



## Abstract



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### Analysis and Visualization

























### Tweets by @ratgenome



Knowing the importance of infectious disease-related health concerns, RGD is pleased to announce the release of a new [#infectious Disease Portal](#). To learn more, please go to: [rgd.mcw.edu/wg/news/rgd-dl-...#rgdCovid19cancer](#) [#infectiousdisease](#) [#ratdisease](#) [#comparativegenomics](#)



RGD is pleased to announce the release of an updated [#Disease Portals](#) landing page. To learn more, please go to: [rgd.mcw.edu/wg/news/rgd-dl-...#rgdCovid19cancer](#) [#infectiousdisease](#) [#rattuberculosis](#) [#ratdisease](#) [#comparativegenomics](#)

Welcome to the RGD Disease Portals. These portals are designed to be entry points for disease researchers to access data and tools related to their area of interest. [Click Here](#) for help with the RGD Disease Portals.

**About the RGD Disease Portals**

RGD has numerous Disease Portals, where relationships between diseases and genes, QTLs and strains can be explored in human, rat, mouse and in the other five species at RGD. The portals contain data sets for eight other ontologies related to the portal disease category, as well as links to visualization / analysis tools and additional information.

**Download Data**

Disease Ontology (RDO) Annotations - RDO - Gene (8 Species), QTL (Rat & Human) and Rat Strain

- [Ontology Term IDs Only](#)
- [Ontology Term IDs and Text](#)

The screenshot displays the NCBI MeSH browser interface for the term 'viral infectious disease' (D013:934). The interface is organized into three main columns: 'Parent Terms', 'Term With Siblings', and 'Child Terms'. A red oval highlights the term 'RNA Virus Infections' in the 'Child Terms' column.

Parent Terms	Term With Siblings	Child Terms
disease by infectious agent	Bacterial Infections and Mycoses	Interferon Gamma Receptor 1 Deficiency
	Intraabdominal Infections	Opportunistic Infections
	omithine translocase deficiency	Crospouche fever
	osteomyelitis	respiratory syncytial virus infectious disease
	parasitic infectious disease	Rift Valley fever
	pelvic infection	<b>RNA Virus Infections</b>
	viral infectious disease	Sexually Transmitted Diseases
	A general term for diseases caused by viruses.	Slow Virus Diseases
		subacute sclerosing panencephalitis
		Tumor Virus Infections
		vaccinia
		Viral Bronchiolitis
		viral exanthem
		Viral Eye Infections
		viral hepatitis

COVID-19/MOET			COVID-19 /CTD set analyzer		
count	corrected p	RGD disease	count	Corrected P	MESH disease
1164	0.00E+00	disease by infectious agent	380	1.30E-122	Neoplasms
1164	0.00E+00	Coronavirus infectious disease	286	1.50E-115	Neoplasms by Histologic Type
1164	0.00E+00	COVID-19	315	1.24E-110	Digestive System Diseases
1164	0.00E+00	Coronaviridae Infections	264	1.72E-108	Liver Diseases
1164	0.00E+00	RNA Virus Infections	308	1.42E-98	Neoplasms by Site
1164	0.00E+00	Nidovirales Infections	224	1.42E-95	Neoplasms, Glandular and
1164	0.00E+00	viral infectious disease	187	2.29E-85	Epithelial
153	6.83E-37	hepatocellular carcinoma	195	9.60E-85	Immune System Diseases
					Carcinoma
					Pathological Conditions, Signs
153	8.12E-37	liver carcinoma	305	2.32E-80	and Symptoms
153	7.37E-36	liver cancer	195	5.01E-78	Digestive System Neoplasms
125	9.88E-36	Respiratory Tract Infections	192	1.96E-76	Carcinoma, Hepatocellular
159	2.01E-35	hepatobiliary system cancer	162	1.09E-74	Adenocarcinoma
312	5.09E-32	liver disease	242	2.67E-74	Pathologic Processes
314	1.67E-29	hepatobiliary disease	136	4.89E-73	Liver Neoplasms
					Skin and Connective Tissue
164	2.04E-29	Liver Neoplasms	198	3.50E-71	Diseases
215	1.87E-27	adenocarcinoma	156	1.65E-65	Respiratory Tract Diseases
		primary immunodeficiency			
		disease	245	8.49E-65	Nervous System Diseases
287	1.00E-26				
					Female Urogenital Diseases and
219	2.30E-26	autoimmune disease	181	3.69E-63	Pregnancy Complications
267	3.20E-26	Inflammation	168	1.81E-62	Skin Diseases
331	1.09E-25	immune system disease	168	1.03E-59	Female Urogenital Diseases

