

Adenosine

Adenosine is a purine nucleoside comprised of adenine attached to a ribose sugar that plays a key role in cellular processes such as energy transfer and signal transduction.

Akt

Akt, also known as protein kinase B, is a kinase activated upon insulin stimulation that aids in facilitating glucose uptake into insulin sensitive tissues such as the skeletal muscle.

ATP-sensitive potassium channels (K_{ATP})

K_{ATP} are potassium channels gated by ATP present in the sarcolemmal, mitochondrial, and nuclear membranes. Increased ATP levels cause these channels to close, resulting in depolarization.

Cyclosporin A

Cyclosporin A is an immunosuppressive agent that inhibits MPTP opening via binding to cyclophilin D.

Electron transport chain

The electron transport chain encompasses a series of four inner mitochondrial membrane protein complexes that allow electron transfer between electron donors (i.e., NADH/FADH₂) and electron acceptors such as O₂. The transfer of electrons between these complexes causes the transfer of protons from inside the mitochondrial matrix outside into the mitochondrial inner membrane space, which drives an electrochemical proton gradient used to drive ATP synthesis in the process of oxidative phosphorylation.

Exenatide

Exenatide is the synthetic version of the GLP-1 receptor agonist hormone, exendin-4, and is currently used in the treatment of type 2 diabetes due to its ability to enhance glucose-stimulated insulin secretion.

FGF-2 (fibroblast growth factor-2)

FGF-2 exists as low molecular weight (18 kDa) and high molecular weight isoforms (20-34 kDa). It belongs to a large family (FGF-1-FGF23) of highly conserved

heparin binding growth factors that act by binding to and activating cell surface receptors (FGFR1-FGFR4) possessing intrinsic tyrosine kinase activity.

Heat shock proteins (HSPs)

Heat shock proteins are cytoprotective, molecular chaperone proteins, belonging to five families based on molecular weight (kDa)—HSP100, HSP90, HSP70, HSP60, and small HSPs (12-43 kDa).

Insulin-like growth factor-1 (IGF-1)

IGF-1 is a 70 amino acid peptide hormone that is structurally related to insulin, IGF-1 contributes to a wide range of processes including the regulation of cellular growth, differentiation, survival, and energy homeostasis.

Mitochondrial permeability transition pore(MPTP)

The MPTP is a protein pore that forms in the inner mitochondrial membrane during cellular stresses such as ischemia/reperfusion injury, resulting in mitochondrial swelling and subsequent cellular death via either apoptosis or necrosis.

Reperfusion injury salvage kinase (RISK) pathway

The RISK pathway is a cytoprotective kinase signaling pathway comprised of the pro-survival kinases phosphatidylinositol 3-kinase, Akt, and the extracellular regulated mitogen activated protein kinases (ERK1/2). It is implicated in limiting myocardial ischemia reperfusion injury.

Sevoflurane [1,1,1,3,3,3-hexafluoro-2-(fluoromethoxy)propane]

Sevoflurane is a volatile liquid that is utilized as an inhalation anesthetic to induce and maintain general anesthesia.

Survivor activating enhancer (SAFE) pathway

The SAFE pathway is a cytoprotective kinase signaling pathway that requires the activation of signal transducer and activator of transcription 3 (STAT-3) and is implicated in limiting myocardial ischemia reperfusion injury. •