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Murder in the cortex express: a balancing act in the assembly of cortical networks

In the adult neocortex, approximately one in six neurons are inhibitory gamma-aminobutyric acid-containing (GABAergic) interneurons and this ratio is relatively stable across cortical regions and species regardless of total neuronal numbers. Although the establishment of appropriate numbers for these cells is essential for brain function and behaviour, our understanding of this fundamental process is very fragmentary. In this talk, I will describe the role of neuronal interactions in the regulation of interneuron survival during postnatal development. Our results suggest that activity-dependent mechanisms dynamically adjust the number of inhibitory cells in nascent local cortical circuits, ultimately establishing the appropriate proportions of excitatory and inhibitory neurons in the cerebral cortex.