



Thesis Project Form

Title (tentative): In vivo electrophysiological study of Alexander disease in a zebrafish model using a high-density multi-electrode array

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Description

Motivation and application domain

The motivation behind this work lies in the need to better understand the functional consequences of genetic mutations linked to Alexander disease, a rare and severe leukodystrophy. The findings may contribute to the identification of novel biomarkers and therapeutic targets, with potential applications in the field of neurodevelopmental and neurodegenerative disorder research.

General objectives and main activities

The thesis involves the study of in vivo electrophysiological activity in a zebrafish model of Alexander disease, using high-density multi-electrode arrays (HD-MEA). The research will employ techniques such as local field potential (LFP) recording and spike detection to analyze neural network dynamics in the central nervous system. The goal is to characterize the functional alterations associated with the disease and contribute to the understanding of the neurophysiological mechanisms underlying its pathogenesis.

Training Objectives (technical/analytical tools, experimental methodologies)

To gain practical experience in vivo electrophysiological recordings, in data analysis and in animal models for the central nervous system.

Place(s) where the thesis work will be carried out: DIBRIS

Additional information

Maximum number of students: 1