Ce6-GFFY is a Novel Photosensitizer for Colorectal Cancer Therapy

A new publication from Genes & Diseases; DOI 10.1016/j.gendis.2024.101441, discusses how Ce6-GFFY is a novel photosensitizer for colorectal cancer therapy.

CHONGQING, CHINA, December 20, 2024 /EINPresswire.com/ -- A new publication from Genes & Diseases; DOI 10.1016/j.gendis.2024.101441, discusses how Ce6-GFFY is a novel photosensitizer for colorectal cancer therapy.

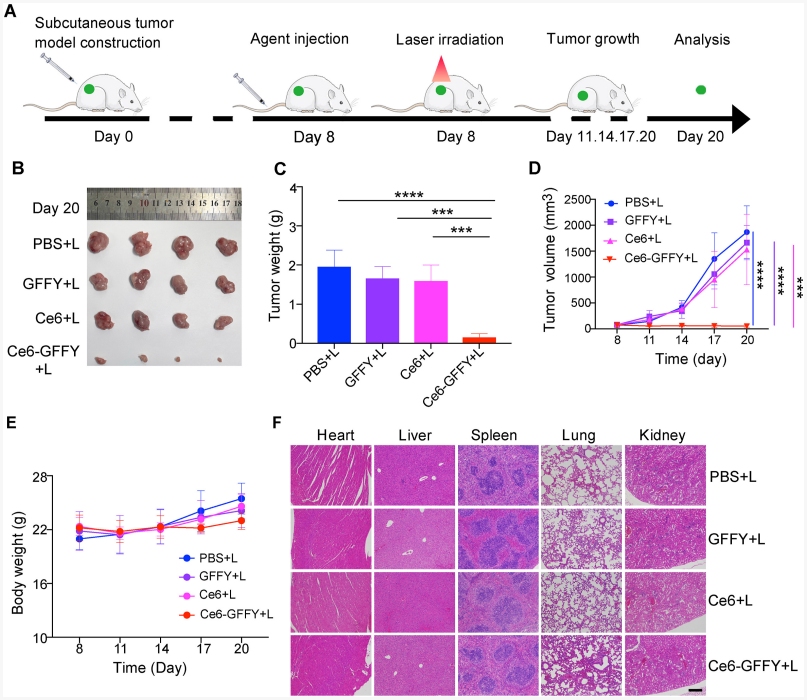

Figure 1. Ce6-GFFY prohibits colorectal cancer growth and has little side effects. Agents were injected through the tail vein of the CT26-derived subcutaneous tumor mice model, and the 660 nm, 0.2 W/cm2 laser irradiation (1 min on, 1 min off; 4 cycles) wa

Photodynamic therapy is an “old” strategy for cancer therapy featuring clinical safety and rapid working, but suitable photosensitizers for colorectal cancer therapy remain lacking.

This study synthesized a novel photosensitizer termed Ce6-GFFY based on a self-assembling peptide GFFY and a photo-responsive molecule chlorin e6 (Ce6). Ce6-GFFY forms macroparticles with a diameter of 160 nm and possesses a half-life of 10 h, as well as an ideal tumor-targeting ability in mouse models. Ce6-GFFY effectively penetrates cells and generates numerous reactive oxygen species upon 660 nm laser irradiation. The reactive oxygen species promotes the accumulation of cytotoxic T cells and decrease of myeloid-derived suppressor cells in the tumor microenvironment through immunogenic cell death, thus prohibiting the growth of both primary and metastatic tumors after once treatment.

This research not only provides a strategy for photosensitizer development but also confirms a promising application of Ce6-GFFY for colorectal cancer therapy.

Keywords: Anti-tumor immunity, Ce6-GFFY, Colorectal cancer, Novel photosensitizer, Photodynamic therapy

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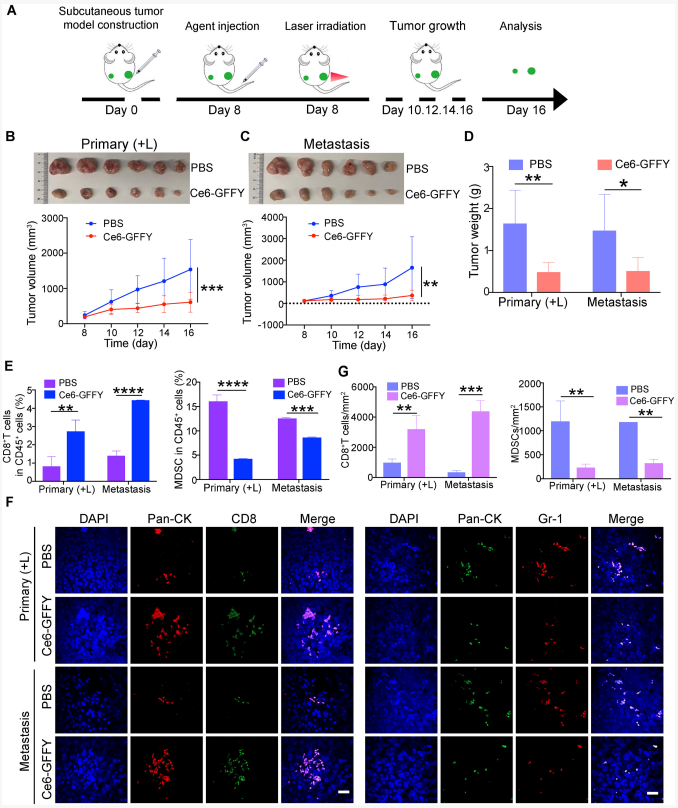

Figure 2. Ce6-GFFY activates anti-tumor immunity and suppresses metastatic tumor growth. Primary and metastasis tumor model was constructed by subcutaneously transplanting CT26 cells in the left (metastasis tumor) and right flanks (primary tumor) of BALB/

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