VivoQuant®

A Multi–Modal Image Processing and Analysis Software Suite

ANALYSIS

VISUALIZATION

PROCESSING

ARCHIVING

CLOUD

IMAGING

DATA MINING
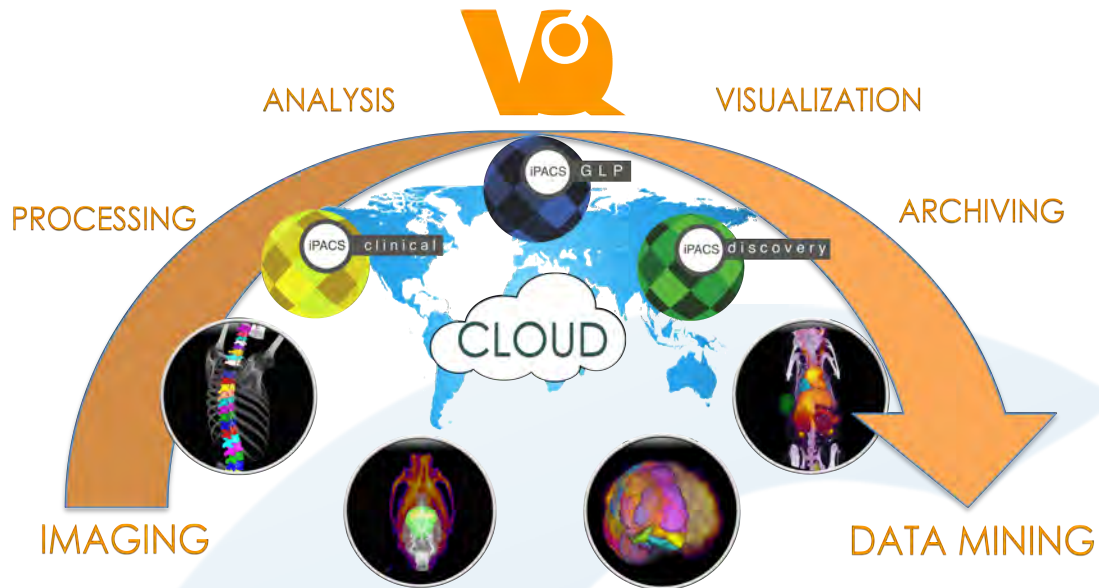
VivoQuant® supports the processing and analysis of image data across multiple modalities, including PET, SPECT, CT, MR, and Optical. Up to 3 modalities can be displayed simultaneously, and any number can be co–registered. DICOM, NifTi, and 20+ native data formats can be imported for processing. Images and quantification results can be easily exported in a variety of formats (image, movie, spreadsheet). Communicate with any DICOM client. Includes seamless integration with inviCRO's iPACS® data management platform for bi–directional data transfers.

VivoQuant's Powerful 3D ROI Segmentation Tools

- Manual, semi–automatic, or automatic tools with simple one–click spreadsheet export of ROI values (uptake, concentration, etc).
- Manual "Painting" and "Erasing" tools enable selection of any possible ROI shape and/or editing of automatically generated ROIs.
- Various thresholding methods can be applied to individual, multi–modal, and dynamic data sets.
- Batch segmentation routines supported through VQ's VivoScript platform.
- ROIs stored under version control in the iPACS and assosicated with multiple images.
- One of the powerful image quantification tools included with VivoQuant, the 3D ROI tool classifies each voxel of a three–dimensional volumetric dataset.
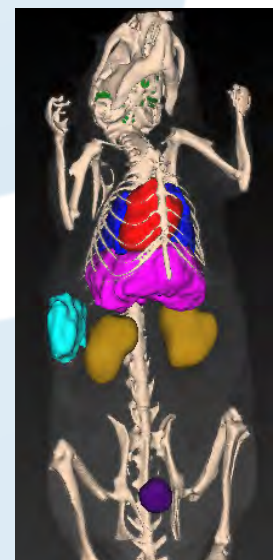
Whole body organ segmentation made using 3D ROI tool.

Viewing Features

View in traditional slice view, multiple planar reconstruction, or tile view for dynamic MR data sets. View anisotropic data sets as interpolated isoptropic volume images for easy multi–modal registration. Analysis of 4D data is now supported for viewing longitudinal studies within one instance of VivoQuant.

