

The Office of Technology Management

UNIVERSITY OF TEXAS  ARLINGTON

Tech ID: UTA 14-48

Radio Therapeutic NanoSeeds to Target Inoperable Small Tumors

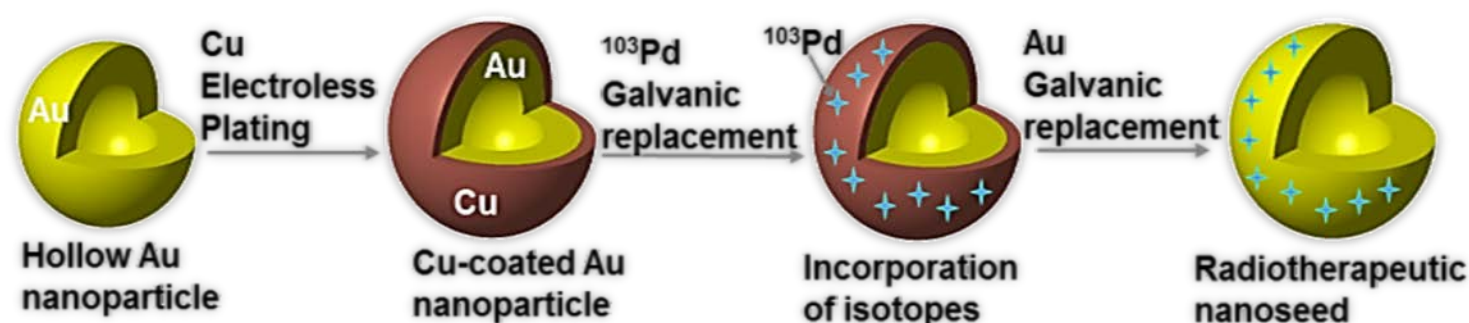
INVENTORS: Yaowu Hao, Xiankai Sun & Sina Moendarbari

TECHNOLOGY NEED

Low dose brachytherapy is a radiation procedure where brachytherapy seeds sized 5mm long and 1mm wide are surgically placed into tumor sites, which deliver a low dose of radiation over a period of several months. However, currently used seeds are too large for small tumors, causing several adverse side effects and complications. Therefore, there remains a need for a technology that is unlikely to cause such complications, thus greatly improving therapeutic efficacy and extending treatment to small and often inoperable tumors.

INVENTION DESCRIPTION/SOLUTION

A clinically practical internal radiation therapy for more efficient treatment of inoperable small tumors has been developed. Here, a nanoseed is formed by the incorporation of a radioisotope onto a hollow gold nanoparticle, which can be injected into tumor sites in the form of a colloidal suspension. Moreover, the size of the nanoseed (~150nm in diameter), is large enough to prevent nanoseeds from diffusion into other areas while still small enough to allow them to homogeneously distribute inside the tumor thus enabling effective treatment of tumors smaller than what brachytherapy seeds can treat.



APPLICATIONS

- Brachytherapy - Cancer Treatment

KEY BENEFITS

- Nano-sized seeds
- Improved specificity
- Homogenous dispersion
- Less invasive procedure
- Enable treatment of smaller tumors
- Significant reduction of adverse side effects

STAGE OF DEVELOPMENT

Prototyped & Animal tested

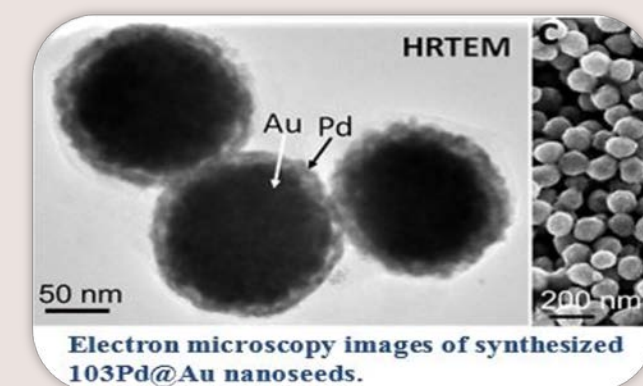
INTELLECTUAL PROPERTY STATUS

Patents pending in:

- US
- Europe
- China
- Canada
- Japan
- South Korea
- Australia
- Brazil

RELATED TECHNOLOGY

[UTA 09-07 Hollow Nanoparticles and Nanocomposites US 9040157 B2](#)



Electron microscopy images of synthesized $^{103}\text{Pd}@Au$ nanoseeds.

More about the Inventors:

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