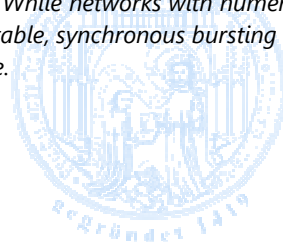


Spontaneous activity patterns of cortical in vitro networks depend on cellular network composition.

Reimer, T., Baumann, W., Gimsa, J., 2012. In A. Stett, G. Zeck (Eds.): Proceedings of the 8th Internationale Meeting in Substrate-Integrated Microelectrode Arrays. 98–99, NMI, University of Tuebingen, Reutlingen, Germany. MEA Meeting 2012, 10.-13. July. Reutlingen, Germany.

Abstract: *We analyzed the relationship between the cellular composition (i.e. the ratios between interneurons (GABAergic as well as parvalbumin-positive) and pyramidal cells) and the spontaneous electric activity patterns of cortical networks which were cultivated on MEA glass-neurochips. Morphological data were correlated with the MEA recordings. Our results show a strong relationship between the number of interneurons in a certain network and characteristic features in its spontaneous activity pattern. While networks with numerous GABAergic or parvalbumin-positive interneurons were characterized by a relatively stable, synchronous bursting activity, the activity of networks with few or no interneurons was asynchronous or instable.*

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