Insulin-like growth factor 1

- Effects of high-intensity interval training on executive functions and IGF-1 levels in sedentary young women: a randomized controlled trial
- Association of IGF-1 and IGFBP-3 with metabolic abnormalities among children and adolescents
- A Peptide Hydrogel Responsive to Reactive Oxygen Species and pH for the Protection and Sustained Delivery of Insulin-like Growth Factor 1 in Osteoarthritis Treatment
- Short-Term Severe Low Energy Availability in Athletes: Molecular Mechanisms, Endocrine Responses, and Performance Outcomes-A Narrative Review
- Effect of rumen-protected guanidinoacetic acid provision as a dietary supplement on the growth, slaughter performance, and meat quality in simmental bulls
- Outcomes of recombinant growth hormone therapy in the traumatic brain injury population: A scoping review
- Co-expression Enhances Cloning Efficiency and Protein Production in CHO Cells
- MicroRNA Let-7b-5p Targets IGF1R to Inhibit the Progression of Hepatocellular Carcinoma Through the AKT/mTOR Pathway

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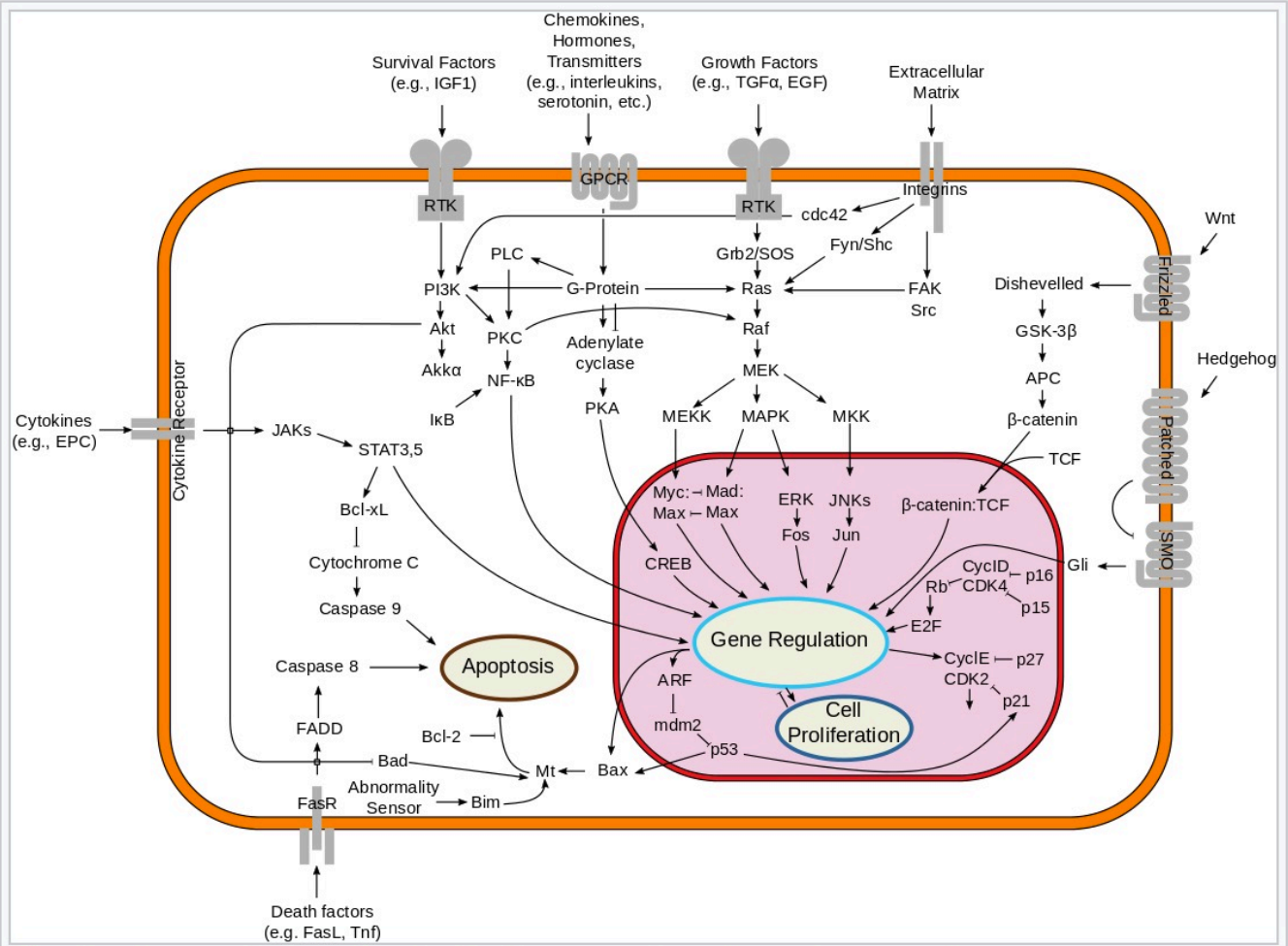
Insulin-like growth factor 1 (IGF-1), also called somatomedin C, is a protein that in humans is encoded by the IGF1 gene.

IGF-1 has also been referred to as a “sulfation factor” and its effects were termed “nonsuppressible insulin-like activity” (NSILA) in the 1970s.

IGF-1 is a hormone similar in molecular structure to insulin. It plays an important role in childhood growth and continues to have anabolic effects in adults. A synthetic analog of IGF-1, mecasermin, is used for the treatment of growth failure.

IGF-1 consists of 70 amino acids in a single chain with three intramolecular disulfide bridges. IGF-1 has a molecular weight of 7,649 daltons.



Simplified representation of major signal transduction pathways in mammals.

Results show that intraneural injection of IGF-1 in an 18 mm cryopreserved isograft improve Axon regeneration and functional recovery [1].

GH-secreting pituitary neuroendocrine tumor is related to high levels of growth hormone (GH) and insulin-like growth factor-I (IGF-1).

Insulin-like Growth Factors (IGFs) have been shown to increase the rate of peripheral nervous system axon regeneration. IGF-1 and IGF-II mRNA levels are significantly increased distal to the site of crush injury in rat sciatic nerves.

At the site of nerve repair, locally delivered IGF-I can significantly increase the rate of axon regeneration within a nerve graft and help expedite functional recovery of a paralyzed muscle.

As the only GH receptor antagonist (GHRA) available, pegvisomant has shown its effectiveness in the control of insulin like growth factor IGF-1 [2].

Co-secretion of growth hormone (GH) and prolactin (PRL) from a single pituitary neuroendocrine tumor is common. In fact, up to 25% of patients with acromegaly may have PRL co-secretion. The prevalence of acromegaly among patients with a newly diagnosed prolactinoma is unknown. Given the possibility of mixed GH and PRL co-secretion, the current recommendation is to obtain an insulin-like growth factor-1 (IGF-1) in patients with prolactinoma at the initial diagnosis. Long-term follow-up

of IGF-1 is not routinely done [3].

1)
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2)
Neggers SJ, van Aken MO, de Herder WW, et al. Quality of life in acromegalic patients during long-term somatostatin analog treatment with and without pegvisomant. J Clin Endocrinol Metab. 2008;93(10):3853–3859.
3)
Manuylova E, Calvi LM, Hastings C, Vates GE, Johnson MD, Cave WT Jr, Shafiq I. Late presentation of acromegaly in medically controlled prolactinoma patients. Endocrinol Diabetes Metab Case Rep. 2016;2016. pii: 16-0069. PubMed PMID: 27855229.