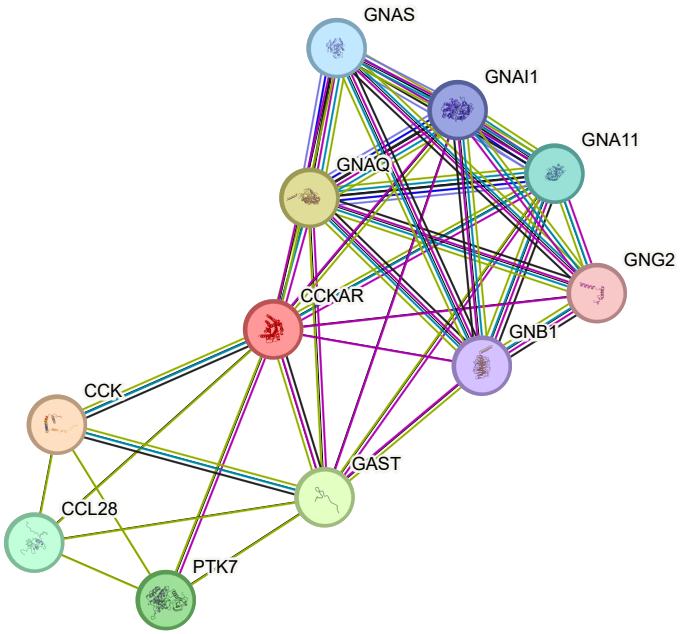

GNAS
GNAI1
GNA11
GNAQ
GNG2
CCKAR
GNB1
CCK
GAST
CCL28
PTK7

Network Stats

number of nodes:	11	expected number of edges:	13
number of edges:	35	PPI enrichment p-value:	2.31e-07
average node degree:	6.36	*your network has significantly more interactions than expected (what does that mean?)*	
avg. local clustering coefficient:	0.886		

Functional enrichments in your network

Note: some enrichments may be expected here (why?)

explain columns

Biological Process (Gene Ontology)

GO-term	description	count in network	strength	signal	false discovery rate
GO:0007191	Adenylate cyclase-activating dopamine receptor signaling pathway	3 of 10	2.73	2.1	0.00014
GO:0007189	Adenylate cyclase-activating G protein-coupled receptor signaling …	4 of 145	1.69	1.46	0.00068
GO:0007188	Adenylate cyclase-modulating G protein-coupled receptor signaling…	6 of 232	1.67	1.97	2.01e-05
GO:0097306	Cellular response to alcohol	4 of 96	1.87	1.67	0.00035
GO:0070887	Cellular response to chemical stimulus	8 of 2609	0.74	0.54	0.0052
GO:1901655	Cellular response to ketone	4 of 103	1.84	1.66	0.00035
GO:1901699	Cellular response to nitrogen compound	5 of 637	1.15	0.81	0.0065
GO:0071407	Cellular response to organic cyclic compound	5 of 508	1.25	0.98	0.0025
GO:1901701	Cellular response to oxygen-containing compound	7 of 1057	1.07	0.99	0.00035
GO:0071380	Cellular response to prostaglandin E stimulus	3 of 17	2.5	1.88	0.00033
GO:0007212	Dopamine receptor signaling pathway	4 of 31	2.36	2.44	2.14e-05
GO:0007213	G protein-coupled acetylcholine receptor signaling pathway	3 of 19	2.45	1.85	0.00035
GO:0007186	G protein-coupled receptor signaling pathway	8 of 1174	1.09	1.07	0.00012
GO:0007200	Phospholipase C-activating G protein-coupled receptor signaling p…	3 of 97	1.74	1.02	0.0091
GO:0007603	Phototransduction, visible light	2 of 13	2.44	1.04	0.0126
GO:0042221	Response to chemical	9 of 4010	0.6	0.43	0.0097
GO:1901698	Response to nitrogen compound	6 of 1058	1.01	0.75	0.0044
GO:0010243	Response to organonitrogen compound	5 of 963	0.97	0.52	0.0400
GO:0007165	Signal transduction	11 of 4714	0.62	0.52	0.00033

(less ...)

Molecular Function (Gene Ontology)

GO-term	description	count in network	strength	signal	false discovery rate
GO:0001664	G protein-coupled receptor binding	5 of 295	1.48	1.29	0.00084
GO:0031683	G-protein beta/gamma-subunit complex binding	4 of 22	2.51	2.87	3.85e-06
GO:0005525	GTP binding	4 of 381	1.27	0.71	0.0233
GO:0003924	GTPase activity	5 of 317	1.45	1.27	0.00084
GO:0051428	Peptide hormone receptor binding	2 of 19	2.28	0.86	0.0260
GO:0005102	Signaling receptor binding	7 of 1499	0.92	0.68	0.0046

(less ...)

