# InVivo Analytics Issued Patents Regarding Its Core Technology for Optical Tomography And Automated Data Analysis

Patented body-conforming animal mold, organ probability map, and multi-view mirror gantry enable fast optical tomography and automated image data analysis.

NEW YORK, NY, UNITED STATES, October 27, 2020 /EINPresswire.com/ -- InVivo Analytics® Inc., announces the issuance of US Patents 10,605,742 and 10,575,934 comprising a body-conforming animal mold (BCAM), an organ probability map (OPM), and a mirror gantry for optical tomography of mouse models and automated

Body conforming animal mold (BCAM)

image data analysis in preclinical research and drug development. These patents cover the company's core technology that seamlessly integrates with its cloud-based preclinical data analysis platform, InVivoAX™.
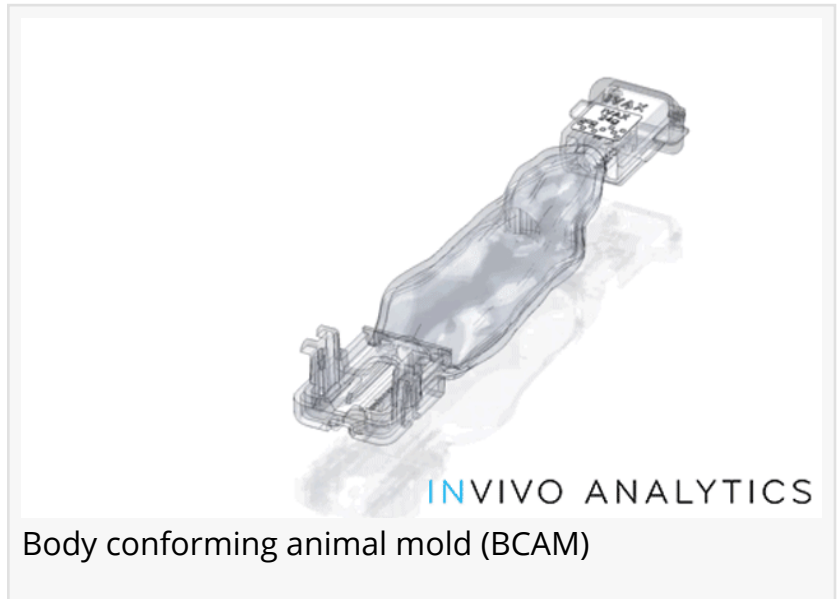
> The BCAM along with the OPM permit operator-independent preclinical image data analysis and will significantly facilitate the application of machine learning for automated study reporting."
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> *Dr. Alex Klose, co-founder and CTO*

InVivoAX™ constitutes an image and data visualization tool that can be used with existing preclinical imaging systems, such as optical, PET, SPECT, MRI, and CT. Unlike other commercial image analysis software, InVivoAX enables automated data analysis while eliminating human operator bias and increasing reproducibility. This key functionality is provided by the BCAM, which is an animal shuttle conforming to the body shape of a small animal. Image data congruency is inherently enabled due to its rigid spatial framework that interconnects image pixels/voxels across different animals and study time points. It greatly facilitates monitoring disease progression and longitudinal studies of new therapies. The BCAM and the mirror gantry also enable fast and

high-throughput optical tomography because of a full 360° view of optical detection points around the animal. The OPM - a statistical mouse atlas - is spatially aligned with the BCAM and, therefore, can automatically provide advanced anatomical information to optical and nuclear image data sets, e.g. enabling operator independent

Organ probability map (OPM)

biodistribution analysis. The OPM also provides tissue absorption and scattering maps that significantly improve the challenging image reconstruction task in optical tomography.
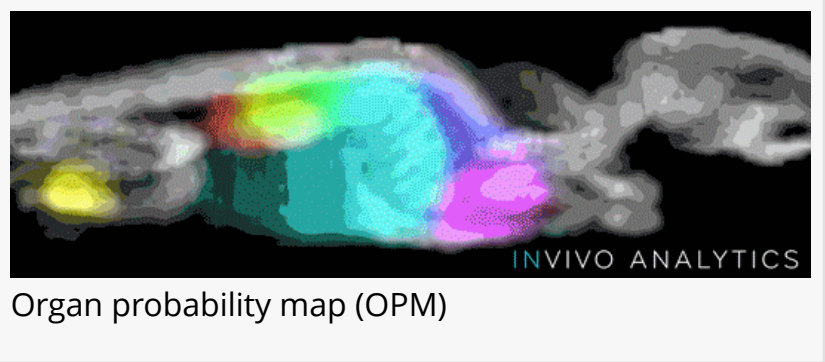
"The power of the BCAM rests in its simplicity of its purpose, that by placing all the subjects in a reproducible position, like a 96-well plate, analysis and alignment from animal to animal, data point to data point, can be done rapidly, reproducibly, and automatically." Says co-founder and CEO Dr. Neal Paragas.

The BCAM and OPM were validated in a research article titled, "Automated Quantification of Bioluminescence Images," was published online in the journal Nature Communications.

Importantly, cloud-based data collection is an unlimited reservoir for artificial intelligence (AI) applications. To bridge the biological and digital divide, InVivoAX creates a global image data resource by collating image data into data repositories with spatial data point congruency. These large pools of datasets - globally shared within user teams or institutions on our InVivoAX platform - will feed neural networks for training and will commence the next generation of preclinical image analysis.

Ultimately, InVivoAX eliminates operator variability, increases reproducibility, and automates unbiased image data quantification across different animals, time-points, and modalities. It is the first platform system to transfer preclinical imaging data to the cloud where operator independent data analysis is performed. Most importantly, applications for this technology represent the most urgent fields ranging from T-cell biodistribution in immuno-oncology studies, organ burden in infectious disease models, gene and cell delivery efficacy for therapeutic development. Overall, this cloud-based system will offer interconnectivity of existing imaging systems for automated data analysis, multimodal image co-registration, and data sharing.

InVivo Analytics is dedicated to building novel tools to assist scientists unlocking the cures of the future.

About In Vivo Analytics
Spun-out of Columbia University and fueled by grants from the National Institutes of Health (NIH), InVivo Analytics develops preclinical imaging solutions which transform current small animal imaging systems into a fully automated cloud-based image data analysis platform. The

platform is operator independent, and yields quantitative and reproducible data for preclinical research and drug discovery.

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