

综述

胰岛素受体底物在乳腺发育和恶性转化中的作用

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摘要

胰岛素受体底物 (insulin receptor substrates, IRSs)家族是胰岛素受体 (insulin receptor, IR)、胰岛素样生长因子-1受体 (insulin like growth-1 receptor, IGF-1R) 酪氨酸蛋白激酶的主要细胞内底物, 主要介导细胞对胰岛素、胰岛素样生长因子-1、白介素、干扰素、肿瘤坏死因子等多种细胞因子的反应。作为结合蛋白, 它们通过连接并传递从上游的激活子到下游的效应器之间的信号, 从而调节细胞正常的生长、代谢、生存与分化。在胰岛素受体底物家族接受并应答的众多细胞外信号中, 大部分是与乳腺发育相关的关键信号, 该蛋白在乳腺细胞中的表达是否正常决定乳腺细胞是正常发育还是恶性转化。

关键词 [胰岛素受体底物](#); [乳腺发育](#); [恶性转化](#); [乳腺癌](#)

分类号

Role of insulin receptor substrates in the development and oncogenic transformation of mammary gland

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Abstract

The family of insulin receptor substrates (IRSs) are important intracellular substrates for tyrosine protein kinase of insulin receptor and insulin-like growth factor receptor, which mediate the responses of the cells to insulin, insulin-like receptor growth-1 receptor, interleukins, interferons, and tumor necrosis factor. IRSs act as binding proteins that connect and transduce the biological signals from up-stream activators to down-stream effectors, so as to regulate the normal growth, metabolism, survival and differentiation of the cells. The family of IRSs responds to a lot of extracellular signals, most of which are the key signals for mammogenesis. IRSs play important roles in physiological development and oncogenic transformation of mammary gland cells, and the later leads to the carcinogenesis of breast cancer.

Key words [insulin receptor substrates](#) [mammogenesis](#) [oncogenic transformation](#) [breast cancer](#)

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