



“Multiplextrode” – a completely novel electrode for analogue multiplexing

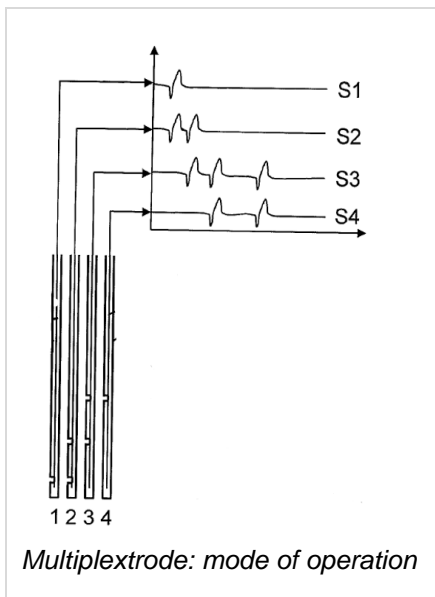
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INVENTION NOVELTY

Researchers of Leibniz Institute of Neurobiology (LIN) have developed a novel microwire electrode for enhanced simultaneous recording of multiple neuronal signals. The novelty results from the specific pattern of electrical desheathing which allows electrical signals to be recorded from biological tissue at a large number of locations per physical wire. Thus, the insulation pattern of the microwires overcomes physical size limitations of known tetrodes without reduction of the signal pickup.

VALUE PROPOSITION

The presented invention offers a novel technology for measuring and recording in particular electrophysical/neuronal signals, thereby solving physical capacity challenges and preventing significant tissue trauma and damage. With the present invention it is possible to multiplex signals from a larger number of neuronal locations onto a very small number of electrical wires.



TECHNOLOGY DESCRIPTION

The technology comprises a completely novel form of analogue multiplexing which allows each wire in a multitrode to carry information from a large number of locations in nervous tissues. This is possible through introducing desheathing openings in the side insulation of the wires which results in a specific insulation pattern. As a result, one electrical wire can be used to contact the nervous tissue at different longitudinal positions along the electrical wire. Furthermore, the recorded signal is passed through a defined subset of combinations of wires. Thus, a large number of recording locations can be multiplexed onto a very small number of wires. In comparison to current multirecording probes which, due to their size, lead to significant tissue trauma and damage, the novel electrode results in considerably less impairment and is therefore extremely advantageous in diagnostic and therapeutic approaches.

COMMERCIAL OPPORTUNITY

In-licensing or collaboration for further development is possible.

DEVELOPMENT STATUS

A first prototype has been developed.

PATENT SITUATION

Patent applications pending in Europe (EP 3915462 A1) and USA (US 2021/0369168 A1) with priority of 2020.

