adipocytes - 1
584	HTLV-I infection - 1
585	Adipocytokine signaling pathway - 1
586	Type II diabetes mellitus - 1
587	Thyroid hormone signaling pathway - 1
588	Oxytocin signaling pathway - 1
589	Serotonergic synapse - 1
590	Long-term potentiation - 1
591	Regulation of autophagy - 1
592	Pancreatic secretion - 1
593	Vascular smooth muscle contraction - 1
594	Protein processing in endoplasmic reticulum - 1
595	Dopaminergic synapse - 1
596	Glucagon signaling pathway - 1
597	Non-alcoholic fatty liver disease (NAFLD) - 1
598	TNF signaling pathway - 1

Pathway/module list for glioblastoma (GSE13041) case

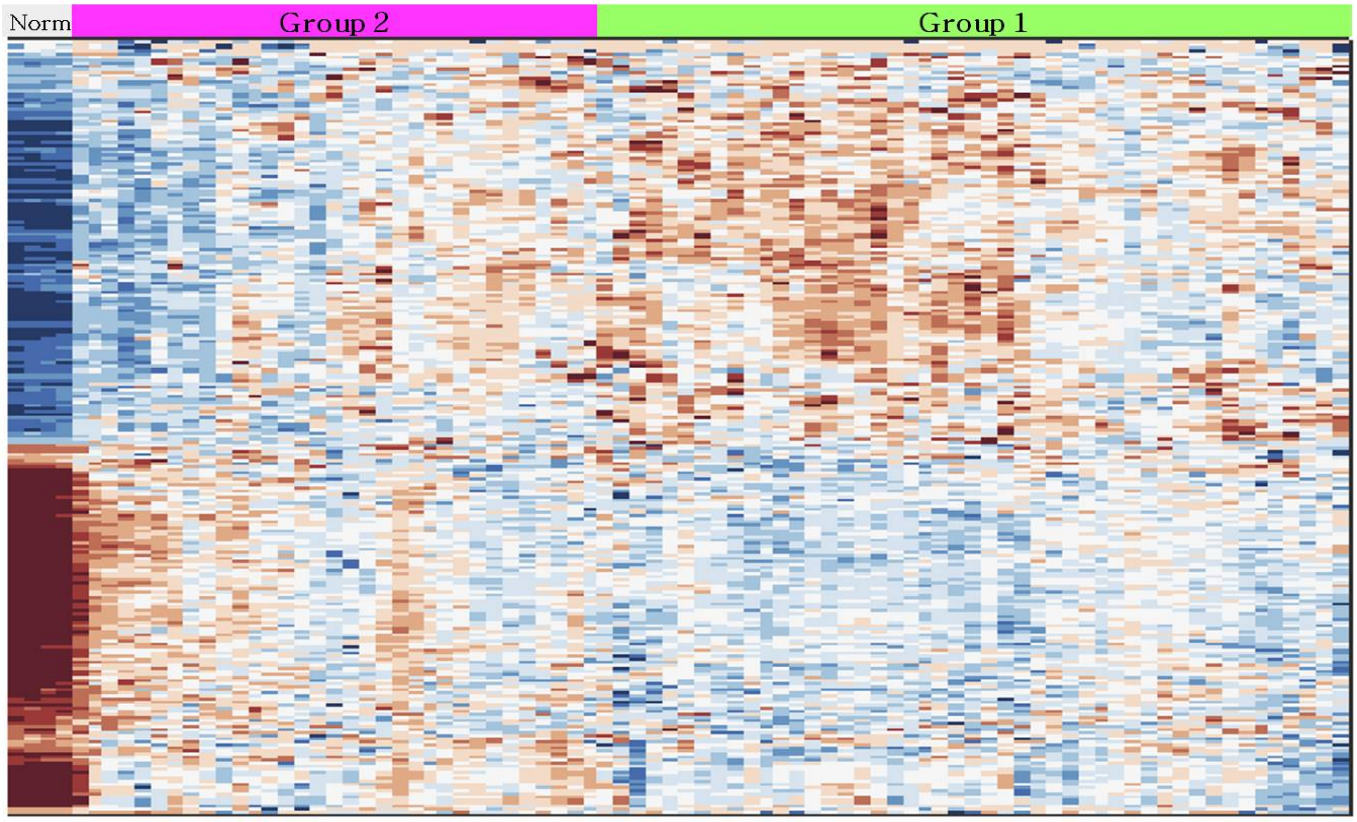
Row	Pathway/module	Row	Pathway/module
1	+C.Gap junction	51	+D.Salmonella infection
2	+*Cell cycle - G2/M transition1	52	+D.Shigellosis
3	+E.Phospholipase D signaling	53	+D.Bacterial invasion of epithelial
4	+P.Choline metabolism in cancer	54	+C.Apoptosis
5	+E.Rap1 signaling pathway	55	+M.Metabolic pathways
6	+E.Ras signaling pathway	56	+M.Carbon metabolism
7	+D.Vibrio cholerae infection	57	+M.Starch and sucrose metabolism
8	+*N-glycan biosynthesis, type1	58	+*N-glycosylation
9	+M.Arginine biosynthesis	59	+M.N-Glycan biosynthesis
10	+M.2-Oxocarboxylic acid	60	+N.Oxytocin signaling pathway
11	+O.Pancreatic secretion	61	+O.Long-term potentiation
12	+N.Renin secretion	62	+E.Notch signaling pathway
13	+O.Olfactory transduction	63	+G.RNA degradation
14	+O.Collecting duct acid secretion	64	+G.Ubiquitin mediated proteolysis
15	+*V-type ATPase, eukaryotes1	65	+G.mRNA surveillance pathway
16	+O.Vitamin digestion and absorption	66	+M.Purine metabolism
17	+M.Histidine metabolism	67	+D.Epstein-Barr virus infection
18	+M.beta-Alanine metabolism	68	+D.Hepatitis B
19	+M.Ubiquinone biosynthesis	69	+M.Drug metabolism - other enzymes
20	+*Ubiquinone biosynthesis, eukaryotes	70	+D.Alcoholism
21	+E.Calcium signaling pathway	71	+C.Signaling pluripotency of stem cells
22	+D.ARVC	72	+P.Proteoglycans in cancer
23	+D.Dilated cardiomyopathy	73	+E.cGMP-PKG signaling pathway
24	+D.Hypertrophic cardiomyopathy	74	+E.Neuroactive ligand-receptor
25	+O.Inflammatory mediator regulation	75	+C.Peroxisome
26	+P.Acute myeloid leukemia	76	+E.MAPK signaling pathway
27	+E.ErbB signaling pathway	77	+E.Hedgehog signaling pathway
28	+M.Inositol phosphate metabolism	78	+O.Synaptic vesicle cycle
29	+E.Phosphatidylinositol signaling	79	+D.Epithelial signaling in Helicobacter
30	+M.Glycerophospholipid	80	+*MAPK (ERK1/2) signaling1
31	+O.Vascular smooth muscle cont.	81	+*JAK-STAT signaling1
32	+D.Primary immunodeficiency	82	+D.Amyotrophic lateral sclerosis (ALS)
33	+E.Wnt signaling pathway	83	+*O-glycan biosynthesis
34	+N.Melanogenesis	84	+M.Mucin type O-Glycan biosynthesis
35	+N.Aldosterone synthesis and secretion	85	+*MRN complex1
36	+I.Leukocyte transendothelial migration	86	+*Citrate cycle, second carbon oxidation
37	+O.Dorso-ventral axis formation	87	+*Citrate cycle
38	+N.Thyroid hormone signaling pathway	88	+M.Citrate cycle (TCA cycle)
39	+E.FoxO signaling pathway	89	+O.Salivary secretion
40	+N.Glucagon signaling pathway	90	+O.Cardiac muscle contraction
41	+D.Insulin resistance	91	+O.GABAergic synapse
42	+N.Insulin signaling pathway	92	-C.Adherens junction
43	+C.Endocytosis	93	+O.Glutamatergic synapse
44	+G.Protein processing in ER	94	+*Translocon-associated protein
45	+*Adenine ribonucleotide biosynthesis	95	+M.Oxidative phosphorylation
46	+*eIF4F complex1	96	+D.Parkinsons disease
47	+D.African trypanosomiasis	97	+*RNA polymerase I, eukaryotes1
48	+E.Cell adhesion molecules	98	+*RNA polymerase II, eukaryotes1
49	+D.Alzheimers disease	99	+G.RNA polymerase
50	+*Toll-like receptor signaling1	100	+M.Pyrimidine metabolism