Cellular Component (Gene Ontology)

GO-term	description	count in network	strength	signal	false discovery rate
GO:0070062	Extracellular exosome	7 of 2096	0.78	0.57	0.0051
GO:0005615	Extracellular space	9 of 3247	0.7	0.57	0.00074
GO:0005834	Heterotrimeric G-protein complex	6 of 35	2.49	5.17	5.19e-11
GO:0005765	Lysosomal membrane	4 of 417	1.23	0.87	0.0062
GO:0001750	Photoreceptor outer segment	3 of 98	1.74	1.18	0.0037

Reference Publications (PubMed)

publication	(year) title	count in network	strength	signal	false discovery rate
PMID:11592053	(....) Peptidebenzodiazepine hybrids as ligands of CCK(A) and CCK(…	2 of 2	3.25	1.11	0.0099
PMID:30499543	(....) [Unilateral multifocal uveal melanoma (a clinical and genetic s…	2 of 3	3.08	1.11	0.0099
PMID:9160584	(....) Peptides and anxiety: a dose-response evaluation of pentagas…	2 of 3	3.08	1.11	0.0099
PMID:25932382	(....) Comparison of Anorectic Potencies of the Trichothecenes T-2 …	2 of 8	2.65	1.02	0.0142
PMID:28680759	(....) Parallel profiling of immune infiltrate subsets in uveal melano…	2 of 14	2.41	0.82	0.0315
PMID:14209917	(1964) inhibitory effect of secretin and cholecystokinin on heidenh…	2 of 3	3.08	1.11	0.0099
PMID:6019986	(1967) Inhibitory action of cholecystokinin on acid secretion from …	2 of 2	3.25	1.11	0.0099
PMID:20184469	(1967) Inhibition of gastric acid secretion by intravenous cholecyst…	2 of 3	3.08	1.11	0.0099
PMID:4290022	(1967) The effects of secretin, pancreozymin, and gastrin on insuli…	2 of 5	2.86	1.11	0.0099
PMID:5687588	(1968) The actions of caerulein on the smooth muscle of the gastr…	2 of 2	3.25	1.11	0.0099
PMID:5694819	(1968) Antibodies to the C-terminal tetrapeptide amide of gastrin. …	2 of 2	3.25	1.11	0.0099
PMID:4879882	(1968) The actions of caerulein on gastric secretion of the dog and…	2 of 3	3.08	1.11	0.0099
PMID:5788649	(1969) Effect of cholecystokinin and caerulein on gastrin- and hista…	2 of 2	3.25	1.11	0.0099
PMID:5799674	(1969) Secretory and immunochemical properties of gastrin and p…	2 of 2	3.25	1.11	0.0099
PMID:5824930	(1969) The action of caerulein on pancreatic secretion of the dog a…	2 of 2	3.25	1.11	0.0099
PMID:5770089	(1969) Effect of cholecystokinin, gastrin, and glucagon on human g…	2 of 3	3.08	1.11	0.0099
PMID:5459461	(1970) Choleretic effects of cholecystokinin, gastrin II, and caerulei…	2 of 2	3.25	1.11	0.0099
PMID:5480623	(1970) Production and characterization of specific antibodies to ga…	2 of 2	3.25	1.11	0.0099
PMID:4191964	(1970) Gastrin, cholecystokinin, and secretin act on one receptor.	2 of 3	3.08	1.11	0.0099