SARS/MOET			MERS/MOET		
count	corrected p	RGD disease	count	corrected p	RGD disease
90	9.38E-243	severe acute respiratory syndrome	19	2.10E-61	Middle East respiratory syndrome
90	3.17E-139	Respiratory Tract Infections	15	4.43E-29	severe acute respiratory syndrome
90	8.59E-102	Coronavirus infectious disease	11	9.86E-20	Parasitic Skin Diseases
90	9.23E-102	Coronaviridae Infections	19	2.48E-19	Coronavirus infectious disease
90	9.89E-102	Nidovirales Infections	19	2.53E-19	Coronaviridae Infections
90	1.32E-91	RNA Virus Infections	19	2.56E-19	Nidovirales Infections
90	1.90E-87	viral infectious disease	16	2.91E-19	Respiratory Tract Infections
90	3.09E-81	disease by infectious agent	11	4.97E-19	Euglenozoa Infections
90	2.65E-70	respiratory system disease	13	6.51E-19	Infectious Skin Diseases
58	6.80E-60	bacterial infectious disease	12	7.66E-18	parasitic protozoa infectious disease
59	1.11E-57	Bacterial Infections and Mycoses	14	1.30E-17	asthma
71	5.28E-46	Inflammation	10	1.41E-17	leishmaniasis
40	5.28E-46	pneumonia	19	3.11E-17	RNA Virus Infections
63	4.81E-43	autoimmune disease	13	3.47E-17	parasitic infectious disease
70	1.12E-41	primary immunodeficiency disease	12	4.19E-17	primary bacterial infectious disease
35	1.29E-40	Gram-Positive Bacterial Infections	14	4.79E-17	disease
62	9.43E-39	lung disease	13	6.55E-17	respiratory allergy
30	2.04E-38	bacterial pneumonia	11	1.16E-16	pneumonia
30	2.04E-38	Bacterial Lung Diseases	11	1.16E-16	tuberculosis
47	2.20E-38	Postoperative Complications	11	1.52E-16	uveitis
19	1.98E-16	Herpesviridae Infections	11	1.98E-16	Herpesviridae Infections

**Comparison Heat Map / Gene Annotator**

**Update X Axis:**  
Disease ☐

**Update Y Axis:**  
Disease ☐

**Gene List**

A2M (1)

A2M-AS1 (2)

A2MP1 (1)

ABCB1 (4)

ABCD1 (5)

ABO (6)

ACCS (7)

ACE (8)

ACE2 (9)

ACQ2 (10)

ACVIRB1 (4)

ACVRL1 (42)

ADA2 (13)

ADAM15 (14)

ADAM15 (14)

