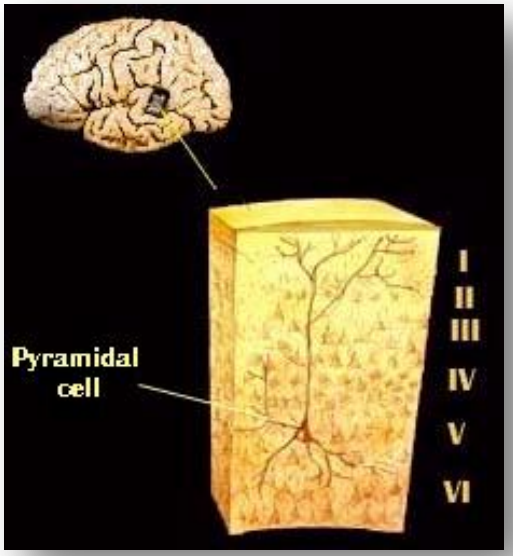
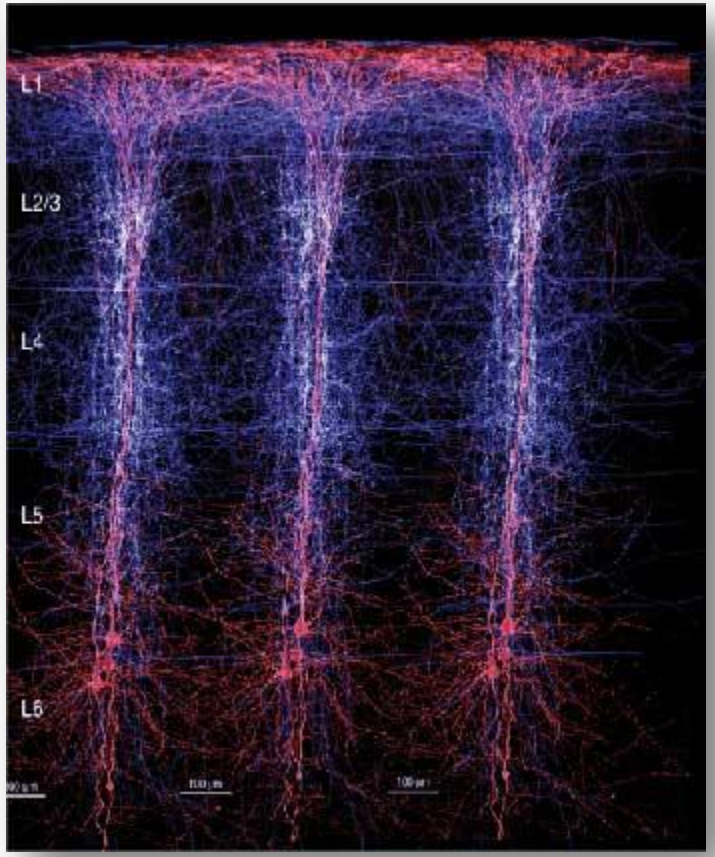
Neurocomputação - Generalidades

