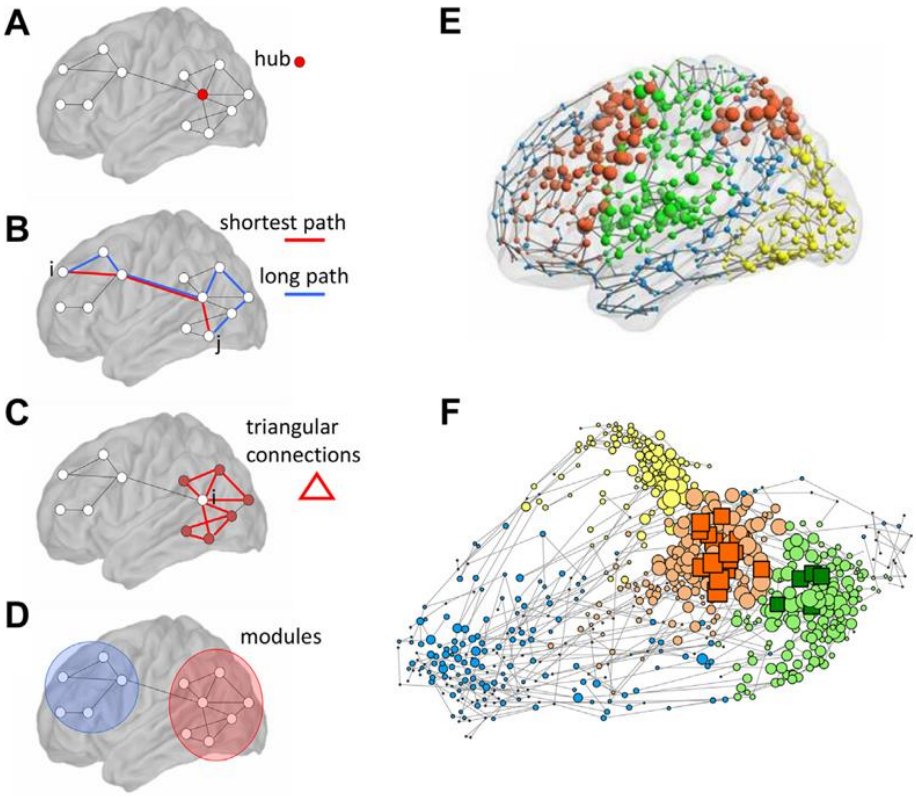
Network neuroscience approach to understand typical and atypical development in Autism Spectrum Disorder

Core-periphery dynamical changes associated with macroscale brain network dynamics characterized by neuroimaging techniques span multiple timescales and may lead to atypical behavior and clinical symptoms. For example, recent evidence suggests that brain regions with shorter intrinsic timescales are located at the periphery of brain networks (e.g., sensorimotor hand, face areas) and are implicated in perception and movement.



On the contrary, brain regions with longer timescales are core hub regions. These hubs are important for regulating interactions between the brain and the body during self-related cognition and emotion. A review from DBT's National Brain Research Center (DBT-NBRC), Manesar, it was summarized that a large body of converging evidence derived from time-resolved *functional Magnetic Resonance Imaging (fMRI)* studies in Autism to characterize atypical core-periphery brain dynamics and how they relate to core and contextual sensory and cognitive profiles.

The intrinsic function of the human brain is dynamic giving rise to numerous behavioral responses that fluctuate distinctively at multiple timescales Autism Spectrum Disorder. One of

the key dynamical processes that takes place in the brain is the interaction between two distinct set of core and peripheral brain regions, which undergoes constant fluctuations associated with typical human developmental time frames (months after birth to childhood to early adolescent periods and adulthood).

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