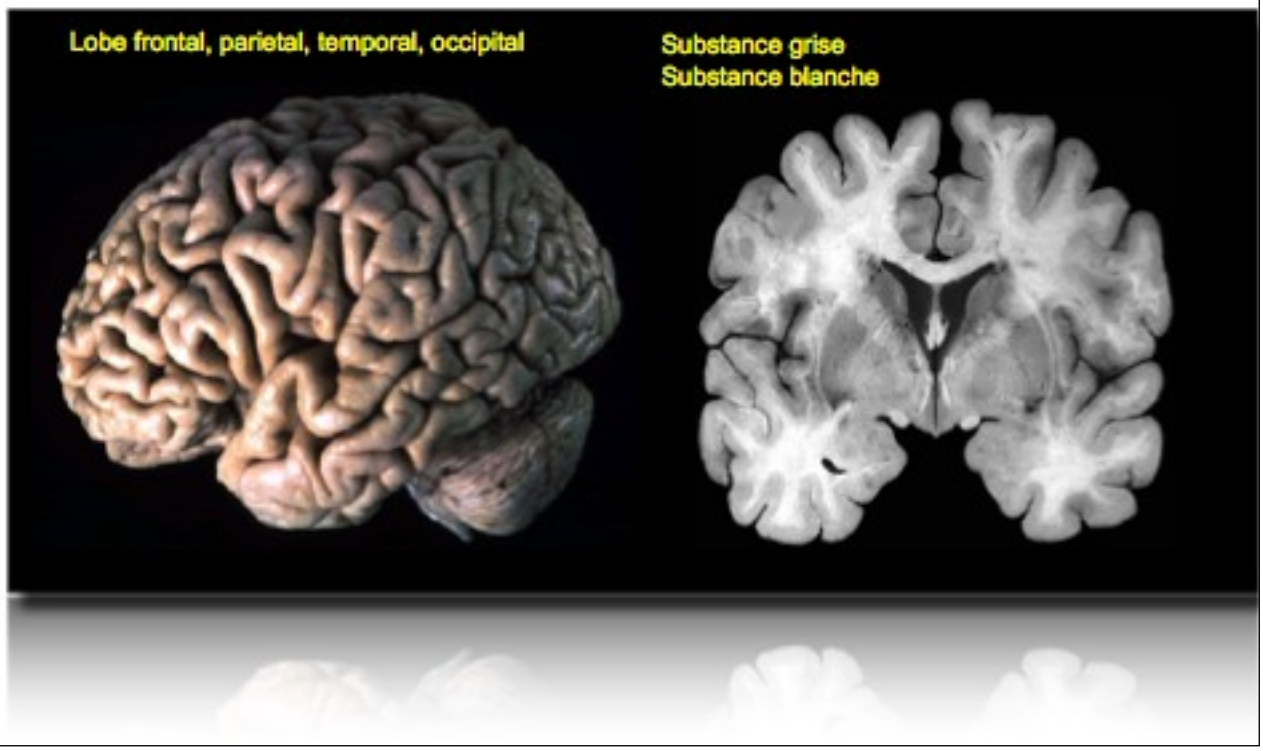
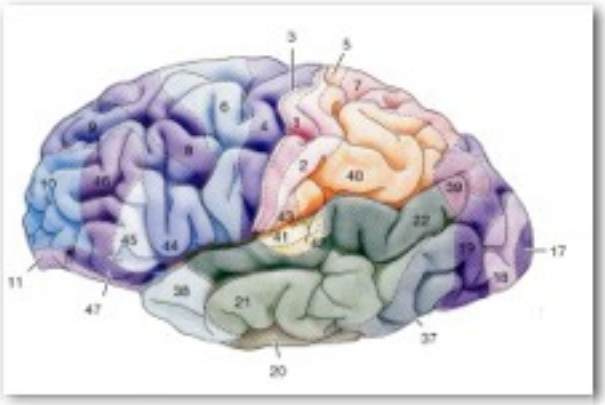
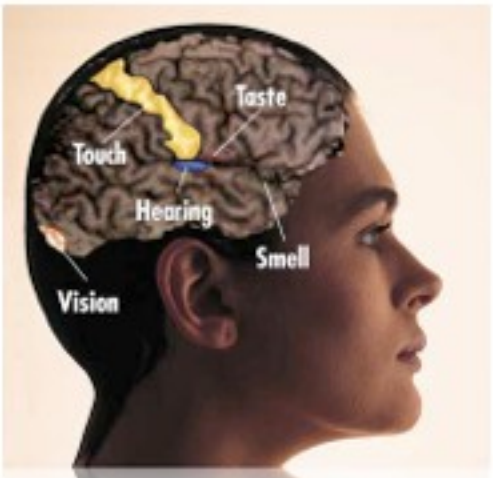
Cerveau

