

Glossary

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Bile acids

Steroid acids found primarily in the bile of mammals. The 2 major bile acids in humans are cholic acid and chenodeoxycholic acid. The primary function of bile acids is to facilitate and assist micelle formation for the processing of dietary fat.

Body mass index (BMI)

A statistical measure of body weight involving an individual's height and weight. The formula to calculate BMI is: $Mass (kg)/height (m^2)$.

Brown adipose tissue (BAT)

One of the 2 types of fat found in mammals (the other and primary type in humans is white adipose tissue). BAT is abundant in hibernating animals and newborns, and its primary function is for heat generation. It appears brown in nature versus white adipose tissue because of its high mitochondrial content, which is rich in iron content.

Fatty acid-binding protein 4 (FABP4)

A member of a conserved multigene family of intracellular lipid-binding proteins having an approximate molecular mass of 15 kDa that are involved in the cellular uptake and transport of fatty acids. FABP4 is alternatively known as adipocyte FABP, is primarily expressed in adipose tissue, liver, and macrophages.

Fluoro-D-deoxyglucose ($[^{18}F]$ 2-fluoro-2-deoxyglucose)

A glucose analogue labelled with the positron emitting isotope, fluorine-18 at the 2-position of the glucose ring. Fluoro-D-deoxyglucose is commonly used to non-invasively measure regional myocardial glucose uptake via positron emission tomography (PET). After infusion of fluoro-D-deoxyglucose, it is transported into the myocardium via glucose transporters, and is

subsequently phosphorylated by hexokinase, generating fluoro-D-deoxyglucose-6-phosphate, which is not metabolized further, and thus accumulates in the myocardium.

Hexosamine biosynthetic pathway (HPB)

A percentage of fructose-6-phosphate generated by glycolysis is utilized by the hexosamine biosynthetic pathway (HPB). The enzyme glutamine: fructose-6-phosphate aminotransferase (GFAT) catalyses the irreversible transfer of the amino group from glutamine and the isomerisation of fructose-6-phosphate generating glucosamine-6-phosphate and glutamate. A series of enzymatic steps leads to the conversion of glucosamine-6-phosphate to O-linked β -N-acetylglucosamine (O-GlcNAc), the end product of the HBP, which can be attached to the hydroxyl moieties of serine and threonine residues of cytosolic and nuclear proteins.

Jun N-terminal kinase (JNK)

A member of the mitogen activated protein kinase (MAPK) superfamily that is primarily activated in response to cellular stresses. Activated JNK can phosphorylate the transcription factor, c-Jun within its N-terminal activation domain.

Toll-like receptors (TLRs)

A family of 10 receptors (TLR1-TLR10) characterized by the presence of extracellular leucine-rich repeats and an intracellular Toll/interleukin-1 receptor (TIR) domain. TLRs are implicated in host defence and inflammation as they respond to both to microbial products and endogenous factors that are released during tissue injury and inflammation.

Transmembrane G protein-coupled receptors (TGRs)

Are receptors spanning the entire plasma membrane that consists of 7 transmembrane domains. They

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function in sensing molecules outside the cell in order to activate intracellular signal transduction pathways, ultimately resulting in a cellular functional response.

For most part, TGRs mediate signal transduction primarily via 2 types of second messenger molecules, either cAMP or IP3 and DAG.