+	Positive deviation
-	Negative deviation
1	Principle Component 1
2	Principle Component 2
M	Metabolic
G	Genetic information processing
E	Environmental information processing
C	Cellular processes
I	Immune system
N	Endocrine
O	Other organismal systems
P	Pathways in cancer
D	Pathways in other diseases
*	Module

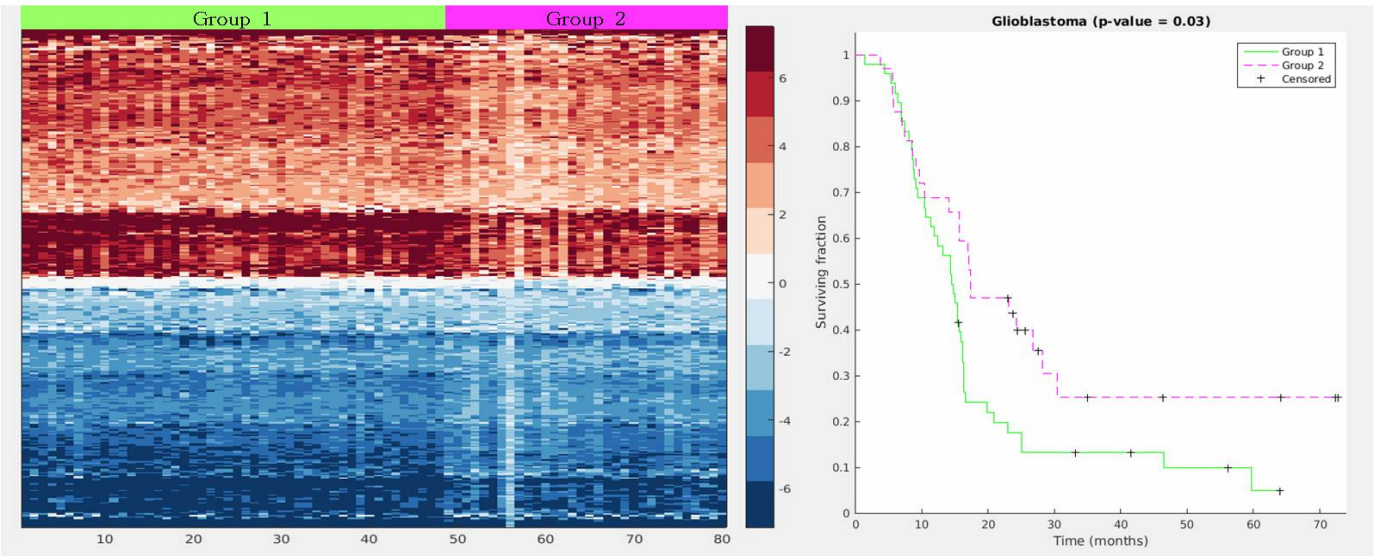
101 +*Lsm 1-7 complex1
102 +*Lsm 2-8 complex1
103 +*Immunoproteasome1
104 +G.Proteasome
105 +M.Galactose metabolism
106 +D.Amphetamine addiction
107 +*BER complex1
108 +*Uridine monophosphate biosynthesis
109 +*Citrate cycle, first carbon oxidation
110 +O.Gastric acid secretion
111 +O.Neurotrophin signaling pathway
112 +N.GnRH signaling pathway
113 +*Dermatan sulfate degradation1
114 +*Chondroitin sulfate degradation1
115 +M.Glycosaminoglycan degradation
116 +*Heparan sulfate degradation1
117 +O.Mineral absorption
118 +G.SNARE interactions in vesicular transport
119 +M.Arginine and proline metabolism
120 +O.Serotonergic synapse
121 +D.Morphine addiction
122 +O.Retrograde endocannabinoid signaling
123 +O.Cholinergic synapse
124 +O.Dopaminergic synapse
125 +O.Adrenergic signaling in cardiomyocytes
126 +N.Insulin secretion
127 +D.Cocaine addiction
128 +N.Estrogen signaling pathway
129 +O.Endocrined calcium reabsorption
130 +M.Fatty acid elongation
131 +*Fatty acid biosynthesis
132 +N.Regulation of lipolysis in adipocytes
133 +*C10-C20 isoprenoid biosynthesis
134 +*Inositol phosphate metabolism, PI
135 +*MAPK (JNK) signaling1
136 +*MAPK (p38) signaling1
137 +I.Fc gamma R-mediated phagocytosis
138 +I.T cell receptor signaling pathway
139 +*Sm core complex1
140 +C.Oocyte meiosis
141 +D.AGE-RAGE signaling pathway in diabetes
142 +E.cAMP signaling pathway
143 +C.Regulation of actin cytoskeleton
144 +C.Focal adhesion
145 +E.PI3K-Akt signaling pathway
146 +E.ECM-receptor interaction
147 +D.Amoebiasis
148 +M.Glutathione metabolism
149 +P.MicroRNAs in cancer
150 +*Glucuronate pathway
151 +M.Pentose and glucuronate
152 +M.Alanine, aspartate and glutamate
153 +*DNA polymerase delta complex1
154 +*MCM complex1
155 +C.p53 signaling pathway
156 +P.Small cell lung cancer
157 +P.Pathways in cancer
158 +E.HIF-1 signaling pathway
159 +P.Renal cell carcinoma
160 +O.Axon guidance
161 +C.Tight junction
162 +C.Adherens junction
163 +*Spliceosome, U1-snRNP1
164 +*Spliceosome, U2-snRNP1
165 +*Spliceosome, U4/U6.U5 tri-snRNP1
166 +G.Spliceosome
167 +G.Ribosome biogenesis in eukaryotes
168 +G.RNA transport
169 +D.HTLV-I infection
170 +P.Viral carcinogenesis
171 +G.Homologous recombination
172 +*Nuclear pore complex1
173 +M.One carbon pool by folate
174 +M.Glycosaminoglycan biosynthesis
175 +C.Phagosome
176 +E.VEGF signaling pathway
177 +*C1-unit interconversion, eukaryotes1
178 +*H/ACA ribonucleoprotein complex1
179 +M.Tyrosine metabolism
180 +M.Primary bile acid biosynthesis
181 +M.Glycosaminoglycan biosynthesis, keratan
182 +M.Glycosphingolipid biosynthesis, lacto
183 +O.Taste transduction
184 +*cAMP signaling1
185 +*Cytochrome c oxidase1
186 -*Immunoproteasome2
187 -*Lsm 1-7 complex2
188 -*Lsm 2-8 complex2
189 -*Spliceosome, U4/U6.U5 tri-snRNP2
190 -*Spliceosome, U2-snRNP2
191 -G.Homologous recombination
192 -P.Small cell lung cancer
193 -C.p53 signaling pathway
194 -*Citrate cycle, first carbon oxidation
195 -M.Ubiquinone biosynthesis
196 -*Ubiquinone biosynthesis, eukaryotes
197 -*Nuclear pore complex2
198 -G.Ribosome biogenesis in eukaryotes
199 -*Pyrimidine degradation, uracil
200 -*C21-Steroid hormone biosynthesis

