

consciousness
qualia.

brain: 86.1 ± 8.1 billion neurons
 84.6 ± 9.8 billion nonneural

action potential.

Extracellular cells
Intracellular.
Patch clamp.

Delta ~ 4

Theta 4-8

Alpha. 8-13

Beta. 13-30

Gamma 30-100

Functional MRI.

Neural activity \rightarrow Blood flow^{5h}
Volume

\rightarrow Deoxygenated hemoglobin.
(paramagnetic)

UK BioBank

\rightarrow Blood-oxygenation level
degree. signal.

action potential

1st: Sodium channels open; Na^+ rush in

2nd: Potassium channels open; K^+ starts to leave

3rd: Sodium channels close

4th: Potassium channels close.