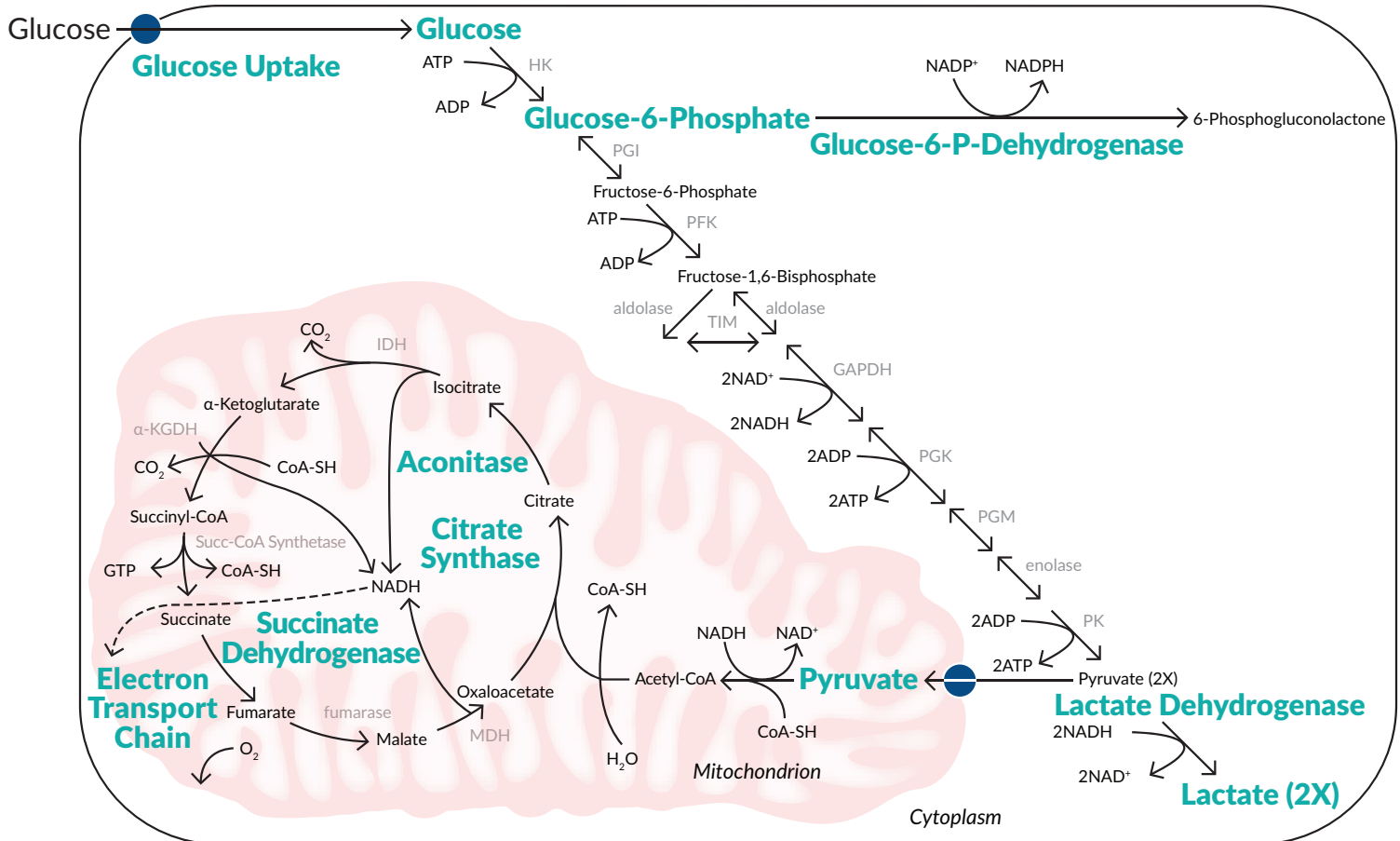


# Glucose Metabolism



Glucose metabolism is central to mammalian life. Dynamic changes in any of the steps involved in processing glucose and its derivatives contribute to a wide range of diseases. Measuring the enzymes and metabolites is pivotal to biological and medical research. Cayman offers an array of tools to make these measurements quickly, easily, and accurately.