PMID:5477749	(1970) Comparison of effects of gastrin, cholecystokinin-pancreoz…	2 of 4	2.95	1.11	0.0099
PMID:4559392	(1972) Influence of secretin and cholecystokinin on canine gastric …	2 of 3	3.08	1.11	0.0099
PMID:5021062	(1972) Effects of gastrin I, secretin and cholecystokinin-pancreozy…	2 of 3	3.08	1.11	0.0099
PMID:5077802	(1972) Actions of cholecystokinin-pancreozymin, secretin and gast…	2 of 3	3.08	1.11	0.0099
PMID:4487966	(1973) The action of gastrin and cholecystokinin-related peptides o…	2 of 2	3.25	1.11	0.0099
PMID:4723798	(1973) Acetylcholine release from guinea-pig ileum by parasympat…	2 of 2	3.25	1.11	0.0099
PMID:4700497	(1973) The hormonal regulation of pyloric sphincter function.	2 of 3	3.08	1.11	0.0099
PMID:4743491	(1973) The action of the C-terminal octapeptide of cholecystokinin …	2 of 3	3.08	1.11	0.0099
PMID:4279352	(1974) Structure-activity relationship of some analogues of gastrin …	2 of 2	3.25	1.11	0.0099
PMID:4451817	(1974) Evidence of cholecystokinin release by bombesin in the dog.	2 of 3	3.08	1.11	0.0099
PMID:4854925	(1974) The kinetics of pancreatic amylase secretion and its relatio…	2 of 3	3.08	1.11	0.0099
PMID:4435583	(1974) Radioimmunoassay of cholecystokinin-pancreozymin.	2 of 5	2.86	1.11	0.0099
PMID:1098953	(1975) The tropic action of gastro-intestinal hormones.	2 of 2	3.25	1.11	0.0099
PMID:1126597	(1975) Inhibition of gastric emptying is a physiological action of ch…	2 of 2	3.25	1.11	0.0099
PMID:1180586	(1975) Cholecystokinin metabolism in man and dogs.	2 of 2	3.25	1.11	0.0099
PMID:1201644	(1975) The effect of penta-gastrin and cholecystokinin on radiologi…	2 of 2	3.25	1.11	0.0099
PMID:126910	(1975) [Roentgen kymographic investigations of gastric peristalsis …	2 of 2	3.25	1.11	0.0099
PMID:165733	(1975) Mechanism of cholecystokinin inhibition of lower esophage…	2 of 2	3.25	1.11	0.0099
PMID:1130517	(1975) Effect of extragastric and truncal vagotomy on pancreatic s…	2 of 3	3.08	1.11	0.0099
PMID:1140468	(1975) [Gastrin, cholecystokinin-pancreozymin, secretin and the int…	2 of 3	3.08	1.11	0.0099
PMID:1201379	(1975) Parallel bioassay of bombesin and litorin, a bombesin-like p…	2 of 3	3.08	1.11	0.0099
PMID:1200149	(1975) Interaction between octapeptide-cholecystokinin, gastrin, a…	2 of 4	2.95	1.11	0.0099
PMID:1213650	(1975) Jejunal factor stimulating insulin release in the isolated perf…	2 of 4	2.95	1.11	0.0099
PMID:238296	(1975) The intestinal phase of gastric secretion: a pharmacological…	2 of 4	2.95	1.11	0.0099
PMID:1150877	(1975) Action of cholecystokinin and cholinergic agents on calciu…	2 of 5	2.86	1.11	0.0099
PMID:1126596	(1975) Radioimmunoassay for motilin.	2 of 7	2.71	1.06	0.0119
PMID:1032244	(1976) The structure of gastrointestinal hormones.	2 of 2	3.25	1.11	0.0099
PMID:1032245	(1976) Gastrointestinal peptide hormone analogues.	2 of 2	3.25	1.11	0.0099
PMID:1245285	(1976) Effect of cholecystokinin and 16,16-dimethyl prostaglandin …	2 of 2	3.25	1.11	0.0099
PMID:1258848	(1976) The effect of cholecystokinin-pancreozymin on circulating g…	2 of 2	3.25	1.11	0.0099
PMID:1261760	(1976) Pancreatic, gallbladder, and gastric responses to intraduode…	2 of 2	3.25	1.11	0.0099
PMID:767195	(1976) Immunohistochemical identification of the cholecystokinin …	2 of 2	3.25	1.11	0.0099
PMID:944152	(1976) Gastrins in tissue. Concentration and component pattern in …	2 of 2	3.25	1.11	0.0099
PMID:961910	(1976) Effects of peptide hormone structure on H+ secretion by Ne…	2 of 2	3.25	1.11	0.0099
PMID:971753	(1976) Effect of sulfated and non-sulfated gastrin and octapeptide-…	2 of 2	3.25	1.11	0.0099
PMID:1019921	(1976) Effect of bombesin on serum gastrin and cholecystokinin in…	2 of 3	3.08	1.11	0.0099
PMID:1032246	(1976) Metabolism of the gastrointestinal peptide hormones.	2 of 3	3.08	1.11	0.0099
PMID:1266957	(1976) Interaction of gastrin I, secretin, and cholecystokinin on gall…	2 of 3	3.08	1.11	0.0099
PMID:203165	(1976) Cellular action of gastrointestinal polypeptide hormones.	2 of 3	3.08	1.11	0.0099
PMID:932606	(1976) Proceedings: Localization of gastrin, secretin and cholecyst…	2 of 3	3.08	1.11	0.0099
PMID:937533	(1976) Gallbladder pressure-volume response to gastrointestinal h…	2 of 3	3.08	1.11	0.0099
PMID:1259480	(1976) Parasympathetic innervation and pancreatic secretion: the r…	2 of 4	2.95	1.11	0.0099
PMID:801697	(1976) Biological determination of gastrointestinal peptide hormon…	2 of 4	2.95	1.11	0.0099
PMID:950608	(1976) Effect of bombesin and related peptides on the release and …	2 of 4	2.95	1.11	0.0099
PMID:173615	(1976) Cyclic AMP in pancreatic acinar cells: effects of gastrointes…	2 of 5	2.86	1.11	0.0099
PMID:801695	(1976) Isolation and evolution of the gastrointestinal hormones.	2 of 5	2.86	1.11	0.0099
PMID:1278107	(1976) Secretion cells in the gastrointestinal tract.	2 of 6	2.78	1.1	0.0100
PMID:793724	(1976) Identification of gastrin-secreting cells and cholecystokinin-…	2 of 6	2.78	1.1	0.0100
PMID:960954	(1976) [Gastrointestinal hormones].	2 of 6	2.78	1.1	0.0100
PMID:199074	(1977) Structure-function relationships of peptide fragments of ga…	2 of 2	3.25	1.11	0.0099
PMID:23537	(1977) Heptadecapeptide gastrin in the vagal nerve.	2 of 2	3.25	1.11	0.0099
PMID:71661	(1977) Evidence for a common evolutionary origin of gastrin and c…	2 of 2	3.25	1.11	0.0099
PMID:860759	(1977) Effects of cholecystokinin, gastrin, and related peptides on …	2 of 2	3.25	1.11	0.0099
PMID:884386	(1977) The effects of gastrin and gastrin analogues on pancreatic …	2 of 2	3.25	1.11	0.0099
PMID:906606	(1977) [The effect of caerulein on intraluminal pressures of the co…	2 of 2	3.25	1.11	0.0099
PMID:925341	(1977) Characterization of antral gastrin cells with region-specific …	2 of 2	3.25	1.11	0.0099
PMID:929115	(1977) The role of local cholinergic pathways in the motor respons…	2 of 2	3.25	1.11	0.0099
PMID:327711	(1977) [Physiology and physiopathology of gastrointestinal hormo…	2 of 3	3.08	1.11	0.0099
PMID:842664	(1977) Bovine pancreatic peptide: action on gastric and pancreatic …	2 of 3	3.08	1.11	0.0099
PMID:898020	(1977) Augmented gastric inhibitory polypeptide response to intrad…	2 of 3	3.08	1.11	0.0099
PMID:908483	(1977) Pancreatic duct cells in rats: secretory studies in response t…	2 of 3	3.08	1.11	0.0099
PMID:32019	(1977) Localization of putative transmitters in the hippocampal for…	2 of 5	2.86	1.11	0.0099
PMID:248003	(1977) Hepatotrophic effects of pancreatic and gastrointestinal ho…	2 of 7	2.71	1.06	0.0119
PMID:908761	(1977) The effects of gastrin, gastric inhibitory polypeptide, secreti…	2 of 7	2.71	1.06	0.0119
PMID:562241	(1977) Estimation of cholecystokinin-pancreozymin (CCK) in huma…	2 of 8	2.65	1.02	0.0142
PMID:338160	(1977) Ultrastructural identification of a new cell type--the N-cell as…	2 of 9	2.6	0.98	0.0166
PMID:856699	(1977) [New views on gastrointestinal hormones].	2 of 11	2.51	0.91	0.0220
PMID:23175	(1978) A specific gastrin receptor site in the rat stomach.	2 of 2	3.25	1.11	0.0099
PMID:23335	(1978) Effect of Ca2+, Mg2+, NaN3, cholinergic agents, and gastroi…	2 of 2	3.25	1.11	0.0099
PMID:272670	(1978) Demonstration of biological activity of brain gastrin-like pep…	2 of 2	3.25	1.11	0.0099
PMID:365836	(1978) Distribution of gastrin and CCK cells in the rat gastrointestin…	2 of 2	3.25	1.11	0.0099
PMID:688012	(1978) Gastrin and cholecystokinin in human cerebrospinal fluid. I…	2 of 2	3.25	1.11	0.0099
PMID:696807	(1978) Mixed endocrine gastric tumors associated with hypergastri…	2 of 2	3.25	1.11	0.0099
PMID:725500	(1978) Interactions of cholecystokinin (CCK-PZ) and gastrin on mo…	2 of 2	3.25	1.11	0.0099
PMID:281718	(1978) Characterization of a nontrypsin cholecystokinin converting…	2 of 3	3.08	1.11	0.0099
PMID:307189	(1978) Endocrine control of appetite: gastrointestinal hormonal eff…	2 of 3	3.08	1.11	0.0099
PMID:363273	(1978) Ultrastructural and cytochemical studies on the cytodifferen…	2 of 3	3.08	1.11	0.0099

