

Morphometry as biomarker for brain degeneration

NICARA™ for clinical trials

Cognitive Testing

Necessary,
but time consuming
and expensive

Volume Assessments

Widely used, but with
only moderate
prediction quality

Morphometry Assessments & Connectomics

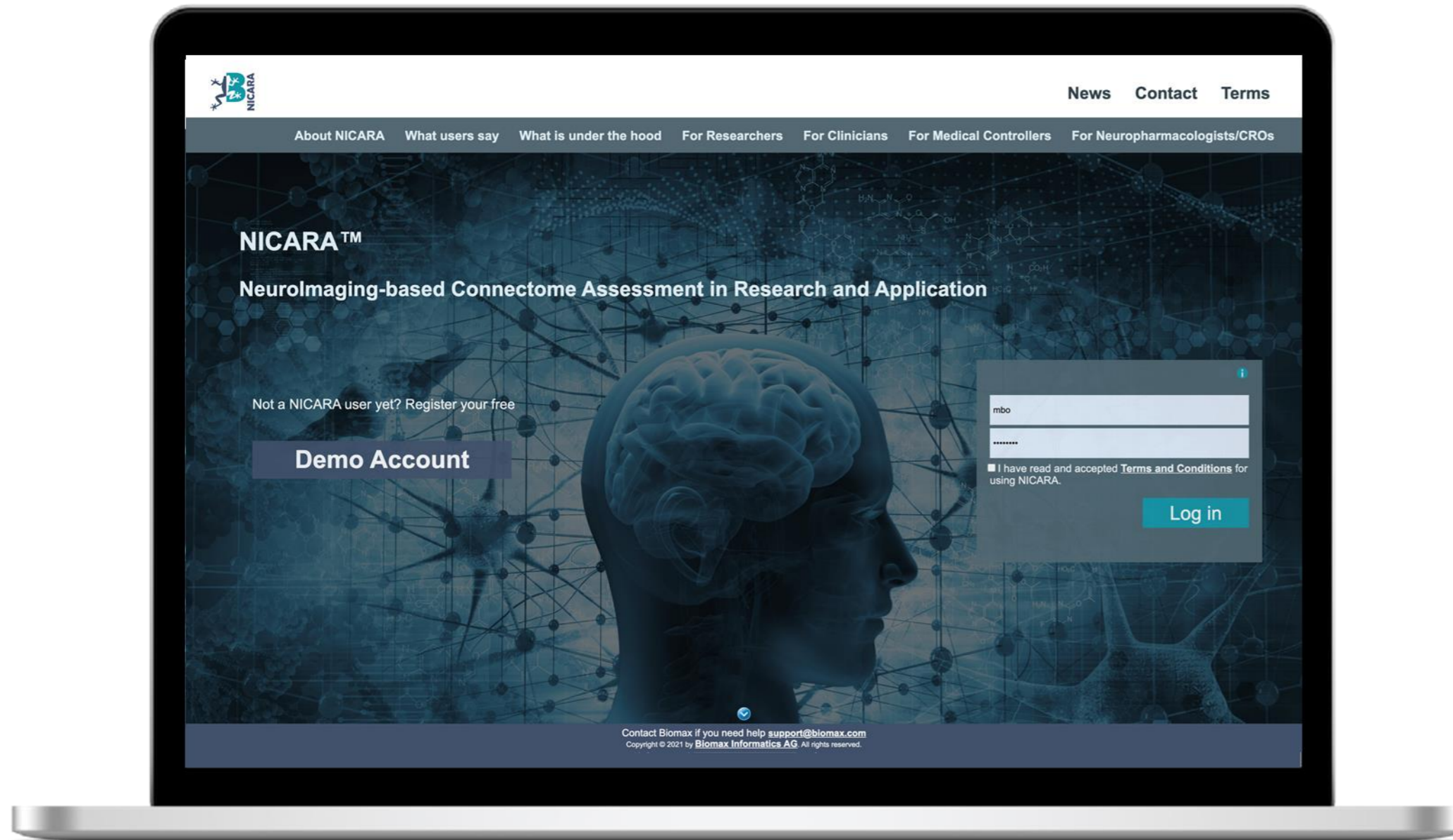
Can greatly
enhance prediction
quality



Our Solution for Morphometry and Connectomics



NICARA™



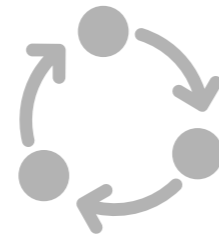
- > Full visualization, exploration and comparisons of multimodal connectome information and morphometry.
- > Fully automated processing routines for Connectome Extraction, VBM and SBM
- > Longitudinal assessments processed in one pipeline for optimal results
- > Multimodal mappings of SBM with DTI scalars and full brain tractography
- > Latest brain atlases such that HCP MMP 1.0.

