

Description of Additional Supplementary Files

File name: Supplementary Movie 1

Description: Time-lapse recording of live fluorescent calcium imaging of a MARC-produced cerebral tissue (week 4).

File name: Supplementary Movie 2

Description: Time-lapse recording of live fluorescent calcium imaging of neurite connections between two cerebral tissues across the porous membrane of the iS3CC (week 6).

File name: Supplementary Movie 3

Description: Time-lapse recording of live fluorescent calcium imaging of two interconnected cerebral tissues in the iS3CC before and after Penicillin treatment in the left chamber (week 6).

File name: Supplementary Software 1

Description: Matlab codes used to perform network analysis and synchrony of the neuron activities in the MARC tissues

File name: Supplementary Data 1

Description: Diffusion across chambers in iS3CC chip.xlsx. The measured concentration as a function of time in the receiving chamber.

File name: Supplementary Data 2

Description: Intensity and activity change upon Penicillin treatment.xlsx. Quantification of the change in fluorescence intensity and fold change in neuronal activity induced by addition of Penicillin G in the treated and untreated cerebral tissues. Each row represents each monitored cell.

File name: Supplementary Data 3

Description: Signal propagation traces.mat. Matlab data file containing structured data of the traces of signal propagation in both chambers in the Penicillin treatment experiment.

File name: Supplementary Data 4

Description: Neuronal network activity.mat. Matlab data file containing activity of neurons in the MARC tissue as reported through fluorescence intensity.