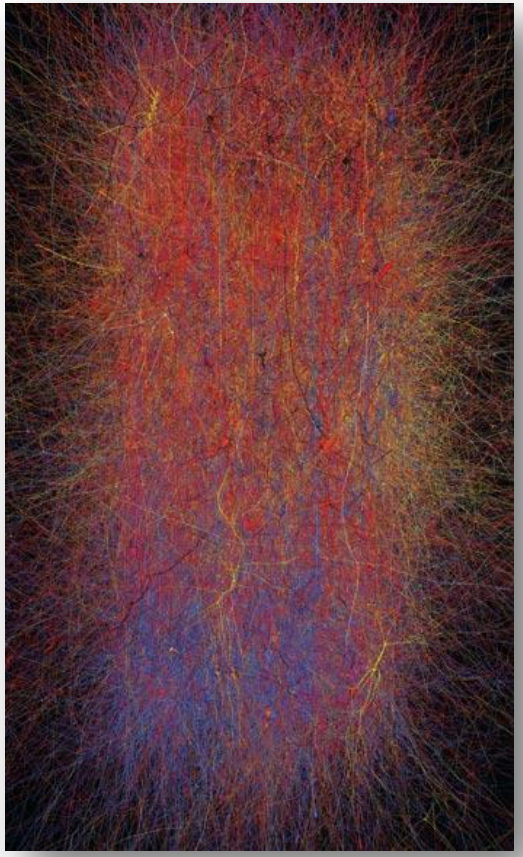
Prof. Brunelli

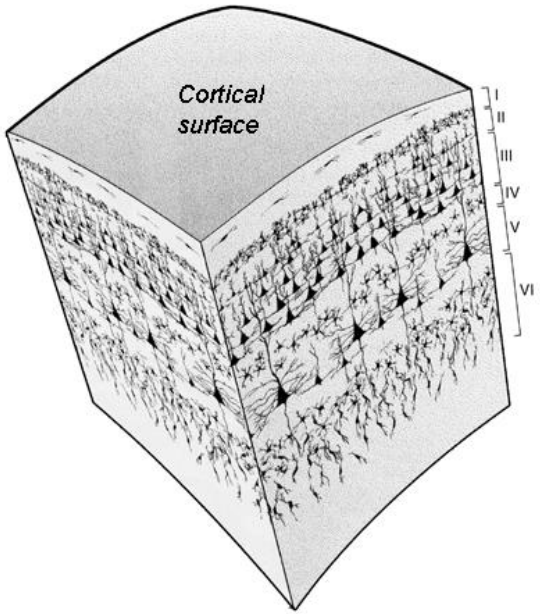
THE BLUE BRAIN PROJECT EPFL

https://www.humanbrainproject.eu/

