

# The Brain Hierarchical Atlas

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Elucidating the intricate relationship between brain structure and function, both in healthy and pathological conditions, is a key challenge for modern neuroscience. Recent progress in neuroimaging has helped advance our understanding of this important issue, with diffusion images providing information about structural connectivity (SC) and functional

magnetic resonance imaging shedding light on resting state functional connectivity (rsFC). Here, we adopt a systems approach, relying on modular hierarchical clustering, to study together SC and rsFC datasets gathered independently from healthy human subjects.

Our novel approach allows us to find a common skeleton shared by structure and function from which a new Brain Hierarchical Atlas can be described. The use of this atlas in different pathologies underlines the strong correspondence between brain structure and resting-state dynamics as well as the emerging coherent organization of the human brain.

**Primary author:** Prof. CORTES, Jesus M (Biocruces Bilbao Spain)

**Presenter:** Prof. CORTES, Jesus M (Biocruces Bilbao Spain)

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