

Supplemental Table 6. GO enrichment analysis using IPA.

<b>Diseases or Functions Annotation</b>	<b>p-Value</b>
development of vasculature	2.19E-42
angiogenesis	2.28E-38
vasculogenesis	1.18E-31
cell movement	7.08E-30
migration of cells	2.85E-29
digestive system cancer	7.36E-26
digestive organ tumor	1.43E-25
morphology of cardiovascular system	3.09E-24
proliferation of cells	4.31E-24
morphology of vasculature	9.05E-24
Dupuytren contracture	7.01E-23
Gastrointestinal Tract Cancer and Tumors	5.78E-21
gastrointestinal tract cancer	9.03E-21
morphology of body cavity	1.7E-20
abnormal morphology of vasculature	2.58E-20
abnormal morphology of cardiovascular system	1.76E-19
intestinal cancer	2.73E-19
malignant neoplasm of large intestine	4.59E-19
differentiation of cells	5.99E-19
morphology of vessel	7.6E-19
development of body trunk	8.05E-19
gastrointestinal carcinoma	8.44E-19
organismal death	8.51E-19
diabetic complication	9.77E-19
female genital tract serous carcinoma	1.03E-18
morbidity or mortality	1.25E-18
breast or colorectal cancer	1.74E-18
abdominal cancer	2.86E-18
morphology of cells	3.42E-18
binding of cells	4.89E-18
morphology of blood vessel	5.37E-18
development of epithelial tissue	5.52E-18
abdominal neoplasm	6.85E-18
vascular lesion	7.29E-18
morphology of bone	2.15E-17
gastrointestinal adenocarcinoma	3.07E-17
inflammation of joint	3.67E-17
cell movement of tumor cell lines	3.8E-17
colorectal neoplasia	4.16E-17
development of endothelial tissue	5.34E-17
T-cell non-Hodgkin's disease	5.62E-17
colorectal cancer	9.5E-17
quantity of cells	2.14E-16
adenocarcinoma	2.28E-16
epithelial cancer	2.28E-16
neoplasia of epithelial tissue	3.02E-16
abnormal morphology of thoracic cavity	4.65E-16
abnormal morphology of body cavity	5.23E-16
endothelial cell development	6.16E-16

Emery-Dreifuss muscular dystrophy	1.27E-15
serous neoplasm	1.75E-15
tumorigenesis of tissue	2.24E-15
advanced malignant tumor	2.91E-15
aneurysm	3.06E-15
serous adenocarcinoma	3.6E-15
abdominal adenocarcinoma	4.69E-15
juvenile dermatomyositis	4.77E-15
migration of tumor cell lines	6.02E-15
morphology of artery	6.47E-15
hematologic cancer of cells	9.17E-15
upper gastrointestinal tract tumor	9.38E-15
Rheumatic Disease	9.56E-15
abnormal morphology of blood vessel	9.75E-15
T-cell lymphoproliferative disorder	9.76E-15
neoplasia of leukocytes	9.87E-15
abdominal carcinoma	1.17E-14
autosomal dominant Emery-Dreifuss muscular dystrophy	1.24E-14
lymphohematopoietic neoplasia	1.48E-14
malignant solid tumor	1.7E-14
uterine serous papillary cancer	1.73E-14
invasion of cells	1.74E-14
hematological neoplasia	2.11E-14
colorectal adenocarcinoma	2.59E-14
upper gastrointestinal tract cancer	3.08E-14
Lymphoid Cancer and Tumors	3.4E-14
colon tumor	3.51E-14
colon cancer	4.06E-14
lymphohematopoietic cancer	4.39E-14
diabetic foot ulcer disorder	4.41E-14
cell movement of endothelial cells	4.46E-14
cancer	4.69E-14
colon adenocarcinoma	5.59E-14
advanced malignant solid tumor	5.71E-14
non-Hodgkin's disease	6.54E-14
Peyronie disease	6.72E-14
advanced Dupuytren contracture	6.72E-14
migration of endothelial cells	7.2E-14
lymphoid cancer	8.07E-14
angioimmunoblastic T-cell lymphoma	9.34E-14
abnormal morphology of bone	1.03E-13
metastasis	1.05E-13
lymphocytic cancer	1.11E-13
morphology of heart	1.65E-13
autosomal dominant myopathy	1.79E-13
growth of epithelial tissue	2.44E-13
hematologic cancer	2.55E-13
lymphocytic neoplasm	2.62E-13
morphology of aorta	3.39E-13
Hypertension	3.65E-13
liver lesion	3.75E-13
lymphoproliferative malignancy	3.91E-13

