

光动力过程中线粒体膜电位和细胞存活关系

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用三种金属酞菁配合物Pc1、Pc2 和Pc3为光敏剂，研究光动力治疗对癌细胞的

杀伤作用。以ANS 作荧光探针，测量癌细胞在不同光敏剂作用下的线粒体膜电位的变化。结果显示，Pc1 对线粒体膜电位及线粒体膜表面电荷的影响最大，而Pc2 的影响又大于Pc3。酶联免疫检测（简称MTT）光动力作用对细胞存活的影响表明，三种金属酞菁配合物作用后，对癌细胞的杀伤效果是：Pc1> Pc2>Pc3。线粒体膜电位降低与癌细胞存活率呈正比关系，提示细胞线粒体膜可能是金属酞菁配合物在光动力过程中的作用位点。同时，由于线粒体膜电位与细胞凋亡的密切关系，金属酞菁配合物对线粒体膜电位的影响提供了一个衡量药物疗效的判据。通过比较不同条件下细胞线粒体膜电位跟细胞存活之间的关系，本文对光动力作用的物理学机制做简单探讨。

RELATIONSHIP BETWEEN MITOCHONDRIAL MEMBRANE POTENTIAL AND CELL LIVABILITY IN PHOTODYNAMIC THERAPY

With ANS as fluorescence probe, effect of Pc1, Pc2 and Pc3 on mitochondrial membrane potential and charge density in photodynamic therapy was investigated; meanwhile, cell livability was studied by MTT. Results show that effect of Pc1 was most prominent. That mitochondrial membrane is one of binding site of photosensitizers in PDT is suggested. Because of the close relationship of mitochondrial membrane potential and cell apoptosis, effect of photosensitizers on mitochondrial membrane potential proves a evidence for its efficiency, and mechanism in PDT was discussed.

关键词