

**INTENSIVE TUMOR SUPPRESSION BY ANTI-ANGIOGENIC
PHOTODYNAMIC THERAPY WITH POLYCATION-MODIFIED
LIPOSOMAL PHOTSENSITIZER**

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Recently, it is clear that anti-angiogenic photodynamic therapy (PDT) is induced intensive suppression of tumor growth in comparison to the general tumor cell-targeted phototherapy [1]. In this study, we developed benzoporphyrin derivative monoacid ring A (BPD-MA)-entrapped polycation liposome (PCL) as a novel angiogenic vessel-targeted photosensitizer. PCL is constructed that cationic polymer, cetylated polyethylenimine (cetyl-PEI), is located on the surface of liposome [2,3]. We report here that BPD-MA-entrapped PCL induces remarkable phototoxicity for vascular endothelial cells, specific damage to angiogenic vessels for angiogenesis-model mice induced by dorsal air sac technique, and intensive suppression of tumor growth for Meth-A sarcoma-bearing mice at low BPD-MA dose (only 0.25 mg/kg in BPD-MA) following PDT treatment. The photodynamic efficacy of BPD-MA-entrapped PCL is elucidated by facilitation of photosensitizer uptake efficiency due to the strong electrostatic interaction between PCL and plasma membrane and subsequent rapid intracellular transport of liposomal photosensitizers via endocytosis. Furthermore, some degrees of photosensitizers mediated with PCL were accumulated in nuclei, so that the intranuclear photosensitization is one of the factors for induction of enhanced phototoxicity.

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