Table S13 - IPA biological functions unique to EGA2 super-group

Categories	Functions Annotation	p-value[a]	Z-score[b]	Activation State	Total DEGs	Sub-Group
Cell Cycle	Arrest in interphase	1.10E-05			50	EGA2-1
Protein Synthesis	Synthesis of protein	1.78E-10	2.667	Activated	49	EGA2-1
Cellular Development, Cellular Growth and Proliferation	Cell proliferation of carcinoma cell lines	1.09E-02	0.962		38	EGA2-1
Cell Cycle	Arrest in interphase of tumor cell lines	4.56E-04			31	EGA2-1
Cell Death and Survival	Cell death of colorectal cancer cell lines	3.56E-03	-1.669		29	EGA2-1
Cell Cycle	G1 phase of tumor cell lines	1.16E-04	0.863		28	EGA2-1
Cell Death and Survival	Cell death of central nervous system cells	6.62E-03	0.772		28	EGA2-1
Cell Death and Survival	Cell death of melanoma cell lines	7.73E-04	-0.683		27	EGA2-1
Cell Cycle	G2/M phase	1.05E-05	1.961	Activated	26	EGA2-1
Cell Cycle	Arrest in G1 phase	5.44E-03			26	EGA2-1
Cell Death and Survival	Cell death of sarcoma cell lines	2.90E-03	-0.126		24	EGA2-1
Cell Cycle	Arrest in G2 phase	4.33E-05			24	EGA2-1
Gene Expression	Repression of RNA	1.11E-04	3.59	Activated	23	EGA2-1
Cellular Development, Embryonic Development, Organismal Development, Tissue Development	Differentiation of embryonic tissue	1.59E-02	1.684		21	EGA2-1
Protein Synthesis	Translation	4.51E-06	1.599		21	EGA2-1
Cell Death and Survival	Cell viability of breast cancer cell lines	8.07E-03	1.822		19	EGA2-1
Cell Death and Survival	Cell death of bone cancer cell lines	6.44E-03	0.798		19	EGA2-1
Cell Cycle	G2 phase of tumor cell lines	2.70E-04	0.216		19	EGA2-1
Cell Cycle	Arrest in G1 phase of tumor cell lines	3.25E-03			19	EGA2-1
Cell Cycle, DNA Replication, Recombination, and Repair	Homologous recombination of cells	8.40E-08	4	Activated	16	EGA2-1
Cell Death and Survival	Cell viability of colorectal cancer cell lines	1.77E-03	3.363	Activated	16	EGA2-1
Cell Cycle	Arrest in G2/M phase	1.26E-05			16	EGA2-1
DNA Replication, Recombination, and Repair, Nucleic Acid Metabolism, Small Molecule Biochemistry	Hydrolysis of nucleotide	2.65E-03	2.562	Activated	14	EGA2-1
Cell Death and Survival	Cell death of ovarian cancer cell lines	6.83E-03	-1.529		14	EGA2-1
Cell Cycle	G2/M phase of tumor cell lines	2.10E-04	1.432		14	EGA2-1
Cell Death and Survival	Cell death of pheochromocytoma cell lines	1.99E-03	0.84		14	EGA2-1
Cell Cycle	Interphase of fibroblast cell lines	4.48E-03	-0.478		14	EGA2-1
Cell Cycle	Arrest in G2 phase of tumor cell lines	2.65E-03			14	EGA2-1
Cellular Growth and Proliferation, Embryonic Development	Pluripotency of embryonic cell lines	2.65E-08	3.494	Activated	13	EGA2-1
RNA Post-Transcriptional Modification	Processing of RNA	1.28E-04	1.826		12	EGA2-1