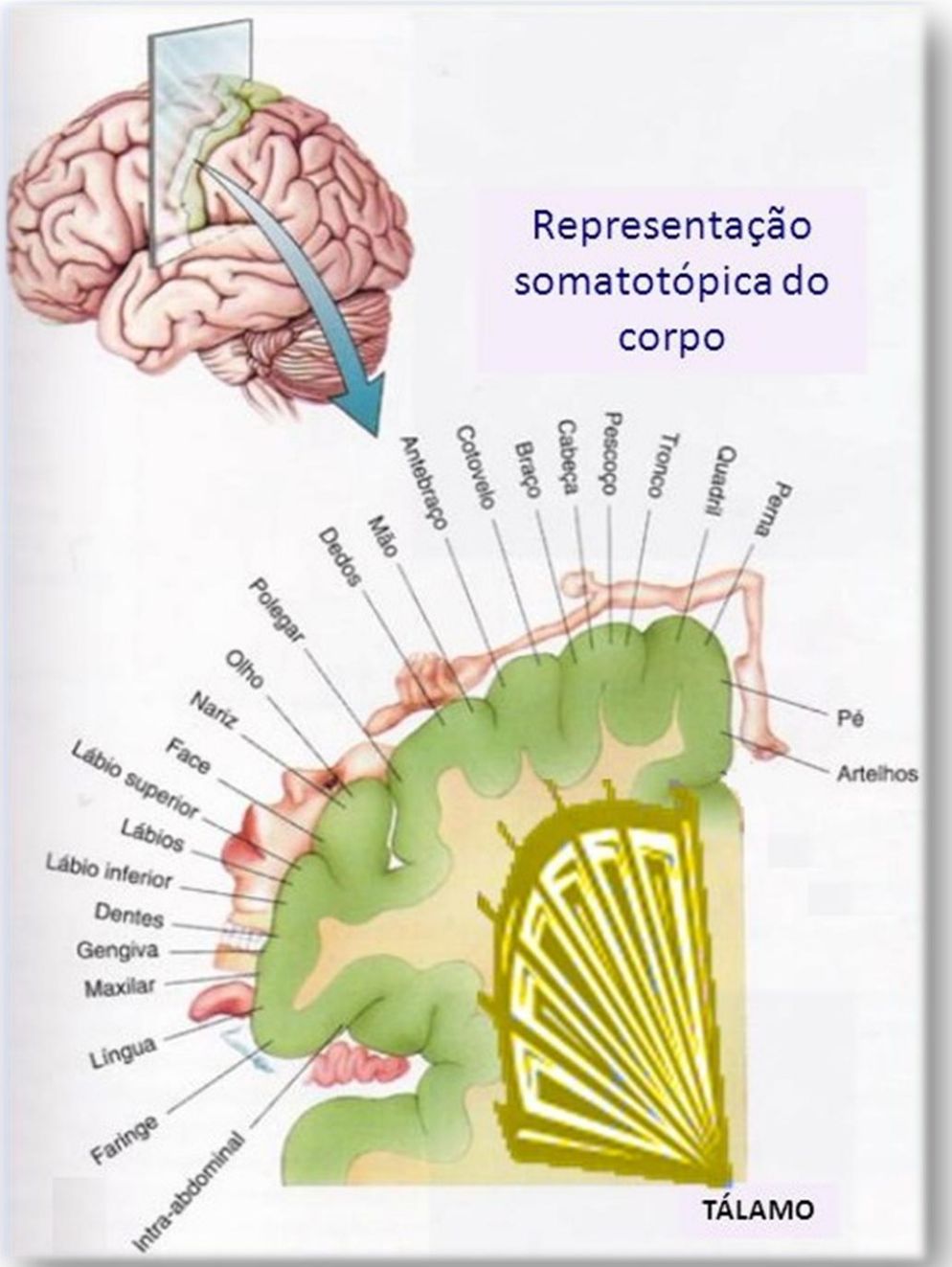


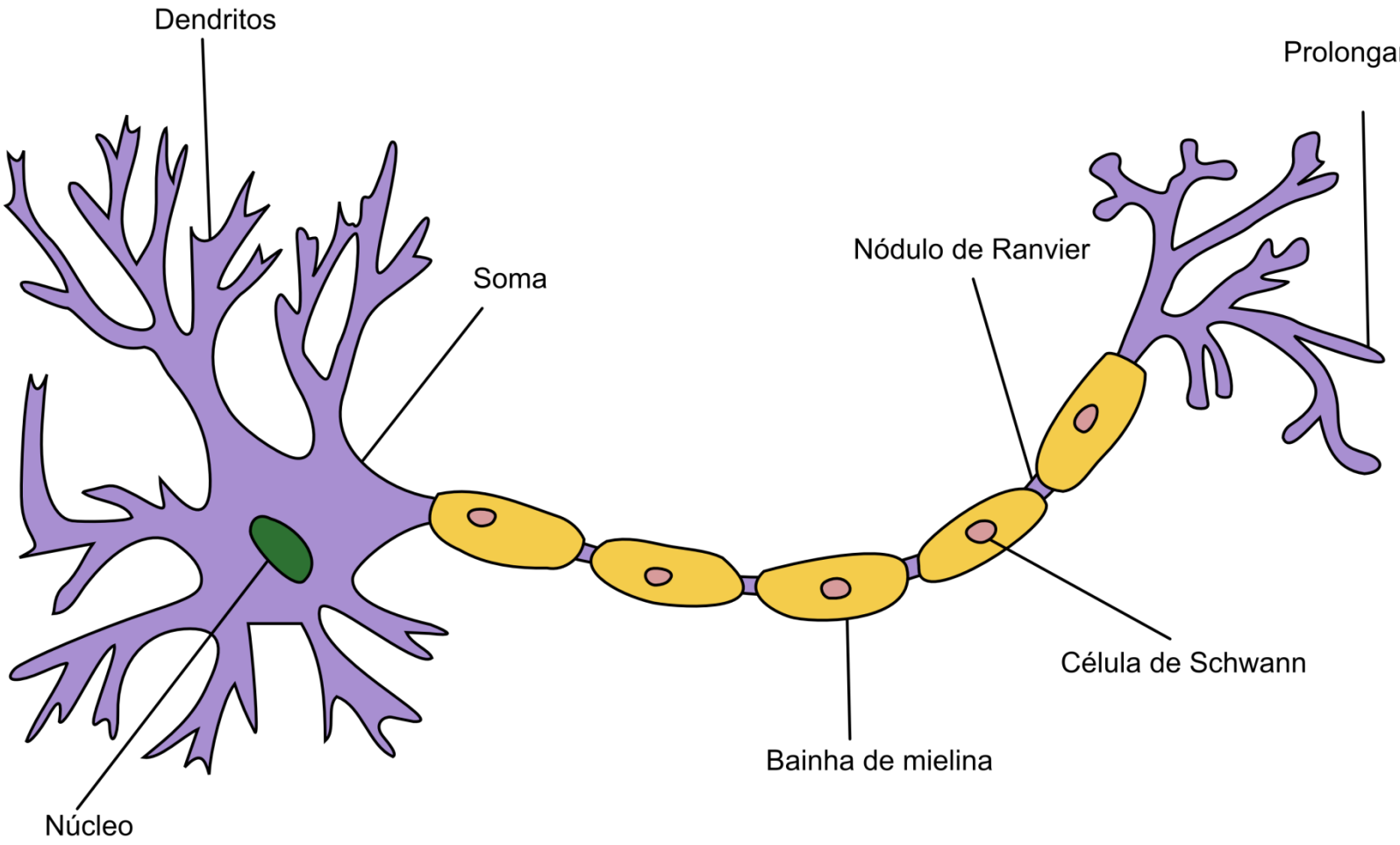


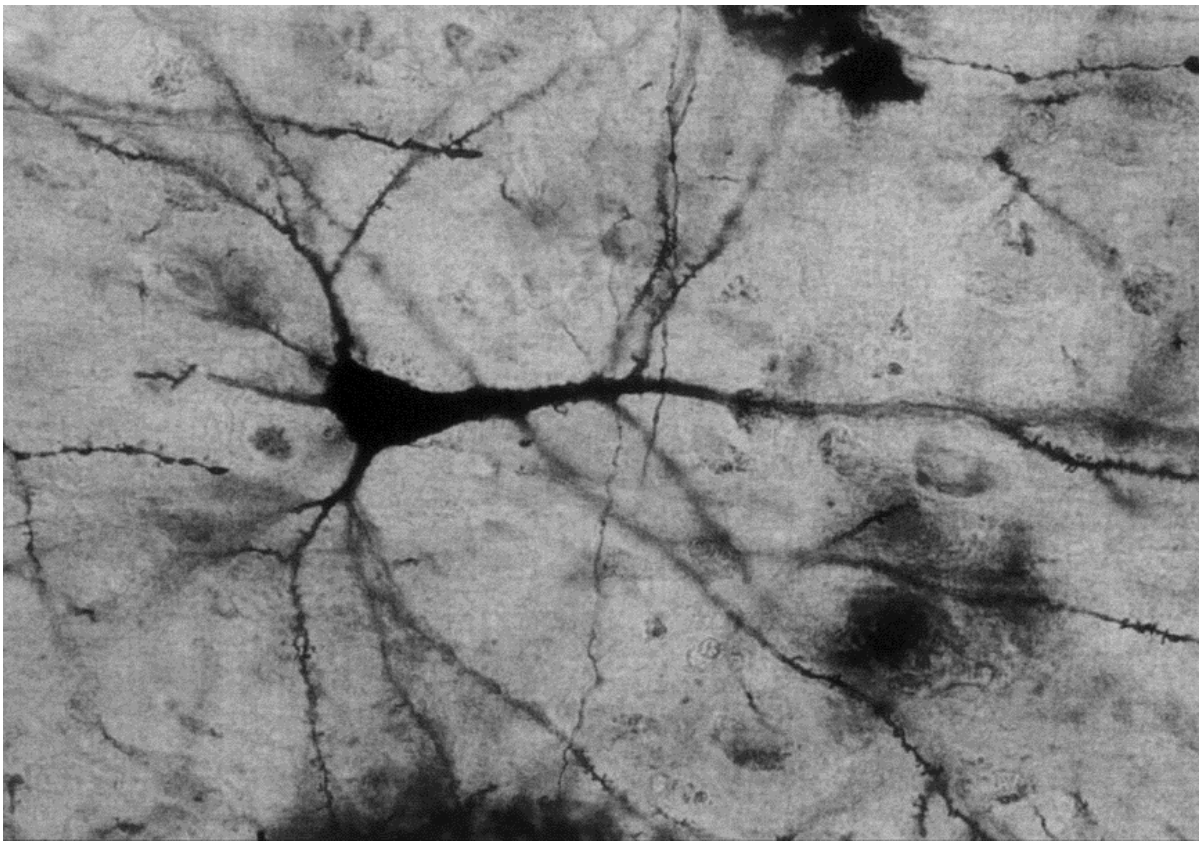