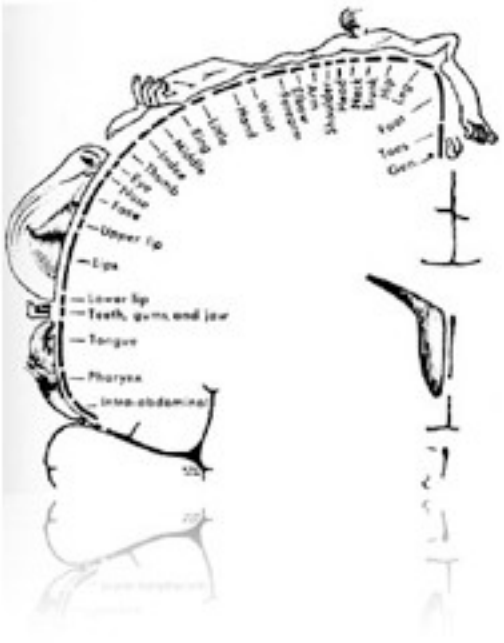


Organisation topographique

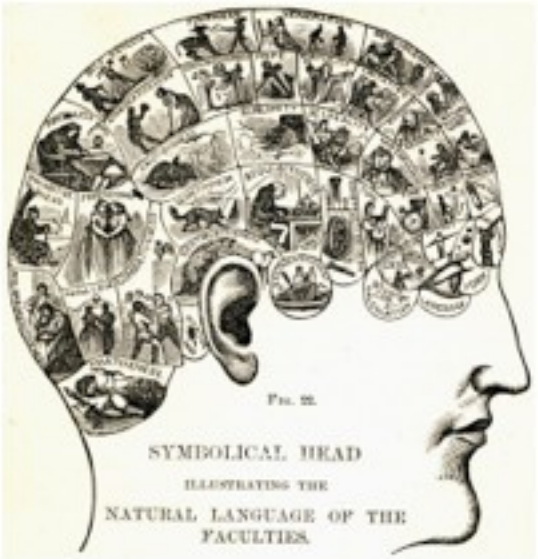


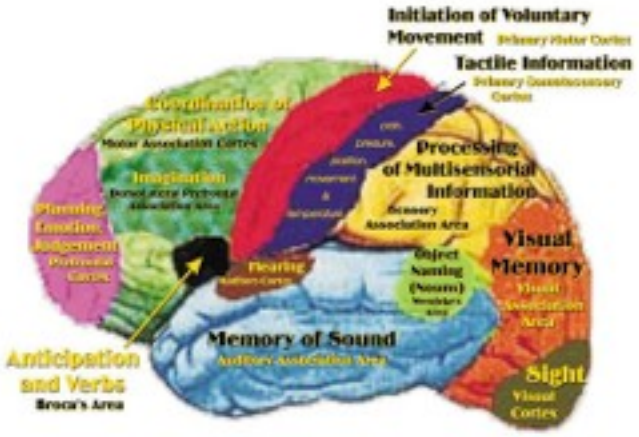


Somatotopie

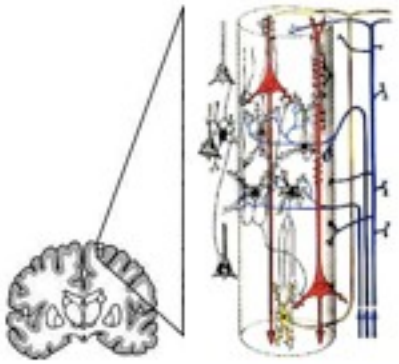


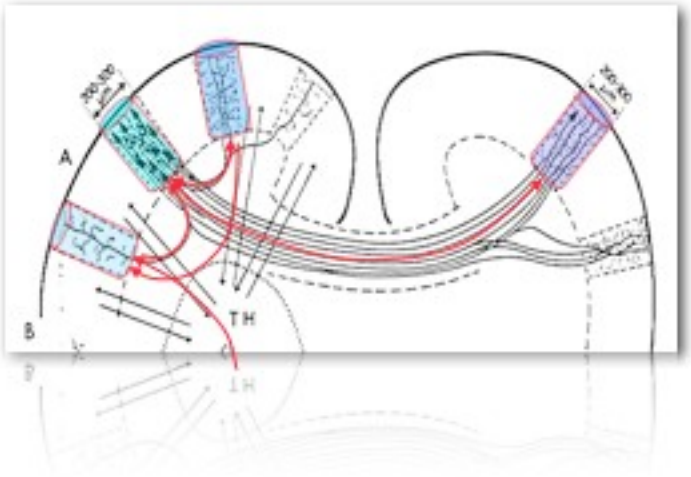
Spécialisation corticale



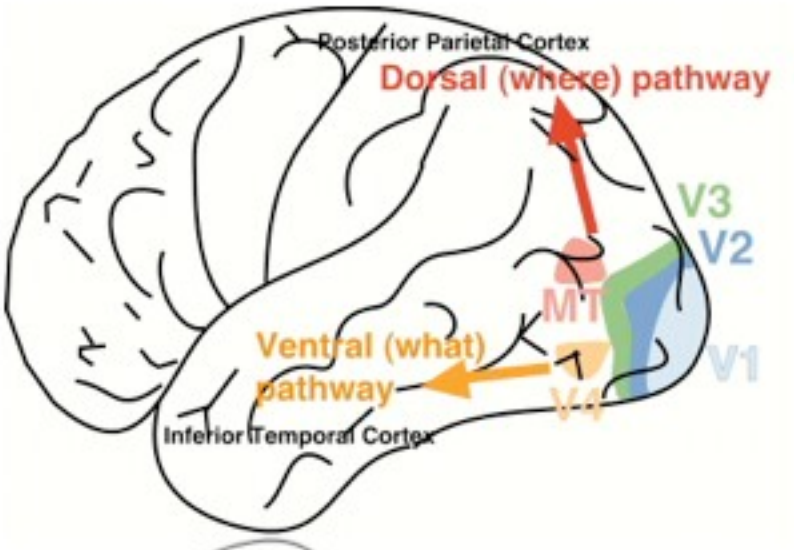


Micro-circuits corticaux

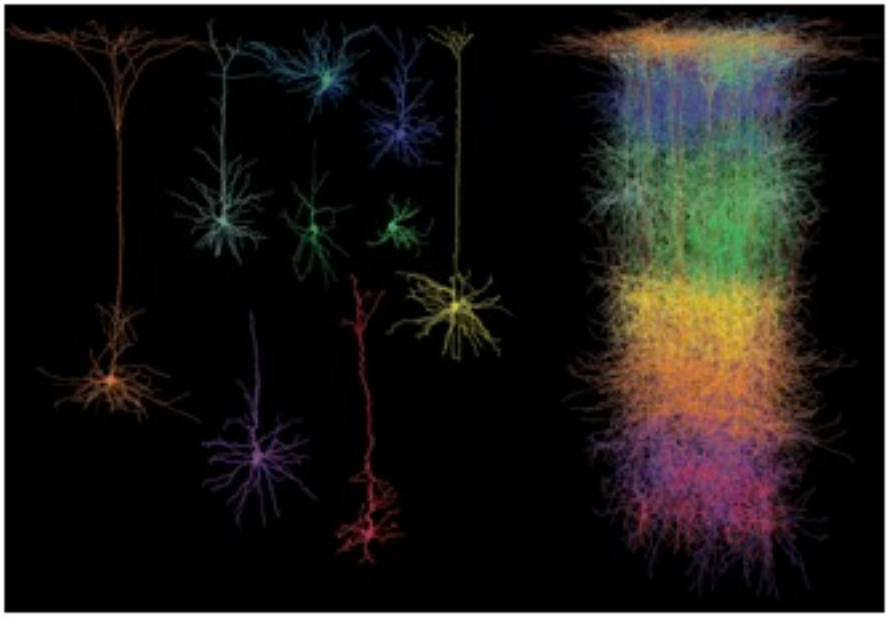




Processing de l'information visuelle

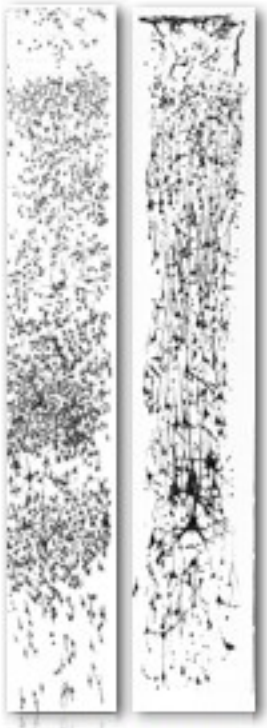


Organisation en couches corticales



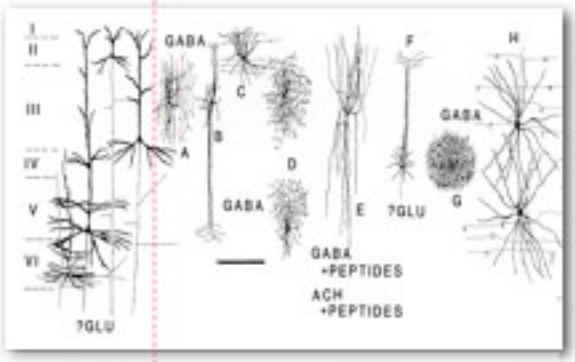
Reconstructed cortical column from the somatosensory cortex
Oberländer et al., 2012