Row	Pathway/module	Row	Pathway/module
201	-*Chondroitin sulfate degradation2	251	-G.SNARE interactions in vesicular transport
202	-*Dermatan sulfate degradation2	252	-N.Thyroid hormone signaling pathway
203	-M.Glycosaminoglycan degradation	253	-C.Tight junction
204	-*Heparan sulfate degradation2	254	-E.Cell adhesion molecules (CAMs)
205	-G.Spliceosome	255	-C.Focal adhesion
206	-*N-glycan biosynthesis, complex type2	256	-C.Regulation of actin cytoskeleton
207	-M.N-Glycan biosynthesis	257	-D.Insulin resistance
208	-M.Glycosaminoglycan biosynthesis, heparin	258	-O.Vascular smooth muscle contraction
209	-M.Glycosphingolipid biosynthesis - lacto	259	-D.HTLV-I infection
210	-M.Drug metabolism - other enzymes	260	-N.Glucagon signaling pathway
211	-M.Pyrimidine metabolism	261	-N.Insulin secretion
212	-M.Primary bile acid biosynthesis	262	-E.cAMP signaling pathway
213	-I.Leukocyte transendothelial migration	263	-E.Calcium signaling pathway
214	-D.Amoebiasis	264	-O.Adrenergic signaling in cardiomyocytes
215	-G.RNA polymerase	265	-O.Pancreatic secretion
216	-*Fatty acid biosynthesis	266	-O.Salivary secretion
217	-P.Acute myeloid leukemia	267	-O.Olfactory transduction
218	-E.Notch signaling pathway	268	-N.Melanogenesis
219	-D.AGE-RAGE signaling pathway in diabetes	269	-O.Inflammatory mediator regulation of TRP
220	-*RNA polymerase II, eukaryotes2	270	-O.Neurotrophin signaling pathway
221	-*RNA polymerase I, eukaryotes2	271	-E.Rap1 signaling pathway
222	-*N-glycosylation	272	-P.Pathways in cancer
223	-*Cell cycle - G2/M transition2	273	-E.PI3K-Akt signaling pathway
224	-D.Primary immunodeficiency	274	-E.Ras signaling pathway
225	-P.MicroRNAs in cancer	275	-E.MAPK signaling pathway
226	-O.Dorso-ventral axis formation	276	-M.Metabolic pathways
227	-M.Oxidative phosphorylation	277	-O.Cardiac muscle contraction
228	-D.Alzheimers disease	278	-D.ARVC
229	-D.Parkinsons disease	279	-D.Dilated cardiomyopathy
230	-*Citrate cycle, second carbon oxidation	280	-D.Hypertrophic cardiomyopathy (HCM)
231	-*Citrate cycle (TCA cycle, Krebs cycle)	281	-D.Alcoholism
232	-M.Citrate cycle (TCA cycle)	282	-G.RNA transport
233	-*MAPK (ERK1/2) signaling2	283	-D.Epstein-Barr virus infection
234	-*Cytochrome c oxidase2	284	-P.Viral carcinogenesis
235	-C.Peroxisome	285	-E.FoxO signaling pathway
236	-N.GnRH signaling pathway	286	-P.Choline metabolism in cancer
237	-N.Regulation of lipolysis in adipocytes	287	-G.RNA degradation
238	-M.Fatty acid elongation	288	-*Glycosphingolipid biosynthesis, lacto
239	-*MAPK (p38) signaling2	289	-M.Mucin type O-Glycan biosynthesis
240	-*MAPK (JNK) signaling2	290	-*O-glycan biosynthesis, mucin
241	-M.Inositol phosphate metabolism	291	-*Inositol phosphate metabolism, PI
242	-E.Phosphatidylinositol signaling system	292	-M.Carbon metabolism
243	-M.Glycerophospholipid metabolism	293	-E.HIF-1 signaling pathway
244	-C.Signaling pathways, pluripotency	294	-E.cGMP-PKG signaling pathway
245	-G.mRNA surveillance pathway	295	-N.Renin secretion
246	-E.Hedgehog signaling pathway	296	-N.Insulin signaling pathway
247	-M.Galactose metabolism	297	-E.ErbB signaling pathway
248	-M.Starch and sucrose metabolism	298	-N.Aldosterone synthesis and secretion
249	-D.Hepatitis B	299	-O.Gastric acid secretion
250	-*JAK-STAT signaling2	300	-E.Wnt signaling pathway

Row	Pathway/module	Row	Pathway/module
301	-O.Dopaminergic synapse	333	-P.Proteoglycans in cancer
302	-D.Amphetamine addiction	334	-E.ECM-receptor interaction
303	-O.Long-term potentiation	335	-O.Synaptic vesicle cycle
304	-N.Oxytocin signaling pathway	336	-N.Estrogen signaling pathway
305	-I.T cell receptor signaling pathway	337	-I.Fc gamma R-mediated phagocytosis
306	-O.Axon guidance	338	-O.Cholinergic synapse
307	-G.Ubiquitin mediated proteolysis	339	-E.Neuroactive ligand-receptor interaction
308	-O.Taste transduction	340	-D.Cocaine addiction
309	-E.Phospholipase D signaling pathway	341	-D.Bacterial invasion of epithelial cells
310	-O.Mineral absorption	342	-M.Alanine, aspartate and glutamate
311	-O.Endocrine calcium reabsorption	343	-M.Tyrosine metabolism
312	-C.Oocyte meiosis	344	-M.Phenylalanine tyrosine biosynthesis
313	-D.Amyotrophic lateral sclerosis (ALS)	345	-M.2-Oxocarboxylic acid metabolism
314	-C.Endocytosis	346	-D.Epithelial cell signaling in Helicobacter
315	-C.Phagosome	347	-D.Vibrio cholerae infection
316	-G.Protein processing in ER	348	-*V-type ATPase, eukaryotes2
317	-O.Serotonergic synapse	349	-O.Collecting duct acid secretion
318	-C.Gap junction	350	-M.Arginine and proline metabolism
319	-M.Purine metabolism	351	-*SCF-FBS complex2
320	-E.VEGF signaling pathway	352	-*SCF-FBW7 complex2
321	-C.Apoptosis	353	-P.Renal cell carcinoma
322	-M.Histidine metabolism	354	-G.Proteasome
323	-M.beta-Alanine metabolism	355	-*BER complex2
324	-D.Salmonella infection	356	-O.Vitamin digestion and absorption
325	-D.Shigellosis	357	-M.Pentose and glucuronate
326	-*C10-C20 isoprenoid biosynthesis	358	-*Adenine ribonucleotide biosynthesis, IMP
327	-M.Glutathione metabolism	359	-M.D-Glutamine and D-glutamate
328	-M.Glycosaminoglycan biosynthesis, keratan	360	-O.Retrograde endocannabinoid signaling
329	-*cGMP signaling2	361	-D.Morphine addiction
330	-O.Glutamatergic synapse	362	-O.GABAergic synapse
331	-M.Arginine biosynthesis	363	-D.Nicotine addiction
332	-*cAMP signaling2		



Clustergram for glioblastoma case including normal tissues. For the cancer samples (group 1 and group 2) red indicates increases expression levels of genes in the pathways and blue indicates decreased expression levels.