PMID:365273	(1978) Ultrastructural and cytochemical studies on the cytodifferen...	2 of 3	3.08	1.11	0.0099
PMID:618913	(1978) In vitro action of bombesin on amylase secretion, membran...	2 of 3	3.08	1.11	0.0099
PMID:640556	(1978) [The significance of gastrointestinal hormones in gastroent...	2 of 4	2.95	1.11	0.0099
PMID:218798	(1978) Effect of gastrointestinal hormones on isolated bovine para...	2 of 5	2.86	1.11	0.0099
PMID:400736	(1978) Intestinal nutrient influence on the enteroinsular axis.	2 of 5	2.86	1.11	0.0099

(less ...)

Local Network Cluster (STRING)

cluster	*description*	*count in network*	*strength*	*signal*	*false discovery rate*
CL:24316	ADP signalling through P2Y purinoceptor 12, and Prostaglandin E r...	5 of 25	2.55	4.12	1.21e-08
CL:23914	Cholecystokinin receptor, and Gastrin/cholecystokinin, conserved s...	4 of 5	3.16	4.29	1.51e-08
CL:24323	G-protein alpha subunit, group I, and Adenylate cyclase-activating d...	3 of 5	3.03	3.03	3.01e-06
CL:24354	G-protein alpha subunit, group Q, and Phospholipase C-beta, conse...	2 of 6	2.78	1.51	0.0018
CL:23867	Peptide ligand-binding receptors, and Class B/2 (Secretin family re...	5 of 180	1.7	2.1	9.95e-06