**disease**

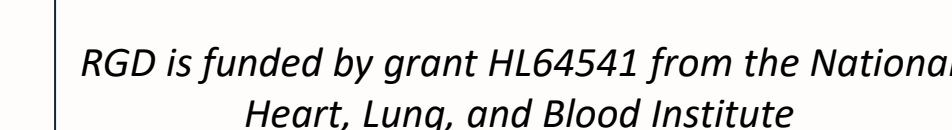
vs

**Coronavirus infectious disease**

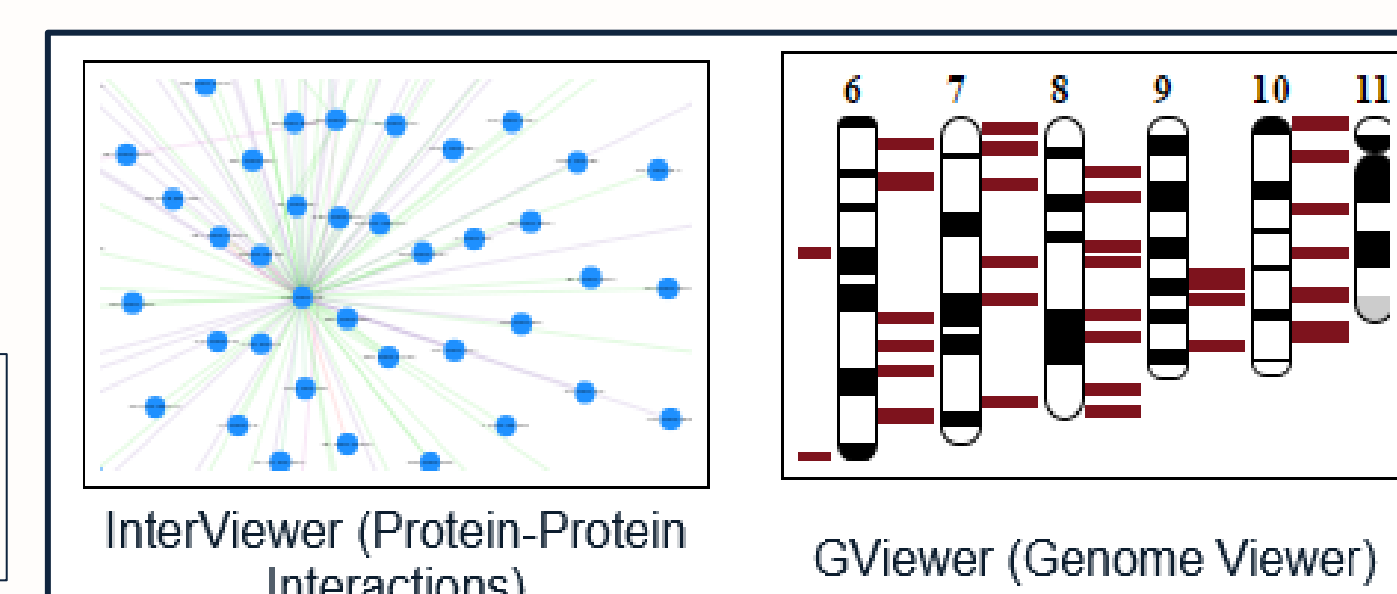
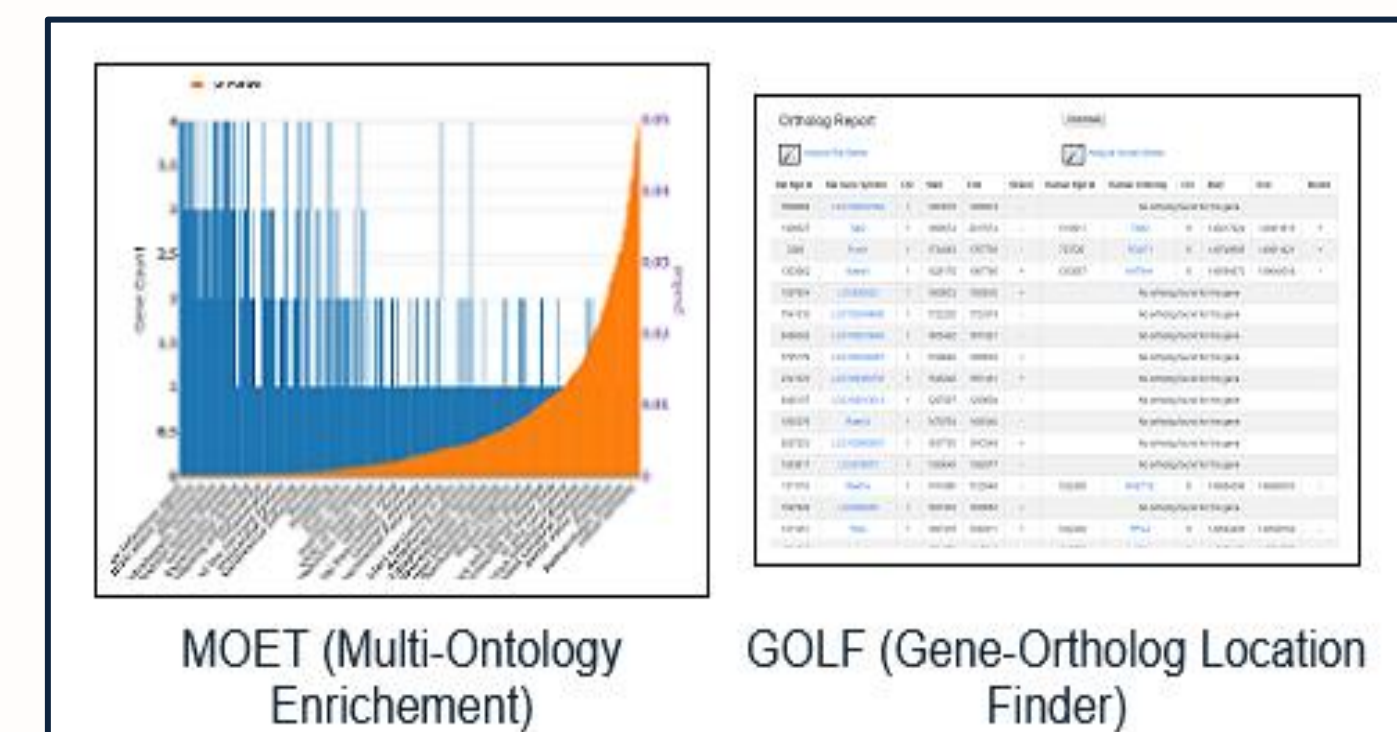
	Animal Diseases	Chemically-Induced Disorders	Developmental Diseases	Diseases of the Aged	Disorders of Environmental Origin	Nutritional and Metabolic Disorders	Occupational Diseases	Pathological Conditions, Signs and Symptoms	Shen Jingzhi Diseases	Wounds and Injuries	disease by infectious agent	disease of functional entity	disease of cellular/apoptosis function	physical disorder	systemic disease
<u><b>COVID-19</b></u>	158	127	607	127	0	341	28	623	122	138	110	167	198	188	408
Feline Infectious Peritonitis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Middle Respiratory syndrome	0	8	10	6	0	10	5	11	7	9	11	11	11	6	11
Transmissible Encephalitis, of Swine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transmissible Gastroenteritis, of Swine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
long COVID	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
multisystem inflammatory syndrome in child	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
severe acute respiratory syndrome	28	20	32	14	0	30	8	37	19	26	37	37	33	33	25

