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亮氨酸调节哺乳动物骨骼肌蛋白质合成的研究进展

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Leucine: Regulation on Protein Synthesis of Skeletal Muscles in Mammals

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摘要 本文综述了亮氨酸处理对哺乳动物（主要是鼠和猪）骨骼肌及其细胞蛋白质合成的影响规律，并分析讨论了这一过程中亮氨酸的作用机制。近年来，大量的体内和体外试验研究表明，长期或短期高剂量的亮氨酸处理能够刺激哺乳动物骨骼肌内蛋白质的合成，而这不仅仅是由于亮氨酸可以为骨骼肌蛋白质合成提供能量和基质，还由于其可以调节骨骼肌细胞内与蛋白质合成相关信号通路（如mTOR依赖与非依赖信号通路）的活性。

关键词： 亮氨酸 哺乳动物 骨骼肌 蛋白质合成

Abstract： The present paper reviewed the rules and mechanisms of leucine regulating protein synthesis of skeletal muscles and muscular cells in mammals, especially rodents and pigs. Recently, many in vivo and in vitro experiments showed that the protein synthesis of skeletal muscles could be increased by long- and short-term treatment of leucine. Furthermore, in this process, leucine not only acts as the substrate and the source of energy for protein synthesis, but also stimulates protein synthesis by regulating intracellular signaling pathways, which include mTOR dependent and independent pathways. [Chinese Journal of Animal Nutrition, 2011, 23（5）: 709 -714]

Keywords： leucine, mammals, skeletal muscles, protein synthesis

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