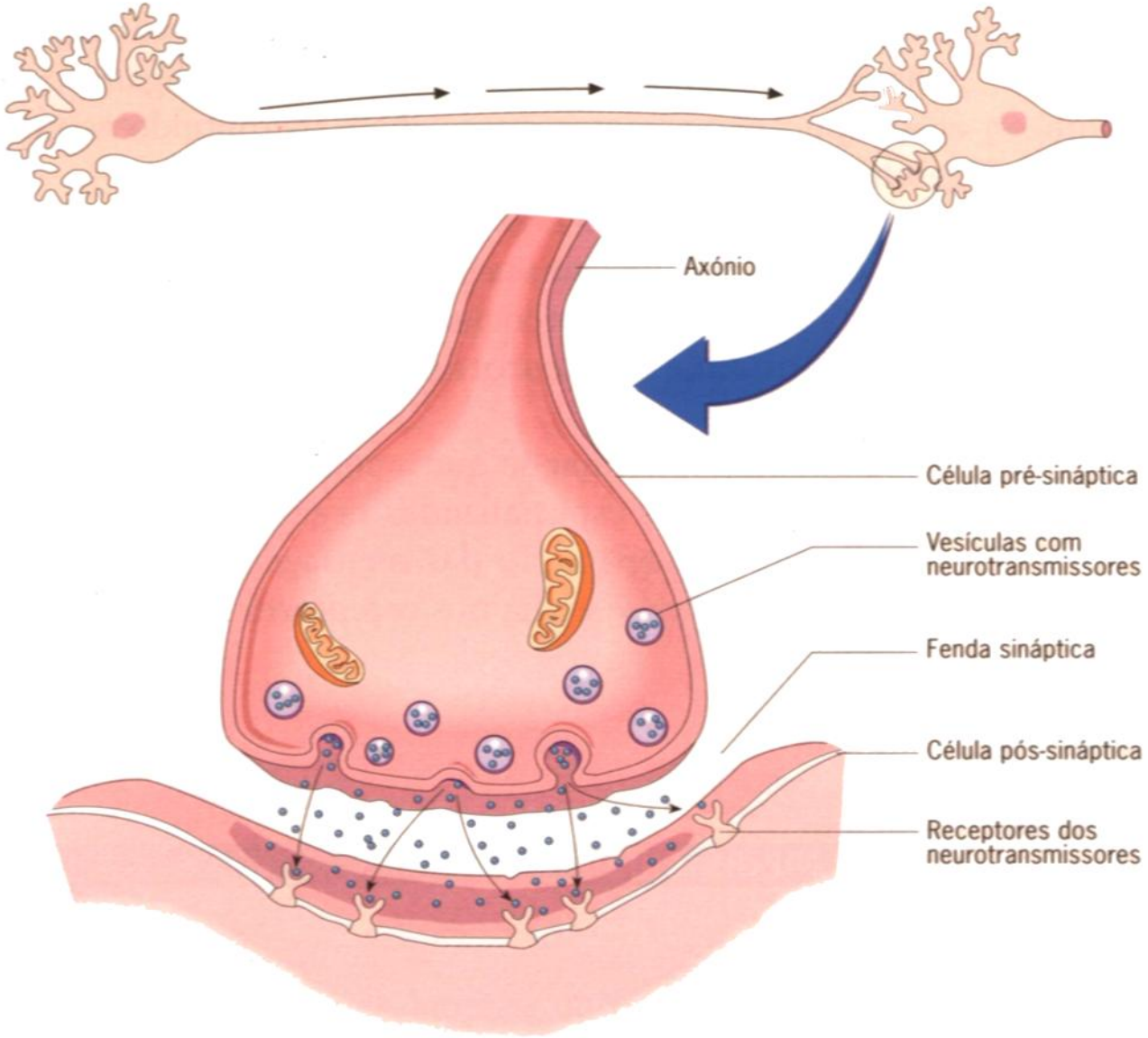


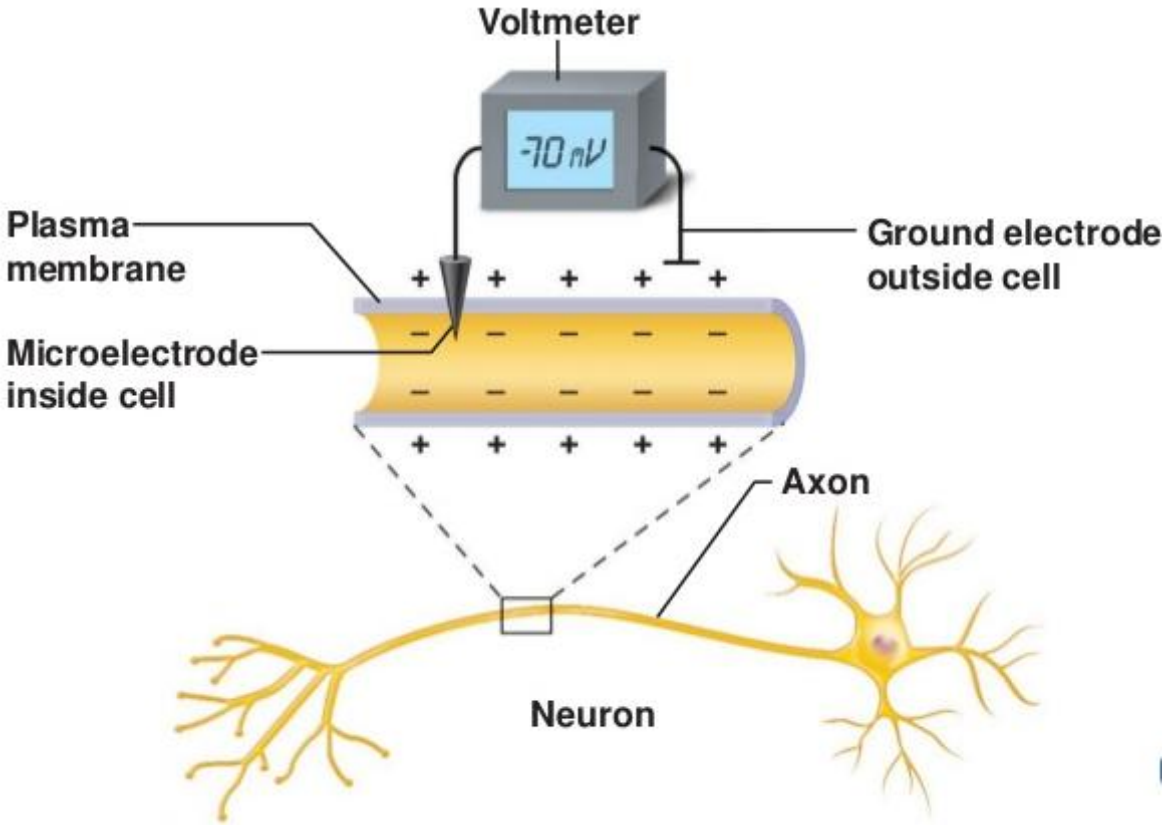
Simulações Computacionais

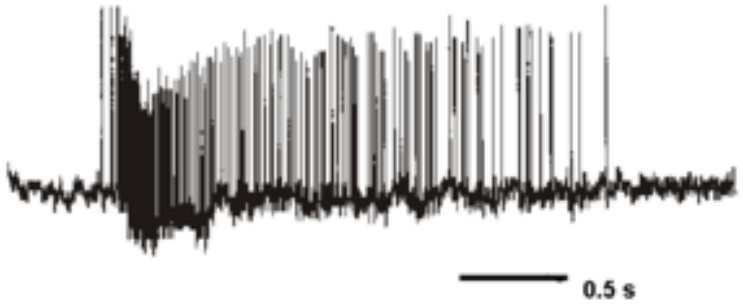