Cell Cycle	Interphase of colorectal cancer cell lines	9.45E-04	0.391		12	EGA2-1
Cell Death and Survival	Apoptosis of ovarian cancer cell lines	1.63E-02	-1.469		11	EGA2-1
Cell Cycle	Arrest in G2/M phase of tumor cell lines	5.87E-04			11	EGA2-1
Cellular Growth and Proliferation, Embryonic Development	Pluripotency of embryonic stem cell lines	2.72E-07	3.078	Activated	10	EGA2-1
Cellular Growth and Proliferation, Hematological System Development and Function	Inhibition of leukocytes	1.04E-02	2.601	Activated	10	EGA2-1
Nucleic Acid Metabolism, Small Molecule Biochemistry	Biosynthesis of nucleoside triphosphate	1.28E-02	2.049	Activated	10	EGA2-1
Cell Death and Survival	Cell death of stem cells	1.55E-02	0.14		10	EGA2-1
Cellular Assembly and Organization, Cellular Function and Maintenance, Tissue Development	Formation of microtubules	4.16E-03	-1.463		9	EGA2-1
Cell Morphology, Hair and Skin Development and Function	Morphology of epithelial cell lines	2.26E-03			9	EGA2-1
Cell Cycle	Cell cycle progression of connective tissue cells	7.67E-04			9	EGA2-1
Cellular Development, Cellular Growth and Proliferation, Embryonic Development, Organismal Development	Proliferation of embryonic stem cells	1.17E-03	2.804	Activated	8	EGA2-1
Cell Morphology, Cellular Function and Maintenance, Embryonic Development	Autophagy of embryonic cell lines	6.05E-03	2.048	Activated	8	EGA2-1
DNA Replication, Recombination, and Repair, Energy Production, Nucleic Acid Metabolism, Small Molecule Biochemistry	Hydrolysis of ATP	1.17E-03	1.912		8	EGA2-1
Protein Synthesis	Synthesis of protein	1.70E-03	1.727		8	EGA2-2
Cellular Development, Cellular Growth and Proliferation	Cell proliferation of carcinoma cell lines	1.43E-02	0.455		8	EGA2-2
Cell Cycle, Connective Tissue Development and Function	Cell cycle progression of fibroblasts	1.17E-03			8	EGA2-1
Cell Cycle	Delay in mitosis	1.50E-04			8	EGA2-1
RNA Post-Transcriptional Modification	Processing of rRNA	2.74E-06	2.219	Activated	7	EGA2-1
Molecular Transport, RNA Trafficking	Export of RNA	6.06E-05	1.982	Activated	7	EGA2-1
Protein Synthesis	Translation	2.19E-05	1.72		7	EGA2-2
Cellular Compromise	Degradation of mitochondria	5.72E-03	0.819		7	EGA2-1
Hematological System Development and Function, Hematopoiesis, Tissue Morphology	Quantity of hematopoietic progenitor cells	2.16E-03	0.683		7	EGA2-2
Cellular Assembly and Organization, DNA Replication, Recombination, and Repair	Amplification of centrosome	8.80E-03	-0.232		7	EGA2-1

Cell Cycle	G1 phase of breast cancer cell lines	7.94E-03			7	EGA2-1
Cell Death and Survival	Cell death of sarcoma cell lines	5.42E-03	-2.433	Inhibited	6	EGA2-2
Gene Expression	Initiation of transcription	7.14E-03	1.664		6	EGA2-1
Molecular Transport, Protein Trafficking	Internalization of protein	9.13E-03	1.387		6	EGA2-1
Cell Cycle	Cleavage of tumor cell lines	1.52E-03			6	EGA2-1
Cell Cycle	Cell cycle progression of bone cancer cell lines	8.09E-03			6	EGA2-1
Cell Cycle	G2 phase of colorectal cancer cell lines	1.25E-03			6	EGA2-1
Cellular Function and Maintenance, Small Molecule Biochemistry	Homeostasis of metal ion	1.28E-02			6	EGA2-1
Cell Cycle	Exit from G1 phase	1.70E-05			6	EGA2-1
Cellular Assembly and Organization, Cellular Function and Maintenance	Formation of ribosome	2.48E-04	2.236	Activated	5	EGA2-1
Cell Death and Survival, Cellular Development, Cellular Function and Maintenance, Cellular Growth and Proliferation, Embryonic Development, Organismal Development, Tissue Development	Self-renewal of neural stem cells	4.39E-03	2.186	Activated	5	EGA2-1
Cell Death and Survival	Cell death of bone cancer cell lines	8.36E-03	-2.219	Inhibited	5	EGA2-2
Cardiovascular System Development and Function, Organ Development, Organ Morphology	Contraction of heart ventricle	1.20E-03	-1.387		5	EGA2-1
Cellular Movement	Invasion of stomach cancer cell lines	1.54E-03	0.728		5	EGA2-1
Cell Cycle, Cellular Development, Connective Tissue Development and Function	Premature senescence of fibroblast cell lines	3.64E-03	-0.6		5	EGA2-1
Gene Expression, RNA Post-Transcriptional Modification	Binding of RNA	1.46E-02	-0.152		5	EGA2-1
DNA Replication, Recombination, and Repair	Repair of DNA	1.01E-02	0.054		5	EGA2-2
Cellular Growth and Proliferation	Cytostasis of connective tissue cells	1.13E-02	0		5	EGA2-1
Cell Cycle, Connective Tissue Development and Function	Mitosis of fibroblast cell lines	9.80E-03			5	EGA2-1
Cell Cycle	Arrest in G1 phase of lung cancer cell lines	1.65E-02			5	EGA2-1
Cell Cycle	G2/M phase of colorectal cancer cell lines	2.48E-04			5	EGA2-1
Cell Cycle	Arrest in G1 phase of breast cancer cell lines	1.65E-02			5	EGA2-1
Cardiovascular System Development and Function, Cell Morphology, Organ Morphology, Organismal Development	Morphology of heart cells	7.63E-03			5	EGA2-2

