Novel [13C]CO2 Breath Test for Rapid, Non-Invasive Detection of Bone and Joint Infections

Tech ID: 34564 / UC Case 2024-144-0

TECHNOLOGY DESCRIPTION

UCSF researchers have developed a novel [13C]CO2 breath test that leverages bacteria-specific metabolic activity to detect bone and joint infections, such as osteomyelitis and prosthetic joint infections. This technology addresses the unmet need for faster, non-invasive, and accurate diagnostics, replacing invasive biopsies and slow culture-based methods. By using [13C]-labeled sugars that bacteria convert into detectable [13C]CO2, the test enables precise patient selection for advanced imaging and tracking infection clearance during treatment. Currently validated in preclinical models, it offers unique capabilities for optimizing antibiotic therapies, improving diagnostic efficiency, and reducing healthcare costs. With potential applications in infectious disease management and personalized medicine, this innovation represents a transformative advancement in clinical diagnostics.

RELATED MATERIALS

- Peptidoglycan-Targeted [18F]3,3,3-Trifluoro-d-alanine Tracer for Imaging Bacterial Infection, PMCID: PMC10976610, DOI: 10.1021/jacsau.3c00776 - 02/25/2024

PATENT STATUS

Patent Pending

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OTHER INFORMATION

KEYWORDS

Bone and joint infection diagnostics, Non-invasive diagnostics, [13C]CO2 breath test, Rapid infection screening, Osteomyelitis detection

CATEGORIZED AS

- Medical
  - Diagnostics
  - Disease: Infectious Diseases

RELATED CASES

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