

The Office of Technology Management



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Microwave/X-ray induced photodynamic therapy (PDT) for cancer treatment

INVENTOR: Dr. Wei Chen

TECHNOLOGY NEED

The current standards in cancer treatment, surgery and radiation therapy, are known to bring huge risks and strong negative side effects to patients. New forms of therapy with low risk and minimal side effects are heavily demanded. Photodynamic therapy (PDT) has been introduced as a mode of treatment and has gained every-growing attention as a promising modality due its effectiveness and low risk. Unfortunately, PDT is rarely applied to deep-seated tumors due to poor tissue penetration by light. Several approaches to solve the light delivery have been reported, but they either complicate the procedures or are practically impossible.

INVENTION DESCRIPTION/SOLUTION

UTA researchers have developed a novel and potent microwave or x-ray activated photosensitizer, Cu-Cy nanoparticles. These nanoparticles do not require assistance for activation from other agents, making conventional PDT possible for not only skin cancer, but also deep-seated tumor treatment. Animal studies successfully demonstrated that Cu-Cy nanoparticles exhibit low toxicity. Additionally, promising results were obtained indicating that the Cu-Cy nanoparticles effectively killed cancer cells and reduced the size of deep-seated tumors significantly.

APPLICATIONS

- Cancer therapy
- Cancer cells detection
- Healthcare: Pharmaceuticals

KEY BENEFITS

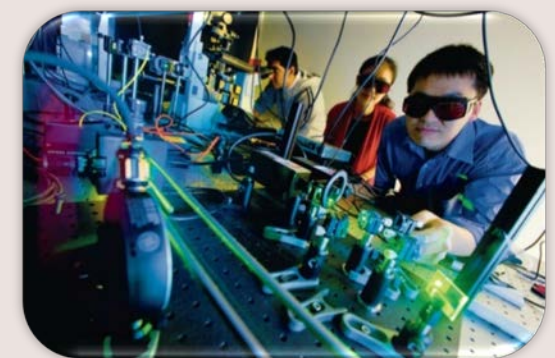
- Efficient deep tissue cancer treatment
- Combination of radiation and photodynamic therapies
- Targeted delivery
- Low cytotoxicity
- Easy to produce and inexpensive

STAGE OF DEVELOPMENT

Prototyped and Tested

INTELLECTUAL PROPERTY STATUS

PCT Application



More about the Inventor:
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