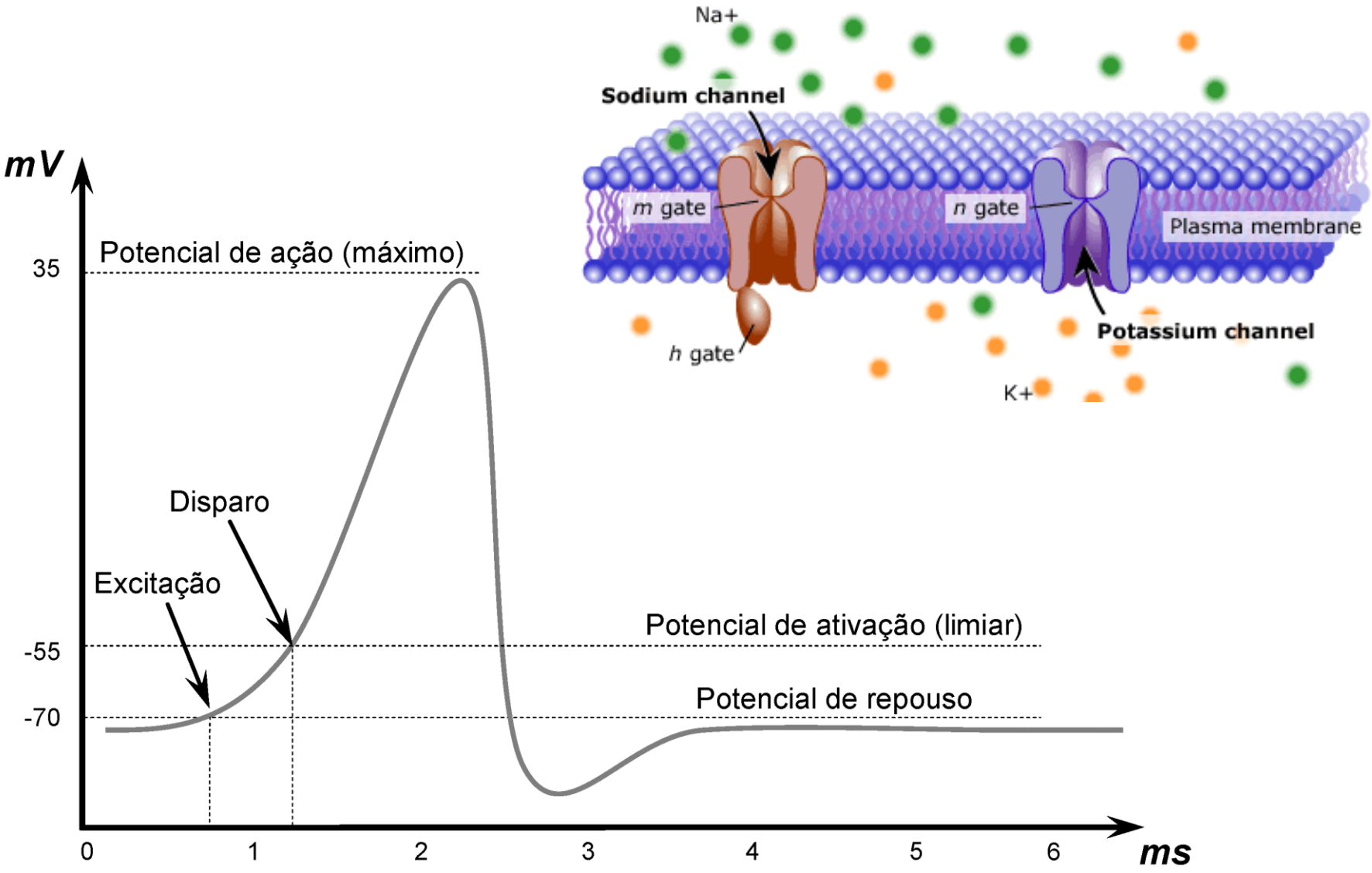


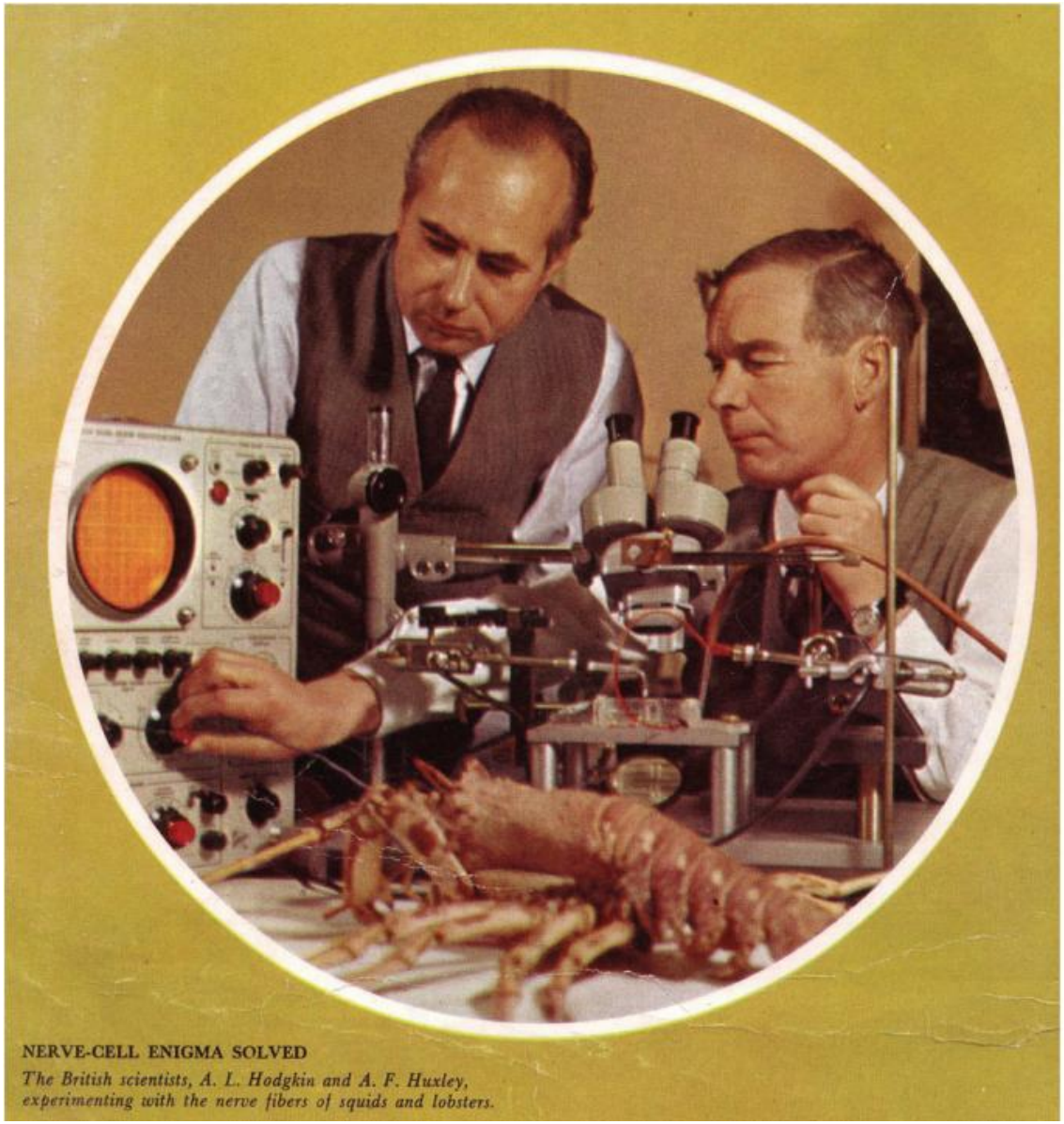






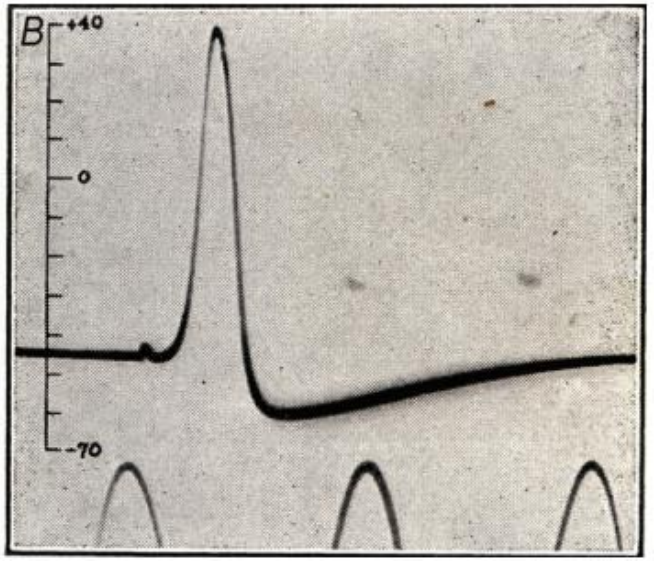






NERVE-CELL ENIGMA SOLVED

The British scientists, A. L. Hodgkin and A. F. Huxley, experimenting with the nerve fibers of squids and lobsters.



