Comprehensive Human Physiology Vol 1 From Cellular Mechanisms To Integration

The World Health Organization's International Agency for Research on Cancer estimated that in 2002, infection caused 17.8% of human...

Myosin-7

Filament Protein Network, Functions, and Disease Association". Comprehensive Physiology. 8 (2): 631–709. doi:10.1002/cphy.c170023. ISBN 9780470650714.

Myosin-7 is a protein that in humans is encoded by the MYH7 gene.

Thermogenin

1990). "Human uncoupling protein gene: structure, comparison with rat gene, and assignment to the long arm of chromosome 4". Journal of Cellular Biochemistry

Thermogenin (called uncoupling protein by its discoverers and now known as uncoupling protein 1, or UCP1) is a mitochondrial carrier protein found in brown adipose tissue (BAT). It is used to generate heat by non-shivering thermogenesis, and makes a quantitatively important contribution to countering heat loss in babies which would otherwise occur due to their high surface area-volume ratio. Recent findings indicate that the UCP1 protein plays a crucial role in thermogenesis by catalyzing the dissipative production of heat through protons derived from NADH and FADH2. These electron carriers are produced in the TCA cycle from the oxidation of acetyl-CoA, which comes from the breakdown of free fatty acids. Intriguingly, the acetyl-CoA products undergo a recycling process that facilitates their...

Billman's research has focused on cardiovascular function, in particular its role in the induction of ventricular fibrillation (VF). He developed non-invasive methods to study autonomic neural regulation of the heart, using a canine model of sudden cardiac death (SCD). These techniques have subsequently been used in human patients to identify people at high risk for VF. Billman has used his sudden cardiac death models to study the effects...

Sodium/iodide cotransporter

Fisiológicos y Alteraciones Pathológicas" [Molecular Mechanisms Involved in Thyroid Function: Physiological Process Control and Pathological Alterations] (PDF)

The sodium/iodide cotransporter, also known as the sodium/iodide symporter (NIS), is a protein that in humans is encoded by the SLC5A5 gene. It is a transmembrane glycoprotein with a molecular weight of 87 kDa and 13 transmembrane domains, which transports two sodium cations (Na+) for each iodide anion (I−) into the cell. NIS mediated uptake of iodide into follicular cells of the thyroid gland is the first step in the synthesis of thyroid hormone.

Systems biology

data integration with mathematical models." (Sauer et al.) "Systems biology ... is about putting together rather than taking apart, integration rather

Systems biology is the computational and mathematical analysis and modeling of complex biological systems. It is a biology-based interdisciplinary field of study that focuses on complex interactions within biological systems, using a holistic approach (holism instead of the more traditional reductionism) to biological research. This multifaceted research domain necessitates the collaborative efforts of chemists, biologists, mathematicians, physicists, and engineers to decipher the biology of intricate living systems by merging various quantitative molecular measurements with carefully constructed mathematical models. It represents a comprehensive method

for comprehending the complex relationships within biological systems. In contrast to conventional biological studies that typically center...

Metabolism

are: converting the energy in food into a usable form for cellular processes; converting food to building blocks of macromolecules (biopolymers) such as

Metabolism (, from Greek: μεταβολή metabolē, "change") refers to the set of life-sustaining chemical reactions that occur within organisms. The three main functions of metabolism are: converting the energy in food into a usable form for cellular processes; converting food to building blocks of macromolecules (biopolymers) such as proteins, lipids, nucleic acids, and some carbohydrates; and eliminating metabolic wastes. These enzyme-catalyzed reactions allow organisms to grow, reproduce, maintain their structures, and respond to their environments. The word metabolism can also refer to all chemical reactions that occur in living organisms, including digestion and the transportation of substances into and between different cells. In a broader sense, the set of reactions occurring within the cells...

