Brain network

see Neural network.

In neuroscience, the default mode network (DMN), (also default network or default state network), is a network of the interacting brain regions known to have activity highly correlated with each other and distinct from other networks in the brain.

Neuronal heterogeneity has been established as a pillar of higher central nervous system function, but glial heterogeneity and its implications for neural circuit function are poorly understood. Here we show that the adult mouse dentate gyrus (DG) of the hippocampus is populated by molecularly distinct astrocyte subtypes that are associated with distinct DG layers. Astrocytes localized to different DG compartments also exhibit subtype-specific morphologies. Physiologically, astrocytes in upper DG layers form large syncytia, while those in lower DG compartments form smaller networks. Astrocyte subtypes differentially express glutamate transporters, which is associated with different amplitudes of glutamate transporter-mediated currents. Key molecular and morphological features of astrocyte diversity in the mice DG are conserved in humans. This adds another layer of complexity to our understanding of brain network composition and function, which will be crucial for further studies on astrocytes in health and disease [1)]

1)
Karpf J, Unichenko P, Chalmers N, Beyer F, Wittmann MT, Schneider J, Fidan E, Reis A, Beckervordersandforth J, Brandner S, Liebner S, Falk S, Sagner A, Henneberger C, Beckervordersandforth R. Dentate gyrus astrocytes exhibit layer-specific molecular, morphological and physiological features. Nat Neurosci. 2022 Nov 28. doi: 10.1038/s41593-022-01192-5. Epub ahead of print. PMID: 36443610.