COVID-19/human disease genes			COVID-19 /mouse orthologs		
count	corrected p	Human phenotype	count	Corrected p	Mammalian phenotype
562	0.00E+00	Phenotypic abnormality	209	1.12E-12	abnormal adaptive immunity
		Abnormality of the nervous system			abnormal cell-mediated immunity
395	4.79E-193	Abnormal nervous system	205	3.72E-12	abnormal immune cell
345	1.34E-149	physiology	203	6.11E-12	physiology
180	1.42E-73	Behavioral abnormality	198	2.25E-11	abnormal leukocyte physiology
					abnormal hematopoietic system physiology
93	1.28E-55	Schizophrenia	219	1.04E-10	abnormal immune serum
		Neurodevelopmental abnormality			protein physiology
204	2.33E-37	Abnormality of higher mental function	165	2.20E-10	abnormal immune system
218	6.96E-29		293	3.64E-10	physiology
					abnormal professional antigen presenting cell physiology
168	1.29E-25	Intellectual disability	148	7.96E-10	
		Abnormality of the digestive system			
255	7.10E-24	Abnormal nervous system	203	2.21E-09	abnormal blood cell physiology
		morphology			abnormal lymphocyte physiology
220	1.64E-22	Morphological central nervous system abnormality	151	4.21E-09	
205	1.03E-21	Neoplasm by anatomical site	79	5.18E-09	abnormal IgG level
216	3.74E-21	Neoplasm	104	1.00E-08	abnormal response to infection
219	4.73E-21	Abnormality of the musculoskeletal system	105	1.03E-08	abnormal response to antigen
218	1.28E-20		79	1.41E-08	autoimmune response
					abnormal immunoglobulin level
276	2.23E-20	Mode of inheritance	93	1.57E-08	
		Abnormality of the gastrointestinal tract			
190	9.57E-18	Growth abnormality	79	1.75E-08	abnormal self tolerance
156	3.23E-15	Abnormality of the musculature	99	1.88E-08	abnormal susceptibility to infection
156	4.93E-15		79	4.11E-08	abnormal immune tolerance
					abnormal humoral immune response
109	6.57E-15	Abnormality of limbs	96	8.34E-08	
131	8.02E-15	Seizure	107	9.23E-08	abnormal cytokine secretion

