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Novel Method Of Imaging Infection Using Radiotracers

Tech ID: 27135 / UC Case 2017-045-0

INVENTION NOVELTY

UCSF researchers have invented novel radiotracers that allow imaging of both gram-positive and gram-negative bacteria infections using positron emission tomography (PET) to detect spread of infection and to distinguish that from other mimics.

VALUE PROPOSITION

According to the CDC, at least 2 million people become infected with antibiotic-resistant bacteria each year in the US and at least 23,000 of them die as a direct result of these infections. There has been a long and sustained interest in developing specific probes that can be used to label bacteria *in vivo* during active infection. However, no agent has been accepted into clinical practice for routine differentiation of infection from other disease entities that are often confused for infection using conventional imaging (CT/ MR). This new technology uses metabolic pathways that are highly specific to bacteria to distinguish acute infection from other hypermetabolic processes, such as sterile inflammation and tumors. It also applies to determine the spread of infection in challenging cases including spine and other musculoskeletal infections, particularly patients with hardware.

The current invention provides the following advantages:

▶ Novel radiotracers that specifically label living bacteria *in vivo* and generate high signal-to-noise ratio for PET scan
▶ Allow detection of challenging infections that are difficult to distinguish from other frequent mimics by conventional imaging
▶ Non-invasive and fast detection method to determine spread of infection
▶ Probes are synthesized through a simple, high-yield process

TECHNOLOGY DESCRIPTION

OTHER INFORMATION

KEYWORDS

PET Imaging, Radiotracer, Bacterial Infection

CATEGORIZED AS

▶ **Imaging**
　▶ Medical
▶ **Medical**
　▶ Diagnostics
　▶ Disease: Infectious Diseases

RELATED CASES

2017-045-0

UCSF investigators have developed a novel class of PET radiotracers that exploits metabolic pathways specific to bacteria, targeting both gram-positive and gram-negative organisms. The inventors developed tracers through a refined radiosynthesis process to detect active bacteria infection *in vivo* and to distinguish that from other frequent mimics in the human body. These radiotracers have good *in vivo* stability and high signal-to-noise ratio to detect bacterial infections that are difficult to diagnose using current imaging techniques.

LOOKING FOR PARTNERS

To develop & commercialize the technology as radiopharmaceuticals for PET imaging to detect acute bacterial infections

STAGE OF DEVELOPMENT

Pre-Clinical

DATA AVAILABILITY

Animal data available

Inventor

David Wilson, MD, PhD: http://profiles.ucsf.edu/david.wilson

ADDRESS

UCSF

Innovation Ventures

600 16th St, Genentech Hall, S-272,

San Francisco,CA 94158

CONTACT

Tel:

innovation@ucsf.edu

https://innovation.ucsf.edu

Fax:

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