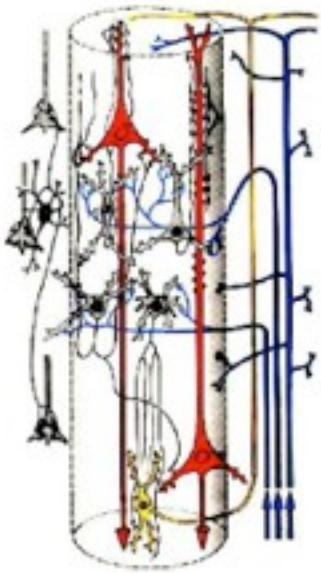
Organisation en couches corticales



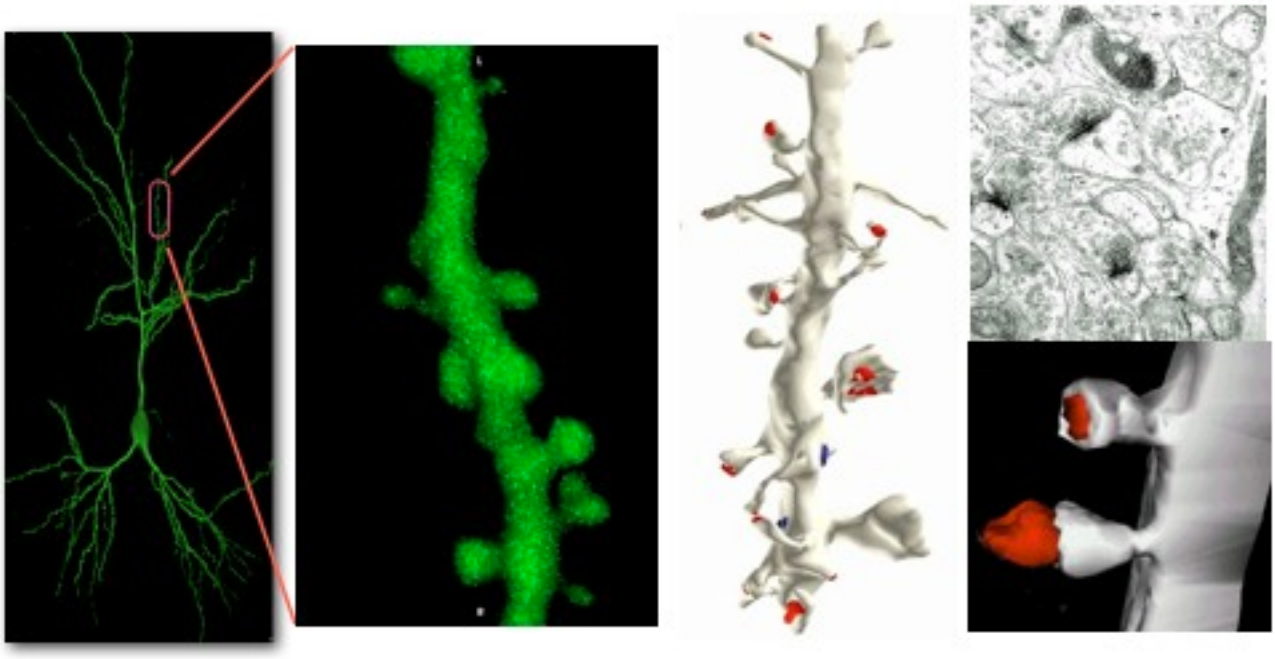
Cortex visuel

Cortex moteur

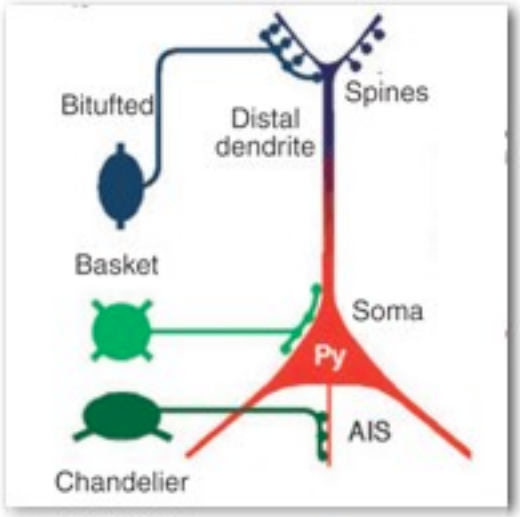


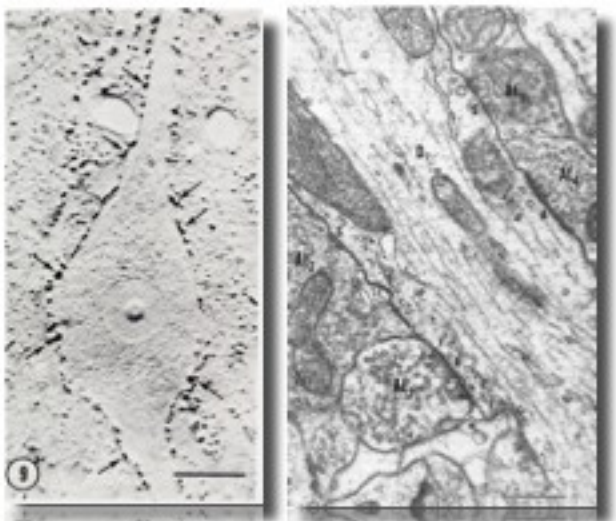


Un neurone: 10'000 contacts synaptiques

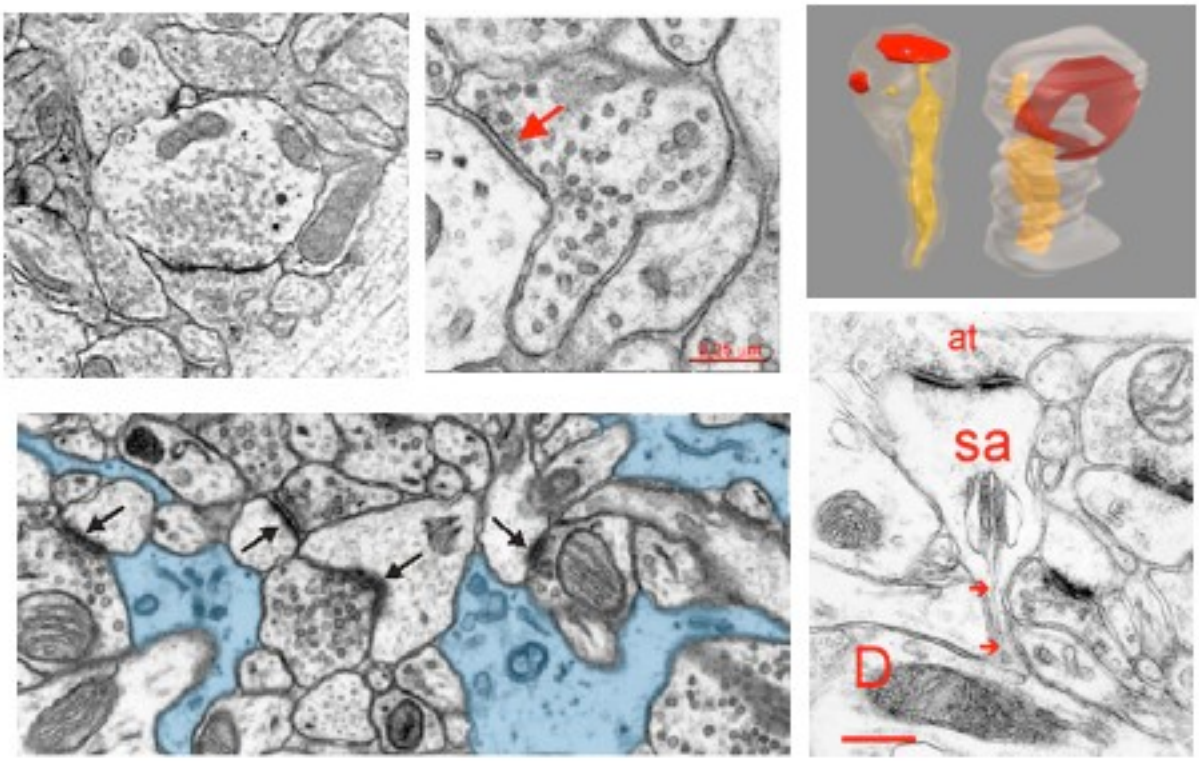


Interneurones GABAergiques

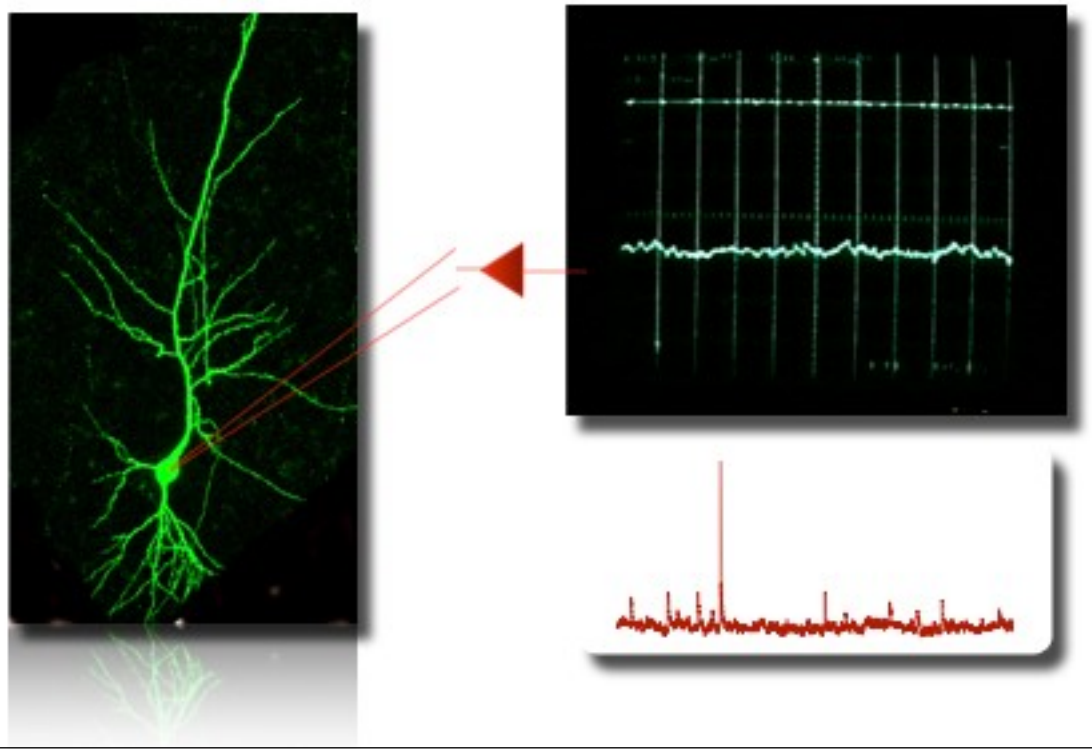




Synapses

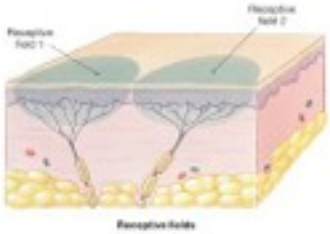