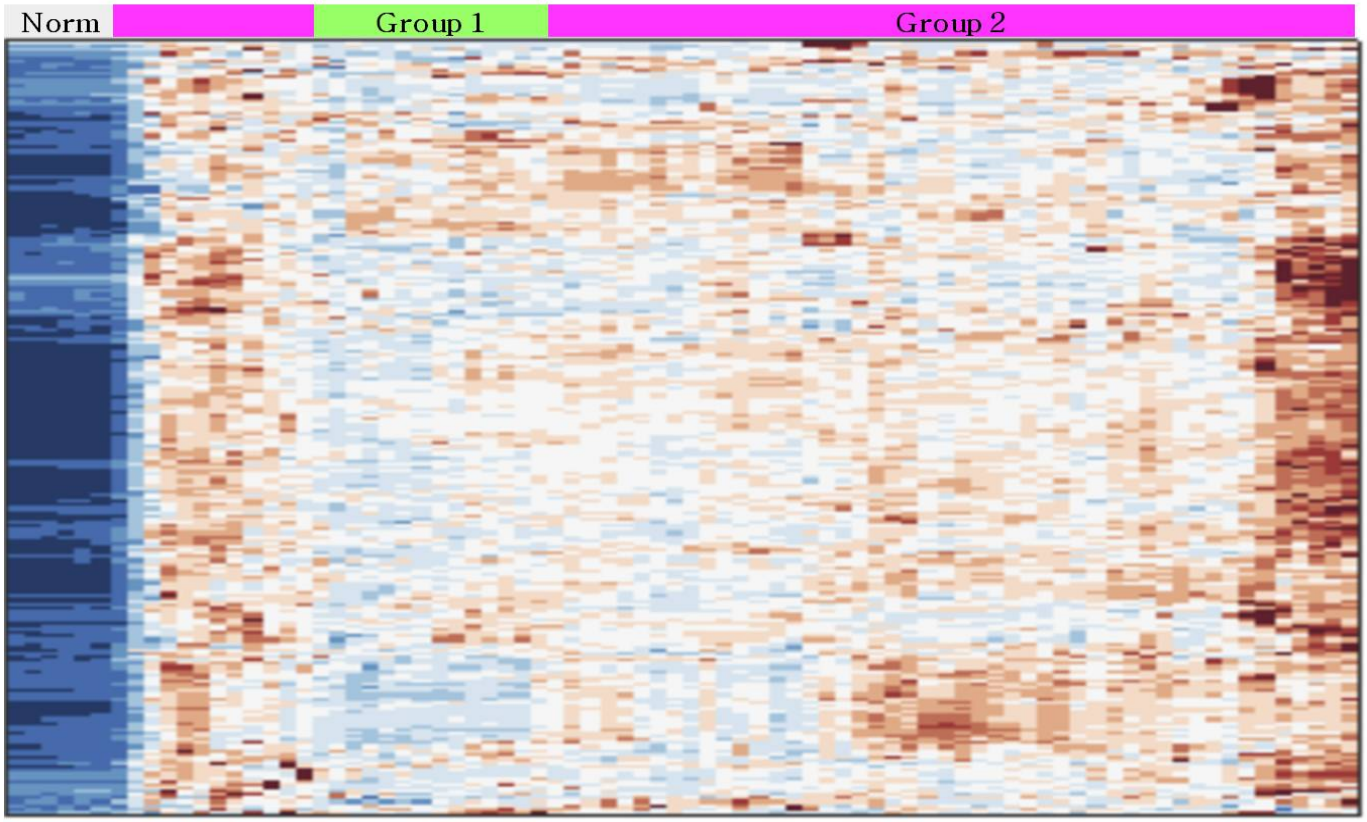
Heatmap and Kaplan-Meier curve (p-value = 0.03) for the glioblastoma case.