KEGG Pathways

pathway	*description*	*count in network*	*strength*	*signal*	*false discovery rate*
hsa04261	Adrenergic signaling in cardiomyocytes	3 of 146	1.57	1.39	0.00064
hsa05034	Alcoholism	4 of 146	1.69	2.03	1.56e-05
hsa04925	Aldosterone synthesis and secretion	3 of 94	1.76	1.7	0.00021
hsa05146	Amoebiasis	3 of 101	1.73	1.65	0.00025
hsa04371	Apelin signaling pathway	4 of 133	1.73	2.11	1.19e-05
hsa04020	Calcium signaling pathway	4 of 191	1.57	1.77	4.07e-05
hsa04024	cAMP signaling pathway	2 of 207	1.24	0.62	0.0396
hsa04022	cGMP-PKG signaling pathway	3 of 163	1.52	1.31	0.00084
hsa05142	Chagas disease	4 of 97	1.87	2.41	4.67e-06
hsa04062	Chemokine signaling pathway	5 of 186	1.68	2.34	1.33e-06
hsa04725	Cholinergic synapse	5 of 109	1.91	2.93	2.27e-07
hsa04713	Circadian entrainment	5 of 91	1.99	3.04	2.27e-07
hsa05030	Cocaine addiction	2 of 49	1.86	1.26	0.0031
hsa04927	Cortisol synthesis and secretion	3 of 65	1.92	1.96	8.54e-05
hsa04934	Cushing syndrome	4 of 153	1.67	1.99	1.79e-05
hsa04728	Dopaminergic synapse	5 of 126	1.85	2.82	2.58e-07
hsa04961	Endocrine and other factor-regulated calcium reabsorption	2 of 51	1.85	1.25	0.0032
hsa04915	Estrogen signaling pathway	3 of 133	1.61	1.45	0.00051
hsa04727	GABAergic synapse	3 of 85	1.8	1.76	0.00017
hsa04540	Gap junction	4 of 87	1.92	2.49	3.83e-06
hsa04971	Gastric acid secretion	4 of 71	2.0	2.69	1.91e-06
hsa04922	Glucagon signaling pathway	2 of 100	1.55	0.94	0.0103
hsa04724	Glutamatergic synapse	5 of 112	1.9	2.91	2.27e-07
hsa04929	GnRH secretion	2 of 63	1.75	1.15	0.0046
hsa04912	GnRH signaling pathway	3 of 87	1.79	1.74	0.00018
hsa04935	Growth hormone synthesis, secretion and action	4 of 117	1.79	2.23	8.05e-06
hsa05163	Human cytomegalovirus infection	6 of 217	1.69	2.58	2.27e-07
hsa05170	Human immunodeficiency virus 1 infection	5 of 203	1.64	2.24	1.84e-06
hsa04750	Inflammatory mediator regulation of TRP channels	2 of 92	1.59	0.97	0.0090
hsa04911	Insulin secretion	5 of 82	2.04	3.09	2.27e-07
hsa05167	Kaposi sarcoma-associated herpesvirus infection	2 of 187	1.28	0.66	0.0333
hsa04730	Long-term depression	4 of 59	2.08	2.84	1.29e-06
hsa04916	Melanogenesis	3 of 95	1.75	1.69	0.00021
hsa05032	Morphine addiction	4 of 88	1.91	2.48	3.83e-06
hsa04921	Oxytocin signaling pathway	3 of 147	1.56	1.39	0.00064
hsa04972	Pancreatic secretion	4 of 97	1.87	2.41	4.67e-06
hsa04928	Parathyroid hormone synthesis, secretion and action	4 of 104	1.84	2.35	5.40e-06
hsa05012	Parkinson disease	2 of 236	1.18	0.57	0.0490
hsa05200	Pathways in cancer	6 of 515	1.32	1.63	3.83e-06
hsa04611	Platelet activation	3 of 122	1.64	1.51	0.00042
hsa04015	Rap1 signaling pathway	3 of 201	1.43	1.17	0.0015
hsa04014	Ras signaling pathway	2 of 225	1.2	0.59	0.0456
hsa04923	Regulation of lipolysis in adipocytes	2 of 54	1.82	1.22	0.0035
hsa04926	Relaxin signaling pathway	4 of 126	1.75	2.16	1.02e-05
hsa04924	Renin secretion	3 of 66	1.91	1.95	8.58e-05
hsa04723	Retrograde endocannabinoid signaling	4 of 142	1.7	2.05	1.47e-05
hsa04970	Salivary secretion	2 of 89	1.6	0.99	0.0086
hsa04726	Serotonergic synapse	5 of 108	1.92	2.94	2.27e-07
hsa04071	Sphingolipid signaling pathway	2 of 116	1.49	0.87	0.0135
hsa04918	Thyroid hormone synthesis	2 of 73	1.69	1.08	0.0060
hsa04270	Vascular smooth muscle contraction	3 of 132	1.61	1.45	0.00051

(less ...)