Neurone et intégration synaptique

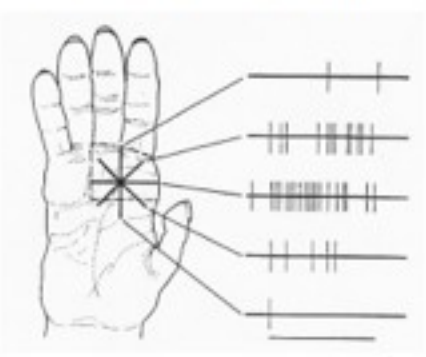


Codage par des réseaux de neurones

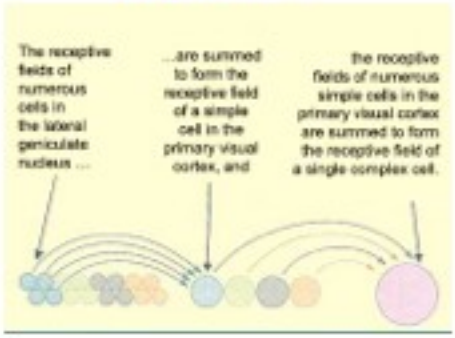
Champs récepteurs sensoriels

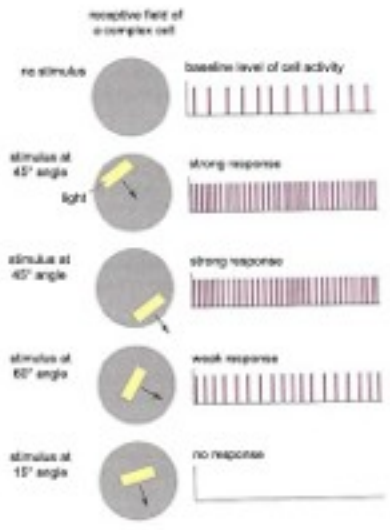


Cortex somatosensoriel

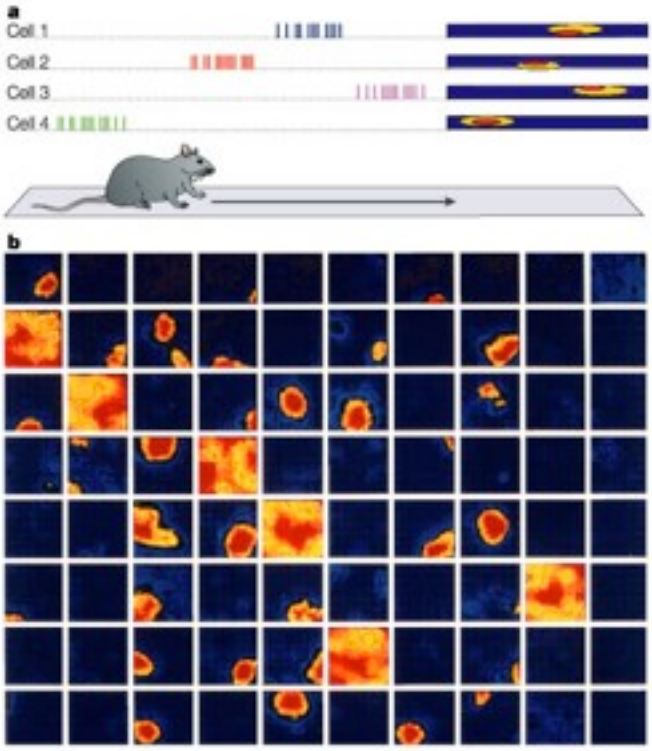


Cortex visuel



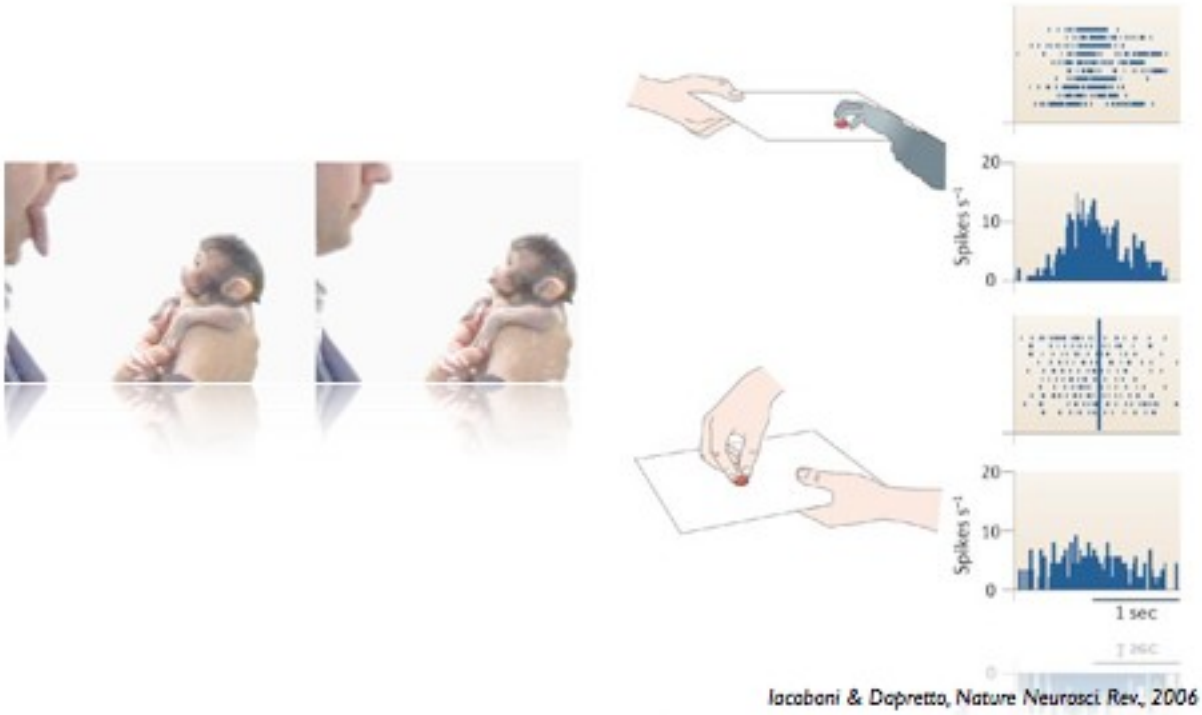


Hippocampal place cells



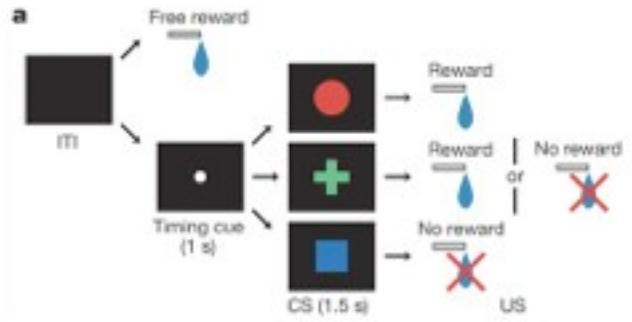
Nakazawa et al,
Nature Neurosci. Rev., 2004