Your results and decisions will be better with NICARA



...precise patient stratification

...better monitoring of treatment outcome



... expert knowledge

...hardware resources



- > You can develop more **sensitive biomarkers** for neurodegeneration due to high precision feature extraction.
- > You can derive conclusions even from **smaller clinical trials**.
- > You are able to generate **more predictive value** at **reduced costs**.
- > You have all relevant data of your clinical trial in one software solution only, including patient data, image acquisition and statistical assessment for an **optimal quality control** and study monitoring.

You can extract Brain Morphometry from Raw Images (cMRI)



CONNECTOME BROWSER

Subject: 127_S_6433 Longitudinal Assessment: Year 2 Cohort: Patient Study: Alzheimer's Disease Neuroimaging Initiative 3 Protocol

DTI Tabular Listing Threshold
fMRI 3D Lattice Subnetwork
EEG/MEG 3D Anatomy Seed

T1 weighted image, probabilistic fiber density maps and deterministic streamlines of 127_S_6433_DTI in MNI152 standard space.

Legend:

- Cingulum
- Frontal Aslant Tract
- Homotopic Contralateral Connections
- Inferior Fronto-Occipital Fasciculus
- Inferior Longitudinal Fasciculus
- Middle Longitudinal Fasciculus
- Superior Longitudinal Fasciculus
- Uncinate Fasciculus
- Vertical Occipital Fasciculus

Select all Unselect all

Color mode Fiber Density Maps

Select Atlas

Set view Center Slices Native Space

X: 136
Y: 155
Z: 130

- > Originally designed for DTI surface-based full brain tractography
- > Providing most advanced pipelines for rendering cortical brain surfaces out-of-the-box
- > Cortical SBM assessments include
 - > Gyrification
 - > Thickness
 - > Depth
 - > Area
 - > Volume (derived from SBM)

