Photodynamic Therapy for Cancer

https://pubmed.ncbi.nlm.nih.gov/34138092/

Recent Advances in Tumor Microenvironment Hydrogen Peroxide-Responsive Materials for Cancer Photodynamic Therapy 2020

Photodynamic therapy (PDT), as one of the noninvasive clinical cancer phototherapies, suffers from the key drawback associated with hypoxia at the tumor microenvironment (TME), which plays an important role in protecting tumor cells from damage caused by common treatments. High concentration of hydrogen peroxide (H_2O_2), one of the hallmarks of TME, has been recognized as a double-edged sword, posing both challenges, and opportunities for cancer therapy. The promising perspectives, strategies, and approaches for enhanced tumor therapies, including PDT, have been developed based on the fast advances in H_2O_2-enabled theranostic nanomedicine. In this review, we outline the latest advances in H_2O_2-responsive materials, including organic and inorganic materials for enhanced PDT. Finally, the challenges and opportunities for further research on H_2O_2-responsive anticancer agents are envisioned .