Embryonic Development, Hair and Skin Development and Function, Organ Development, Organismal Development, Tissue Development	Formation of epidermis	1.16E-05			5	EGA2-2
Lymphoid Tissue Structure and Development, Tissue Morphology	Quantity of lymphoid tissue	1.03E-02			5	EGA2-2
Digestive System Development and Function, Organ Morphology	Permeability of intestine	1.51E-02	1.987	Activated	4	EGA2-1
Cell Morphology, Cellular Function and Maintenance	Autophagy of bone cancer cell lines	1.51E-02	1.974	Activated	4	EGA2-1
RNA Damage and Repair	Decay of RNA	2.03E-03	1.067		4	EGA2-1
Cell Death and Survival	Cell viability of gastrointestinal stromal tumor cell lines	4.64E-03	1.067		4	EGA2-1
Cell Death and Survival	Cell death of immune cells	1.54E-02	-0.775		4	EGA2-4
Cell Death and Survival	Apoptosis of synovial fibroblasts	1.51E-02	-0.277		4	EGA2-1
Connective Tissue Development and Function, Tissue Development	Maturation of connective tissue	1.03E-03	-0.218		4	EGA2-2
Carbohydrate Metabolism, Molecular Transport	Transport of monocarboxylic acid	1.45E-03			4	EGA2-1
Cellular Development, Cellular Growth and Proliferation, Embryonic Development, Organismal Development, Tissue Development	Development of embryonic stem cells	1.28E-02			4	EGA2-1
Embryonic Development, Organismal Development, Reproductive System Development and Function	Implantation of embryo	1.51E-02			4	EGA2-1
Cell Death and Survival, Connective Tissue Development and Function	Cell survival of fibroblast cell lines	2.03E-03			4	EGA2-1
Cell Death and Survival, Organismal Survival	Survival of yeast	5.85E-03			4	EGA2-1
Cell Morphology, Cellular Assembly and Organization, Cellular Function and Maintenance	Reorganization of cytoskeleton	1.94E-02			4	EGA2-2
Hematological System Development and Function, Hematopoiesis, Lymphoid Tissue Structure and Development, Organ Morphology, Tissue Morphology	Quantity of thymocytes	6.73E-03			4	EGA2-2
Carbohydrate Metabolism, Molecular Transport, Small Molecule Biochemistry	Uptake of D-glucose	1.61E-04			4	EGA2-4
Cell Morphology, Cellular Assembly and Organization, Nervous System Development and Function, Tissue Morphology	Size of dendritic trees	1.11E-02			3	EGA2-1
Cellular Assembly and Organization	Stabilization of mitochondria	6.05E-03			3	EGA2-1

