Collimatorless Combined Compton And Proximity Imaging Technology

Tech ID: 34484 / UC Case 2022-075-0

TECHNOLOGY DESCRIPTION

UNMET NEED: Existing gamma cameras lack the sensitivity and precision required to image extremely low activity radionuclides in vivo, particularly those used in targeted alpha therapy. The current technology addresses the critical need for advanced imaging tools that can support preclinical and clinical studies of emerging radiopharmaceuticals.

TECHNOLOGY: UCSF scientists have developed an innovative gamma camera that combines Compton and proximity imaging in a single device to achieve ultrahigh sensitivity and millimeter-precision imaging of gamma rays across a broad energy range (100keV to 1000keV). This groundbreaking technology utilizes cadmium zinc telluride (CZT) detectors, which offer high stopping power, a compact design, and excellent energy resolution, enabling the imaging of extremely low-activity radionuclides such as 225Ac and 227Th.

COMPETITIVE ADVANTAGE:

- **First-of-its-kind gamma camera** combining Compton and proximity imaging.
- **Broad gamma ray energy range**, enabling imaging of low activity radionuclides.
- **Superior imaging quality** with CZT detectors providing finer pixelization, better energy resolution, and higher data acquisition rates.

This technology holds significant potential for revolutionizing radiopharmaceutical imaging and advancing the development of targeted alpha therapies.

Development Stage: The technology is supported by proof-of-concept data from realistic Monte Carlo simulations.

PATENT STATUS

Patent Pending

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OTHER INFORMATION

KEYWORDS

Gamma Camera, radiopharmaceuticals, Compton, cadmium zinc telluride detectors

CATEGORIZED AS

- Biotechnology
  - Health
- **Imaging**
  - Medical
- **Medical**
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