J. Physiol. (1952) 117, 500–544

A QUANTITATIVE DESCRIPTION OF MEMBRANE CURRENT AND ITS APPLICATION TO CONDUCTION AND EXCITATION IN NERVE

By A. L. HODGKIN and A. F. HUXLEY

From the Physiological Laboratory, University of Cambridge

(*Received* 10 *March* 1952)

the sodium and potassium conductances to time and membrane potential. Before attempting this we shall consider briefly what types of physical system are likely to be consistent with the observed changes in permeability.

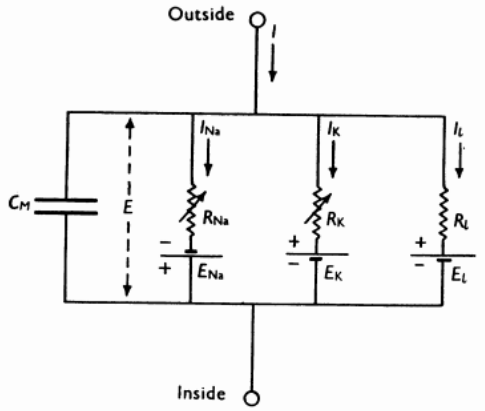
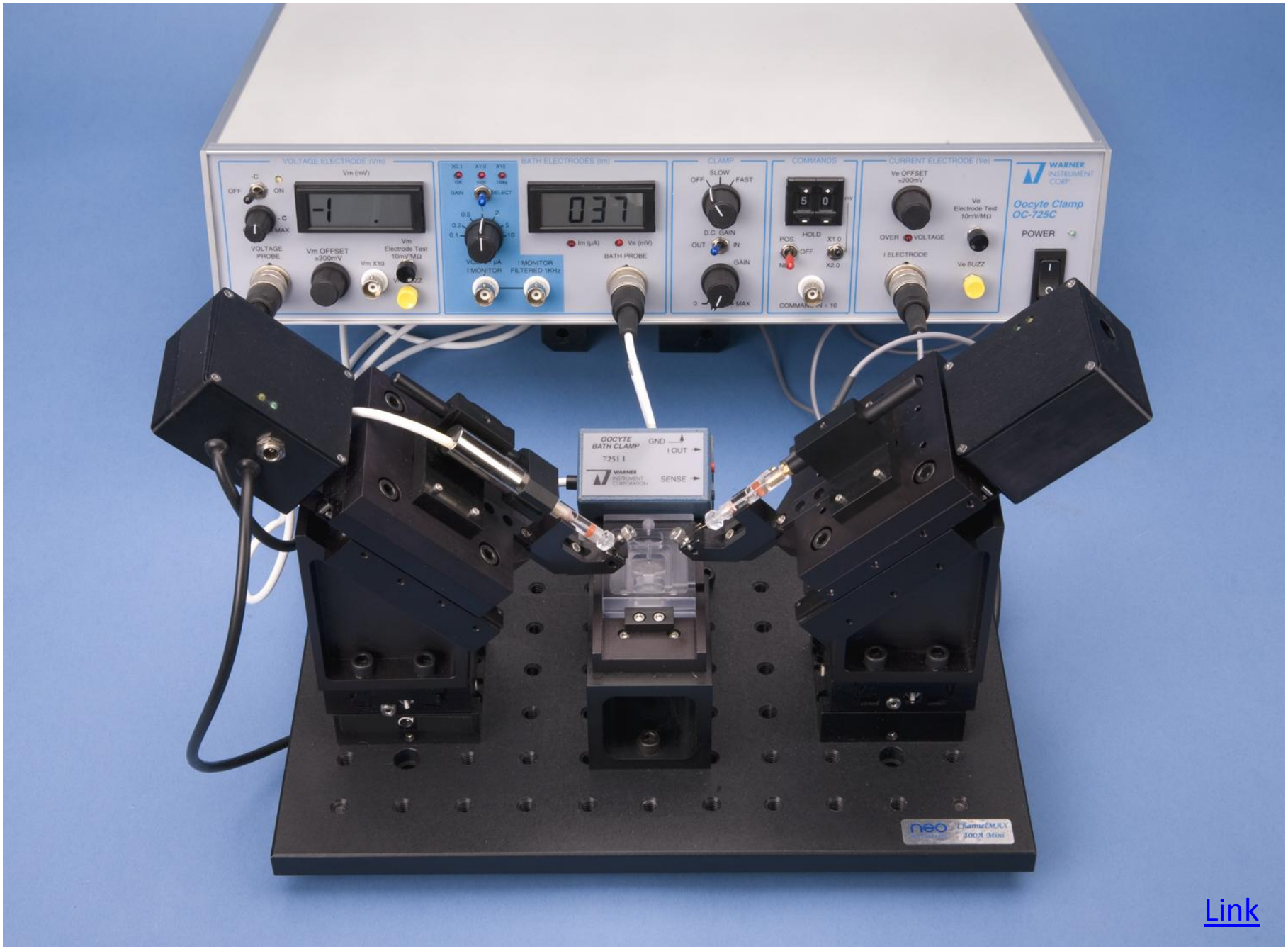
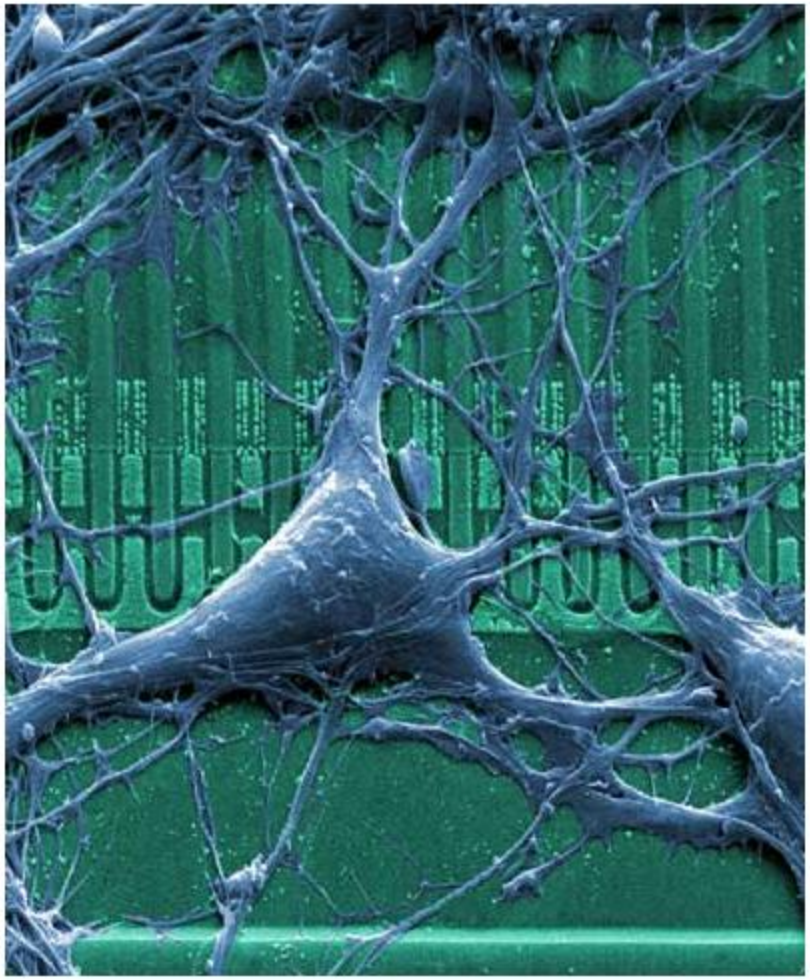


