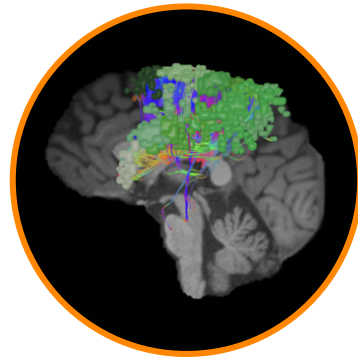
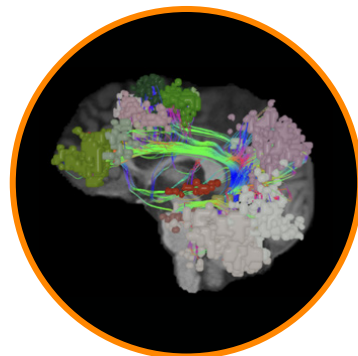


SUMMARY OF BRAIN NETWORKS



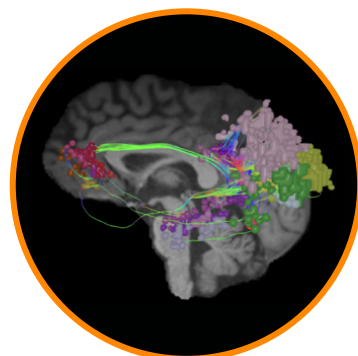
Sensorimotor Network

- The sensorimotor network is responsible for sensing physical inputs, converting them to electrical signals to initiate a physical response
- Abnormalities can cause sensory and movement disorders, degenerative diseases, developmental delays and mental health disorders.



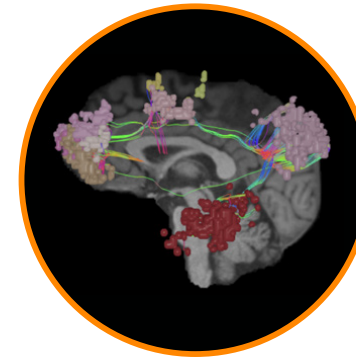
Language System

- The language network is often referred to as an “eloquent region” of the brain due to its critical role in and independent function
- Recent neuroimaging publications have extended anatomical classification of network including new cortical parcellations and tract pathways
- Damage to this network causes neurological decline e.g. aphasic impairment



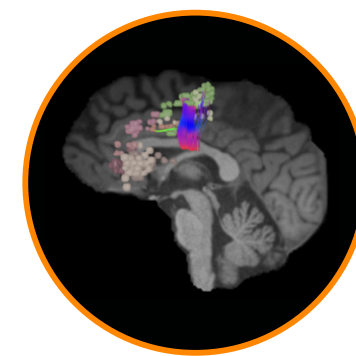
Default Mode Network (DMN)

- The DMN is a critical network involved with cognitive and emotional regulation
- One of the most active and consistent of the brain networks- active during rest and sleep
- Coordinates with other networks for passive sensory processing
- Abnormalities often associated with neuropsychiatric disorders e.g. schizophrenia, depression, PTSD
- Dysfunctions may contribute to difficulty processing social situations and information e.g. autism



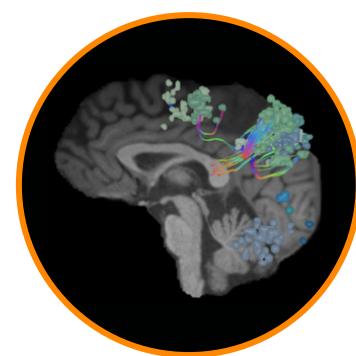
Central Executive Network (CEN)

- The CEN is active during tasks and decision making
- The salience network is responsible for switching between the CEN and DMN which alternate in activity, forming an anti correlated relationship
- CEN deficits such as abnormal connectivity patterns have been reported in major psychiatric and neurological disorders e.g depression, schizophrenia, autism



Salience Network (SN)

- The SN is involved in cognitive, emotional and motivational function
- Monitors the external world and decides how other brain networks react to new information and stimuli in particular activating and deactivating the CEN and DMN
- Lesions, abnormalities and connectivity patterns in SN cause disruptions such as in akinetic mutism, dementia and schizophrenia.



Dorsal Attention Network (DAN)

- The DAN holds attention for a person to focus and ignore miscellaneous noises or environmental changes.
- In addition to attentional and sensory disruption due to neurodegenerative disorders, the DAN is also associated with neuropsychiatric disorders, like schizophrenia.



