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## Presentation Abstract

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Presentation Title: Role of shunting mechanism in the dentate gyrus: A computational study

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Abstract: GABAergic interneurons (GABA-INs) govern hippocampal oscillations through intricately coupled networks. Shunting mechanism among GABA-INs is suggested to play an important role in the generation of gamma oscillations. Recently, we found that contrary to a developmental switch of GABAergic responses from excitatory to inhibitory in the CA regions, GABA-INs exert shunting excitation on granule cells (GCs) in the dentate gyrus (DG) throughout development. However, the functional impact of the shunting excitation on the DG GCs is yet undetermined. Here we construct a cable model of single DG GCs and a DG network model, which consists of basket cells (BCs) and GCs. Our results show that when inserting the shunting mechanism, the spatiotemporal integration of EPSPs and IPSPs in GCs can modulate GC excitability, thereby influencing neuronal outputs. The functional significance of shunting excitation in the DG network model remains to be explored.

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