Coronavirus infectious disease		COVID-19		Feline Infectious Peritonitis	Middle East respiratory syndrome	Transmissible Encephitis, of Turkeys	Transmissible Gastroenteritis, of Swine	long COVID	multisystem inflammatory syndrome in children	severe acute respiratory syndrome
Phenotypic abnormality		Disease/Phenotype Comparison Heat Map for human COVID- genes								
<u>Abnormal cellular phenotype</u>	54	0	0	0	0	0	0	0	2	2
<u>Abnormality of blood and blood vessels</u>	123	0	5	0	0	0	0	0	0	13
<u>Abnormality of head or neck</u>	108	0	5	0	0	0	0	0	0	13
<u>Abnormality of limbs</u>	196	0	1	0	0	0	0	0	0	5
<u>Abnormality of metabolism/homeostasis</u>	196	0	5	0	0	0	0	0	0	14
<u>Abnormality of prenatal development or birth</u>	57	0	0	0	0	0	0	0	0	1
<u>Abnormality of the breast</u>	28	0	0	0	0	0	0	0	0	1
<u>Abnormality of the cardiovascular system</u>	192	0	4	0	0	0	0	0	0	14
<u>Abnormality of the digestive system</u>	245	0	5	0	0	0	0	0	0	15
<u>Abnormality of the ear</u>	123	0	1	0	0	0	0	0	0	5
<u>Abnormality of the endocrine system</u>	144	0	3	0	0	0	0	0	0	6
<u>Abnormality of the eyes</u>	187	0	5	0	0	0	0	0	0	12
<u>Abnormality of the genitourinary system</u>	202	0	5	0	0	0	0	0	0	16
<u>Abnormality of the immune system</u>	162	0	6	0	0	0	0	0	0	17
<u>Abnormality of the integument</u>	147	0	6	0	0	0	0	0	0	13
<u>Abnormality of the musculoskeletal system</u>	214	0	5	0	0	0	0	0	0	14
<u>Abnormality of the nervous system</u>	398	0	7	0	0	0	0	0	0	18
<u>Abnormality of the respiratory system</u>	132	0	5	0	0	0	0	0	0	13
<u>Abnormality of the thoracic cavity</u>	2	0	0	0	0	0	0	0	0	1
<u>Abnormality of the voice</u>	23	0	0	0	0	0	0	0	0	0
<u>Constitutional symptom</u>	64	0	3	0	0	0	0	0	0	8
<u>Growth abnormality</u>	158	0	3	0	0	0	0	0	0	8
<u>Neoplasm</u>	219	0	7	0	0	0	0	0	0	14