Cell Morphology, Cellular Function and Maintenance	Mitochondrial membrane potential	1.11E-02	3	EGA2-1
Cell Signaling, Cellular Function and Maintenance, Small Molecule Biochemistry, Vitamin and Mineral Metabolism	Calcium homeostasis of endoplasmic reticulum	1.59E-03	3	EGA2-1
Protein Synthesis	Initiation of synthesis of protein	6.05E-03	3	EGA2-1
Cellular Assembly and Organization, DNA Replication, Recombination, and Repair	Formation of nucleosomes	2.70E-03	3	EGA2-1
Small Molecule Biochemistry	Synthesis of polyamines	8.36E-03	3	EGA2-1
Cell Death and Survival	Cell death of megakaryocytes	8.36E-03	3	EGA2-1
Cell Cycle	Mitotic exit of cervical cancer cell lines	8.36E-03	3	EGA2-1
Cell Death and Survival	Apoptosis of bone marrow-derived neutrophils	8.36E-03	3	EGA2-1
Cell-To-Cell Signaling and Interaction	Aggregation of carcinoma cell lines	1.11E-02	3	EGA2-1
Nucleic Acid Metabolism, Small Molecule Biochemistry	Synthesis of nucleoside 5'-phosphate	1.59E-03	3	EGA2-1
Cell Cycle	Delay in interphase of fibroblast cell lines	8.36E-03	3	EGA2-1
Cell Cycle	Arrest in cleavage of cells	2.70E-03	3	EGA2-1
Cell-To-Cell Signaling and Interaction, Hair and Skin Development and Function	Aggregation of epithelial cell lines	2.70E-03	3	EGA2-1
Digestive System Development and Function, Hematological System Development and Function, Lymphoid Tissue Structure and Development, Organ Morphology, Organismal Development, Tissue Morphology	Morphology of Peyer's patches	6.05E-03	3	EGA2-1
RNA Damage and Repair	Decay of mRNA	6.05E-03	3	EGA2-1
Cell Cycle, Gene Expression	Binding of KlF5 binding site	8.82E-05	3	EGA2-1
Cell Morphology, Skeletal and Muscular System Development and Function	Morphology of muscle cell lines	8.36E-03	3	EGA2-1
Cell Cycle, Skeletal and Muscular System Development and Function	Arrest in cell cycle progression of muscle cells	6.05E-03	3	EGA2-1
Cellular Assembly and Organization	Opening of permeability transition pores	1.43E-02	3	EGA2-1

Cell-mediated Immune Response, Cellular Development, Cellular Function and Maintenance, Cellular Growth and Proliferation, Embryonic Development, Hematological System Development and Function, Hematopoiesis, Lymphoid Tissue Structure and Development, Organ Development, Organismal Development, Tissue Development	Production of natural killer precursor cells	4.17E-03	3	EGA2-1
Cell Cycle	Mitosis of liver cells	1.43E-02	3	EGA2-1
DNA Replication, Recombination, and Repair, RNA Post-Transcriptional Modification	Annealing of hnRNA	8.82E-05	3	EGA2-1
Nucleic Acid Metabolism, Small Molecule Biochemistry	Synthesis of ribonucleoside monophosphate	3.41E-04	3	EGA2-1
Cell Cycle, Cell Morphology, Cellular Assembly and Organization, DNA Replication, Recombination, and Repair	Morphology of chromatin	6.05E-03	3	EGA2-1
DNA Replication, Recombination, and Repair	Replication of genomic DNA	1.11E-02	3	EGA2-1
Cellular Development, Cellular Growth and Proliferation, Connective Tissue Development and Function, Hematological System Development and Function, Hematopoiesis, Organismal Development, Tissue Development	Maturation of red blood cells	4.77E-04	3	EGA2-2
Cellular Development, Cellular Growth and Proliferation, Connective Tissue Development and Function, Hematological System Development and Function, Lymphoid Tissue Structure and Development, Tissue Development	Proliferation of peripheral blood leukocytes	6.48E-03	3	EGA2-2
Cellular Development, Hematological System Development and Function, Hematopoiesis	Maturation of hematopoietic progenitor cells	1.11E-02	3	EGA2-2
Cell Death and Survival	Cell viability of leukemia cell lines	1.15E-02	3	EGA2-2
Lipid Metabolism, Small Molecule Biochemistry	Metabolism of glycosphingolipid	1.30E-02	3	EGA2-2
Cell Death and Survival, Hematological System Development and Function	Cell viability of leukocyte cell lines	1.15E-02	3	EGA2-2
Cell Cycle, Embryonic Development	Interphase of embryonic cell lines	1.72E-02	3	EGA2-2
Cellular Compromise	Stress response of tumor cell lines	3.61E-03	3	EGA2-2