Reactome Pathways

pathway	*description*	*count in network*	*strength*	*signal*	*false discovery rate*
HSA-399997	Acetylcholine regulates insulin secretion	2 of 10	2.55	1.63	0.0010
HSA-1296041	Activation of G protein gated Potassium channels	2 of 29	2.09	1.17	0.0060
HSA-991365	Activation of GABAB receptors	3 of 43	2.1	1.97	0.00013

HSA-9660821	ADORA2B mediated anti-inflammatory cytokines production	4 of 43	2.22	2.91	1.51e-06
HSA-418592	ADP signalling through P2Y purinoceptor 1	4 of 25	2.46	3.39	3.01e-07
HSA-392170	ADP signalling through P2Y purinoceptor 12	3 of 22	2.39	2.4	2.70e-05
HSA-400042	Adrenaline,noradrenaline inhibits insulin secretion	3 of 28	2.28	2.24	4.87e-05
HSA-4086398	Ca2+ pathway	2 of 60	1.78	0.88	0.0191
HSA-6814122	Cooperation of PDCL (PhLP1) and TRiC/CCT in G-protein beta foldi...	4 of 38	2.28	3.03	1.02e-06
HSA-9009391	Extra-nuclear estrogen signaling	3 of 75	1.86	1.58	0.00056
HSA-434316	Fatty Acids bound to GPR40 (FFAR1) regulate insulin secretion	2 of 8	2.65	1.71	0.00073
HSA-416482	G alpha (12/13) signalling events	2 of 80	1.65	0.75	0.0322
HSA-418594	G alpha (i) signalling events	7 of 309	1.61	2.62	2.60e-08
HSA-416476	G alpha (q) signalling events	7 of 217	1.76	3.17	4.04e-09
HSA-418597	G alpha (z) signalling events	4 of 48	2.17	2.84	1.88e-06
HSA-8964315	G beta:gamma signalling through BTK	2 of 18	2.3	1.38	0.0027
HSA-8964616	G beta:gamma signalling through CDC42	2 of 20	2.25	1.33	0.0032
HSA-392451	G beta:gamma signalling through PI3Kgamma	2 of 25	2.16	1.24	0.0046
HSA-418217	G beta:gamma signalling through PLC beta	2 of 20	2.25	1.33	0.0032
HSA-202040	G-protein activation	4 of 24	2.47	3.4	3.01e-07
HSA-112040	G-protein mediated events	3 of 54	2.0	1.81	0.00023
HSA-163359	Glucagon signaling in metabolic regulation	3 of 33	2.21	2.13	7.45e-05
HSA-381676	Glucagon-like Peptide-1 (GLP1) regulates insulin secretion	3 of 42	2.11	1.97	0.00013
HSA-420092	Glucagon-type ligand receptors	3 of 33	2.21	2.13	7.45e-05
HSA-388396	GPCR downstream signalling	10 of 624	1.46	2.67	2.70e-11
HSA-500792	GPCR ligand binding	6 of 459	1.37	1.65	8.85e-06
HSA-9634597	GPER1 signaling	4 of 45	2.2	2.88	1.67e-06
HSA-109582	Hemostasis	6 of 607	1.25	1.37	3.14e-05
HSA-997272	Inhibition of voltage gated Ca2+ channels via Gbeta/gamma subun...	2 of 29	2.09	1.17	0.0060
HSA-111885	Opioid Signalling	5 of 90	2.0	3.0	3.01e-07
HSA-375276	Peptide ligand-binding receptors	3 of 194	1.44	0.97	0.0063
HSA-112043	PLC beta mediated events	2 of 49	1.86	0.96	0.0138
HSA-500657	Presynaptic function of Kainate receptors	2 of 21	2.23	1.32	0.0034
HSA-392851	Prostacyclin signalling through prostacyclin receptor	3 of 19	2.45	2.49	1.97e-05
HSA-422356	Regulation of insulin secretion	6 of 78	2.14	4.05	1.73e-09
HSA-392518	Signal amplification	5 of 33	2.43	4.24	4.24e-09
HSA-456926	Thrombin signalling through proteinase activated receptors (PARs)	4 of 32	2.35	3.19	5.83e-07
HSA-428930	Thromboxane signalling through TP receptor	4 of 24	2.47	3.4	3.01e-07
HSA-432040	Vasopressin regulates renal water homeostasis via Aquaporins	3 of 42	2.11	1.97	0.00013

(less ...)

WikiPathways

pathway	*description*	*count in network*	*strength*	*signal*	*false discovery rate*
WP536	Calcium regulation in cardiac cells	6 of 151	1.85	2.98	8.10e-08
WP3679	Cell-type dependent selectivity of CCK2R signaling	3 of 13	2.62	2.66	1.13e-05
WP3929	Chemokine signaling pathway	4 of 165	1.64	1.68	0.00013
WP2636	Common pathways underlying drug addiction	2 of 41	1.94	1.03	0.0104
WP2355	Corticotropin-releasing hormone signaling pathway	5 of 92	1.99	2.99	2.90e-07
WP2197	Endothelin pathways	2 of 32	2.05	1.11	0.0077
WP712	Estrogen signaling pathway	2 of 23	2.19	1.24	0.0047
WP35	G protein signaling pathways	5 of 91	1.99	3.0	2.90e-07
WP2596	Gastric acid production	2 of 11	2.51	1.53	0.0015
WP4941	GPR143 in melanocytes and retinal pigment epithelium cells	2 of 29	2.09	1.14	0.0068
WP4540	Hippo signaling regulation pathways	3 of 98	1.74	1.35	0.0015
WP289	Myometrial relaxation and contraction pathways	4 of 156	1.66	1.72	0.00011
WP1602	Nicotine effect on dopaminergic neurons	3 of 21	2.41	2.36	3.39e-05
WP4760	PKC-gamma calcium signaling pathway in ataxia	2 of 22	2.21	1.24	0.0047
WP5122	Prostaglandin and leukotriene metabolism in senescence	3 of 31	2.24	2.11	8.55e-05
WP5321	Prostaglandin and leukotriene metabolism in senescence	3 of 34	2.2	2.07	9.71e-05
WP4900	Purinergic signaling	2 of 33	2.04	1.11	0.0077
WP722	Serotonin HTR1 group and FOS pathway	2 of 37	1.99	1.07	0.0090
WP2032	Thyroid stimulating hormone (TSH) signaling pathway	5 of 66	2.13	3.35	9.32e-08

(less ...)

