

## Brainnetome Atlas: A new map of human brain

With the support by the National Natural Science Foundation of China and the Chinese Academy of Sciences, researchers from the Brainnetome Center, Institute of Automation, Chinese Academy of Sciences, generated a new human brain map, named Brainnetome Atlas, which was published in *Cerebral Cortex* (2016, 26(8): 3508–26), and released as online resources on the website (<http://atlas.brainnetome.org/>).

The brain atlases based on different mapping techniques are the navigator of the human brain, and considered as the cornerstone of basic and clinic neuroscience. With a history of more than a century, the Brodmann's map developed by a neuroanatomist, Korbinian Brodmann, divided the human cerebral cortex into 52 different areas based on its cellular architecture, and is still used most often as one of the possible parcellations. However, the limitations of this map have become more and more obvious, increasing the importance of defining brain areas using new methodologies.

In the year of 2010, the Brainnetome project, funded by the National Natural Science Foundation of China, the National Key Basic Research and Development Program (973), and the Strategic Priority Research Program of the Chinese Academy of Sciences, was launched to investigate the hierarchy in human brain from genetics and neuronal circuits to behaviors. One of the key elements of this project is focused on setting up and optimizing the framework for connectivity-based parcellation, and aims to produce a new human brain atlas, i. e. Brainnetome atlas based on connectional architecture. This new brain atlas has the following four features: (1) It establishes a fine-grained brain parcellation scheme for 210 cortical and 36 subcortical regions with a coherent pattern of anatomical connections; (2) it supplies a detailed map of anatomical and functional connections; (3) it decodes brain functions using a meta-analytical approach; and (4) it is an open resource for researchers to use for the analysis of whole brain parcellations, connections, and functions. When the atlas was published, Dr. George Paxinos, an internationally appreciable neuroscientist, was invited by the journal of *Sci China Life Sci*, and made his comments that “the human Brainnetome Atlas is a new chapter of brain cartography, and should be regarded as an important step for creating more fine-grained atlases and it opens a new avenue for understanding brain function and dysfunction”.

The human Brainnetome Atlas could constitute a major breakthrough in the study of human brain atlas and provides the basis for new lines of inquiry about the brain organization. It will enable the generation of future brain atlases that are more finely defined and that will advance from single anatomical descriptions to an integrated atlas including structure, function, and connectivity, along with other potential sources of information. It will present neuroscientists with one of the key tools that will help us get some entirely new knowledge on how the brain works, as well as understand the pathophysiological mechanism of psychiatric and neurological disorders.

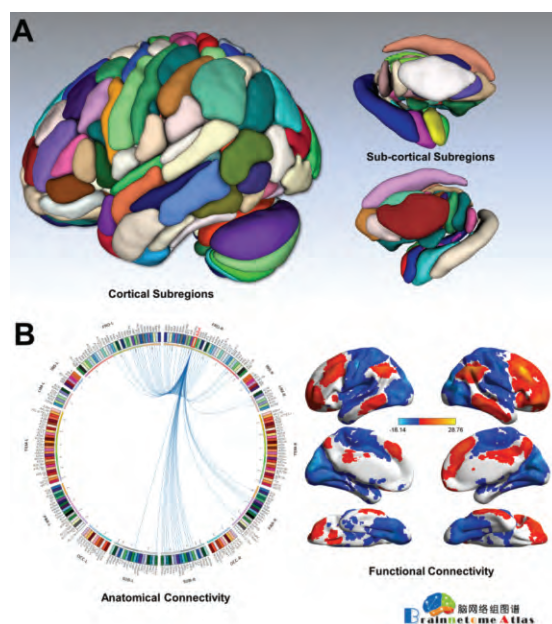


Figure The Human Brainnetome Atlas.