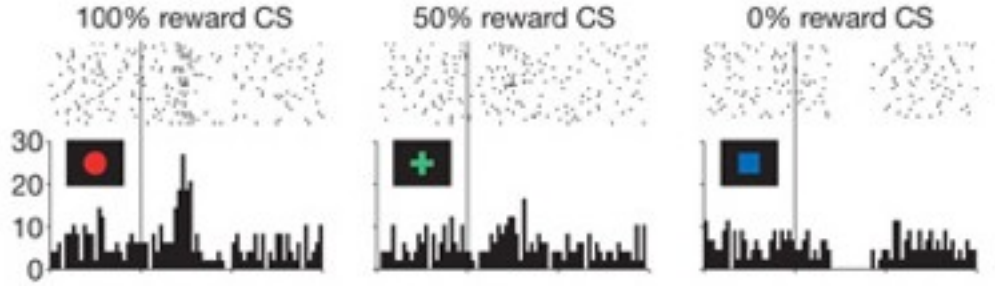
Mirror neurons



Iacoboni & Dapretto, Nature Neurosci. Rev., 2006

Reward neurons





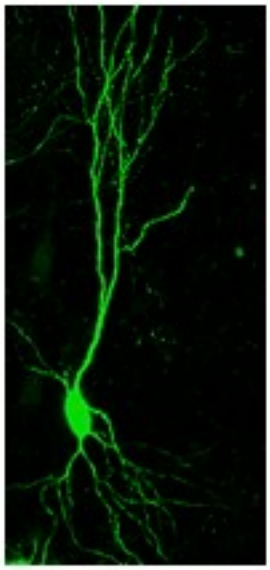
Matsumoto and Hikosaka, Nature, 2009

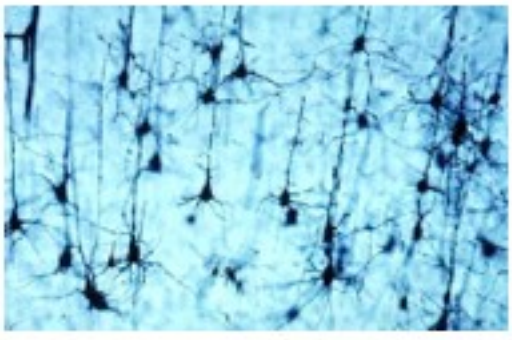
Intégration de l'information

Réseau

Neurone

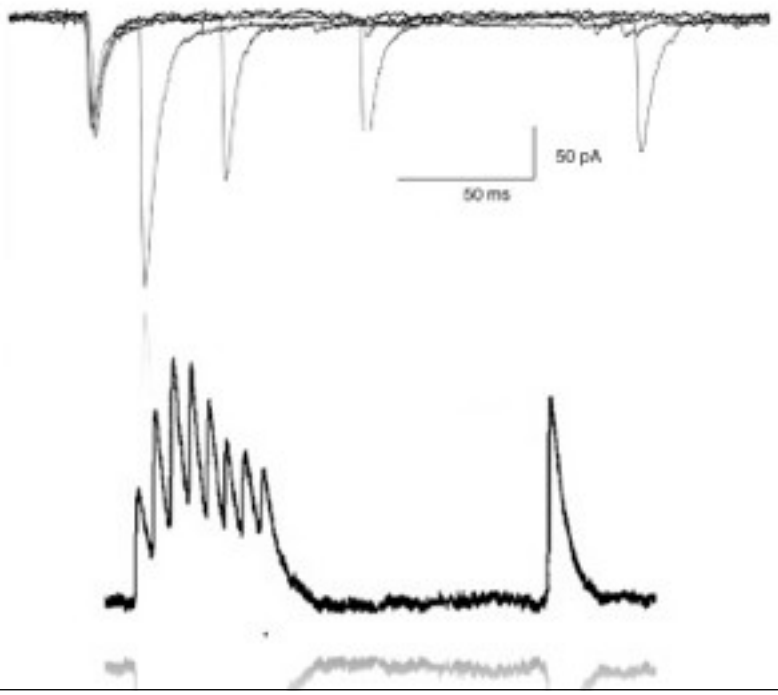
Synapse



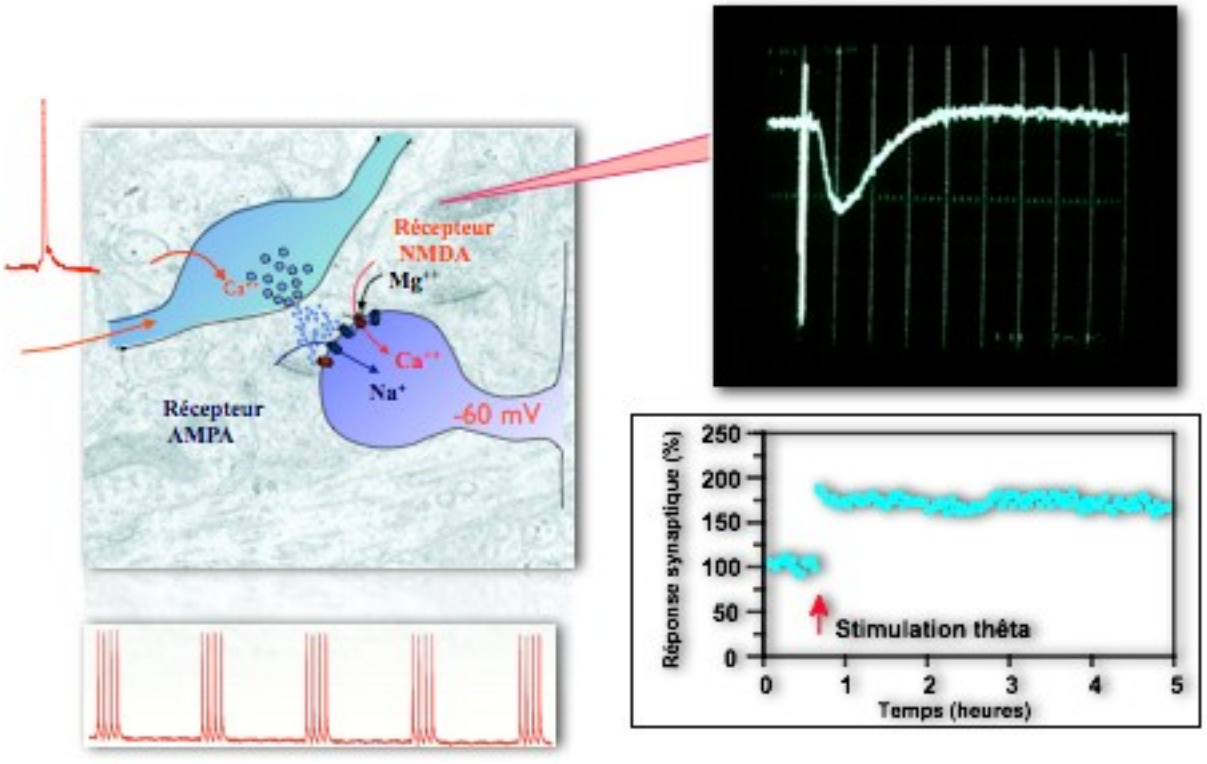


Cerveau

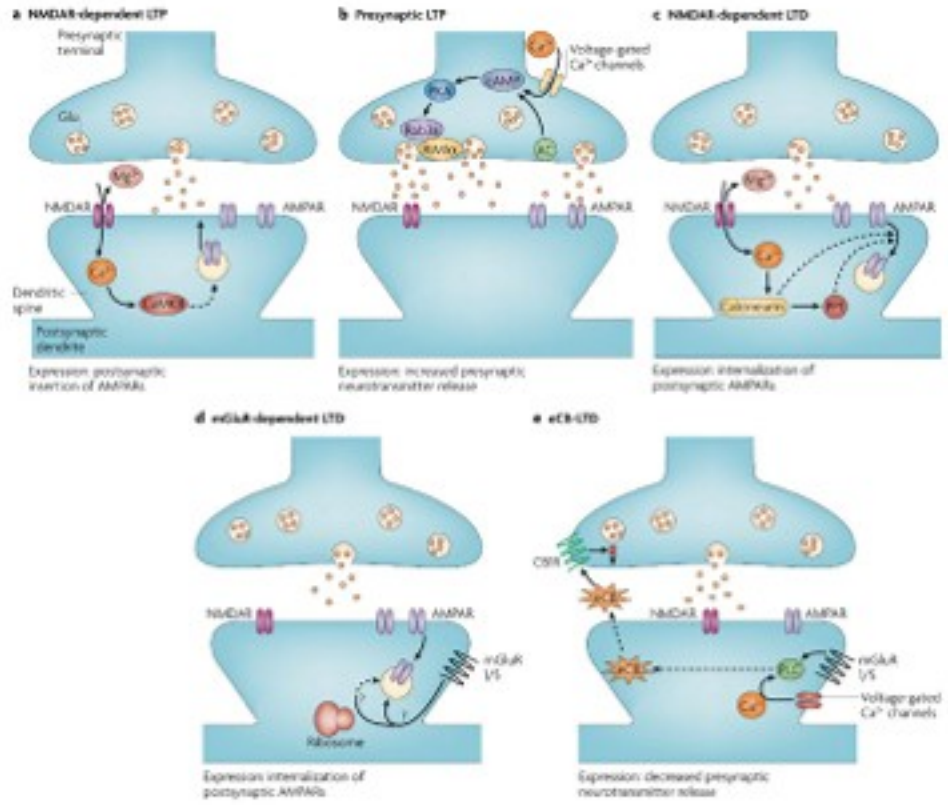
Synaptic integration: facilitation



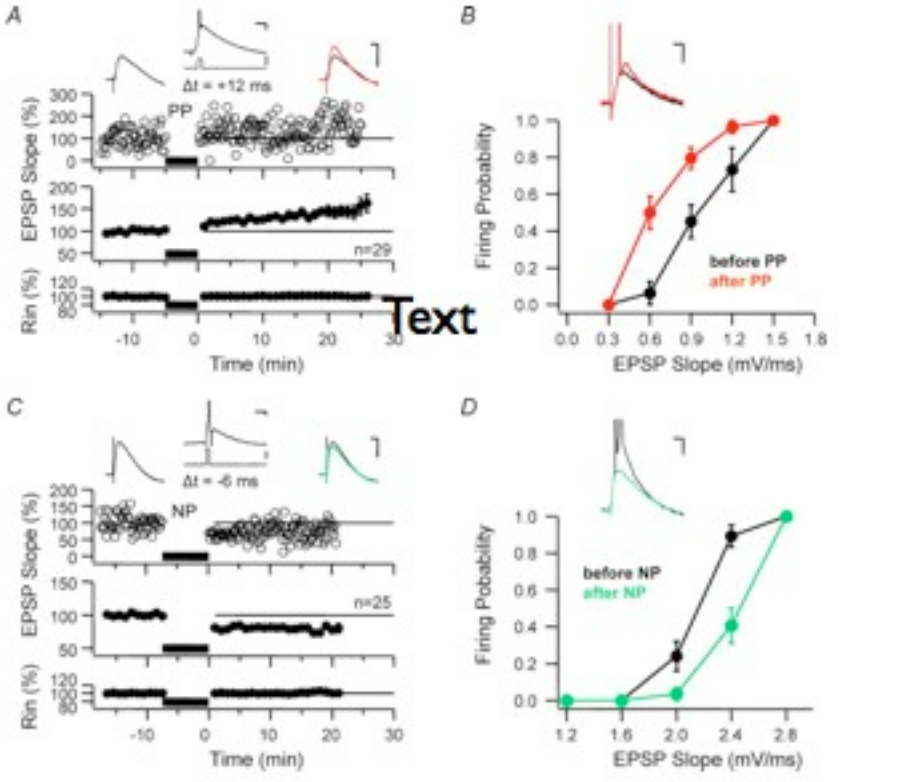
Synaptic integration: la potentiation à long terme



Formes de plasticité