Pathway/module list for adult germ cell (GSE3218) case

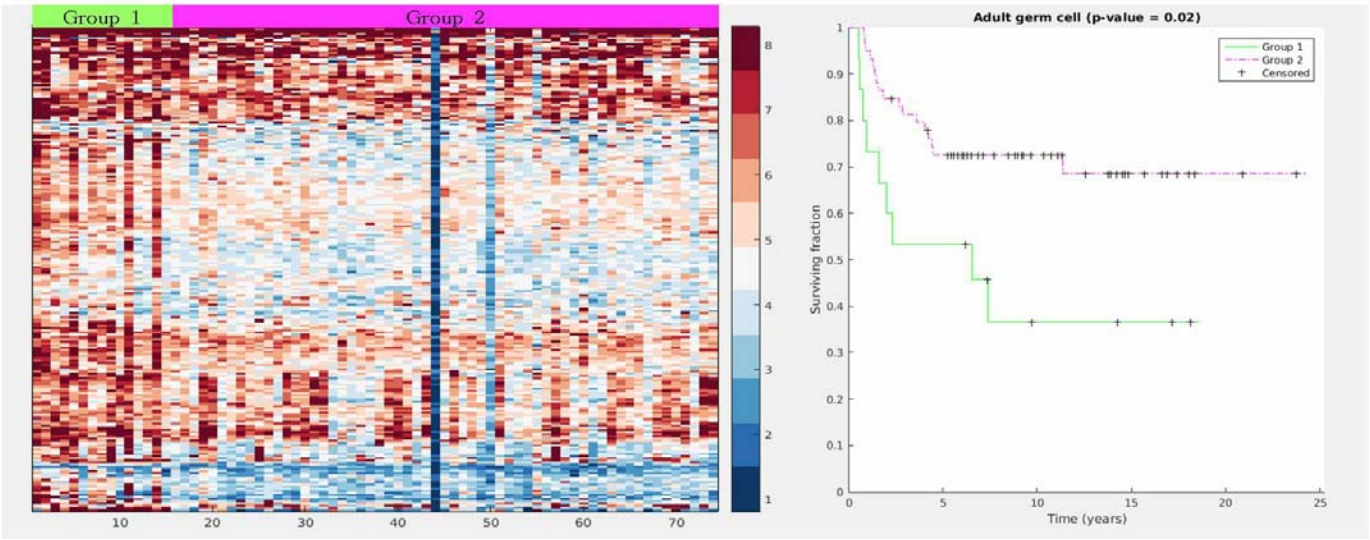
Row	Pathway/module	Row	Pathway/module
1	+*C19/C18-1	51	+I.Fc gamma R-mediated phagocytosis
2	+N.Ovarian steroidogenesis	52	+I.Antigen processing and presentation
3	+E.VEGF signaling pathway	53	+D.Measles
4	+M.Arginine biosynthesis	54	+P.Viral carcinogenesis
5	+E.ErbB signaling pathway	55	+D.HTLV-I infection
6	+*C21-Steroid hormone biosynthesis	56	+D.Toxoplasmosis
7	+*Pentose phosphate pathway, oxidative	57	+D.Shigellosis
8	+O.Phototransduction	58	+D.Epstein-Barr virus infection
9	+O.Taste transduction	59	+D.Herpes simplex infection
10	+O.Dopaminergic synapse	60	+D.Influenza A
11	+E.Notch signaling pathway	61	+P.Transcriptional misregulation in cancer
12	+P.Chronic myeloid leukemia	62	+E.Jak-STAT signaling pathway
13	+P.Renal cell carcinoma	63	+N.Adipocytokine signaling pathway
14	+M.Glycosphingolipid biosynthesis, ganglio	64	+*MAPK (p38) signaling1
15	+*PI3K-Akt signaling1	65	+*Cytochrome c oxidase1
16	+M.Nitrogen metabolism	66	+*Pentose phosphate pathway
17	+*Survival motor neuron (SMN) complex1	67	+E.ABC transporters
18	+O.Olfactory transduction	68	+*N-glycan precursor biosynthesis1
19	+*Exosome, archaea1	69	+M.Alanine, aspartate and glutamate
20	+*Exosome, eukaryotes1	70	+G.Ribosome biogenesis in eukaryotes
21	+*Succinate dehydrogenase	71	+M.Pyruvate metabolism
22	+*DNA polymerase gamma complex	72	+G.mRNA surveillance pathway
23	+*TRAMP complex1	73	+G.RNA transport
24	+N.Renin-angiotensin system	74	+M.Inositol phosphate metabolism
25	+O.Protein digestion and absorption	75	+C.Adherens junction
26	+O.Proximal tubule bicarbonate reclamation	76	+M.Amino sugar and nucleotide sugar metabolism
27	+M.Retinol metabolism	77	+M.Pentose phosphate pathway
28	+M.Metabolism of xenobiotics by cytochrome	78	+*Embden-Meyerhof pathway
29	+M.Drug metabolism - cytochrome P450	79	+M.Glycolysis / Gluconeogenesis
30	+P.Chemical carcinogenesis	80	+M.Glutathione metabolism
31	+O.Adrenergic signaling in cardiomyocytes	81	+M.Propanoate metabolism
32	+D.Hypertrophic cardiomyopathy	82	+M.Fatty acid elongation
33	+O.Cardiac muscle contraction	83	+D.ARVC
34	+*Origin recognition complex1	84	+N.Prolactin signaling pathway
35	+C.Phagosome	85	+M.Other types of O-glycan biosynthesis
36	+D.Salmonella infection	86	+P.Prostate cancer
37	+D.Legionellosis	87	+P.Endometrial cancer
38	+I.Leukocyte transendothelial migration	88	+N.Glucagon signaling pathway
39	+E.Cell adhesion molecules	89	+M.Glycerolipid metabolism
40	+I.Platelet activation	90	+*GPI-anchor biosynthesis, core oligosaccharide
41	+*JAK-STAT signaling1	91	+M.Glycosaminoglycan degradation
42	+D.AGE-RAGE signaling pathway in diabetes	92	+*Dermatan sulfate degradation1
43	+C.Focal adhesion	93	+*Chondroitin sulfate degradation1
44	+P.MicroRNAs in cancer	94	+M.Citrate cycle (TCA cycle)
45	+C.p53 signaling pathway	95	+*C5 isoprenoid biosynthesis, mevalonate
46	+C.Cell cycle	96	+M.Arachidonic acid metabolism
47	+C.Oocyte meiosis	97	+N.Oxytocin signaling pathway
48	+N.Progesterone-mediated oocyte maturation	98	+N.Renin secretion
49	+D.Pathogenic Escherichia coli infection	99	+M.Taurine and hypotaurine metabolism
50	+M.Nicotinate and nicotinamide metabolism	100	+M.Ether lipid metabolism

Row	Pathway/module	Row	Pathway/module
101	+*BER complex1	151	+G.Protein processing in ER
102	+*MAPK (ERK1/2) signaling1	152	+E.mTOR signaling pathway
103	+*Spliceosome, 35S U5-snRNP1	153	+M.Fructose and mannose metabolism
104	+G.Spliceosome	154	+C.Lysosome
105	+G.Ribosome	155	+E.HIF-1 signaling pathway
106	+*Ribosome, eukaryotes1	156	+M.N-Glycan biosynthesis
107	+*Phosphatidylcholine biosynthesis, choline	157	+P.Central carbon metabolism in cancer
108	+C.Gap junction	158	+D.Insulin resistance
109	+G.Non-homologous end-joining	159	+N.Insulin signaling pathway
110	+G.Fanconi anemia pathway	160	+E.AMPK signaling pathway
111	+M.Other glycan degradation	161	+O.Longevity regulating pathway
112	+E.Sphingolipid signaling pathway	162	+M.Lysine degradation
113	+P.Choline metabolism in cancer	163	+*eIF4F complex1
114	+G.RNA degradation	164	+C.Regulation of autophagy
115	+M.Glycerophospholipid metabolism	165	+M.Glycosylphosphatidylinositol
116	+G.RNA polymerase	166	+M.Fatty acid metabolism
117	+*RNA polymerase II, eukaryotes1	167	+M.Fatty acid degradation
118	+*Holo-TFIIH complex1	168	+G.Sulfur relay system
119	+G.Basal transcription factors	169	+D.Vibrio cholerae infection
120	+D.Morphine addiction	170	+*V-type ATPase, eukaryotes1
121	+E.cGMP-PKG signaling pathway	171	+*N-glycan biosynthesis, complex type1
122	+O.Vasopressin-regulated water reabsorption	172	+N.Aldosterone synthesis and secretion
123	+E.Calcium signaling pathway	173	+M.Glycosphingolipid biosynthesis, globo
124	+E.Phospholipase D signaling pathway	174	+*Notch signaling1
125	+O.Axon guidance	175	+*NADH dehydrogenase
126	+N.Estrogen signaling pathway	176	+*Apoptotic machinery1
127	+G.SNARE interactions in vesicular transport	177	+*Ubiquinone biosynthesis
128	+D.Amyotrophic lateral sclerosis (ALS)	178	+M.Fatty acid biosynthesis
129	+D.Hepatitis B	179	+*Decapping complex1
130	+*Inositol phosphate metabolism, PI	180	+M.D-Glutamine and D-glutamate metabolism
131	+D.Bacterial invasion of epithelial cells	181	+*Creatine pathway1
132	+O.Circadian rhythm	182	+*Fatty acid biosynthesis, elongation, ER
133	+E.Ras signaling pathway	183	+N.PPAR signaling pathway
134	+E.PI3K-Akt signaling pathway	184	+C.Tight junction
135	+P.Pathways in cancer	185	+*Nuclear pore complex1
136	+E.FoxO signaling pathway	186	+O.Dorso-ventral axis formation
137	+G.Ubiquitin mediated proteolysis	187	+*SCF-BTRC complex1
138	+C.Endocytosis	188	+M.Lipoic acid metabolism
139	+C.Regulation of actin cytoskeleton	189	+D.Amoebiasis
140	+E.MAPK signaling pathway	190	+E.ECM-receptor interaction
141	+M.Purine metabolism	191	+P.Small cell lung cancer
142	+M.Pyrimidine metabolism	192	+*Cell cycle - G2/M transition1
143	+M.Carbon metabolism	193	+*Phosphatidylethanolamine biosynthesis
144	+M.Metabolic pathways	194	+*Cell cycle - G1/S transition1
145	+E.Phosphatidylinositol signaling system	195	+*Spliceosome, Prp19/CDC5L complex1
146	+D.Parkinsons disease	196	+*Pyruvate oxidation, pyruvate
147	+D.Alzheimers disease	197	+E.TGF-beta signaling pathway
148	+D.Non-alcoholic fatty liver disease	198	+*PRPP biosynthesis, ribose
149	+M.Oxidative phosphorylation	199	+*beta-Oxidation, acyl-CoA synthesis1
150	+D.Huntingtons disease	200	+*Guanine ribonucleotide biosynthesis IMP

