

Entities

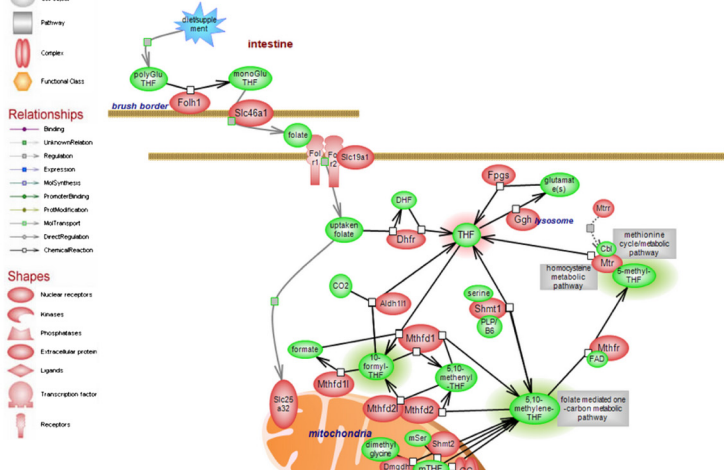


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Description

Tetrahydrofolates (THF) are soluble forms of vitamin B9 that play essential roles in a number of metabolic pathways by mediating the transfer of 1-carbon (1C) units for the de novo synthesis of purines and thymidylates and for the re-methylation of homocysteine (Hcy) to methionine (Met). Humans cannot synthesize folate and must derive it from diet or as a supplement in the form of folic acid (FA). The folate/FA consist of three moieties: a pterin (pteridine) ring, a para aminobenzoic group (PABA_<more>

Pathway Diagram:



Relationships



Shapes



Rat Mouse Human show annotations for term's descendants Sort by: symbol

folate cycle metabolic pathway

Symbol	Object Name
Aldh1f1	aldehyde dehydrogenase 1 family
Amt	aminomethyltransferase
Dhfr	dihydrofolate reductase
Did	dihydroliipoamide dehydrogenase
Dmghd	dimethylglycine dehydrogenase
Folh1	folate hydrolase 1
Folh1	folate hydrolase 1
Folr1	folate receptor 1 (adult)
Folr2	folate receptor 2 (fetal)
Fqgs	folylpolylglutamate synthase
Gcsh	glycine cleavage system protein H (aminomethyl carrier)
Ggh	gamma-glutamyl hydrolase (conjugase, folylpolyglutamylamyl hydrolase)
Gldc	glycine dehydrogenase (decarboxylating)
Mthfd1	methylene tetrahydrofolate dehydrogenase (NADP+ dependent) methenyltetrahydrofolate cyclohydrolase, formyltetrahydrofolate synthetase
Mthfd1l	methylene tetrahydrofolate dehydrogenase (NADP+ dependent) 1-like
Mthfd2	methylene tetrahydrofolate dehydrogenase (NADP+ dependent) methenyltetrahydrofolate cyclohydrolase

Disease Annotations Associated with Genes in the folate cycle metabolic pathway

Diseases/Genes	Genes/Diseases
Disease Terms	Gene Symbols
Amotrophic Lateral Sclerosis	Folh1
Aortic Coarctation	Mthfr
Pancreatic Neoplasms	Mtr, Mtrr, Mthfr
Osteosarcoma	Mthfr
Metabolism, Inborn Errors	Dhfr, Mthfd1
Carcinoma, Renal Cell	
Renal Insufficiency	
Hyperhomocysteinemia	
Leish Disease	
Diabetes Mellitus, Type 2	
Cholangiocarcinoma	
Liver Neoplasms	
Neural Tube Defects	
Maple Syrup Urine Disease	
Hypothyroidism	

Pathway Annotations Associated with Genes in the folate cycle metabolic pathway

Pathways/Genes	Genes/Pathways
Pathway Terms	Gene Symbols
glycolysis/gluconeogenesis pathway	Did
citric acid cycle pathway	Did
pyrimidine metabolic pathway	Dhfr
pyruvate metabolic pathway	Did
glycine, serine and threonine metabolic pathway	Dmghd, SarcH, Did, Shmt2, Gldc, Shmt1, Amt
methionine cycle/metabolic pathway	Mtr, Mtrr, Mthfr
valine, leucine and isoleucine degradation pathway	Did
cyranamino acid metabolic pathway	Shmt2, Shmt1
selenoamino acid metabolic pathway	Mtr
folate metabolic pathway	Dhfr, Ggh, Slc19a1, Folh1, Folr1, Dmghd, SarcH, Mtr, Aldh1f1, Mthfd1, Folr2, Shmt2, Mtr, Mthfr, Mthfd2, Shmt1, Fqgs
folate mediated one-carbon metabolic pathway	Dhfr, Ggh, Folh1, Dmghd, SarcH, Mtr, Aldh1f1, Mthfd1, Mthfd1l, Shmt2, Mtr, Mthfr, Mthfd2, Mthfd2, Shmt1, Amt
endocytosis pathway	Folr1, Folr2
homocysteine metabolic pathway	Mthfr
remethylation pathway of homocysteine metabolism -cobalamin dependent	Mtr, Mtrr, Mthfr
glycine metabolic pathway	Shmt2, Shmt1
glycolysis pathway	Did