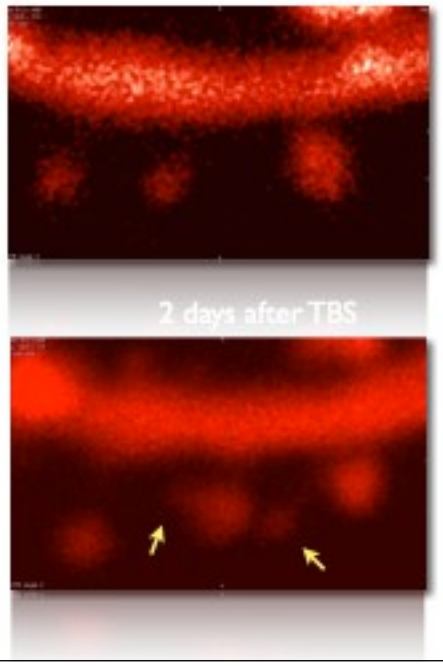


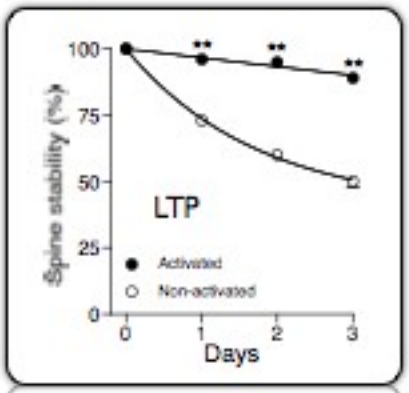
Spike timing plasticity



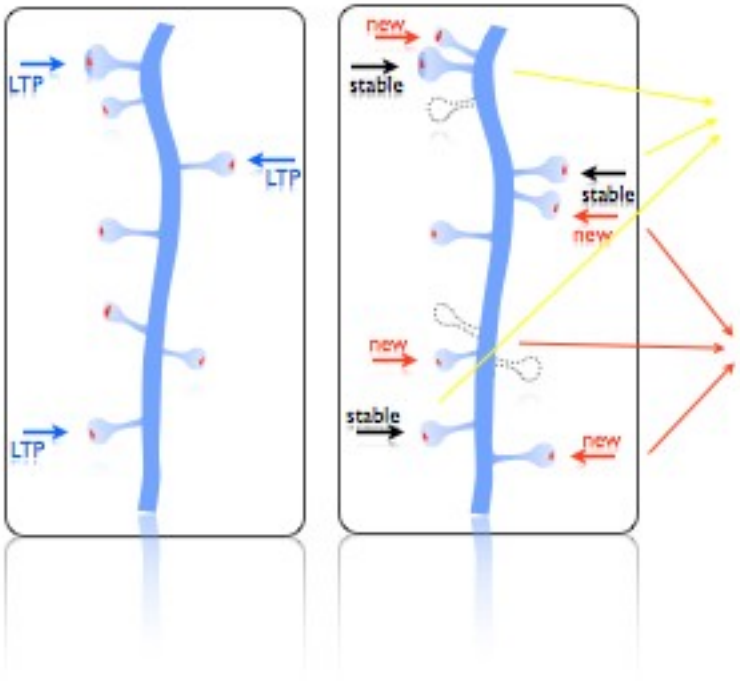
Text

Integration par remodelage des circuits synaptiques

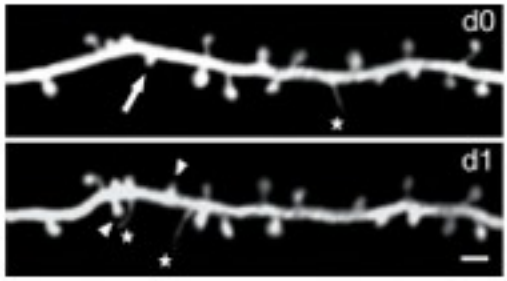


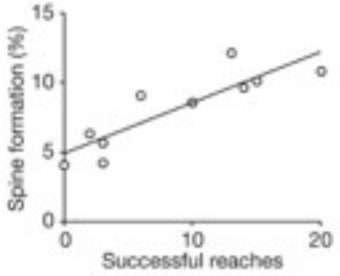


Integration par remodelage des circuits synaptiques



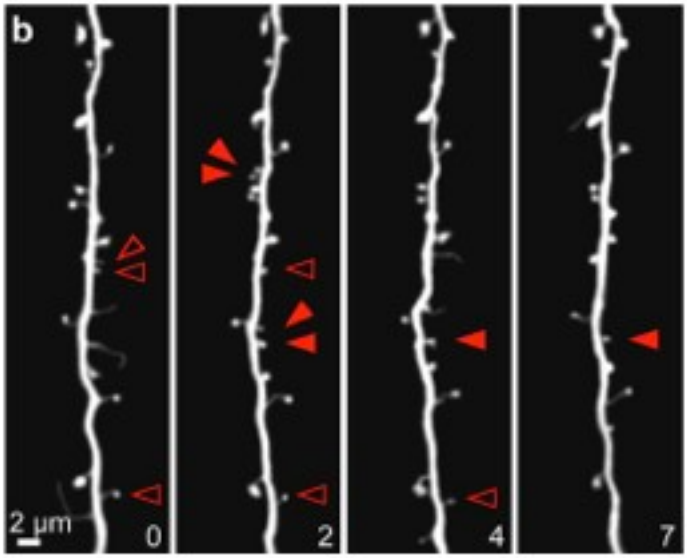
Plasticité structurelle et apprentissage moteur

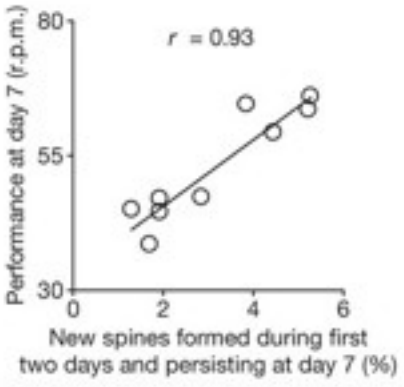




Xu et al., Nature , 2009

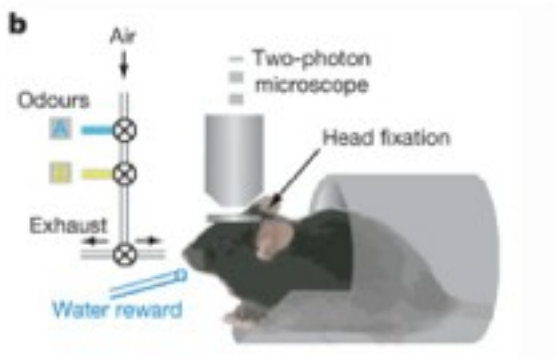
Plasticité structurelle et apprentissage moteur

