中国生物工程杂志 2012, 32(02) 1-7 DOI: ISSN: 1671-8135 CN: 11-4816/Q

论文

应用酵母双杂交系统筛选AMPK相互作用蛋白

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摘要:

一磷酸腺苷激活蛋白激酶 (AMPK) 是调节体内代谢平衡的丝氨酸/苏氨酸蛋白激酶。应用酵母双杂交系统,以AMPK β1亚基作为"诱饵"蛋白,筛选均一化的人源cDNA文库,寻找与AMPK相互作用的蛋白。通过对150个阳性克隆进行验证,最终得到了63个与AMPK β1亚基相互作用的蛋白。其中,包括代谢酶、转录因子或转录相关蛋白、蛋白转运相关蛋白、GTP结合蛋白、支架蛋白、细胞周期调节蛋白、RNA结合蛋白等以及一些未知功能的蛋白。从酵母双杂交的结果来看,AMPK不仅在代谢领域,而且在许多非代谢领域,如核受体及其它转录因子的调节、信号转导、DNA修复及细胞周期调节等,可能都起到非常重要的作用。

关键词: 一磷酸腺苷激活蛋白激酶 酵母双杂交 蛋白质相互作用

Screening of AMPK Interacted Proteins by Yeast Two Hybrid System

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Abstract:

Adenosine Monophosphate-activated protein kinase (AMP-activated protein kinase, AMPK), a serine/threonine protein kinase, regulates cellular energy homeostasis. Based on yeast two hybrid assay,63 proteins identified interacted with AMPK β1 subunit in the human universal cDNA library. Among these proteins, there are 30 enzymes including metabolic enzymes, kinases and SUMO protease, 9 transcription factors or their coregulators, 5 transport/cargo proteins, 4 GTP-binding proteins, 3 adaptors and some proteins involved in cell cycle, DNA repair and cell growth and/or maintainance. These results suggested that AMPK may play a key role not only in the metabolism but also in non-metabolism processes in the cellular functions.

Keywords: AMPK Yeast two hybrid Protein-protein interaction

收稿日期 2011-10-28 **修回日期** **网络版发布日期**

分类号:

Q819

基金项目:

国家重大科学研究计划发育与生殖专项(2009CB40900)、上海市公共服务平台(09DZ2291200)资助项目

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