Disease-gene Associations (DISEASES)

disease	*description*	*count in network*	*strength*	*signal*	*false discovery rate*
DOID:0060158	Acquired metabolic disease	3 of 162	1.52	0.7	0.0371
DOID:0060090	Central nervous system benign neoplasm	2 of 34	2.02	0.71	0.0477
DOID:14566	Disease of cellular proliferation	6 of 1101	0.99	0.71	0.0057
DOID:3119	Gastrointestinal system cancer	3 of 161	1.52	0.7	0.0371
DOID:5900	Meningeal melanocytoma	2 of 2	3.25	1.44	0.0026
DOID:1752	Ocular melanoma	2 of 4	2.95	1.38	0.0032
DOID:0060085	Organ system benign neoplasm	5 of 237	1.58	1.42	0.00054
DOID:0050686	Organ system cancer	5 of 757	1.07	0.68	0.0149
DOID:1793	Pancreatic cancer	2 of 29	2.09	0.74	0.0428
DOID:10534	Stomach cancer	2 of 31	2.06	0.74	0.0428
DOID:0111563	Sturge-Weber syndrome	2 of 3	3.08	1.43	0.0026
DOID:6039	Uveal melanoma	2 of 5	2.86	1.33	0.0039

DOID:6039	Uveal melanoma	2 of 3	2.66	1.33	0.0039

(less ...)

Tissue Expression (TISSUES)

tissue	*description*	*count in network*	*strength*	*signal*	*false discovery rate*
BTO:0000346	Digestive juice	2 of 29	2.09	0.72	0.0452
BTO:0000616	I-cell	2 of 2	3.25	1.33	0.0041
BTO:0004980	Uveal melanoma cell	2 of 2	3.25	1.33	0.0041
BTO:0003472	Vagus nerve	2 of 7	2.71	1.15	0.0082

Subcellular Localization (COMPARTMENTS)

compartment	*description*	*count in network*	*strength*	*signal*	*false discovery rate*
GOCC:0005834	Heterotrimeric G-protein complex	6 of 27	2.6	5.55	1.44e-11
GOCC:0005886	Plasma membrane	8 of 3535	0.61	0.39	0.0222

Annotated Keywords (UniProt)

keyword	*description*	*count in network*	*strength*	*signal*	*false discovery rate*
KW-0013	ADP-ribosylation	4 of 101	1.85	1.92	8.19e-05
KW-0027	Amidation	2 of 46	1.89	0.8	0.0302
KW-0342	GTP-binding	4 of 342	1.32	0.92	0.0060
KW-0449	Lipoprotein	5 of 818	1.04	0.74	0.0063
KW-0460	Magnesium	4 of 578	1.09	0.63	0.0236
KW-0564	Palmitate	4 of 339	1.32	0.92	0.0060
KW-0765	Sulfation	2 of 57	1.8	0.73	0.0400
KW-0807	Transducer	7 of 837	1.18	1.24	4.91e-05

(less ...)

Protein Domains and Features (InterPro)

domain	*description*	*count in network*	*strength*	*signal*	*false discovery rate*
IPR011025	G protein alpha subunit, helical insertion	4 of 16	2.65	3.07	1.82e-06
IPR000654	G-protein alpha subunit, group Q	2 of 4	2.95	1.23	0.0061
IPR001651	Gastrin/cholecystokinin peptide hormone	2 of 2	3.25	1.33	0.0041
IPR013152	Gastrin/cholecystokinin, conserved site	2 of 2	3.25	1.33	0.0041
IPR001019	Guanine nucleotide binding protein (G-protein), alpha subunit	4 of 16	2.65	3.07	1.82e-06

Protein Domains (SMART)

domain	*description*	*count in network*	*strength*	*signal*	*false discovery rate*
SM00275	G protein alpha subunit	4 of 16	2.65	3.56	2.08e-07
SM00029	Gastrin / cholecystokinin / caerulein family	2 of 2	3.25	1.75	0.00070

Functional enrichment visualization

Category: Biological Process (Gene Ontology)

