

BRAIN COMMUNICATION INTERFACE RESEARCH AT THE NINDS

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The mission of the National Institute on Neurological Disorders and Stroke (NINDS) is to reduce the burden of neurological disease. Loss of the ability to communicate with others and with the environment represents a significant burden in many neurological disorders including neurodegenerative disorders and trauma to the central nervous system. Our research is focused on developing integrated systems to restore function and provide significant functional benefit to affected individuals.

The Neural Prosthesis Program supports the development of direct interfaces with the intact parts of an injured nervous system for the purpose of getting information into and out of the brain. A major focus over the past several years has been the development of arrays of microelectrodes that can chronically record the activity of single cells or multi-unit activity from small clusters of cells. To make devices clinically useful a system that includes detection of microvolt potentials within the brain and transmission of these signals from the brain to appropriate processing systems is needed.

NINDS primarily supports research by providing grants and contracts to investigators at universities and research centers within the US and to a lesser degree internationally. Projects can be initiated by the NINDS or by extramural researchers. For the conduct of translational research a third research strategy is being developed that will involve collaborative activity between extramural researchers and the NINDS program staff. Plans for the future are to utilize multiple mechanisms including grants, contracts and cooperative agreements with investigators around the country to further this research effort. We also anticipate additional collaboration with other government agencies in pursuing these goals.