Row	Pathway/module	Row	Pathway/module
201	+*Pyrimidine ribonucleotide biosynthesis	213	+*Glycolysis, coremodule
202	+*Pentose phosphate pathway	214	+*Gluconeogenesis, oxaloacetate
203	+*Proteasome, 20S core particle1	215	+D.Epithelial cell signaling, Helicobacter pylori
204	+*Adenine ribonucleotide biosynthesis	216	+*Cytochrome bc1 complex1
205	+M.Cysteine and methionine metabolism	217	+*ECS complex1
206	+M.Biosynthesis of amino acids	218	+M.Synthesis and degradation of ketone
207	+P.Acute myeloid leukemia	219	+M.Degradation of aromatic compounds
208	+*Cul3-SPOP complex1	220	+*Nucleotide sugar biosynthesis
209	+O.Salivary secretion	221	+M.Thiamine metabolism
210	+*SCF-FBS complex1	222	+*SCF-FBW7 complex1
211	+*SCF-SKP2 complex1	223	+*Inositol phosphate metabolism
212	+*Exon junction complex (EJC)1	224	+M.Vitamin B6 metabolism



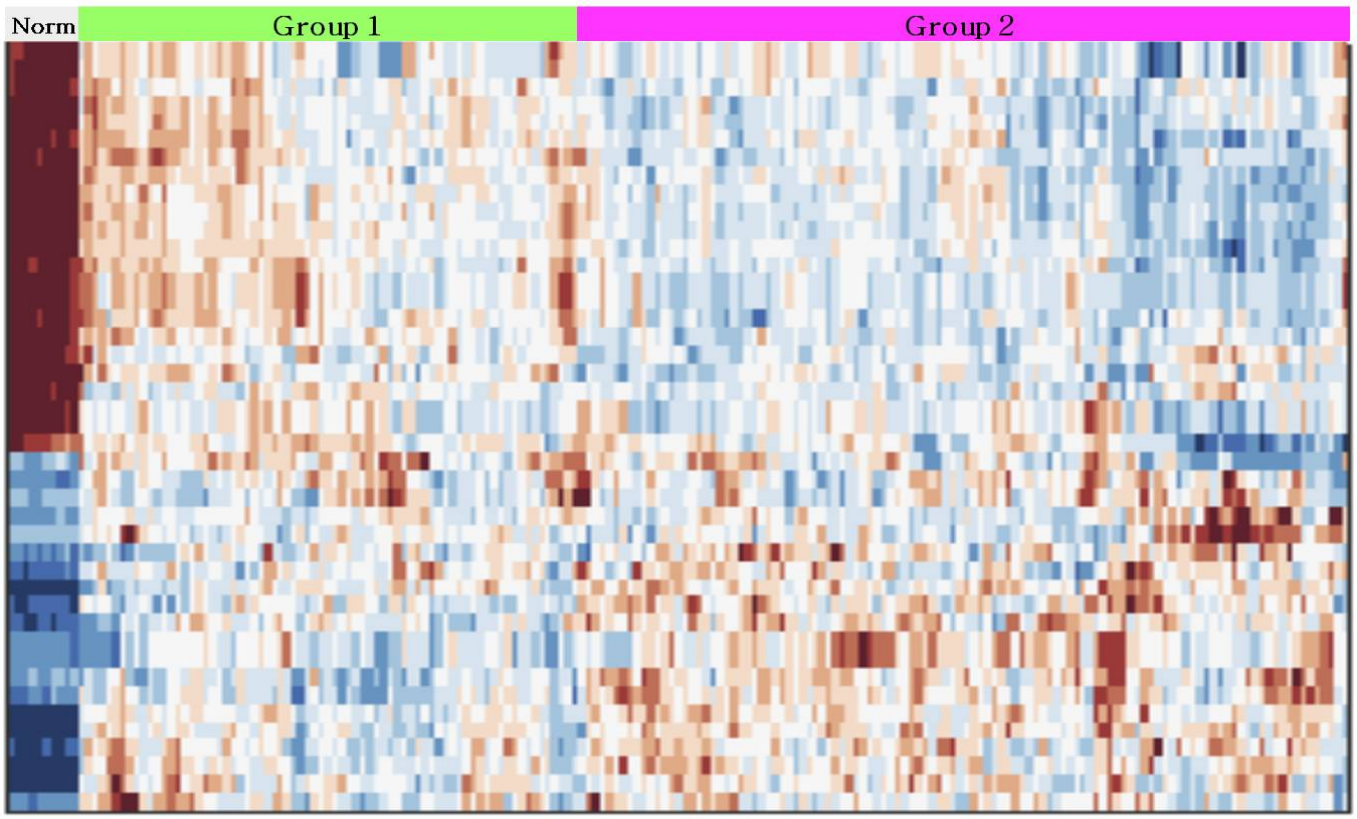
Clustergram for adult germ cell case including normal tissues. For the cancer samples (group 1 and group 2) red indicates increases expression levels of genes in the pathways and blue indicates decreased expression levels.



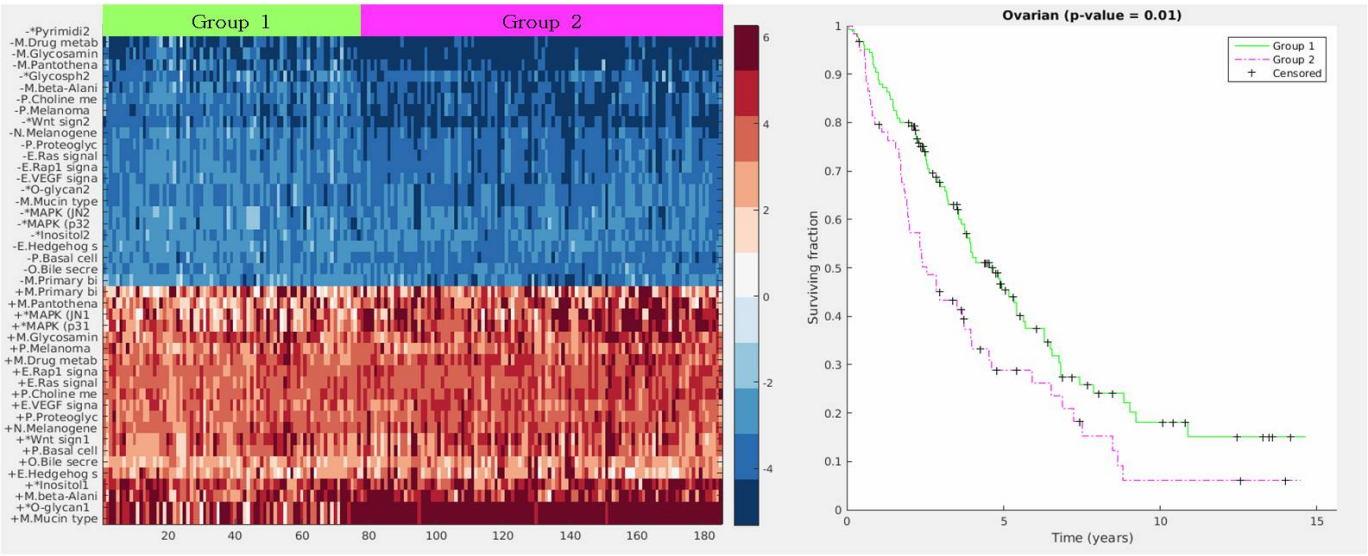
Heatmap and Kaplan-Meier curve (p-value = 0.02) for the adult germ cell case.

