Table S1. Relationship between GO biological processes and cerebral ischemia supported by previous literature between BA, JA and UA-RM^{E}s.

Groups	GO biological processes	References	Whether related to CI
BA and UA	Regulation of binding	1,2	Yes
JA and UA	Secretion by cell	3	Yes
BA	Negative regulation of ubiquitin-protein ligase activity involved in mitotic cell cycle	4,5	Yes
	Regulation of JAK-STAT cascade	6	Yes
	Positive regulation of protein transport	7	Yes
	Translational elongation	8	Yes
	Skeletal myofibril assembly	9	Yes
	Signal transduction	10	Yes
	Generation of precursor metabolites and energy	11	Yes
	Oxaloacetate metabolic process	12	Yes
JA	Branched chain family amino acid catabolic process	13	Yes
	Negative regulation of DNA replication	14	Yes
	Nuclear export	15	Yes
	Establishment of protein localization	16	Yes
	Sister chromatid cohesion	not reported	\
	Cellular homeostasis	17	Yes
UA	Peroxisome membrane biogenesis	not reported	\
	Purine base metabolic process	18	Yes

Note: CI = cerebral ischemia; RM^{E}s = emerged responsive modules

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Table S2. Relationship between GO biological processes and cerebral ischemia supported by previous literature between BA, JA and UA-RM^{D}s.

Groups	GO biological processes	References	Whether related to CI
BA,JA and UA	mRNA polyadenylation	1	Yes
BA,JA and UA	Lipoate metabolic process	2,3	Yes
BA and JA	Regulation of cellular protein metabolic process	4	Yes
JA and UA	Methylation	5	Yes
	Regulation of kinase activity	6	Yes
	Regulation of transcription elongation, DNA-dependent	7	No
	Misfolded or incompletely synthesized protein catabolic process	8	Yes
BA and UA	Negative regulation of phosphorylation	9	Yes
	Positive regulation of cellular component organization	not reported	\
	Protein ADP-ribosylation	10	Yes
	Complement activation, classical pathway	11	Yes
	Sensory perception of pain	12	Yes
BA	Regulation of gene expression	13	Yes
	Golgi transport vesicle coating	not reported	\
	Maintenance of protein location in cell	not reported	\
JA	RNA stabilization	14	Yes
UA	Regulation of cellular biosynthetic process	15	Yes
	Negative regulation of transport	16	Yes
	Tricarboxylic acid cycle	17	Yes

Note: CI = cerebral ischemia; RM^{D}s = disappeared responsive modules.

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Table S3. Relationship between GO biological processes and cerebral ischemia supported by previous literature of BJ and JU-RM^{E}s.

Groups	GO biological processes	References	Whether related to CI
BJ	Regulation of macromolecule metabolic process	not reported	\
	Ribosome biogenesis	not reported	\
	Induction of apoptosis	1,2	Yes
	Transcription from RNA polymerase II promoter	not reported	\
	Cell cycle process	3	Yes
	Regulation of establishment of protein localization in plasma membrane	not reported	\
	Localization	4,5	Yes
JU	Positive regulation of nitrogen compound metabolic process	not reported	\
	MyD88-dependent toll-like receptor signaling pathway	6,7	Yes

Note: CI = cerebral ischemia; RM^{E}s = emerged responsive modules.

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Table S4. Relationship between GO biological processes and cerebral ischemia supported by previous literature of BJ and JU-RM^{D}s.

Groups	GO biological processes	References	Whether related to CI
BJ	Regulation of cellular biosynthetic process	not reported	\
	Vesicle docking involved in exocytosis	not reported	\
	Chordate embryonic development	not reported	\
	Nucleotide-excision repair	1,2	Yes
	2-deoxyribonucleotide metabolic process	not reported	\
	Catabolic process	3	Yes
	Epithelial structure maintenance	not reported	\
JU	Nucleotide-excision repair	1,2	Yes
	Golgi transport vesicle coating	not reported	\
	Epithelial structure maintenance	not reported	\

Note: CI = cerebral ischemia; RM^{D}s = disappeared responsive modules.

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Table S5. Relationship between pathways on RM^Es and cerebral ischemia supported by previous literature.

Groups	GO biological processes	Pathway	References	Whether related to CI
BA and BJ	**Negative regulation of ubiquitin-protein ligase activity involved in mitotic cell cycle**	**Proteasome**	**1,2,3**	**Yes**
JA and JU	**Establishment of protein localization**	**Endocytosis**	**4,5**	**Yes**
BA	**Generation of precursor metabolites and energy**	**Starch and sucrose metabolism**	**not reported**	****
JA	**Branched chain family amino acid catabolic process**	**Valine,leucine and isoleucine degradation**	**6**	**Yes**
	Negative regulation of DNA replication	**Cell cycle**	**7**	**Yes**
UA	**Secretion by cell**	**SNARE interactions in vesicular transport**	**8**	**Yes**
JU	**Positive regulation of nitrogen compound metabolic process**	**NOD-like receptor signaling pathway**	**9**	**Yes**
		Antigen processing and presentatio	**not reported**	****

Note: We just enriched the pathways that correspond to the differential functions.

CI = cerebral ischemia; RM^Es = emerged responsive modules.

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Table S6. Relationship between pathways on RM^Ds and cerebral ischemia supported by previous literature.

Groups	GO biological processes	Pathway	References	Whether related to CI
BA, JA, JU and UA	Branched chain family amino acid catabolic process	Valine, leucine and isoleucine degradation	1	Yes
BA,UA and BJ	Protein ADP-ribosylation	Base excision repair	2	Yes
	Sensory perception of pain	Long-term potentiation	3	Yes
BA and UA	Complement activation, classical pathway	Systemic lupus erythematosus	4	Yes
		Complement and coagulation cascades	5,6,7	Yes
		Prion diseases	8	Yes
BJ and JU	Catabolic process	Nucleotide excision repair	9	Yes
BA	Positive regulation of cellular component organization	mTOR si gnaling pathway	10	Yes
		Insulin signaling pathway	11	
		Prostate cancer	12	Yes
JA	Secretion by cell	Neurotrophin signaling pathway	13	Yes
UA	Tricarboxylic acid cycle	Citrate cycle (TCA cycle)	14	Yes

Note: We just enriched the pathways that correspond to the differential functions.

CI = cerebral ischemia; RM^Ds = disappeared responsive modules.

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