	Covid-19	Pertussis	Middle East respiratory syndrome	Influenza A virus H7N9	Transmissible Esotropic of Turkey	Transmissible Gastroenteritis of Swine	SARS-CoV-2	Long COVID	Severe acute inflammatory syndromes in children	Severe acute respiratory syndrome
<b>Disease/Phenotype Comparison Heat Map for mouse orthologs</b>										
<b>adipose tissue phenotype</b>	68	0	0	0	0	0	0	0	0	14
<b>behavior/neurological phenotype</b>	51	0	6	3	0	0	0	0	0	10
<b>cardiovascular system phenotype</b>	51	0	7	3	0	0	0	0	0	10
<b>cellular phenotype</b>	142	0	7	3	0	0	0	0	0	20
<b>craniofacial phenotype</b>	49	0	5	3	0	0	0	0	0	7
<b>digestive/alimentary phenotype</b>	107	0	6	3	0	0	0	0	0	15
<b>embryo phenotype</b>	155	0	5	3	0	0	0	0	0	6
<b>endocrine/exocrine gland phenotype</b>	302	0	5	3	0	0	0	0	0	12
<b>growth/size/body region phenotype</b>	50	0	6	3	0	0	0	0	0	16
<b>hearing/vestibular/ear phenotype</b>	40	0	0	3	0	0	0	0	0	2
<b>hematopoietic system phenotype</b>	158	0	11	7	0	0	0	0	0	29
<b>homeostasis/metabolism phenotype</b>	413	0	10	3	0	0	0	0	0	29
<b>immune system phenotype</b>	161	0	11	3	0	0	0	0	0	29
<b>integument phenotype</b>	188	0	6	3	0	0	0	0	0	14
<b>limbs/digits/tail phenotype</b>	72	0	2	3	0	0	0	0	0	4
<b>liver/biliary system phenotype</b>	140	0	5	3	0	0	0	0	0	13
<b>mortality/agings</b>	608	0	8	3	0	0	0	0	0	24
<b>muscle phenotype</b>	168	0	7	3	0	0	0	0	0	12
<b>neoplasm</b>	120	0	7	3	0	0	0	0	0	14
<b>nervous system phenotype</b>	214	0	9	3	0	0	0	0	0	19
<b>no phenotypic analysis</b>	0	0	0	0	0	0	0	0	0	0
<b>normal phenotype</b>	163	0	4	3	0	0	0	0	0	9
<b>pigmentation phenotype</b>	34	0	1	3	0	0	0	0	0	2
<b>skeletal system phenotype</b>	161	0	1	3	0	0	0	0	0	7
<b>reproductive system phenotype</b>	137	0	4	3	0	0	0	0	0	8
<b>respiratory system phenotype</b>	132	0	4	3	0	0	0	0	0	11
<b>skeleton phenotype</b>	172	0	7	3	0	0	0	0	0	13
<b>taste/o'lfaction phenotype</b>	7	0	0	0	0	0	0	0	0	0
<b>vision/eye phenotype</b>	184	0	5	3	0	0	0	0	0	11



Coronavirus infectious disease vs mammalian phenotype		Disease/Phenotype Comparison Heat Map for rat orthologs	
		COWID-19	Feline Infectious Peritonitis Middle East respiratory syndrome Transmissible Encephalitis of Turkeys Transmissible Gastroenteritis of Swine Long COVID multisystem inflammatory syndrome in children severe acute respiratory syndrome
	<u>adipose tissue phenotype</u>	1	0
	<u>behavior/neurological phenotype</u>	3	0
	<u>cardiovascular system phenotype</u>	10	1
	<u>cellular phenotype</u>	4	0
	<u>craniofacial phenotype</u>	2	0
	<u>digestive/alimentary phenotype</u>	2	0
	<u>embryo phenotype</u>	0	0
	<u>endocrine/exocrine gland phenotype</u>	0	0
	<u>growth/size/body region phenotype</u>	10	1
	<u>hearing/vestibular/ear phenotype</u>	3	0
	<u>hematopoietic system phenotype</u>	3	0
	<u>homeostasis/metabolism phenotype</u>	14	0
	<u>immune system phenotype</u>	4	0
	<u>integument phenotype</u>	2	0
	<u>limbs/digits/tail phenotype</u>	0	0
	<u>liver/biliary system phenotype</u>	2	0
	<u>mortality/aging</u>	4	0
	<u>muscle phenotype</u>	1	0
	<u>neoplasm</u>	1	0
	<u>nervous system phenotype</u>	0	0
	<u>no phenotypic analysis</u>	0	0
	<u>normal phenotype</u>	0	0
	<u>pigmentation phenotype</u>	1	0
	<u>renal/urinary system phenotype</u>	1	0
	<u>reproductive system phenotype</u>	4	0
	<u>respiratory system phenotype</u>	0	0
	<u>skeleton phenotype</u>	1	0
	<u>taste/olfaction phenotype</u>	0	0
	<u>vision/eye phenotype</u>	3	0

