TECHNOLOGY

Solid Hemoglobin Phantom for Biophotonic Calibration

OVERVIEW

Background
Tissue-simulating phantoms are valuable tools for researchers and clinicians to calibrate bioimaging devices during preclinical development and research/clinical use over lifetime. The stability and extent to which phantoms mimic human tissues will depend on the materials and methods used in their preparation. Current methods often involve tradeoffs between stability and mimicking ability. Most exclude hemoglobin (HBO), a key interferon in spectral imaging. A stable phantom that incorporates the spectral features of oxy-Hb and/or deoxy-Hb absorption would be of great use in the biophotonics field

Innovative Technology
Researchers at the University of Maryland, in collaboration with the Food and Drug Administration, have developed a solid phantom for calibration of bioimaging devices to hemoglobin. This phantom accurately captures the absorption characteristics of both ox- and deoxy-hemoglobin and is stable for several months. The researchers developed a way to incorporate hemoglobin into the solid polymer that will make onsite calibration of imaging devices quicker and easier, thereby improving the performance of imaging devices.

Advantages
- Long-lasting durability of a solid phantom
- Accurate absorption spectra due to use of biologic dye
- Stable spectra over time

Applications:
· Validation of new biophotonic devices
· Calibration of existing biophotonic devices

APPLICATIONS

Validation of new biophotonic devices
Calibration of existing biophotonic devices

ADVANTAGES

Long-lasting durability of a solid phantom
Accurate absorption spectra due to use of biologic dye
Stable spectra over time

STAGE OF DEVELOPMENT

Prototypes developed and tested for spectral stability

CONTACT INFO

UM Ventures
0134 Lee Building
7809 Regents Drive
College Park, MD 20742
Email: umdtechtransfer@umd.edu
Phone: (301) 405-3947 | Fax: (301) 314-9502

Additional Information

INSTITUTION

University of Maryland, College Park

PATENT STATUS

Pending

LICENSE STATUS

Available for exclusive or non-exclusive license

CATEGORIES

- Imaging devices

EXTERNAL RESOURCES

- US Patent 10,024,785

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