

综述

胰高血糖素样肽1类似物调节胰岛素分泌细胞增殖和功能的细胞信号通路研究进展

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收稿日期 2009-3-3 修回日期 网络版发布日期 2009-8-20 接受日期 2009-6-8

摘要 胰岛素分泌细胞的功能紊乱是糖尿病早期的病理学特征。胰高血糖素样肽1 (GLP1) 是由肠黏膜L细胞分泌和葡萄糖浓度依赖的多肽类激素, 它能够刺激胰岛素的基因表达、蛋白质合成和分泌; 最重要的是, GLP1作为一种生长因子, 可促进胰岛素分泌细胞增殖, 并抑制其凋亡, 增加其数量, 增强其功能。其机制包括多条胞内信号通路, 如通过激活GLP1受体激活蛋白激酶A和直接被cAMP活化的交换蛋白, 或通过GLP1受体由表皮生长因子β细胞素(β-cellulin)或基质金属蛋白酶反式激活表皮生长因子受体并增加Wnt信号通路因子等。本文综述了近年来GLP1及其类似物调节胰岛素分泌细胞增殖和功能信号通路的研究进展。

关键词 [胰高血糖素样肽1](#) [胰岛素分泌细胞](#) [细胞增殖](#) [信号传导](#)

分类号 [Q25, R963](#)

Progress in signal transduction of glucagon-like peptide 1 on regulating insulin-secreting cell mass and function

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Abstract

Dysfunction of insulin-secreting cells is an early pathophysiological defect in type 2 diabetes mellitus. Glucagon-like peptide 1(GLP1) is an incretin hormone displaying glucose-dependent stimulation of insulin gene expression, biosynthesis and secretion, trophic effects on the insulin-secreting cells, and inhibitory effects on gastrointestinal motility. Furthermore, GLP1 acts as a growth factor by promoting insulin-secreting cell survival and proliferation, and inhibiting of insulin-secreting cell apoptosis. These effects of GLP1 appear to involve multiple intracellular pathways, including GLP1 receptor-mediated the stimulation of protein kinase A and exchange protein directly activated by cAMP, or GLP1 receptor-mediated transactivation of epidermal growth factor receptor via epidermal growth factor β-cellulin and metalloproteinases, or GLP1 receptor-mediated enhancement of Wnt signaling. This paper summerizes the progress in the molecular mechanisms by which GLP1 signaling-induces insulin-secreting cell mass expansion and function.

Key words [glucagon-like peptide 1](#) [insulin-secreting cells](#) [cell proliferation](#) [signal transduction](#)

DOI: 10.3867/j.issn.1000-3002.2009.04.002

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