attachment of cells	4.9E-13
Wound	5.25E-13
morphology of connective tissue	7.63E-13
disorder of blood pressure	8.01E-13
metastatic colorectal cancer	8.03E-13
benign neoplasia	1.13E-12
laminopathy	1.32E-12
formation of muscle	1.4E-12
Fibrosis	1.42E-12
necrosis	1.89E-12
blood pressure	1.94E-12
aortic aneurysm	2.15E-12
breast or ovarian cancer	2.57E-12
mammary tumor	2.87E-12
cell spreading	3E-12
cell death	3.07E-12
fibromatosis	3.24E-12
proliferation of endothelial cells	3.8E-12
migration of blood cells	4.54E-12
dermatomyositis	4.76E-12
abnormal morphology of artery	5.46E-12
invasion of tumor cell lines	5.61E-12
autosomal dominant disease	5.96E-12
vaso-occlusion	6.15E-12
healing of wound	6.21E-12
familial cardiovascular disease	6.62E-12
occlusion of blood vessel	7.18E-12
adhesion of extracellular matrix	7.53E-12
liver carcinoma	8.59E-12
abnormal morphology of aorta	9.48E-12
abnormal morphology of heart	9.86E-12
cancer of cells	1E-11
melanoma	1.08E-11
leukocyte migration	1.19E-11
angiogenesis of lesion	1.21E-11
glucose metabolism disorder	1.26E-11
morphology of skeleton	1.31E-11
burn	1.53E-11
metastatic solid tumor	1.61E-11
breast cancer	1.66E-11
cell movement of myeloid cells	1.95E-11
liver tumor	2.03E-11
cardiogenesis	2.29E-11
apoptosis	2.35E-11
growth of tumor	2.82E-11
development of urinary tract	2.88E-11
formation of lung	2.89E-11
quantity of connective tissue	3.03E-11
dysplasia of skeleton	3.56E-11
development of head	3.92E-11
liver cancer	4.11E-11
generation of cells	4.69E-11

organization of collagen fibrils	4.85E-11
progressive myopathy	4.86E-11
vascularization of absolute anatomical region	5.04E-11
head and neck neoplasia	5.13E-11
hepatobiliary system cancer	5.89E-11
neoplasia of cells	5.93E-11
quantity of blood cells	5.99E-11
morphology of muscle	6.14E-11
mesenchymal tumor	6.18E-11
development of body axis	6.34E-11
formation of kidney	7.41E-11
organization of cytoskeleton	7.81E-11
adhesion of blood cells	8.58E-11
function of cardiovascular system	8.76E-11
fibrous tissue tumor	9.26E-11
vascularization	9.35E-11
cellular homeostasis	1.01E-10
Duchenne muscular dystrophy	1.11E-10
cell movement of epithelial cell lines	1.27E-10
dysplasia	1.32E-10
abnormality of cartilage tissue	1.45E-10
skin lesion	1.51E-10
gastroesophageal cancer	1.52E-10
development of sensory organ	1.53E-10
Bleeding	1.53E-10
migration of epithelial cell lines	1.66E-10
occlusion of artery	1.72E-10
angiogenesis of tumor	1.9E-10
differentiation of connective tissue	2.07E-10
cancer of secretory structure	2.07E-10
abnormal morphology of skeleton	2.35E-10
arteriosclerosis	2.55E-10
Thrombosis	2.64E-10
gastric lesion	2.79E-10
skin tumor	2.81E-10
growth of vessel	2.85E-10
dystrophy	2.91E-10
benign connective or soft tissue neoplasm	2.96E-10
dystrophy of muscle	3.11E-10
Budd-Chiari syndrome	3.29E-10
disorder of pregnancy	3.87E-10
ulcer	4.63E-10
stomach tumor	5.14E-10
oral cancer	5.16E-10
adhesion of cell-associated matrix	5.3E-10
Ehlers-Danlos syndrome	5.45E-10
atherosclerosis	5.83E-10
solid tumor of head and neck	5.93E-10
gastro-esophageal carcinoma	6.7E-10
aggregation of cells	6.79E-10
upper aerodigestive tract carcinoma	6.83E-10
abnormal morphology of head	7.47E-10