Pathway/module list for ovarian (GSE26712) case

Row	Pathway/module	Row	Pathway/module
1	-*Pyrimidine degradation, uracil	23	-M.Primary bile acid biosynthesis
2	-M.Drug metabolism - other enzymes	24	+M.Primary bile acid biosynthesis
3	-M.Glycosaminoglycan biosynthesis	25	+M.Pantothenate and CoA biosynthesis
4	-M.Pantothenate and CoA biosynthesis	26	+*MAPK (JNK) signaling1
5	-*Glycosphingolipid biosynthesis, ganglio	27	+*MAPK (p38) signaling1
6	-M.beta-Alanine metabolism	28	+M.Glycosaminoglycan biosynthesis
7	-P.Choline metabolism in cancer	29	+P.Melanoma
8	-P.Melanoma	30	+M.Drug metabolism - other enzymes
9	-*Wnt signaling2	31	+E.Rap1 signaling pathway
10	-N.Melanogenesis	32	+E.Ras signaling pathway
11	-P.Proteoglycans in cancer	33	+P.Choline metabolism in cancer
12	-E.Ras signaling pathway	34	+E.VEGF signaling pathway
13	-E.Rap1 signaling pathway	35	+P.Proteoglycans in cancer
14	-E.VEGF signaling pathway	36	+N.Melanogenesis
15	-*O-glycan biosynthesis, mucin type	37	+*Wnt signaling1
16	-M.Mucin type O-Glycan biosynthesis	38	+P.Basal cell carcinoma
17	-*MAPK (JNK) signaling2	39	+O.Bile secretion
18	-*MAPK (p38) signaling2	40	+E.Hedgehog signaling pathway
19	-*Inositol phosphate metabolism, PI	41	+*Inositol phosphate metabolism, PI
20	-E.Hedgehog signaling pathway	42	+M.beta-Alanine metabolism
21	-P.Basal cell carcinoma	43	+*O-glycan biosynthesis, mucin type
22	-O.Bile secretion	44	+M.Mucin type O-Glycan biosynthesis



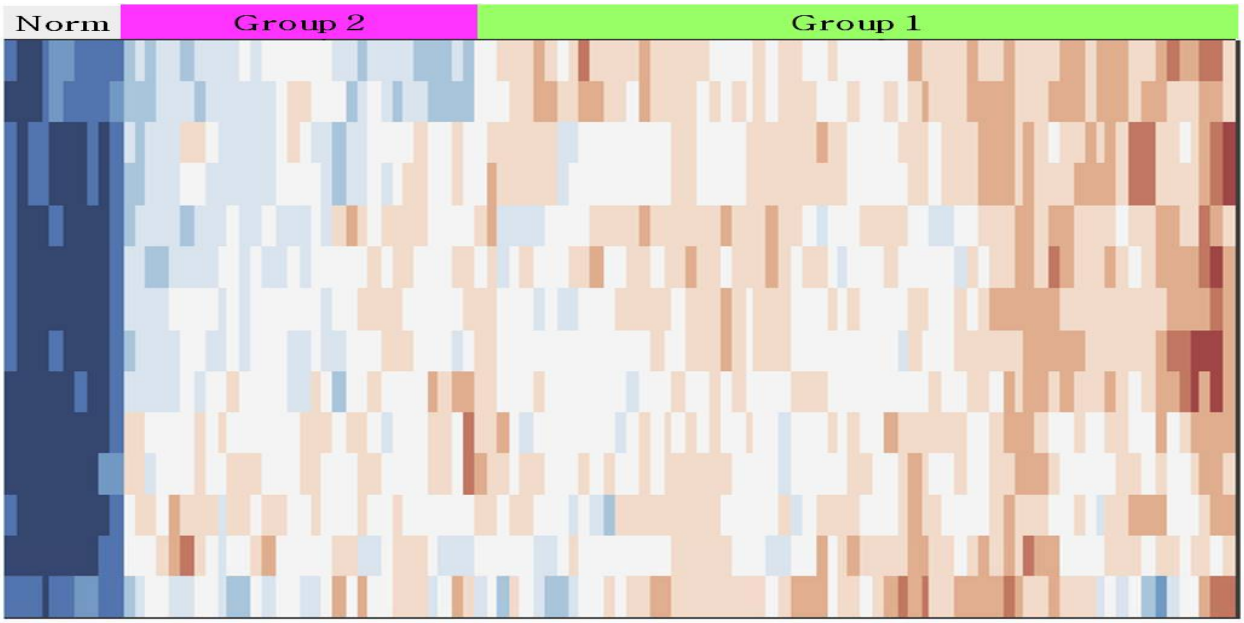
Clustergram for ovarian case including normal tissues. For the cancer samples (group 1 and group 2) red indicates increases expression levels of genes in the pathways and blue indicates decreased expression levels.



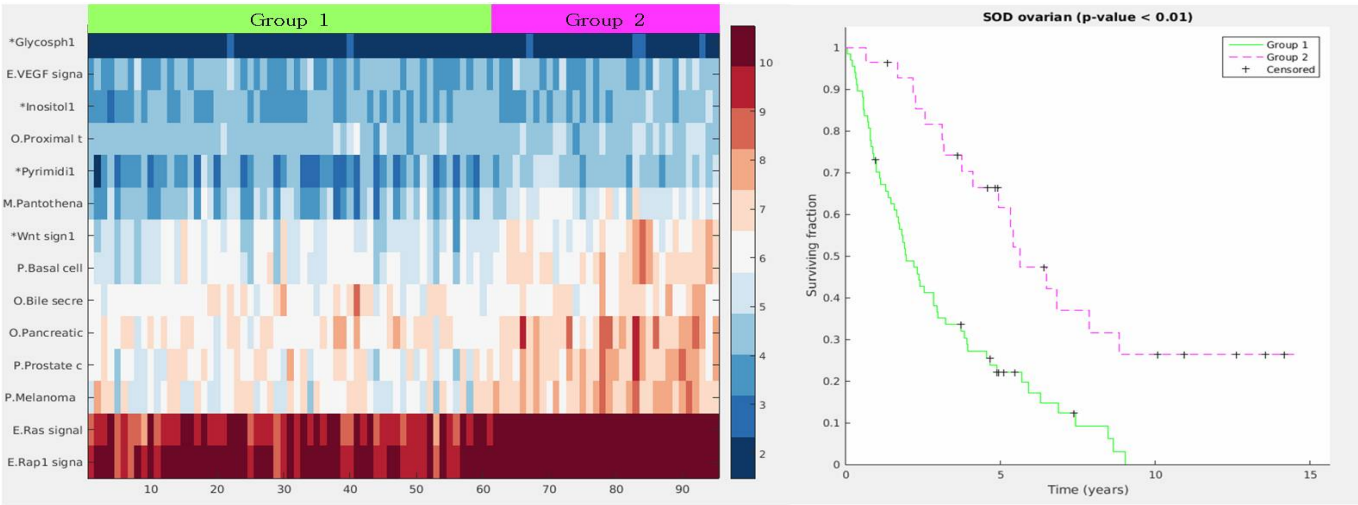
Heatmap and Kaplan-Meier curve (p-value = 0.01) for the ovarian case.

