New Low-Cost Method for Pre-clinical Animal Imaging

Tech ID: 22108 / UC Case 2011-395-0

SUMMARY

Researchers at the University of California, Los Angeles (UCLA) have developed an automated, highly accurate approach to acquire anatomical data from animal subjects in pre-clinical research. The invention provides a means to low-cost access of pre-clinical imaging.

BACKGROUND

Translational and basic research on disease relies heavily on small animal imaging. Computed tomography (CT) and Magnetic Resonance Imaging (MRI) are frequently used in conjunction with Positron Emission Tomography (PET) to provide the anatomical data in pre-clinical research. However, wide use of CT and MRI is limited by their high costs and their need for specialized staff. In addition, their large size requires the dedication of valuable facility space and coordination of usage by many researchers. Therefore, there is need for affordable and convenient anatomical analysis of animal models. Computational registration of mouse anatomy has the potential to save research institutions considerable equipment and imaging expenses and reduce the time researchers expend on retrieving anatomical data. These advancements will expand research capacity by providing greater accessibility to pre-clinical imaging. Such a widespread expansion in pre-clinical imaging tools would especially accelerate research and drug development for cancer, neurodegenerative disease, autoimmunity, and metabolic disorders.

INNOVATION

Researchers at UCLA have developed a computerized approach to enable the estimation of 3 dimensional internal mouse anatomy from low-cost, non-tomographic, bench top imaging systems.

APPLICATIONS

- Provide anatomical data for the functional imaging modalities, PET and SPECT (Single-photon emission computed tomography)
- Provide anatomical date for the optical imaging modalities, bioluminescence and fluorescence

ADVANTAGES

- Low-cost anatomical data assessment
- Requires no specialized staffing for operation
- Can be operated on a standard PC
- Convenience
  - Can be operated within a laboratory bench-top
  - Atlas registration after imaging takes less than 3 minutes on a standard PC
- Highly accurate

STATE OF DEVELOPMENT

The researchers have developed a functional prototype.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,524,552	12/20/2016	2011-395

CONTACT

UCLA Technology Development Group
ncd@tdg.ucla.edu
tel: 310.794.0558.

INVENTORS

- Hadjioannou, Arion Xenofon F.

OTHER INFORMATION

KEYWORDS

Research & Drug Discovery Tools, Imaging, CT, MRI, Digital imaging, Preclinical

CATEGORIZED AS

- **Imaging**
  - Medical
  - Molecular
  - Software
- **Sensors & Instrumentation**
  - Medical
  - Scientific/Research

RELATED CASES

2011-395-0

RELATED MATERIALS

- Mouse Atlas Registration with Non-tomographic Imaging Modalities-a Pilot Study Based on Simulation.

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- High Resolution Depth of Interaction Gamma Radiation Detector
- A System For Vascular Access In Preclinical Models
- Copyright: A Statistical Atlas of the Mouse Trunk Region

UCLA Technology Development Group

10889 Wilshire Blvd., Suite 920,Los Angeles,CA 90095

tdg.ucla.edu

Tel: 310.794.0558 | Fax: 310.794.0638 | ncd@tdg.ucla.edu