Cell Death and Survival	Cell viability of stem cells	4.59E-03	3	EGA2-2
Cardiovascular System Development and Function, Cell Death and Survival	Cell viability of endothelial cells	6.48E-03	3	EGA2-2
Cell Morphology, Cellular Function and Maintenance, DNA Replication, Recombination, and Repair	Double-stranded DNA break repair of cells	7.57E-03	3	EGA2-2
Cellular Assembly and Organization, DNA Replication, Recombination, and Repair	Formation of gamma H2AX nuclear focus	5.97E-03	3	EGA2-2
Organismal Survival	Viability	1.68E-02	3	EGA2-2
Cell Cycle	Arrest in interphase of carcinoma cell lines	5.72E-03	3	EGA2-2
Cell Cycle	Arrest in G1/S phase transition	7.57E-03	3	EGA2-2
Embryonic Development, Organ Development, Organismal Development, Tissue Development	Development of sensory organ	5.00E-03	3	EGA2-4
Cellular Movement, Embryonic Development	Cell movement of embryonic cell lines	1.76E-03	3	EGA2-4
Cell Death and Survival	Cell death of thymocytes	5.43E-04	3	EGA2-4
Cell Death and Survival, Hematological System Development and Function	Survival of Single positive thymocytes	5.77E-03	2	EGA2-1
Cellular Development	Epithelial-mesenchymal transition of pneumocytes	5.77E-03	2	EGA2-1
Cell Cycle, Renal and Urological System Development and Function	Initiation of S phase of kidney cell lines	1.98E-03	2	EGA2-1
Cell Death and Survival	Cell death of spleen-derived dendritic cells	1.98E-03	2	EGA2-1
Cell-mediated Immune Response, Cellular Development, Cellular Function and Maintenance, Cellular Growth and Proliferation, Embryonic Development, Hematological System Development and Function, Hematopoiesis, Lymphoid Tissue Structure and Development, Organ Development, Organismal Development, Tissue Development	Transition of double-positive thymocyte	5.77E-03	2	EGA2-1
Lipid Metabolism, Molecular Transport, Small Molecule Biochemistry	Quantity of ursodeoxycholic acid	5.77E-03	2	EGA2-1
Cellular Assembly and Organization	Movement of chromosomes	1.12E-02	2	EGA2-1
Lipid Metabolism, Molecular Transport, Small Molecule Biochemistry	Uptake of butyric acid	1.12E-02	2	EGA2-1

Cell Death and Survival, Cellular Function and Maintenance	Clearance of nontypeable Haemophilus influenzae strain 12	1.12E-02	2	EGA2-1
Cellular Development, Cellular Growth and Proliferation, Embryonic Development, Organismal Development	Arrest in growth of neuronal progenitor cells	1.12E-02	2	EGA2-1
Cell-To-Cell Signaling and Interaction	Aggregation of skin cell lines	1.12E-02	2	EGA2-1
Nucleic Acid Metabolism, Small Molecule Biochemistry	Synthesis of GMP	5.77E-03	2	EGA2-1
Cell Cycle	Arrest in cell division of tumor cell lines	1.98E-03	2	EGA2-1
Cell Cycle, Reproductive System Development and Function	G2/M phase of breast cell lines	5.77E-03	2	EGA2-1
Cellular Assembly and Organization	Binding of chromosomes	1.12E-02	2	EGA2-1
Molecular Transport, RNA Trafficking	Export of tRNA	1.12E-02	2	EGA2-1
Lipid Metabolism, Small Molecule Biochemistry	Production of C18-ceramide	1.12E-02	2	EGA2-1
Nucleic Acid Metabolism, Small Molecule Biochemistry	Synthesis of GDP	1.12E-02	2	EGA2-1
Cellular Assembly and Organization	Formation of apoptosome	5.77E-03	2	EGA2-1
Cell Death and Survival	Killing of bone marrow-derived dendritic cells	1.98E-03	2	EGA2-1
Protein Synthesis	Elongation of protein	1.12E-02	2	EGA2-1
Cell Signaling, Nucleic Acid Metabolism, Small Molecule Biochemistry	Synthesis of GTP	1.98E-03	2	EGA2-1
Lipid Metabolism, Small Molecule Biochemistry, Vitamin and Mineral Metabolism	Synthesis of retinyl ester	1.12E-02	2	EGA2-1
Carbohydrate Metabolism, Lipid Metabolism, Small Molecule Biochemistry	Transmission of lipopolysaccharide	1.12E-02	2	EGA2-1
Cellular Compromise	Disorganization of actin	1.98E-03	2	EGA2-1
Carbohydrate Metabolism, Lipid Metabolism, Small Molecule Biochemistry	Binding of phosphatidylinositol-3-phosphate	1.12E-02	2	EGA2-1
Cellular Development, Cellular Growth and Proliferation, Tissue Development	Proliferation of glandular epithelial cells	5.77E-03	2	EGA2-1
Cell Cycle, Embryonic Development	Mitosis of embryonic stem cells	5.77E-03	2	EGA2-1
Cardiovascular System Development and Function, Cellular Development, Cellular Growth and Proliferation	Arrest in growth of endothelial cell lines	5.77E-03	2	EGA2-1

