

Are bursting neurons interneurons?

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Abstract: *Spontaneous electrical activity of cortical in vitro networks has mostly been described as synchronized population bursts. It is assumed that this activity is exhibited by pyramidal cells that account for the majority (about 80%) of neurons in the networks. We analyzed the morphology of axons of parvalbumin-positive interneurons and their spontaneous activity patterns in cortical networks cultivated on MEA glass-neurochips. The axons were strongly ramified and covered wide areas of the MEAs. From axons arising from parvalbumin-marked cell bodies, only bursting activities were registered. We conclude that parvalbumin-positive interneurons are capable of burst generation and suggest that interneurons rather than pyramidal cells are the sources of synchronous bursting.*