malignant neoplasm of aerodigestive tract	7.86E-10
morphology of head	7.93E-10
gastroesophageal adenocarcinoma	8.55E-10
hereditary myopathy	8.7E-10
cell movement of cancer cells	8.78E-10
cell movement of phagocytes	9.3E-10
hemostasis	9.43E-10
differentiation of connective tissue cells	9.65E-10
progression of tumor	1.04E-09
progressive muscular dystrophy	1.15E-09
pancreatic cancer	1.26E-09
cell movement of leukocytes	1.38E-09
gastric cancer	1.38E-09
development of cornea	1.4E-09
inflammatory response	1.53E-09
diabetes mellitus	1.58E-09
function of muscle	1.75E-09
sprouting	1.77E-09
oral tumor	1.97E-09
proliferation of muscle cells	2.02E-09
organization of cytoplasm	2.23E-09
formation of focal adhesions	2.28E-09
transmigration of cells	2.52E-09
neovascularization	2.77E-09
rheumatoid arthritis	2.82E-09
tumorigenesis of reproductive tract	2.92E-09
urogenital cancer	2.93E-09
proliferation of connective tissue cells	2.94E-09
growth of blood vessel	2.97E-09
skin cancer	2.97E-09
female genital neoplasm	3.14E-09
quantity of leukocytes	3.33E-09
morphology of axial skeleton	3.66E-09
metabolic bone disease	4.15E-09
head and neck cancer	4.43E-09
peripheral vascular disease	5E-09
morphology of urinary system	5.06E-09
formation of epithelial tissue	5.32E-09
homing of cells	5.41E-09
oral squamous cell carcinoma	5.45E-09
pancreatic tumor	5.65E-09
abnormal morphology of muscle	6.04E-09
familial vascular disease	6.06E-09
tumorigenesis of genital organ	6.43E-09
female genital tract cancer	6.67E-09
growth of connective tissue	6.68E-09
genital tumor	6.69E-09
adhesion of connective tissue cells	6.72E-09
adhesion of immune cells	7.27E-09
oral cavity carcinoma	7.32E-09
chronic inflammatory disorder	7.42E-09
formation of eye	7.52E-09

Rho protein signal transduction	7.67E-09
cell movement of embryonic cell lines	7.84E-09
migration of tumor cells	7.88E-09
systemic autoimmune syndrome	7.95E-09
permeability of vascular system	8.11E-09
binding of tumor cell lines	8.27E-09
chemotaxis	9.14E-09
morphology of fibrils	1.01E-08
carcinoma in pancreas	1.01E-08
migration of embryonic cell lines	1.04E-08
Edema	1.05E-08
morphology of kidney	1.07E-08
osteoarthritis	1.11E-08
experimentally-induced arthritis	1.11E-08
perinatal death	1.27E-08
formation of vascular lesion	1.29E-08
malignant cutaneous melanoma cancer	1.37E-08
microtubule dynamics	1.53E-08
coagulation of blood	1.64E-08
thrombosis of vein	1.74E-08
genital tract cancer	1.79E-08
atherosclerotic lesion	1.83E-08
gastric adenocarcinoma	2.08E-08
angiogenesis of eye	2.26E-08
fibrogenesis	2.44E-08
migration of myeloid cells	2.47E-08
congenital anomalies of kidney and urinary tract	2.47E-08
pelvic tumor	2.58E-08
morphology of vertebral column	2.59E-08
gastric carcinoma	2.63E-08
pelvic cancer	2.77E-08
adhesion of tumor cell lines	2.78E-08
tumor in nervous system	2.99E-08
cell death of endothelial cells	3.07E-08
quantity of bone	3.1E-08
vascularization of eye	3.28E-08
breast or ovarian carcinoma	3.51E-08
diabetic nephropathy	3.71E-08
damage of connective tissue	3.77E-08
quantity of phagocytes	4.04E-08
formation of cellular protrusions	4.04E-08
differentiation of bone cells	4.15E-08
abnormal morphology of skull	4.42E-08
cystic kidney disease	4.71E-08
connective or soft tissue tumor	5.19E-08
abnormal morphology of abdomen	5.3E-08
transmigration of blood cells	5.35E-08
morphology of respiratory system	5.52E-08
recruitment of cells	6.19E-08
abdominal aortic aneurysm	6.2E-08
abnormal morphology of axial skeleton	6.28E-08
heart rate	6.32E-08