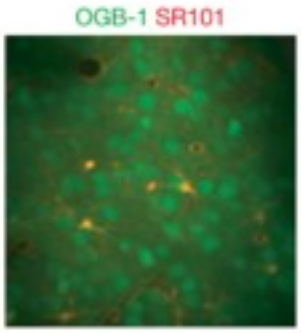


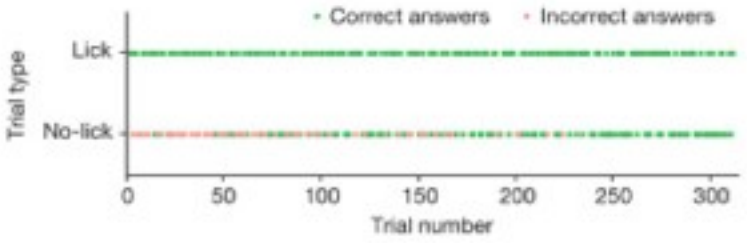


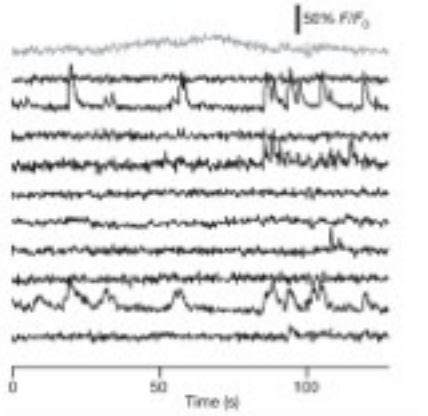
Yang et al., Nature, 2009

Integration au niveau de réseaux synaptiques





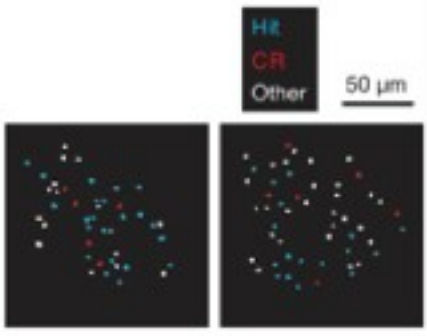




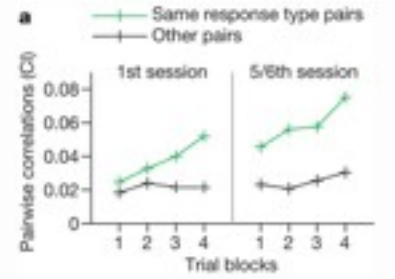
Komiyama et al., Nature 2010

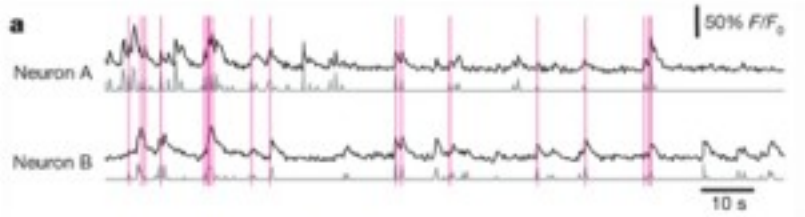
Apprentissage et activité du réseau

Spatial distribution of neurons sharing the same activity



Learning increases correlation between pairs

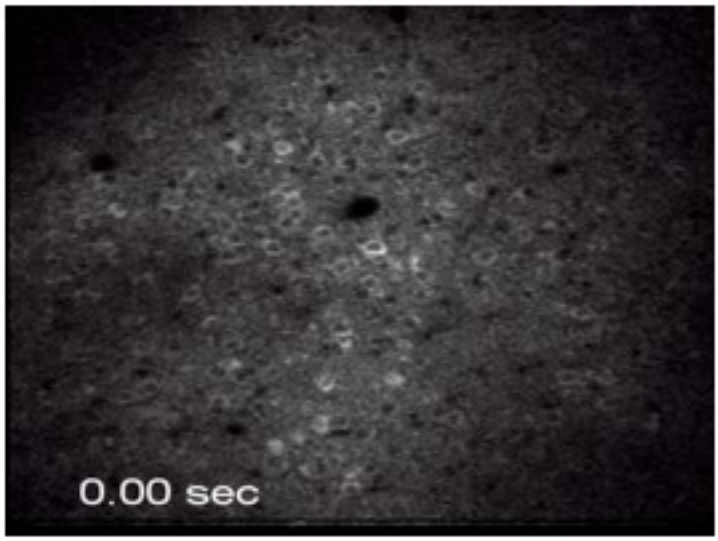


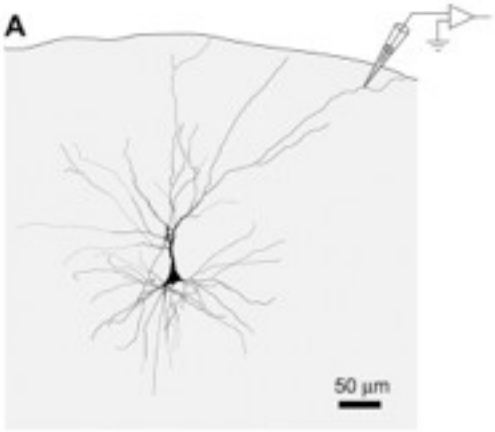


Correlated activity between neurones

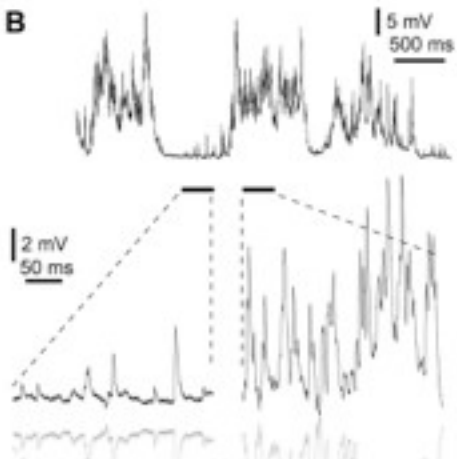
Komiyama et al., Nature 2010

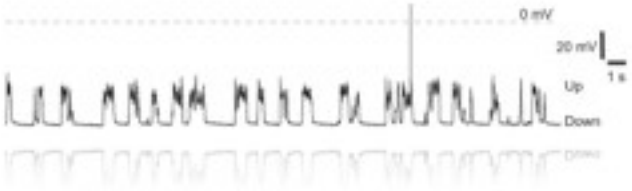
Apprentissage et activité du réseau





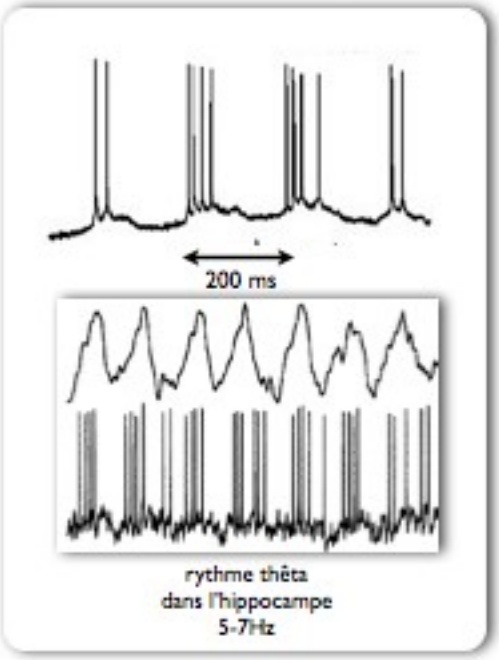
Integration au niveau de réseaux globaux: up- et down-states



