

微核形成与细胞周期关系的初步研究III. 丝裂霉素c诱发人淋巴细胞染色体畸变与不同周期阶段的微核形成

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收稿日期 修回日期 网络版发布日期 接受日期

摘要 为了研究染色体畸变与微核形成的关系, 本实验用不同浓度的丝裂霉素C(MMC, 0.025—0.4 μg/ml), 处理人外周血淋巴细胞, 观察中期染色体畸变与不同细胞周期形成的微核间的关系。获得如下主要结果: (1) MMC 诱发的染色体畸变细胞率(ACF), 未经培养的G0期淋巴细胞的微核细胞率(NC-MNCF)以及培养的淋巴细胞的微核细胞率(C-MNCF), 在一定剂量范围内均呈剂量依赖性增加, 并可用幂回归方程描述; (2) 微核形成与染色体畸变全然无关的NC-MNCF, 和C-MNCF一样, 与ACF呈良好的正相关; (3) 用胞质分裂阻滞(CB)法, 检测MMC诱发的CB-MNCF, 较C-MNCF无显著提高。MNCF/ACF的比值较小, 并随着MMC剂量增加从0.15左右降到0.03。所有上述结果表明, 不能简单理解微核形成与染色体畸变间的关系, 在分裂的细胞群体中, 中期染色体畸变可能仅是微核形成的一种来源。

关键词 [微核形成](#), [染色体畸变](#), [人淋巴细胞](#)

分类号

Preliminary Studies of the Relationship Between Micronucleus Formation and Cell Cycle

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Abstract

For the study of the relationship between micronucleus formation and chromosome aberration. Lymphocytes of human peripheral blood were treated with MMC and chromosome aberrations and micronuclei which produced at various phases of cell cycle were observed. For the study of the main results are as follows: (1) the MMC induced increase in the frequency of aberration cells at metaphase (ACF), that of the frequency of micronucleated cells at G1, S and G2 phases (cultured in vitro, C-MNCF) and that of the frequency of micronucleated cells at G0 phase (Non-cultured, NC-MNCF) are all dose-dependent and their dose-response relation can be described by power regression; (2) the MMC-induced micronucleus formation at G0 phase is not related to chromosome aberration, but the change of NC-MNCF is positively related to the change of CAF as same as C-MNCF; (3) the MMC-induced MNCFs detected in binucleated cells by the cytokinesis block method increase slightly as compared with C-MNCFs, and the ratio of MNCF/ACF is less (about 0.1) and decreases along with the increase of MMC concentration. The results suggest that the relationship between micronucleus formation and chromosome aberration may be quite complex, that chromosome aberration could be one of the cause of micronucleus formation.

Key words [Micronucleus formation](#) [Chromosome aberrations](#) [Human lymphocytes](#)

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