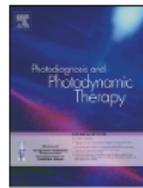




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with simultaneous PDT and PTT combination. ICG-ALA exhibited excellent biocompatibility and when treatment coupled with 640/808 nm 5 min co-irradiation caused significantly stronger phototoxicity at very low concentrations. ICG-ALA demonstrates visualization of cancer cells in both NIR (ICG) and visible (PpIX) regions allowing imaging-guided phototherapy.

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520 oral

Synergistic response of PEG coated manganese dioxide nanoparticles conjugated with doxorubicin for breast cancer treatment and MRI application

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Significance: In this research work, we designed a smart biodegradable PEG-coated MnO₂ nanoparticles conjugated with doxorubicin (PMnO₂-Dox NPs) for dual chemo-photodynamic therapy and magnetic resonance imaging (MRI) application.

Approach: PEG-coated MnO₂ nanoparticles were synthesized by applying CVD approach.

Results: Surface morphology was confirmed via SEM analysis, results indicated the spherical and asymmetric agglomerated nanocluster of PMnO₂-Dox NPs. In vitro bioassay, the anticancer activity of PMnO₂-Dox NPs were tested against breast cancer (MCF-7) cell line.

Results suggested that PMnO₂-Dox NPs not only convenient for cancer treatment via combined chemo-photodynamic therapy but also address the way towards a comprehensive strategy for MRI application.

Conclusion: Current experimental strategy is very effective and comprehensive and cost effective.

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522 oral

Exploration of Treatment Parameters and Theoretical Basis of Hematoporphyrin-Based Photodynamic Therapy in Cholangiocarcinoma

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Objective: This study investigates the hemoporphyrin-based PDT for human cholangiocarcinoma cell lines RBE and HuccT1.

Methods: The treatment effect and treatment parameters were evaluated from both cell and xenograft mouse models.

Results: The optimal therapeutic dose and photosensitizer concentration for hemoporphyrin-based PDT cholangiocarcinoma cells were 2 J/cm² and 1.5 µg/mL, respectively. In the xenograft mouse model, there was a significant difference in tumor volume between the experimental and control groups on days 7, and 14 post-treatment (p < 0.05). On day 15, the tumor volumes of 0.54 ± 0.07 cm² and 1.35 ± 0.21 cm² in the experimental and control groups were statistically significant. The expression levels of CD31, VEGF-A, MMP2, MMP9 and Ki-67 in the experimental group were significantly reduced, while the Caspase-3 and Caspase-8 were opposite.

Conclusion: In vitro and in vivo results showed that hemoporphyrin-based PDT significantly inhibited the growth of cholangiocarcinoma cells.

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523 Poster

Laser gingivectomy - A case analysis of gingival hyperplasia after 7 years of full-mouth implant surgery

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One patient developed symptoms of gingival hyperplasia after 7 years of full-mouth implant surgery. Gingival hyperplasia refers to the abnormal growth of gingival tissue, which may cover part or all of the implants. It not only affects the appearance, but also may pose a threat to oral health. In response to this situation, the patient underwent laser gingivectomy. The operation uses laser technology to accurately remove the hyperplastic gingival tissue, which has the advantages of less bleeding, faster recovery and less pain. After treatment, the patient's gingival condition was significantly improved, and the stability and aesthetics of the implant were also improved. This treatment experience shows that laser gingivectomy is an effective method for the treatment of gingival hyperplasia.

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526 oral

Photodynamic therapy combined with radiotherapy combination in murine melanoma treatment

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Melanoma is the type of skin cancer with the highest mortality rate and presents resistance mechanisms to several treatment techniques. Radiotherapy (RT) generates free radicals that react with cellular macromolecules such as DNA, RNA, proteins and membranes, causing dysfunction and cell death. This damage can favor the result of a consecutive application of photodynamic therapy (PDT), either by allowing greater penetration of the photosensitizer into the cells or by weakening the defense mechanisms. On the other hand, PDT promotes direct damage to the cell that can activate an immune response against tumor cells, which can optimize the effect of another technique applied in sequence, such as RT. This study compares different combinations of RT and PDT in the treatment of melanoma using balb/c nude mice and B16F10 cell line.

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527 Poster

pH-Responsive Polyzwitterion Modified Photosensitizer for Precision Photodynamic Therapy

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Insufficient tumor accumulation and poor selectivity of photosensitizers remain major obstacles to the efficacy of photodynamic therapy (PDT) in cancer treatment. To address these limitations, we developed a tumor targeting photosensitizer-polymer conjugate by conjugating pyropheophorbide-a (Ppa) with a pH-responsive polyzwitterion,