

NICARA™ - Your Knowledge Hub for Neuroimaging Data



Explore the world of connectomics with NICARA™

NICARA™ is a novel, unique and cost-effective solution for everyone working with brain data, who wishes to gain a deeper insight into the world of Connectomics. As zero-footprint solution NICARA™ requires no soft- and hardware installations on your site.

NICARA™ stands for **N**euro**I**maging-based **C**onnectome **A**ssessment in **R**esearch and **A**pplication.

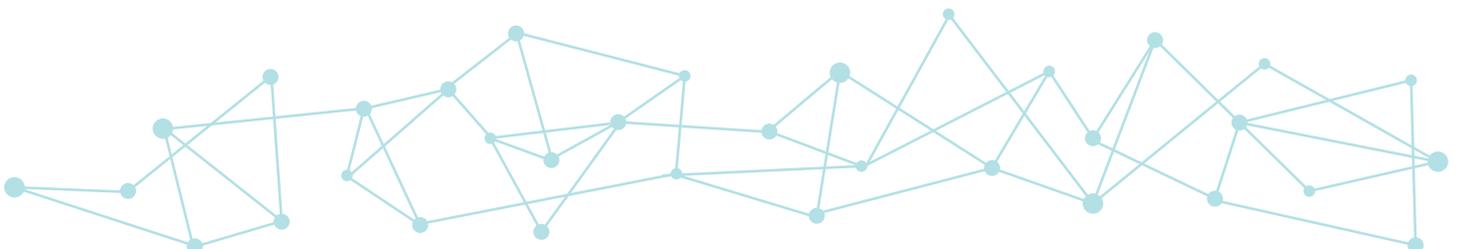
The connectome, the complex map of our brain connections, is key to our individuality, our intelligence and personal preferences as well as our individual vulnerability to brain diseases and dementia. Clinically, impairments of the integrity of brain networks are the earliest indicator of neurodegenerative diseases and a much better predictor of cognitive decline than volumetric assessments alone.

However, extracting structural and functional brain connectivity from raw images is time consuming and requires extensive expert knowledge.

With NICARA™, you have thousands of publicly available connectomes at your fingertips and the possibility to analyze your own data by creating individual connectomes on the fly in an easy to use web portal.



Exploring Neuroimaging Data with NICARA™





NICARA™ – Connectome Browser

Modules of the NICARA™ environment

- > **The Connectome Browser** allows you to explore your own and public connectome data sets from structural (e.g., DWI) and functional (e.g., resting-state) MRI. View your brain imaging data from a completely new angle in razor-sharp resolution!
- > **The Connectome Builder** enables you to automatically perform probabilistic white matter tractography from DWI as well as cortical morphometry measures with just a few clicks.
- > **The Connectome Comparator** assists you to compare either full brain or subnetwork connectomes at individual or group level. You can compare your own data sets with matched controls chosen from public studies like HCP or OpenNEURO.
- > **The Connectome Editor** helps you create, explore, analyze and compare connectivity of selected anatomical or functional subnetworks.
- > Coming soon: Assess graph theory-based network properties of connectomes using the **Connectome Analyzer**, create virtual brain lesions and predict rewiring of connectomes afterwards with help of the **Connectome Cutter** and **Connectome Simulator**.

Why choose NICARA™?

- > NICARA™ provides processed connectomes from public data bases. The system currently includes about 1200 processed connectomes of the Human Connectome Project and creates a “one stop shop” for various brain imaging modalities.
- > NICARA™ makes state-of-the-art automated MRI processing pipelines available that are easy to execute by newcomers.
- > NICARA™ saves time and resources by running complete image processing workflows on Biomax servers.
- > NICARA™ increases standardization, interoperability and reusability by automatically documenting all processing steps as metadata.
- > NICARA™ helps you accelerate your research progress and expands your field of research in an easy manner. NICARA eases the way you work with extensive connectome data sets and lets you focus on the actual research questions.
- > NICARA™ allows keeping a clear view on the big picture of your research at every time. You will get much deeper insights in your data and computations of connectomes become as easy as never before.



NICARA™. *NeuroImaging-based Connectome Assessment in Research & Application*



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