Cellular Development, Cellular Growth and Proliferation, Connective Tissue Development and Function, Hematological System Development and Function, Hematopoiesis, Organismal Development, Tissue Development	Differentiation of reticulocytes	1.98E-03	2	EGA2-1
Cellular Development, Cellular Growth and Proliferation, Connective Tissue Development and Function, Hair and Skin Development and Function, Organ Development, Tissue Development	Arrest in growth of keratinocytes	1.12E-02	2	EGA2-1
Carbohydrate Metabolism, Small Molecule Biochemistry	Length of heparan sulfate	1.12E-02	2	EGA2-1
RNA Post-Transcriptional Modification	Maturation of rRNA	5.77E-03	2	EGA2-1
Cellular Assembly and Organization, Cellular Function and Maintenance	Formation of monosome	1.98E-03	2	EGA2-1
Cell Morphology, Cellular Assembly and Organization, Cellular Function and Maintenance	Permeability of mitochondrial outer membrane	1.12E-02	2	EGA2-1
Cellular Assembly and Organization	Recruitment of vesicles	1.12E-02	2	EGA2-1
Cell Cycle	Arrest in G2 phase of endothelial cell lines	1.98E-03	2	EGA2-1
Molecular Transport, Protein Trafficking	Import of green fluorescent protein	1.12E-02	2	EGA2-1
Cellular Assembly and Organization	Structural integrity of nucleosomes	5.77E-03	2	EGA2-1
Cellular Movement	Migratory capacity of melanoma cell lines	5.77E-03	2	EGA2-1
Cellular Assembly and Organization, Cellular Function and Maintenance	Formation of ribosome	2.60E-03	2	EGA2-2
Cell Death and Survival, Hematological System Development and Function	Cell viability of mast cells	1.10E-02	2	EGA2-2
Cellular Development, Cellular Growth and Proliferation, Hair and Skin Development and Function, Tissue Development	Proliferation of melanocytes	8.24E-03	2	EGA2-2
Cellular Compromise, DNA Replication, Recombination, and Repair	Degradation of chromosomes	6.41E-03	2	EGA2-2
Cellular Compromise	Damage of cellular membrane	5.31E-03	2	EGA2-2
Cell Cycle	Arrest in G1 phase of carcinoma cell lines	1.25E-02	2	EGA2-2
Tissue Morphology	Quantity of carcinoma cell lines	8.89E-03	2	EGA2-2

Cellular Development, Connective Tissue Development and Function, Skeletal and Muscular System Development and Function, Tissue Development	Maturation of osteoclasts	2.24E-03	2	EGA2-2
Post-Translational Modification, Protein Folding	Folding of protein	5.85E-03	2	EGA2-2
Cardiovascular System Development and Function, Organ Development	Cardiac output	9.57E-03	2	EGA2-2
Cellular Movement	Migration of prostate cancer cells	1.30E-03	2	EGA2-2
Cellular Compromise	Disassembly of actin filaments	2.03E-02	2	EGA2-2
Cellular Assembly and Organization, DNA Replication, Recombination, and Repair	Stabilization of chromosomes	8.24E-03	2	EGA2-2
Cell Morphology, Cellular Function and Maintenance, Connective Tissue Development and Function, DNA Replication, Recombination, and Repair	Double-stranded DNA break repair of fibroblasts	4.41E-04	2	EGA2-2
Cellular Growth and Proliferation	Pluripotency of fibroblast cell lines	2.99E-03	2	EGA2-2
Digestive System Development and Function, Organ Morphology, Tissue Morphology	Quantity of intestinal cells	1.25E-02	2	EGA2-2
Cellular Assembly and Organization	Fusion of chromosomes	3.84E-03	2	EGA2-2
Cell Cycle	Cell cycle progression of hematopoietic progenitor cells	1.94E-02	2	EGA2-2
Cell Cycle	Entry into S phase of leukocytes	2.60E-03	2	EGA2-2
Cellular Function and Maintenance, Tissue Development	Organization of muscle cells	6.41E-03	2	EGA2-2
Cellular Development, Embryonic Development	Reprogramming of embryonic cell lines	5.85E-03	2	EGA2-2
Cellular Assembly and Organization	Quantity of ribosome	2.95E-04	2	EGA2-2
Cellular Compromise	Oxidative stress response of tumor cell lines	2.24E-03	2	EGA2-2
Cell Cycle	S phase of carcinoma cell lines	1.03E-02	2	EGA2-2
Tissue Morphology	Quantity of lung cancer cell lines	2.24E-03	2	EGA2-2
Cellular Assembly and Organization	Sealing of cellular membrane	1.59E-03	2	EGA2-2
Cell Cycle	S phase of lung cancer cell lines	3.84E-03	2	EGA2-2
Cell Death and Survival, Cellular Development, Cellular Function and Maintenance, Embryonic Development	Self-renewal of embryonic stem cell lines	2.60E-03	2	EGA2-2
Cellular Compromise	Permeability transition of mitochondria	7.00E-03	2	EGA2-2
Cell-To-Cell Signaling and Interaction, Small Molecule Biochemistry	Synthesis of neurotransmitter	1.84E-02	2	EGA2-2

