

MSBI 2026 BioCausal KG — nodes

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id	nodeKey	displayName	nodeTypeKey	nodeTypeName	phiState	outboundEdges	inboundEdges
68ca74bd-7624-463...	process:antigen-p...	Antigen presentation	BiologicalProcess	Biological process	PUBLIC	0	1
89cb9bb9-13c9-46c...	process:immune-to...	Immune tolerance	BiologicalProcess	Biological process	PUBLIC	0	1
69bec353-da20-47b...	process:insulin-s...	Insulin secretion	BiologicalProcess	Biological process	PUBLIC	0	2
bd582a9d-5c60-452...	process:oxidative...	Oxidative stress	BiologicalProcess	Biological process	PUBLIC	0	0
76a3e23b-6b92-4f9...	biomarker:fasting...	Fasting C-peptide	Biomarker	Biomarker	PUBLIC	2	0
0fe2603e-5746-492...	biomarker:hba1c	HbA1c	Biomarker	Biomarker	PUBLIC	2	0
cb1a1a5c-03c4-497...	cell:pancreatic-b...	Pancreatic beta cell	CellType	Cell type	PUBLIC	5	2
2ffe33a6-9884-4ef...	workflow-definiti...	MSBI 2026 canonical workflow	Dataset	Dataset	PUBLIC	0	18
0aa1a632-5317-438...	disease:chronic-k...	Chronic kidney disease	Disease	Disease	PUBLIC	1	0
9df17bee-2638-4f8...	disease:diabetic-...	Diabetic retinopathy	Disease	Disease	PUBLIC	3	0
1f73f8bb-17f9-4b0...	disease:type-1-di...	Type 1 diabetes mellitus	Disease	Disease	PUBLIC	4	0
386703a4-7c8a-44a...	gene:HLA-DQB1	HLA-DQB1 gene	Gene	Gene	PUBLIC	1	0
c3074044-479b-4cf...	gene:INS	INS gene	Gene	Gene	PUBLIC	1	0
0001ccba-7e23-4dd...	cell:cytotoxic-t-...	Cytotoxic T cell	ImmuneCell	Immune cell	PUBLIC	0	0
8697c81f-30fa-43d...	cell:regulatory-t...	Regulatory T cell	ImmuneCell	Immune cell	PUBLIC	1	0

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id	nodeKey	displayName	nodeTypeKey	nodeTypeName	phiState	outboundEdges	inboundEdges
4139b200-646d-488...	assay:hba1c	HbA1c assay	LabAssay	Laboratory assay	PUBLIC	0	1
ad389524-c2a3-464...	assay:serum-c-pep...	Serum C-peptide assay	LabAssay	Laboratory assay	PUBLIC	0	1
c64cea1f-9158-4d9...	mechanism:endothe...	Endothelial dysfunction	Mechanism	Mechanism	PUBLIC	0	1
a5e20083-28a1-45b...	mechanism:beta-ce...	Immune-mediated beta-cell	Mechanism	Mechanism	PUBLIC	1	1
769d23f6-8742-4a7...	mechanism:loss-of...	Loss of immune tolerance	Mechanism	Mechanism	PUBLIC	3	1
a8876642-624a-426...	mechanism:retinal...	Retinal neovascularization	Mechanism	Mechanism	PUBLIC	1	1
c42e6934-cc9c-417...	metabolite:glucose	Glucose	Metabolite	Metabolite	PUBLIC	0	1
cc994164-2acb-4af...	ontology:chebi	ChEBI	OntologyTerm	Ontology term	PUBLIC	0	0
761f7386-aa76-4d3...	ontology:go	Gene Ontology	OntologyTerm	Ontology term	PUBLIC	0	0
c9dbc1c7-a855-400...	ontology:hpo	Human Phenotype Ontology	OntologyTerm	Ontology term	PUBLIC	0	0
2dd6e8ce-255b-455...	ontology:loinc	LOINC	OntologyTerm	Ontology term	PUBLIC	0	0
a75b1a44-17ae-421...	ontology:mondo	Mondo Disease Ontology	OntologyTerm	Ontology term	PUBLIC	0	0
c86f6060-c41d-4fa...	ontology:rxnorm	RxNorm	OntologyTerm	Ontology term	PUBLIC	0	0
c57ae6b0-b3e2-446...	ontology:uberon	UBERON Anatomy Ontology	OntologyTerm	Ontology term	PUBLIC	0	0
5a061917-3d0c-49e...	ontology:uniprot	UniProt	OntologyTerm	Ontology term	PUBLIC	0	0

