



盘基网柄菌粘附分子gp150的定位及其与PKA活性关系的研究

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Localization of adhesion molecule gp150 and its relationship with PKA activity in Dictyostelium discoideum

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摘要 细胞粘附分子gp150在盘基网柄菌细胞发育后期起着重要作用.用gp150抗体定位gp150在细胞发育重要阶段的分布, 显示在细胞发育的不同时段, gp150的定位有着明显的区别.在聚集前的细胞流时期, gp150还均匀分布在细胞质内, 到了细胞丘时期, gp150就移至多细胞聚集体的边缘部位.到了蛞蝓体时期, gp150在前柄细胞的表达量明显大于前孢子细胞, 提示了gp150对柄细胞的作用.而当细胞发育至子实体阶段, gp150大量分布在成熟孢子的孢壁上, 这是目前还没有报道的.高效液相色谱法检测野生型KAX-3细胞和gp150过表达细胞KAX-3: *act15/lagC* 的PKA活性, 显示在细胞发育的早期(10 h之前), PKA在野生型细胞中的活性比KAX-3: *act15/lagC* 细胞低.但是在细胞发育的后期, 也就是野生型细胞中gp150开始快速积累之后, PKA在野生型细胞中的活性比KAX-3: *act15/lagC* 细胞高.这些结果说明, gp150和PKA之间可能存在某种负反馈环的关系共同调节盘基网柄菌的生长发育.

关键词: 荧光定位 gp150 蛋白激酶A HPLC

Abstract: Cell adhesion molecule gp150 plays an important role during post-aggregation stage of Dictyostelium discoideum development. The protein localization through antibodies against gp150 showed that gp150 distributed at different places during the various stages of development. In stream stage before aggregation, gp150 distributed uniformly in cytoplasm; after that, gp150 occupied the periphery region of multicellular aggregates in mound stage. During the slug stage of development, the expression level of gp150 in prestalk cells was much higher than that in prespore cells. In fruiting body stage, gp150 was enriched on the sporoderm of mature spores. High performance liquid chromatography was used to analyze PKA activity in wide-type KAX-3 cells and gp150 over expressed strain KAX-3: *act15/lagC*, and the results showed that, at the early stage of development (before 10 h development), PKA had lower activity in KAX-3 cells than that in KAX-3: *act15/lagC* cells. However, at the later stage of development, since the rapid accumulation of gp150, PKA showed higher activity in wide type cells than that in KAX-3: *act15/lagC* cells. These results suggested that there might be a feed back loop interaction between gp150 and PKA, by which the two signal proteins can cooperate and regular the growth and development of Dictyostelium discoideum.

Key words: fluorescence localization gp150 PKA HPLC

















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