abnormality of heart ventricle	6.38E-08
branching of cells	6.42E-08
abnormal morphology of heart ventricle	6.94E-08
carcinoma in breast	7.24E-08
morphogenesis of cardiovascular system	7.65E-08
uterine tumor	7.82E-08
preeclampsia	8.08E-08
head and neck carcinoma	8.3E-08
inflammation of body cavity	8.34E-08
cell spreading of tumor cell lines	8.83E-08
Hypertrophy	8.89E-08
morphology of lesion	1.01E-07
abnormality of limb	1.04E-07
Polycystic Kidney Disease	1.05E-07
formation of filaments	1.06E-07
papillary carcinoma	1.1E-07
apoptosis of endothelial cells	1.1E-07
binding of blood cells	1.11E-07
migration of kidney cell lines	1.18E-07
proliferation of smooth muscle cells	1.19E-07
uterine cancer	1.33E-07
formation of basement membrane	1.34E-07
cell survival	1.38E-07
endometriosis	1.38E-07
cell proliferation of fibroblasts	1.41E-07
binding of gonadal cell lines	1.44E-07
morphology of vessel component	1.5E-07
papillary adenocarcinoma	1.58E-07
abnormal morphology of cranium	1.66E-07
abnormality of endometrium	1.7E-07
attachment of connective tissue cells	1.73E-07
adhesion of blood platelets	1.76E-07
morphology of heart ventricle	1.77E-07
abnormal morphology of respiratory system	1.78E-07
size of bone	1.86E-07
cell movement of smooth muscle cells	1.93E-07
shape change of tumor cell lines	1.93E-07
organization of filaments	1.98E-07
inflammation of organ	2.02E-07
endometrial cancer	2.16E-07
central nervous system tumor	2.17E-07
development of abdomen	2.22E-07
recruitment of leukocytes	2.26E-07
migration of smooth muscle cells	2.36E-07
morphology of vertebrae	2.36E-07
respiratory system tumor	2.41E-07
lung tumor	2.71E-07
thoracic neoplasm	2.76E-07
transmigration of leukocytes	2.79E-07
migration of muscle cells	2.9E-07
cell movement of muscle cells	3.05E-07
pulmonary hypertensive arterial disease	3.1E-07

serous ovarian carcinoma	3.17E-07
thoracic cancer	3.19E-07
morphogenesis of blood vessel	3.35E-07
ductal carcinoma	3.36E-07
quantity of metal	3.47E-07
neoplasia of tumor cell lines	3.51E-07
lung cancer	3.66E-07
morphology of digestive system	3.82E-07
peripheral T-cell lymphoma	4.39E-07
activation of cells	4.41E-07
morphology of limb	4.61E-07
cell proliferation of vascular endothelial cells	4.64E-07
metabolism of polysaccharide	4.87E-07
apoptosis of tumor cell lines	5.14E-07
transmigration of mononuclear leukocytes	5.18E-07
upper aero-digestive squamous cell carcinoma	5.31E-07
cell movement of granulocytes	5.59E-07
degeneration of connective tissue	5.72E-07
formation of skin lesion	5.72E-07
transmigration of monocytes	6.12E-07
abnormal morphology of vertebral column	6.22E-07
damage of cartilage tissue	6.68E-07
neovascularization of organ	6.89E-07
quantity of antigen presenting cells	7.03E-07
inflammation of absolute anatomical region	7.05E-07
chemotaxis of endothelial cells	7.35E-07
cell movement of vascular smooth muscle cells	7.61E-07
migration of embryonic cells	7.61E-07
cell death of tumor cell lines	7.63E-07
size of body	7.94E-07
benign neoplasm of female genital organ	8.2E-07
morphology of collagen fibrils	8.51E-07
formation of cytoskeleton	8.59E-07
morphology of somites	8.64E-07
X-linked hereditary disease	8.71E-07
quantity of connective tissue cells	8.79E-07
quantity of myeloid cells	9.2E-07
function of heart	9.32E-07
formation of vessel	9.46E-07
recruitment of myeloid cells	9.66E-07
abnormal morphology of nervous system	9.71E-07
quantity of metal ion	9.95E-07
dysplasia of bone	1.01E-06
function of blood vessel	1.01E-06
abnormal morphology of cells	1.05E-06
migration of phagocytes	1.07E-06
connective tissue tumor	1.08E-06
abnormality of rib	1.1E-06
ductal pancreatic carcinoma	1.11E-06
migration of fibroblasts	1.11E-06
metabolism of reactive oxygen species	1.14E-06
synthesis of reactive oxygen species	1.23E-06