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id	nodeKey	displayName	nodeTypeKey	nodeTypeName	phiState	outboundEdges	inboundEdges
25ad340c-5996-425...	organ:eye	Eye	Organ	Organ	PUBLIC	0	1
07ebeff9-343a-473...	organ:kidney	Kidney	Organ	Organ	PUBLIC	0	1
1fb72b95-f48f-44c...	organ:pancreas	Pancreas	Organ	Organ	PUBLIC	0	1
3e9f6fee-0c02-4d7...	phenotype:hypergl...	Hyperglycaemia	Phenotype	Phenotype	PUBLIC	0	2
72d41b6b-3a99-49d...	phenotype:insulin...	Insulin deficiency	Phenotype	Phenotype	PUBLIC	1	1
ab6808a2-5553-49d...	phenotype:reduced...	Reduced visual function	Phenotype	Phenotype	PUBLIC	0	1
fc37b95e-5800-4f1...	protein:c-peptide	C-peptide	Protein	Protein	PUBLIC	0	2
e8a395c1-2965-43b...	protein:insulin	Insulin	Protein	Protein	PUBLIC	1	2
b6df552c-1f7e-4f9...	protein:proinsulin	Proinsulin	Protein	Protein	PUBLIC	2	2
3eb95853-cbe7-463...	standard:fhir-r5	HL7 FHIR R5	SourceSystem	Source system	PUBLIC	0	0
2dd10045-f84c-499...	standard:omop-cdm...	OMOP Common Data Model 5.4	SourceSystem	Source system	PUBLIC	0	0
03d7d9cc-5a84-4b4...	standard:snomed-m...	SNOMED CT Machine Readable Concept	SourceSystem	Source system	PUBLIC	0	0
b481bc08-9704-4d9...	standard:prov-o	W3C PROV-O	SourceSystem	Source system	PUBLIC	0	0
f941a622-8c37-4ec...	tissue:pancreatic...	Pancreatic islet	Tissue	Tissue	PUBLIC	1	1
1994e23c-295d-42e...	tissue:retina	Retina	Tissue	Tissue	PUBLIC	1	1

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id	nodeKey	displayName	nodeTypeKey	nodeTypeName	phiState	outboundEdges	inboundEdges
eced0e95-9ddf-456...	gate:clinical-rev...	Clinician review gate	ValidationGate	Validation gate	PUBLIC	0	1
bb4c0594-1ef0-4f3...	gate:falsification	Falsification readiness gate	ValidationGate	Validation gate	PUBLIC	0	1
c7f10a03-81d4-46f...	gate:evidence-min...	Minimum evidence gate	ValidationGate	Validation gate	PUBLIC	0	1
a2d16f74-1d8c-43c...	workflow-stage:ag...	Agent registry resolution and	WorkflowStage	Workflow stage	PUBLIC	1	0
8eaf7185-dd0c-4b3...	workflow-stage:kn...	BioCausal knowledge graph	WorkflowStage	Workflow stage	PUBLIC	1	0
bd54517e-6341-496...	workflow-stage:ev...	Biomedical evidence retrieval	WorkflowStage	Workflow stage	PUBLIC	1	0
f14400a6-7dc2-431...	workflow-stage:bi...	Bitstring and state decoding	WorkflowStage	Workflow stage	PUBLIC	1	0
163fa007-a492-4e1...	workflow-stage:ca...	Case ingestion and terminology	WorkflowStage	Workflow stage	PUBLIC	1	0
262f0c0d-41ab-49f...	workflow-stage:cl...	Classical optimization	WorkflowStage	Workflow stage	PUBLIC	1	0
0abd711a-8382-475...	workflow-stage:ca...	Constrained causal discovery	WorkflowStage	Workflow stage	PUBLIC	1	0
80aa1931-bed5-4e1...	workflow-stage:co...	Counterfactual twin branches	WorkflowStage	Workflow stage	PUBLIC	1	0
8e44401b-4aba-4fd...	workflow-stage:de...	Decision-variable and constraint	WorkflowStage	Workflow stage	PUBLIC	1	0
06350219-f964-477...	workflow-stage:en...	Environment and input discovery	WorkflowStage	Workflow stage	PUBLIC	1	0
20db5f45-bccc-422...	workflow-stage:di...	Multiscale digital-twin	WorkflowStage	Workflow stage	PUBLIC	1	0
f95fbf3c-84a1-468...	workflow-stage:pr...	Privacy, consent and	WorkflowStage	Workflow stage	PUBLIC	1	0

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id	nodeKey	displayName	nodeTypeKey	nodeTypeName	phiState	outboundEdges	inboundEdges
b91022c2-e8c9-4b1...	workflow-stage:so...	Public datasource registry and	WorkflowStage	Workflow stage	PUBLIC	1	0
56577d25-25f9-4cf...	workflow-stage:qu...	QUBO and Ising formulation	WorkflowStage	Workflow stage	PUBLIC	1	0
ab2c4f75-f99f-4ae...	workflow-stage:qu...	Quantum circuit suite and backend	WorkflowStage	Workflow stage	PUBLIC	1	0
06276446-9ae5-4ad...	workflow-stage:re...	Reproducibility and falsification	WorkflowStage	Workflow stage	PUBLIC	1	0
9712105c-3b21-4ac...	workflow-stage:ro...	Sensitivity, uncertainty and	WorkflowStage	Workflow stage	PUBLIC	1	0
ab4d9918-2401-473...	workflow-stage:sa...	Sentinel safety and release-band	WorkflowStage	Workflow stage	PUBLIC	1	0