## Assay Kits

Item No.	Product Name	Measures
600470	Glucose Uptake Cell-Based Assay Kit	Glucose uptake in cultured cells
10009582	Glucose Colorimetric Assay Kit	Glucose in plasma, serum, and urine
600450	Glycolysis Cell-Based Assay Kit	Extracellular L-lactate in cultured cells
700750	Glucose-6-Phosphate Fluorometric Assay Kit	G6P in cell lysates and tissue homogenates
700300	Glucose-6-Phosphate Dehydrogenase Activity Assay Kit	G6PDH activity in cell lysates and tissue homogenates
700510	L-Lactate Assay Kit	L-Lactate in cultured cells, plasma, saliva, serum, urine, and whole blood
700470	Pyruvate Assay Kit	Pyruvate in cultured cells, plasma, saliva, serum, urine, and whole blood
700480	Glycogen Assay Kit	Glycogen content in tissue homogenates
700410	ATP Detection Assay Kit - Luminescence	Total ATP levels in a variety of sample types

## Glucose Metabolism Substrates

Item No.	Product Name	Activity
19588	D-Fructose-6-phosphate (sodium salt hydrate)	An intermediate of the glycolytic pathway formed by the isomerization of glucose-6-phosphate
16464	$\alpha$ -D-Glucose-1,6-bisphosphate (cyclohexyl ammonium salt hydrate)	A derivative of glucose used to study carbohydrate metabolism
20376	D-Glucose-6-phosphate (sodium salt)	The starting molecule for the glycolysis and pentose phosphate pathways
17865	DL-Glyceraldehyde-3-phosphate	An intermediate in several metabolic pathways, including glycolysis and gluconeogenesis
19192	Phosphoenolpyruvic Acid (potassium salt)	An enzyme substrate for the glycolysis and gluconeogenesis pathways
21423	D-Ribulose-5-phosphate (sodium salt)	An intermediate in the pentose phosphate pathway
21344	D-Sedoheptulose-7-phosphate (barium salt)	An intermediate in the pentose phosphate pathway

## Glucose Metabolism Inhibitors

Altered glucose metabolism is characteristic of neoplastic and highly proliferative cells. Inhibitors of the rate-controlling enzymes in the gluconeogenesis and glycolysis pathways have great potential in the treatment of cancer.

Item No.	Product Name	Activity
10009315	6-Aminonicotinamide	Inhibits 6-PGD ( $K_i = 0.46 \mu\text{M}$ ); interferes with glycolysis, resulting in ATP depletion and synergizes with DNA-crosslinking chemotherapy drugs, like cisplatin, in killing cancer cells
18860	Fructose-1,6-bisphosphatase-1 Inhibitor	Blocks fructose-1,6-bisphosphatase-1 activity ( $IC_{50} = 3.4 \mu\text{M}$ ; $K_i = 1.1 \mu\text{M}$ ); blocks glucose production in starved rat hepatoma cells ( $IC_{50} = 6.6 \mu\text{M}$ )
14325	2-deoxy-D-Glucose	A non-metabolizable glucose analog that inhibits phosphorylation of glucose by hexokinase
31484	G6PDi-1	A reversible and noncompetitive inhibitor of G6PDH ( $IC_{50} = 0.07 \mu\text{M}$ ), the enzyme that converts G6P to 6-phosphogluconolactone in the first step of the pentose phosphate pathway
20626	GSK2837808A	A potent inhibitor of lactate dehydrogenase (LDH) A and B ( $IC_{50}$ s = 2.6 and 0.43 nM, respectively); reduces glucose consumption in Snu398 but not HepG2 hepatocellular carcinoma cells
14079	Heptelidic Acid	Inhibits GAPDH ( $K_i = 1.6 \mu\text{M}$ ); selectively induces apoptosis in high-glycolytic cancer cells by inhibiting the generation of ATP in the glycolytic pathway
14640	Lonidamine	Inhibits glycolysis through the inactivation of mitochondria-bound hexokinase
20895	3-Mercaptopicolinic Acid (hydrochloride)	An inhibitor of gluconeogenesis that targets phosphoenolpyruvate carboxykinase
19276	3PO	Inhibits PFKFB3 ( $IC_{50} = 23 \mu\text{M}$ ); causes a rapid reduction in fructose-2,6-bisphosphate, glucose uptake, and lactate secretion

## Cellular Metabolism Screening Library

### Item No. 33705

- For screening a variety of cellular metabolism modulators
- Contains ~160 compounds
- Includes modulators of enzymes in glycolysis, the pentose phosphate pathway, and the citric acid cycle
- Also includes modulators of nucleotide and lipid metabolism, oxidative phosphorylation, redox homeostasis, and other cellular metabolism-related processes



## Fluorescent Probes

Item No.	Product Name	Detects	Excitation (nm)	Emission (nm)
9002314	NBD-Fructose	Fructose uptake	■ 472	■ 538
11046	2-NBDG	Glucose uptake	■ 475	■ 550
13961	6-NBDG	Glucose uptake and transport	■ 465	■ 535