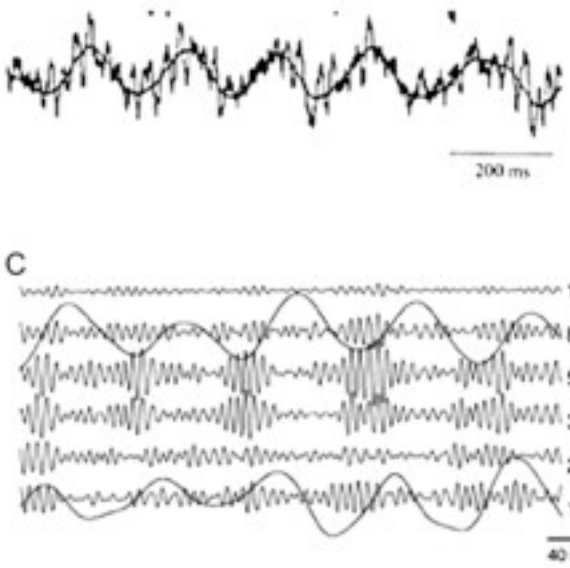


Integration des réseaux neuronaux: activités rythmiques

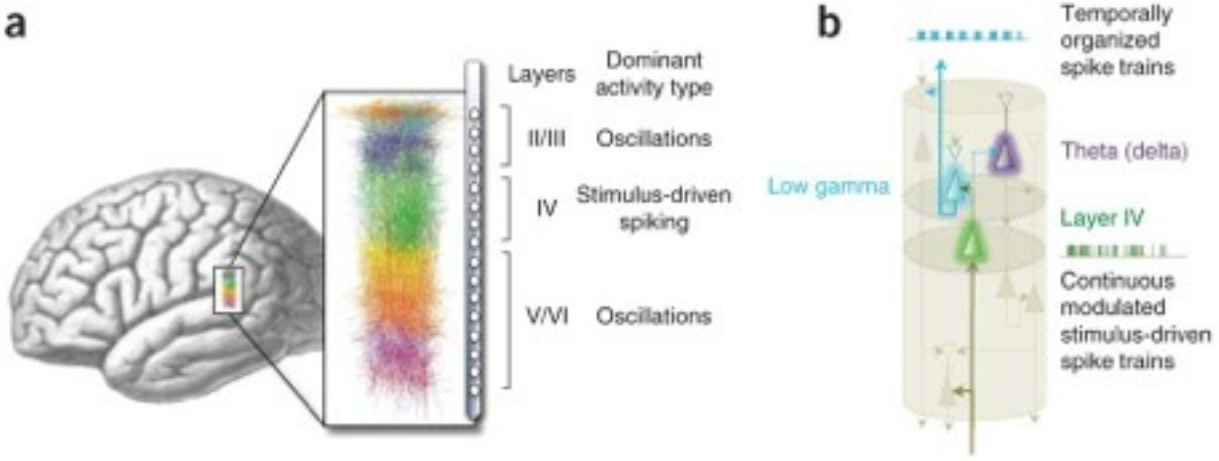
Production d'activités rythmiques



Rythme thêta et gamma superposés

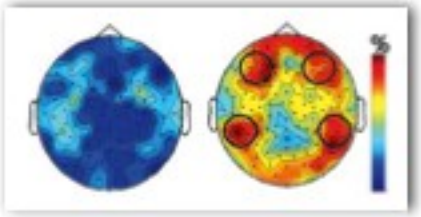


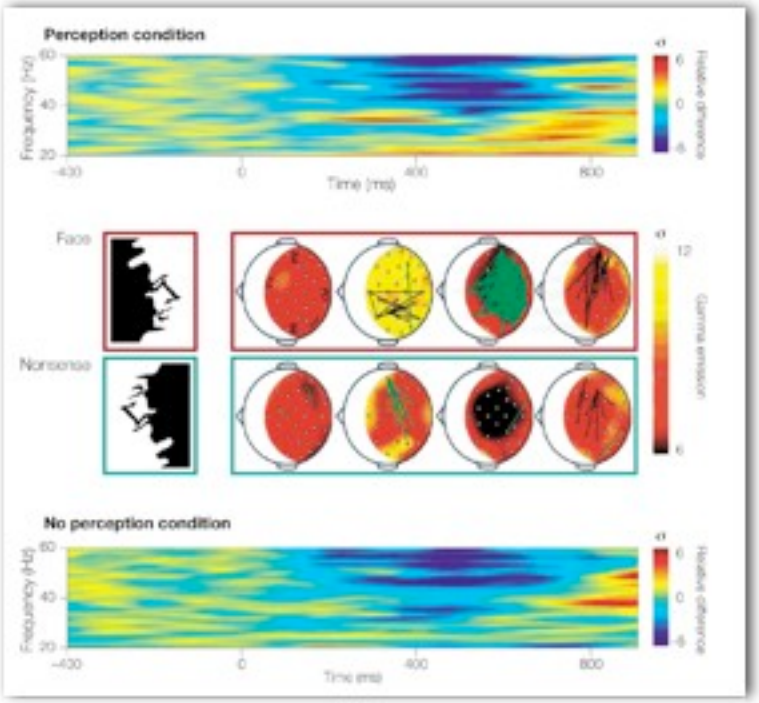
Integration des réseaux neuronaux: activités rythmiques



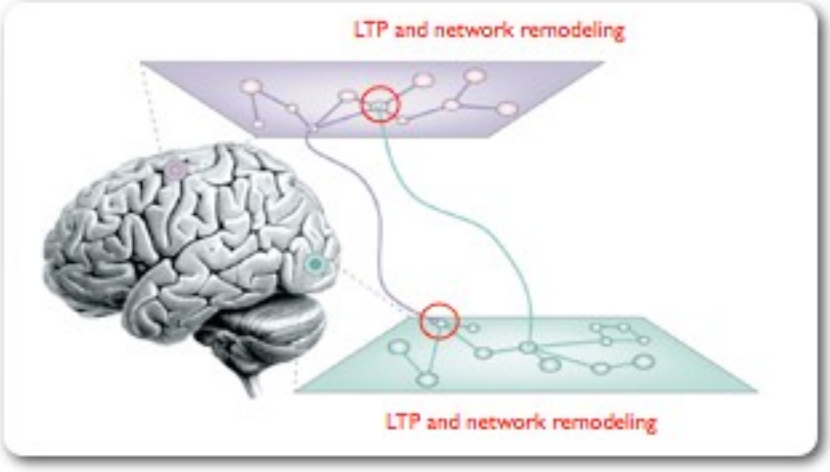
Girault et al, 2012

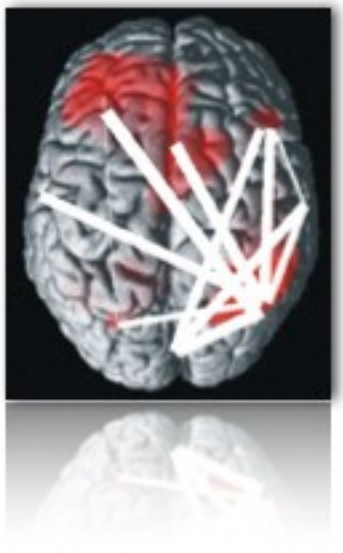
Activités rythmiques, synchronisation et mécanismes cognitifs



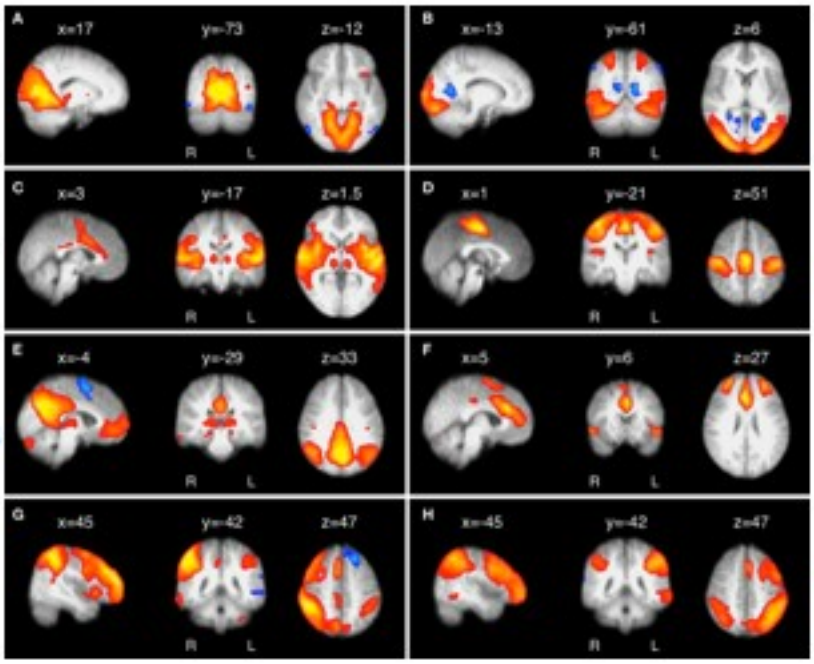


Communication corticale: hypothèse du binding





Réseaux fonctionnels



Visual

Visual

Somatomotor

Somatosensory

Mental representations

Executive control

Attentional processing

Attentional processing

Default mode network: mind wandering and wondering

z