

Precuneus region of human and monkey brain is divided into 4 distinct regions

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A study published this week in *PNAS* provides a comprehensive comparative functional anatomy study in human and monkey brains which reveals highly similar brain networks preserved across evolution.

An international collaboration co-led by scientists at NYU Langone Medical Center in New York City examined patterns of connectivity to show that the precuneus, long thought to be a single structure, is actually divided into four distinct functional regions.

These areas were identified using "resting state" [functional Magnetic Resonance Imaging](#) (fMRI) - a recently emerging approach that allows scientist to map a multitude of brain networks using only 6 minutes of data acquired while an individual lies in the scanner at rest. The results of these brief imaging sessions were comparable to definitive findings in [monkeys](#) examined microscopically.

Located in the posterior portion of the brain's medial wall, the precuneus has traditionally received little attention in the neuroimaging and neuropsychological literatures. However, recent functional neuroimaging studies have started to implicate the precuneus in a variety of high level cognitive functions, including episodic [memory](#), self-related processing, and aspects of consciousness.

"The findings confirm that higher order association areas in the [brain](#) have complex functional architectures which appear to be preserved and or expanded during the evolutionary process," said study co-leader,

Michael P. Milham, MD, PhD, the associate director of the Phyllis Greene and Randolph Cowen Institute for Pediatric Neuroscience at the NYU Child Study Center and assistant professor of child and adolescent psychiatry at NYU Langone Medical Center. "The fMRI approaches provide a powerful tool for translational science, making comparative studies of the brain's functional neuroanatomy studies across species possible."

Source: New York University School of Medicine ([news](#) : [web](#))

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