MRK0033 Rev 1

LEGEND: Default object generated by Quicktome brain region selection



Lateral frontal



Lateral parietal



Anterior occipital



Occipital lobe



Medial parietal

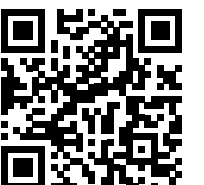


Insula



Temporal lobe

To see more detailed summaries, visit:
<https://quicktome.o8t.com/network>

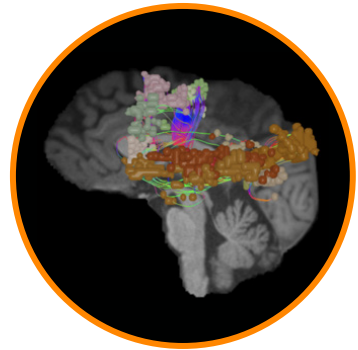


SUMMARY OF BRAIN NETWORKS



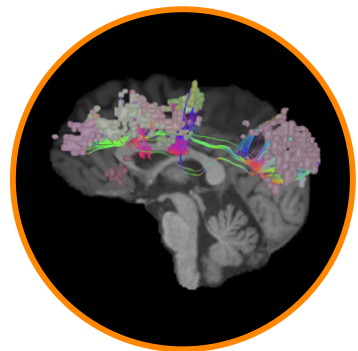
Ventral Attention Network (VAN)

- The VAN is involved with stimulus driven attention
- Damage results in hemispatial neglect and other cognitive dysfunction
- Spatial attention impairment is consistently associated with damage to components of VAN



Auditory System

- The auditory network plays a complex role in cognitive and language function
- Studies have been able to produce the sensation of hearing music by stimulating different points in the auditory network in patients under anaesthesia.
- Impairments and abnormalities in this network are associated with depression, schizophrenia and temporal epilepsy.



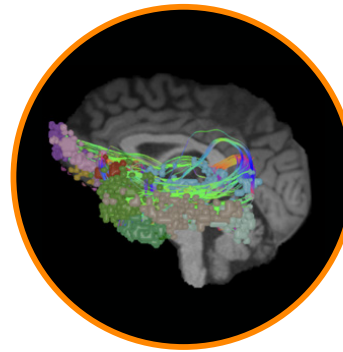
Multiple Demand Network (MD)

- The MD network is involved with higher cognitive function
- MD networks reported to be involved in a variety of cognitive demands such as novelty, perceptual difficulty, response conflict and different memory types.
- MD lesions are shown to predict fluid intelligence deficits



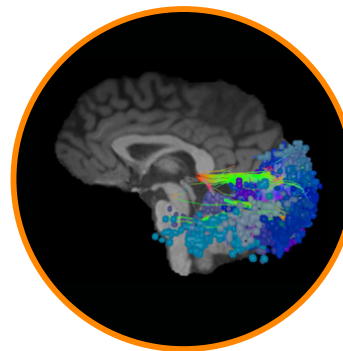
Accessory Language Network (ALN)

- The ALN is involved in *memory* related components of language such as speech recognition and representation of lexical concepts.
- Damage, degeneration and abnormalities in the ALN can be seen in semantic dementia and temporal lobe epilepsy.



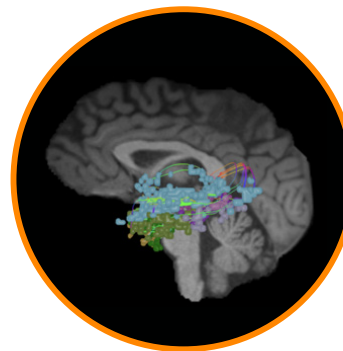
Limbic/ Paralimbic System

- The limbic/paralimbic network is responsible for socio-emotional behavior and memory
- Structural and functional connectivity differences in this network can measure social behaviors.
- Lesions in this network are associated with neurological and psychiatric disorders e.g. depression, memory loss, Parkinson's



Visual System

- The visual network is involved with visual and sight processing
- Recent publications have identified substreams associated with complex visual tasks such as pattern recognition
- Damage to this network cause visual field defects in patients



Medial Temporal Network (MTN)

- The MTN visual field defects, psychiatric disturbances and cognitive disorders.
- Tau accumulation in regions of MTN is corresponded by cognitive aging with behavioral consequences.
- Relationship found between amyloid- β related changes, MTL connectivity patterns and cognitive impairment.
- Abnormalities and damage to the MTN is associated with temporal lobe epilepsy, visual field defects, psychiatric disturbances and cognitive disorders.

MRK0033 Rev 1

LEGEND: Default object generated by Quicktome brain region selection



Lateral frontal



Lateral parietal



Anterior occipital



Occipital lobe



Medial parietal



Insula



Temporal lobe

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