Supplement for sub-optimally debulked ovarian (GSE26712) case

Row	Pathway/module	Row	Pathway/module
1	*Glycosphingolipid biosynthesis, ganglio	8	P.Basal cell carcinoma
2	E.VEGF signaling pathway	9	O.Bile secretion
3	*Inositol phosphate metabolism, PI	10	O.Pancreatic secretion
4	O.Proximal tubule bicarbonate	11	P.Prostate cancer
5	*Pyrimidine degradation, uracil	12	P.Melanoma
6	M.Pantothenate and CoA biosynthesis	13	E.Ras signaling pathway
7	*Wnt signaling1	14	E.Rap1 signaling pathway



Clustergram for sub-optimally debulked ovarian case including normal tissues. For the cancer samples (group 1 and group 2) red indicates increases expression levels of genes in the pathways and blue indicates decreased expression levels.



Heatmap and Kaplan-Meier curve (p-value < 0.01) for the sub-optimally debulked ovarian case.

Pathway/module list for melanoma case

Row	Pathway/module	Row	Pathway/module
1	2E.Cytokine-cytokine receptor interaction	51	1*Pentose phosphate pathway
2	1O.Retrograde endocannabinoid signaling	52	1*Pentose phosphate pathway, non-oxidative
3	1D.Nicotine addiction	53	1*beta-Oxidation, acyl-CoA synthesis
4	2E.Cell adhesion molecules (CAMs)	54	2D.Hepatitis B
5	2D.Nicotine addiction	55	2M.Pentose phosphate pathway
6	2D.Morphine addiction	56	2G.Protein processing in ER
7	1D.Salmonella infection	57	2I.Cytosolic DNA-sensing pathway
8	1D.Toxoplasmosis	58	1*GABA biosynthesis, eukaryotes, putrescine
9	1M.Tryptophan metabolism	59	1*Phosphatidylcholine (PC) biosynthesis
10	1D.Autoimmune thyroid disease	60	1*Pyruvate oxidation, pyruvate =
11	1D.Allograft rejection	61	1*Toll-like receptor signaling
12	1D.Leishmaniasis	62	2*GABA biosynthesis, eukaryotes, putrescine
13	1D.Herpes simplex infection	63	1M.Sulfur metabolism
14	1I.Toll-like receptor signaling pathway	64	2*Cell cycle - G1/S transition
15	1D.Chagas disease	65	2M.Sulfur metabolism
16	1D.Tuberculosis	66	2*Heparan sulfate degradation
17	1D.Measles	67	2*C1-unit interconversion, eukaryotes
18	1I.T cell receptor signaling pathway	68	1*MAPK (ERK5) signaling
19	1D.Primary immunodeficiency	69	1*Proteasome, 19S regulatory particle
20	1I.Natural killer cell mediated cytotoxicity	70	1*DNA-PK complex
21	1D.Dilated cardiomyopathy	71	2*Pyruvate oxidation, pyruvate
22	1*O-glycan biosynthesis, mucin type core	72	2*Toll-like receptor signaling
23	1M.Mucin type O-Glycan biosynthesis	73	2*PI3K-Akt signaling
24	1D.Maturity onset diabetes of the young	74	1*C1-unit interconversion, eukaryotes
25	2D.Maturity onset diabetes of the young	75	2*APC/C complex
26	2D.Dilated cardiomyopathy	76	2*Proteasome, 19S regulatory particle
27	1M.Nitrogen metabolism	77	2*ESCRT-0 complex
28	2E.TNF signaling pathway	78	2*Phosphatidylcholine (PC) biosynthesis
29	1I.Cytosolic DNA-sensing pathway	79	2*MRN complex
30	2D.Herpes simplex infection	80	2*MAPK (ERK5) signaling
31	1M.Taurine and hypotaurine metabolism	81	2*DNA-PK complex
32	1D.Hepatitis B	82	2*Inosine monophosphate biosynthesis
33	1G.Protein processing in ER	83	2*Exon junction complex (EJC)
34	1D.Prion diseases	84	2*N-glycan precursor biosynthesis
35	1M.Phenylalanine metabolism	85	1*Inosine monophosphate biosynthesis
36	1M.Phenylalanine tyrosine biosynthesis	86	1*ESCRT-0 complex
37	2I.Antigen processing and presentation	87	1*APC/C complex
38	1*C19/C18-Steroid hormone biosynthesis	88	1*MRN complex
39	1D.Vibrio cholerae infection	89	1*Exon junction complex (EJC)
40	2M.Tryptophan metabolism	90	1*N-glycan precursor biosynthesis
41	1C.Regulation of autophagy	91	2G.Base excision repair
42	2*C19/C18-Steroid hormone biosynthesis	92	2*JAK-STAT signaling
43	1*C21-Steroid hormone biosynthesis	93	1*Cell cycle - G1/S transition
44	2D.Chagas disease	94	1G.Base excision repair
45	2D.Salmonella infection	95	1*PI3K-Akt signaling
46	2I.Toll-like receptor signaling pathway	96	1*JAK-STAT signaling
47	2D.Primary immunodeficiency	97	2D.Leishmaniasis
48	2D.Prion diseases	98	2C.Regulation of autophagy
49	2M.Nitrogen metabolism	99	2D.Allograft rejection
50	2D.Vibrio cholerae infection	100	2*Pentose phosphate pathway

Row	Pathway/module	Row	Pathway/module
101	2*Pentose phosphate pathway, non-oxidative	125	2E.Jak-STAT signaling pathway
102	2*C21-Steroid hormone biosynthesis	126	2D.HTLV-I infection
103	2*beta-Oxidation, acyl-CoA synthesis	127	2I.Natural killer cell mediated cytotoxicity
104	2*Hedgehog signaling	128	1M.Cyanoamino acid metabolism
105	2I.B cell receptor signaling pathway	129	2M.Taurine and hypotaurine metabolism
106	2C.Apoptosis	130	2I.Chemokine signaling pathway
107	2D.Toxoplasmosis	131	1E.TNF signaling pathway
108	2M.Phenylalanine metabolism	132	2I.Hematopoietic cell lineage
109	1*Hedgehog signaling	133	2O.Taste transduction
110	2D.Epstein-Barr virus infection	134	2O.Retrograde endocannabinoid signaling
111	2M.Phenylalanine tyrosine biosynthesis	135	2O.GABAergic synapse
112	2D.Autoimmune thyroid disease	136	1E.Calcium signaling pathway
113	1*Heparan sulfate degradation	137	1O.Taste transduction
114	2M.Mucin type O-Glycan biosynthesis	138	1D.Morphine addiction
115	2*O-glycan biosynthesis, mucin type core	139	1O.GABAergic synapse
116	2D.Tuberculosis	140	1I.Antigen processing and presentation
117	2D.Measles	141	1D.HTLV-I infection
118	2M.Biosynthesis of amino acids	142	1E.Jak-STAT signaling pathway
119	1M.Pentose phosphate pathway	143	1E.Cell adhesion molecules (CAMs)
120	1C.Apoptosis	144	1I.B cell receptor signaling pathway
121	2M.Cyanoamino acid metabolism	145	1D.Epstein-Barr virus infection
122	2I.T cell receptor signaling pathway	146	1I.Hematopoietic cell lineage
123	1M.Biosynthesis of amino acids	147	1I.Chemokine signaling pathway
124	2E.Calcium signaling pathway	148	1E.Cytokine-cytokine receptor interaction