You will gain more precise biomarkers through Surface Based Morphometry



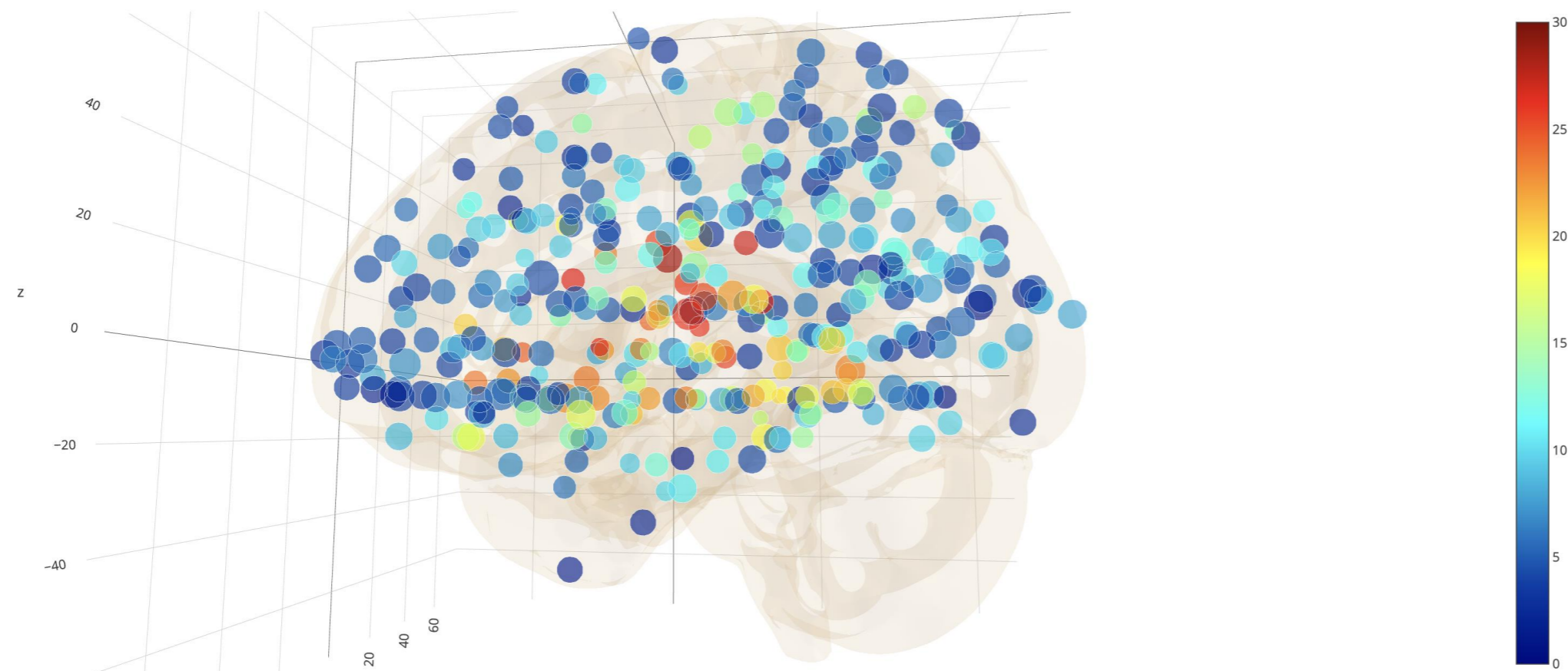
MORPHOMETRY BROWSER

Subject: 127_S_6433 Longitudinal Assessment: Day 0 Cohort: Patient Study: ADNI-3

<input type="checkbox"/> SBM	<input checked="" type="checkbox"/> Tabular Listing	<input type="checkbox"/> Threshold
<input checked="" type="checkbox"/> DTI	<input checked="" type="checkbox"/> 3D Lattice	<input type="checkbox"/> Subnetwork
<input checked="" type="checkbox"/> fMRI	<input type="checkbox"/> 3D Anatomy	<input type="checkbox"/> Seed

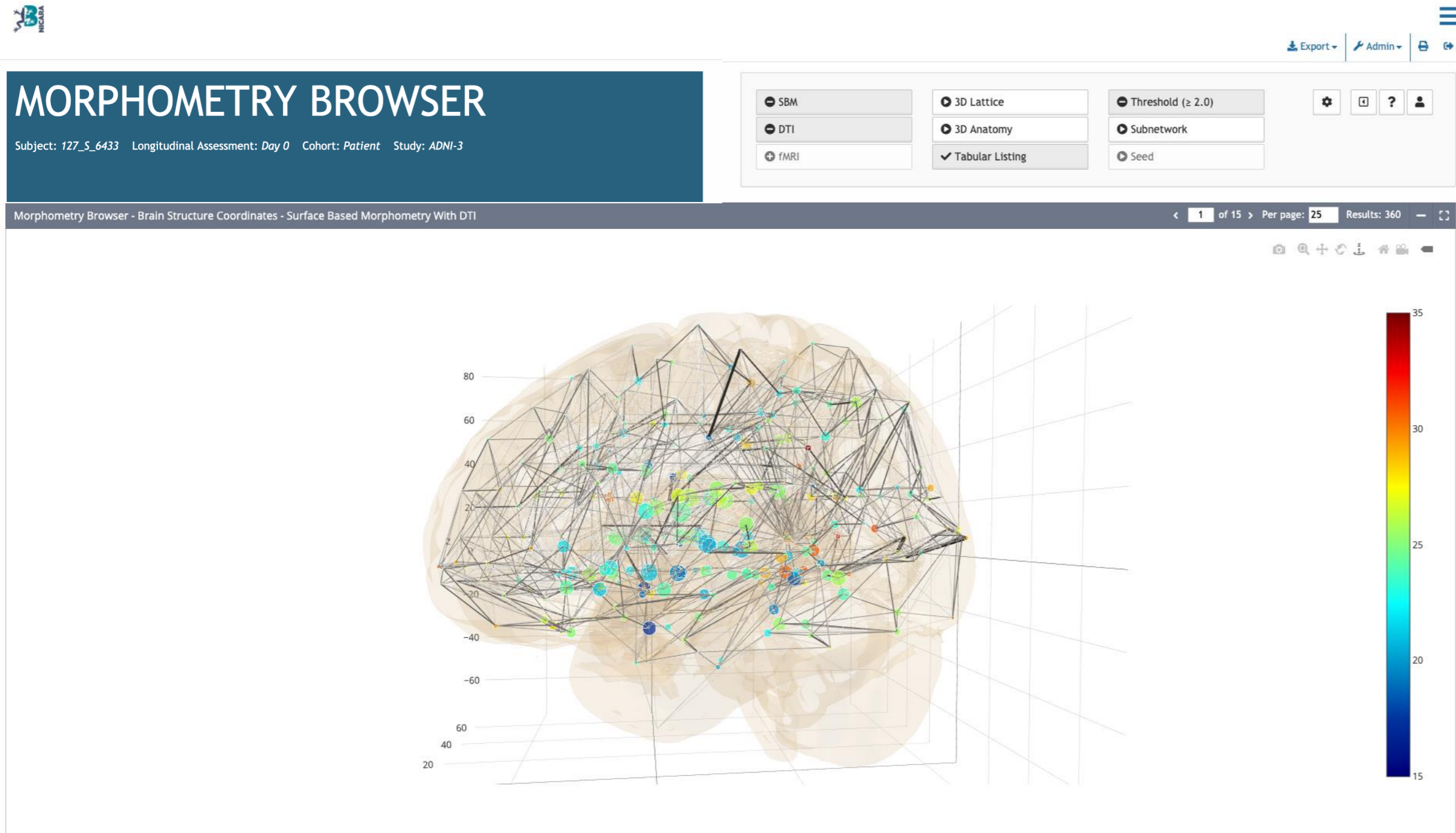
Surface Based Morphometry 127_S_6433_SBM_Day 0. Gyrfication indicated by size and cortical depth by color of circles.