liquid tumor	1.25E-06
attachment of fibroblasts	1.29E-06
permeability of cells	1.36E-06
cell viability	1.39E-06
formation of aneurysm	1.39E-06
permeability of vasculature	1.49E-06
development of genitourinary system	1.5E-06
hypertrophy of heart	1.51E-06
activation of connective tissue cells	1.53E-06
transmigration of lymphatic system cells	1.56E-06
size of lesion	1.58E-06
branching of endothelial cells	1.58E-06
Growth Failure	1.66E-06
neovascularization of eye	1.67E-06
adenoma	1.7E-06
angiogenesis of cornea	1.72E-06
morphology of nervous system	1.73E-06
abnormal morphology of limb	1.77E-06
abnormal morphology of vertebrae	1.78E-06
morphology of lung	1.82E-06
attraction of cells	1.85E-06
cell movement of neutrophils	1.97E-06
size of cells	1.98E-06
organization of cells	2.03E-06
migration of connective tissue cells	2.07E-06
recruitment of phagocytes	2.14E-06
branching of epithelial tissue	2.15E-06
cell proliferation of tumor cell lines	2.2E-06
tyrosine phosphorylation of protein	2.21E-06
female genital tract adenocarcinoma	2.22E-06
organization of extracellular matrix	2.25E-06
metabolism of proteoglycan	2.26E-06
cell proliferation of melanoma cell lines	2.28E-06
quantity of adipose tissue	2.35E-06
T cell migration	2.38E-06
morphology of lymphoid organ	2.39E-06
migration of monocytes	2.4E-06
proliferation of epithelial cells	2.48E-06
development of tumor cell lines	2.57E-06
cell spreading of leukemia cell lines	2.72E-06
chemotaxis of myeloid cells	2.76E-06
neuroepithelial tumor	2.81E-06
production of reactive oxygen species	2.86E-06
morphology of lymphoid tissue	2.87E-06
migration of lymphatic system cells	2.98E-06
Ovarian Cancer and Tumors	3.06E-06
transendothelial migration of leukocytes	3.18E-06
quantity of Ca <sup>2+</sup>	3.25E-06
organogenesis of lymphoid tissue	3.25E-06
vasoconstriction of blood vessel	3.3E-06
differentiation of osteoblasts	3.5E-06
adhesion of T lymphocytes	3.66E-06

morphogenesis of skeletal system	3.67E-06
invasion of tissue	3.7E-06
damage of endothelial tissue	3.71E-06
progression of stomach tumor	3.72E-06
quantity of hematopoietic progenitor cells	3.72E-06
tensile strength of skin	3.82E-06
cell movement of kidney cell lines	3.96E-06
metastasis of cells	3.99E-06
trafficking of blood cells	4.2E-06
cell movement of T lymphocytes	4.2E-06
chemotaxis of phagocytes	4.22E-06
gonadal tumor	4.29E-06
necrosis of epithelial tissue	4.3E-06
squamous-cell carcinoma	4.62E-06
sprouting angiogenesis	4.63E-06
abnormal morphology of lymphoid organ	4.65E-06
transmigration of phagocytes	4.66E-06
adhesion of myeloid cells	4.67E-06
gliomatosis	4.86E-06
renal lesion	5.02E-06
osteogenesis imperfecta	5.24E-06
abnormal morphology of eyelid	5.55E-06
invasion of breast cancer cell lines	5.65E-06
cyanosis	5.93E-06
head and neck squamous cell cancer	6.09E-06
neonatal death	6.13E-06
size of embryonic tissue	6.21E-06
ovarian cancer	6.35E-06
fibrosis of lung	6.37E-06
chemoattraction	6.48E-06
cell movement of monocytes	6.58E-06
quantity of focal adhesions	6.62E-06
advanced adenocarcinoma	6.69E-06
activation of blood platelets	7.31E-06
quantity of bone cells	7.53E-06

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