Fig. 1. Electrical circuit representing membrane. $R_{Na}=1/g_{Na}$; $R_K=1/g_K$; $R_l=1/\bar{g}_l$. R_{Na} and R_K vary with time and membrane potential; the other components are constant.

A quantitative description of membrane current and its ...
www.ncbi.nlm.nih.gov › NCBI › Literature › PubMed Central (PMC)
by AL Hodgkin - 1952 - Cited by 15766 - Related articles
A quantitative description of membrane current and its application to conduction and excitation in nerve. A. L. **Hodgkin** and A. F. **Huxley**. Copyright and License ...



Link



Description: This electron micrograph shows a nerve cell connected to an oxidized silicon chip coated with collagen. The ion current the cell uses for communication flows along the narrow gap between the cell and chip and affects the silicon electrons' flow through the insulating oxide layer.

Source: Max Planck Institute

Story: Neuron-chip link advances
TRN March 7, 2001

TRN Categories: Human-Computer Interaction; Neural Networks; Integrated Circuits

Form: Still

“Fisiologia Computacional”

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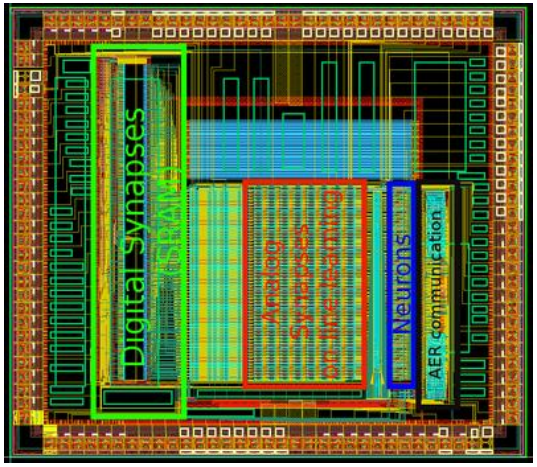
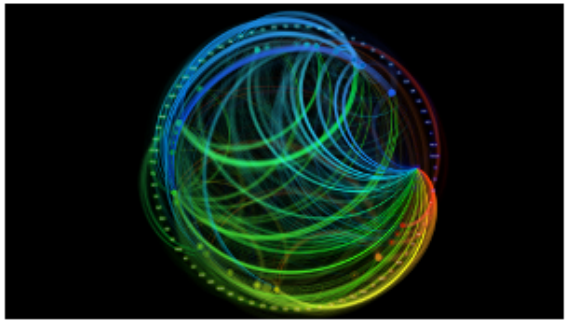
Neural Simulator



Neuromorphic VLSI devices



Neurosynaptic chips

IBM researchers found inspiration for a new computer chip design from the most powerful, efficient information processing device in the world: the human brain. These new silicon, neurosynaptic chips allow for computing systems that emulate the brain's computing efficiency, size and power usage.

→ Learn more

IBM Cognitive Computing

DARPA

SYNAPSE PROGRAM DEVELOPS ADVANCED BRAIN-INSPIRED CHIP

August 07, 2014

New chip design mimics brain's power-saving efficiency; uses 100x less power for complex processing than state-of-the-art chips

DARPA Synapse

Obrigado