



## Hugues Duffau

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Hugues DUFFAU (MD, PhD) is Professor and Chairman of the Neurosurgery Department in the Montpellier University Medical Center and Head of the INSERM 1191 Team "Plasticity of the central nervous system, human stem cells and glial tumors" at the Institute of Functional Genomics of Montpellier (University of Montpellier, France). He is an expert in the awake cognitive neurosurgery of slow-growing brain tumors, as low-grade gliomas, a routine which he has developed since more than twenty years. His fundamental approach is centered on the concepts of the brain connectomics and neuroplasticity, breaking with the traditional localizationist view of cerebral processing. For his innovative work in neurosurgery and neurosciences, he was awarded Doctor Honoris Causa seven times, and he was the youngest recipient of the prestigious Herbert Olivecrona Award (Nobel Prize of neurosurgery) from the Karolinska Institute in Stockholm. He has written five textbooks and over 520 publications in international journals ranging from neurosurgery and neurooncology to fundamental neurosciences, including cognitive sciences and brain plasticity, for a total of more than 50,000 citations and with an h-index of 120. He gave more than 730 invited lectures, and was invited as a visiting professor in more than 60 institutions. He is member of Editorial boards of many journals (as Brain and Language, Neurosurgery or Neuro-oncology) and ad-hoc reviewer for around 100 journals (over 950 reviews) including: NEJM, Lancet Oncology, Nature Medicine, Nature Reviews Neuroscience, Nature Reviews Neurology; Annals of Neurology, Brain, Cerebral Cortex, Trends in Cognitive Science, Current Biology, etc. He is member of many societies, such as the French Academy of Medicine, the French Academy of Surgery, the Royal Academy of Medicine of Belgium, the World Academy of Neurological Surgery, the World Federation of Neurosurgical Societies, etc.

### **Topic: Awake Craniotomy for Low Grade Glioma**

Awake surgery in patients with low-grade glioma (LGG) represents a unique opportunity to map and preserve individual functional networks. Here, the long-term onco-functional contribution of awake functional-based resection is studied in a consecutive series of LGG. This is the first experience reporting a median overall survival over 20 years with 93.7% of return to work at 12 months post-surgery and a median overall survival with KPS $\geq$ 80% of 14.7 years. These results highlight the effect of awake functional-based resection in LGGs across all molecularly defined subtypes, both in terms of survival benefits and long-term preservation of an active life. In addition, awake surgery has opened avenues to new models of brain organization,

breaking with the localizationist tradition. These original models are based on dynamic interaction within and between networks - the concept of meta-network - involving circuits of conation, language, cognition, and emotion underlying human behavior: they explain mechanisms of neuroplasticity in LGG patients.

**Topic: Why Brain Mapping Matters in Glioma Surgery**