Pre–processing Tools

Co–registration – Landmark–based and several mutual information–based algorithms for co–registration (Affine and Deformable). Manually apply translation, rotation, and flipping transformations to select images for improved co–registrations.
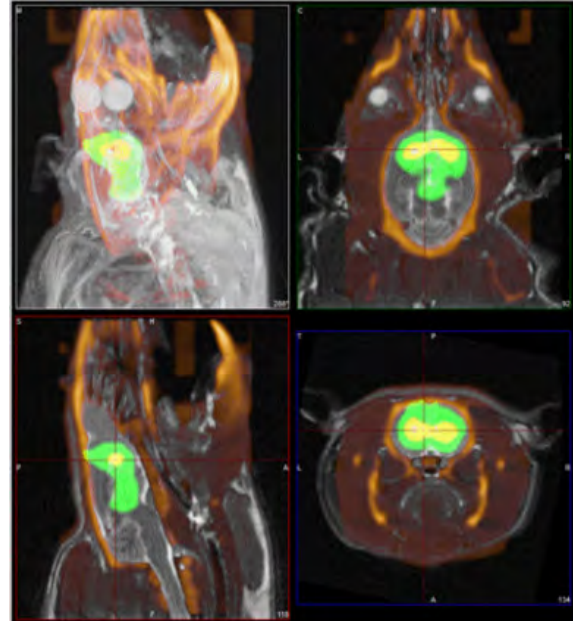
Additional Tools – Cropping, resampling, unit conversion, filtering tools, and more.

Image Analysis and Presentation Tools

Distance Measure and Annotation Tool – Identify Euclidean distance between any two end–points within 3D images. Intensity values along the line segment are plotted and written to an exportable array. Highlight areas of an image via annotations and pointers.

3D ROI Tool – Classify individual voxels to export quantitative ROI–specific signal intensity values to generate time–activity curves and much more. Automated thresholding algorithms, interpolation tools, and manual "painting" and "erasing" functionality enables commanding flexibility.

MR Estimation Tool – Generate, view, and quantify T1, T2, and DWI maps using linear and non–linear models.

Dosimetry Tool– From the 3D ROI tool, calculate the input parameters required for the OLINDA | EXM® software (510k compliant) for dosimetry estimations.

Presentation Tools – Generate images, rotating MIPs, and fly–through slice movies. Edit output via the Image Magick® plug–in. Manually reset color windows to accurately depict images across time and over multiple subjects.

VivoScript – **Scripting Platform** – Javascript based language allows users to batch through VivoQuant functions and tools to streamline workflows and increase productivity.

MR-SPECT-CT co-registration (top left) with slice views.

CiQuant™

Cryo–imaging meets 3D: 3-Dimensional reconstruction and co–registration to bring a stack of white–light photographs and autoradiography slices into 3–D while providing micrometer spatial resolution and nanocurie resolution of radioactivity. Sophisticated segmentation approaches are available combining red, green, and blue channels from the white–light photographs and radioactivity from the autoradioluminograms. Rapid viewing and quantification of autoradioluminograms can be done directly in VivoQuant leveraging its suite of well–established 3–D viewing, automated segmentation and co–registration, and quantification tools.
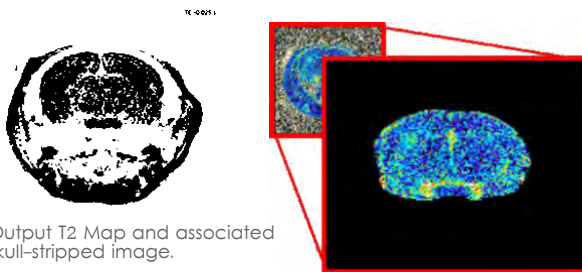
Output T2 Map and associated skull–stripped image.
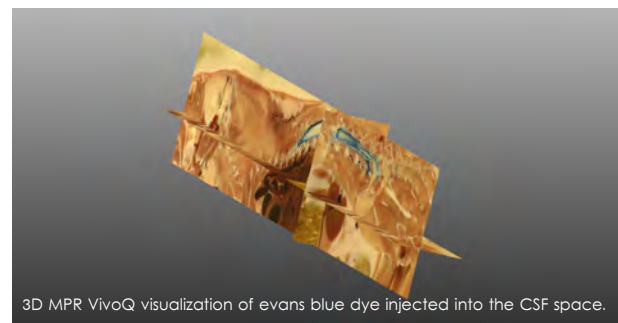
3D MPR VivoQ visualization of evans blue dye injected into the CSF space.

inviCRO