Cell Morphology, Cellular Assembly and Organization, Cellular Development, Cellular Function and Maintenance, Cellular Growth and Proliferation, Embryonic Development, Nervous System Development and Function, Organismal Development, Tissue Development	Outgrowth of dendrites	1.17E-02	2	EGA2-2
Cellular Assembly and Organization	Binding of ribosome	1.30E-03	2	EGA2-2
Embryonic Development, Hair and Skin Development and Function, Organ Development, Organismal Development, Tissue Development	Formation of hair follicle	1.41E-02	2	EGA2-2
Cellular Response to Therapeutics	Radiosensitivity of tumor cell lines	1.58E-02	2	EGA2-2
Cellular Development, Cellular Growth and Proliferation, Connective Tissue Development and Function, Hematological System Development and Function, Hematopoiesis, Organismal Development, Tissue Development	Maturation of erythroid precursor cells	8.24E-03	2	EGA2-2
Cardiovascular System Development and Function	Survival of heart	2.03E-02	2	EGA2-2
Cellular Development, Cellular Growth and Proliferation, Connective Tissue Development and Function, Tissue Development	Development of fibroblasts	1.66E-02	2	EGA2-2
Cellular Development, Embryonic Development, Organismal Development, Tissue Development	Differentiation of embryonic tissue	4.11E-02	2	EGA2-4
Cell Death and Survival	Cell death of ovarian cancer cell lines	1.25E-02	2	EGA2-4
Cellular Movement	Invasion of fibroblast cell lines	3.39E-03	2	EGA2-4
Cellular Movement	Cell movement of tumor cells	2.68E-02	2	EGA2-4
Cell Death and Survival	Apoptosis of B-lymphocyte derived cell lines	1.06E-02	2	EGA2-4
Carbohydrate Metabolism, Cellular Function and Maintenance, Molecular Transport, Small Molecule Biochemistry	Transport of D-glucose	4.32E-03	2	EGA2-4
Cellular Movement, Connective Tissue Development and Function	Cell movement of fibroblast cell lines	3.31E-02	2	EGA2-4
Carbohydrate Metabolism, Molecular Transport	Transport of dehydroascorbic acid	3.76E-06	2	EGA2-4

Embryonic Development, Organ Development, Organismal Development, Renal and Urological System Development and Function, Tissue Development	Formation of kidney	1.73E-02	2	EGA2-4
Embryonic Development, Organ Development, Organismal Development, Respiratory System Development and Function, Tissue Development	Formation of pulmonary alveolus	8.21E-05	2	EGA2-4
Cell Death and Survival	Apoptosis of thymocytes	8.24E-03	2	EGA2-4
Cell Morphology, Cellular Function and Maintenance	Transmembrane potential of mitochondria	3.16E-02	2	EGA2-4
Carbohydrate Metabolism, Molecular Transport, Small Molecule Biochemistry	Uptake of 2-deoxyglucose	9.19E-03	2	EGA2-4
Cell-To-Cell Signaling and Interaction	Adhesion of connective tissue cells	1.95E-02	2	EGA2-4

a) The p-value: statistical overlap of differentially expressed gene list and gene set

b) Z-score: $z>1.96$ to be significantly activated or increased, and those with $z< -1.96$ to be significantly inhibited