< 1 of 15 > Per page: 25 Results: 360



- > More precise neuro-degeneration biomarkers compared to voxel-based volume measurements.
- > Diameter: cortical gyrfication
- > Color: cortical depth

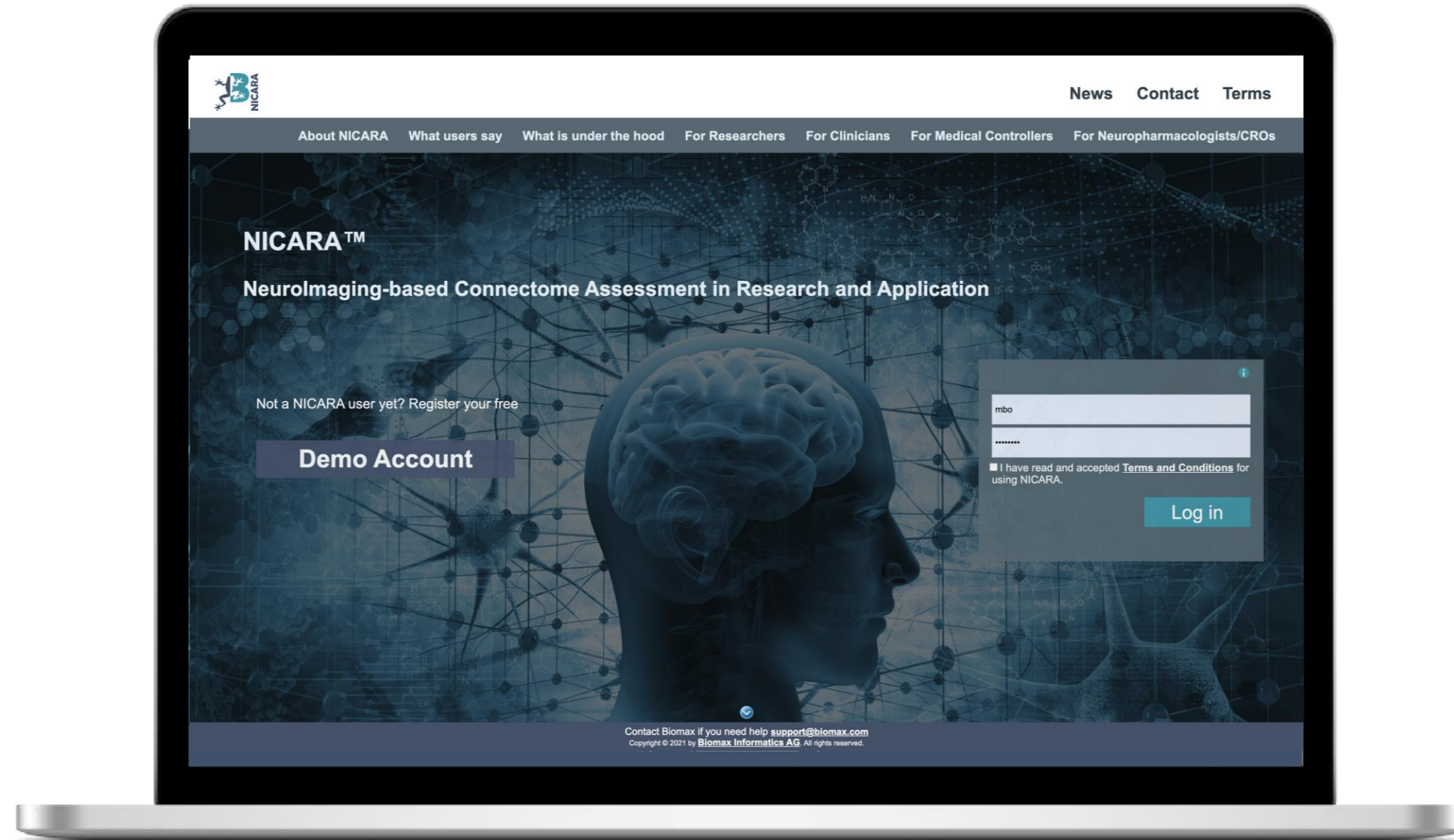
You can combine Surface Based Morphometry with Connectivity



Surface based full brain DTI tractography: links between nodes

- > Direct comparisons between SBM of cortical ROIs and surface-based full brain DTI tractography - available out of the box
- > More precise patient characterization, e.g., in clinical trials or translational research

Interested in a DEMO of NICARA?



Register a free demo account at nicara.eu
or contact nicara@biomax.com for a free consultation!