



Biopolymer-Gold Nanoparticles for Enhancing Radiosensitivity and Antitumor Immunity

PI : Dr. Jenny Ling-Yu Chen

Department of Radiology, National Taiwan University College of Medicine

Experience:

Dr. Jenny Ling-Yu Chen: Clinical Associate Professor at NTU; Radiation Oncologist; specialized in tumor immunology & bio-engineering.

Dr. Yu-Li Lin: NTUH Researcher; expert in viral immunology & animal models; recipient of the ISI Citation Classic Award.

Dr. Shu-Jyuan Yang: NTUH Postdoc; expert in nanomedicine & drug delivery; widely published in top-tier journals.

Market Needs:

- **Clinical Gap:** Cancer is the leading cause of death globally, with 30-40% of patients diagnosed at metastatic stages. Current radiotherapy faces major hurdles in "radio-resistance" and "distal tumor recurrence."
- **Market Potential:** The global cancer treatment market is projected to exceed \$50 billion by 2030. This platform targets patients requiring radiotherapy, filling a major blue ocean market for low-toxicity radiosensitizers.

Our Technology:

- A pioneering "Targeted Radiosensitizing Gold Nanopharmaceutical Platform with Immune - Activating Functions," utilizing HSA/HA biopolymers to co-deliver chemotherapeutics and gold nanoparticles.
- **Radiosensitization:** Enhances radiation-induced lethal DNA double-strand breaks via the high-Z physical effect.
- **Immune Reversal:** Induces Immunogenic Cell Death (ICD), transforming "cold" tumors into immunologically "hot" ones.
- **Abscopal Effect:** Local irradiation effectively suppresses non-irradiated distal tumors, reducing metastatic burden.
- **Survival Gain:** In vivo animal trials demonstrated a profound survival rate increase.

Strength:

- **Superior Safety:** Formulated entirely with FDA-approved biopolymers; validated to cause zero toxic burden on the liver, kidneys, or hematopoietic system.
- **Active Targeting:** Utilizes CD44-mediated active navigation to deliver drugs precisely to lesions, significantly reducing systemic side effects.
- **Systemic Line of Defense:** Elicits long-term immune memory to eliminate recurrent and metastatic cancer cells from the source.

Competing Products:

- **Traditional Chemoradiotherapy:** Conventional drugs (e.g., Cisplatin) lack targeting capabilities and cause severe systemic toxicities.
- **Standard Nanoparticles:** Most rely solely on passive accumulation and lack the triple synergy of "targeting + radiosensitization + immunotherapy."

Intellectual Properties: Active patent applications are underway in Taiwan and United States.

Contact (do not need to fill out):

Center for Industry-Academia Collaboration, NTU

Tel: 02-3366-9945, E-mail: ordiac@ntu.edu.tw

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