Human brain

Behavioral Sciences, Volume 1. John Wiley & Sons. p. 145. ISBN 978-0-470-08355-0. Sherwood, L. (2012). Human Physiology: From Cells to Systems. Cengage Learning

The human brain is the central organ of the nervous system, and with the spinal cord, comprises the central nervous system. It consists of the cerebrum, the brainstem and the cerebellum. The brain controls most of the activities of the body, processing, integrating, and coordinating the information it receives from the sensory nervous system. The brain integrates sensory information and coordinates instructions sent to the rest of the body.

Carbonic anhydrase inhibitor

Greger, Rainer; Windhorst, Uwe (1996). Comprehensive Human Physiology: From Cellular Mechanisms to Integration. Berlin, Heidelberg: Springer. p. 1518

Carbonic anhydrase inhibitors are a class of pharmaceuticals that suppress the activity of carbonic anhydrase. Their clinical use has been established as anti-glaucoma agents, diuretics, antiepileptics, in the management of mountain sickness, gastric and duodenal ulcers, idiopathic intracranial hypertension, neurological disorders, or osteoporosis.

Oncovirus

there seems to be no deterministic predictor of the site of integration. After integration, the host's cell cycle loses regulation from Rb and p53, and

An oncovirus or oncogenic virus is a virus that can cause cancer. This term originated from studies of acutely transforming retroviruses in the 1950–60s, when the term oncornaviruses was used to denote their RNA virus origin. With the letters RNA removed, it now refers to any virus with a DNA or RNA genome causing cancer and is synonymous with tumor virus or cancer virus. The vast majority of human and animal viruses do not cause cancer, probably because of longstanding co-evolution between the virus and its host. Oncoviruses have been important not only in epidemiology, but also in investigations of cell cycle control mechanisms such as the retinoblastoma protein.

The cerebrum, the largest part of the human brain, consists of two cerebral hemispheres. Each hemisphere has an inner core composed of white matter, and an outer surface – the cerebral cortex – composed of grey matter. The cortex has an outer layer, the neocortex, and an inner allocortex. The neocortex is made up of six neuronal layers, while the allocortex...

It is the myosin heavy chain beta (MHC-β) isoform (slow twitch) expressed primarily in the heart, but also in skeletal muscles (type I fibers). This isoform is distinct from the fast isoform of cardiac myosin heavy chain, MYH6,

referred to as MHC-α. MHC-β is the major protein comprising the thick filament that forms the sarcomeres in cardiac muscle and plays a major role in cardiac muscle contraction.

BK channel

Frontiers in Physiology. 6: 29. doi:10.3389/fphys.2015.00029. PMC 4319557. PMID 25705194. Cui J, Yang H, Lee US (March 2009). "Molecular mechanisms of BK channel

BK channels (big potassium), are large conductance calcium-activated potassium channels, and is also known as BKCa, Maxi-K, slo1, or Kca1.1. BK channels are voltage-gated potassium channels that conduct large amounts of potassium ions (K+) across the cell membrane, hence their name, big potassium. These channels can be activated (opened) by either electrical means, or by increasing Ca2+ concentrations in the cell. BK channels help regulate physiological processes, such as circadian behavioral rhythms and neuronal excitability. BK channels are also involved in many processes in the body, as it is a ubiquitous channel. They have a tetrameric structure that is composed of a transmembrane domain, voltage sensing domain, potassium channel domain, and a cytoplasmic C-terminal domain, with many X...

George Billman

attempting to understand the biochemical and cellular mechanisms which lead to sudden cardiac death. Billman received a new investigator award from National

George Edward Billman (born July 23, 1954) is an American physiologist and professor at Ohio State University. After receiving a Ph.D from the University of Kentucky in 1980, Billman began his professional career at the University of Oklahoma. In 1984, he joined the Ohio State staff, where he became an associate professor in 1990 and a full professor in 1996.

Members of carbonic anhydrase inhibitor group of medications include: acetazolamide, dorzolamide, methazolamide, brinzolamide, dichlorphenamide.

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