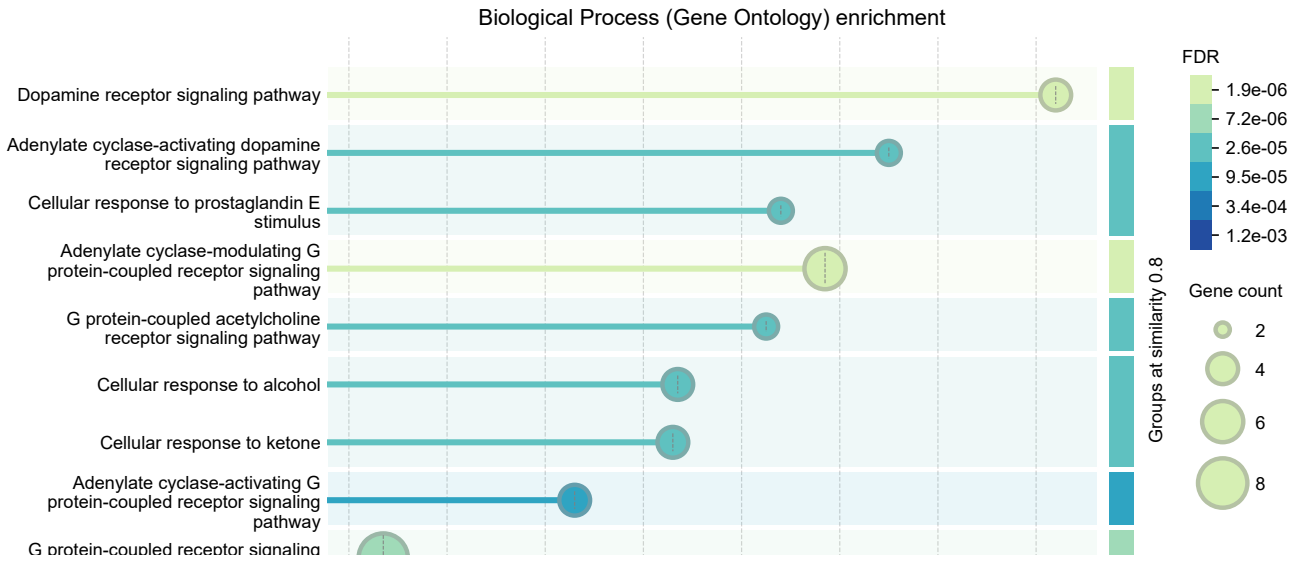
Group terms by: similarity >= 0.8

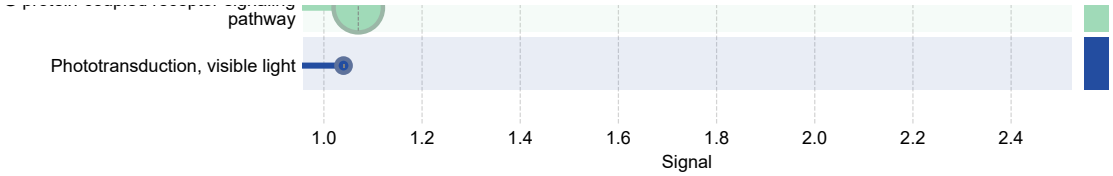
Sort terms by: Signal

Nr. of terms shown: 10

Color Palette: mint - blue

Highlight selected terms:





Download vector image (SVG) Download bitmap image (PNG)

Enrichment display settings

Merge rows by term similarity:	Don't merge	UPDATE
Maximum FDR shown:	FDR <= 0.05	
Minimum signal shown:	signal >= 0.01	
Minimum strength shown:	strength >= 0.01	
Minimum count in network:	2	
Row Visibility:	Display only selected rows	

Statistical background

For the above enrichment analysis, the following statistical background is assumed: Whole Genome ADD BACKGROUND UPDATE

Save / Export

Biological Process (Gene Ontology)	download	*19 GO-terms significantly enriched; file-format: tab-delimited*
Molecular Function (Gene Ontology)	download	*6 GO-terms significantly enriched; file-format: tab-delimited*
Cellular Component (Gene Ontology)	download	*5 GO-terms significantly enriched; file-format: tab-delimited*
Reference Publications (PubMed)	download	*5870 publications significantly enriched; file-format: tab-delimited*
Local Network Cluster (STRING)	download	*5 clusters significantly enriched; file-format: tab-delimited*
KEGG Pathways	download	*51 pathways significantly enriched; file-format: tab-delimited*
Reactome Pathways	download	*39 pathways significantly enriched; file-format: tab-delimited*
WikiPathways	download	*19 pathways significantly enriched; file-format: tab-delimited*
Disease-gene Associations (DISEASES)	download	*12 diseases significantly enriched; file-format: tab-delimited*
Tissue Expression (TISSUES)	download	*4 tissues significantly enriched; file-format: tab-delimited*
Subcellular Localization (COMPARTMENTS)	download	*2 compartments significantly enriched; file-format: tab-delimited*
Annotated Keywords (UniProt)	download	*8 keywords significantly enriched; file-format: tab-delimited*
Protein Domains and Features (InterPro)	download	*5 domains significantly enriched; file-format: tab-delimited*
Protein Domains (SMART)	download	*2 domains significantly enriched; file-format: tab-delimited*
All enriched terms (without PubMed)	download	*177 enriched terms in 13 categories; file-format: tab-delimited*
Selected terms only	download	*no enriched terms selected (click on any term above to select)*

*There were **no** significant pathway enrichments observed in the following categories:*
Human Phenotype (Monarch), Fission Yeast Phenotype Ontology (Monarch), Protein Domains (Pfam).