

Synapse location during growth depends on glia location. ^[1]

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Abstract Synaptic contacts are largely established during embryogenesis and are then maintained during growth. To identify molecules involved in this process, we conducted a forward genetic screen in *C. elegans* and identified *cima-1*. In *cima-1* mutants, synaptic contacts are correctly established during embryogenesis, but ectopic synapses emerge during postdevelopmental growth. *cima-1* encodes a solute carrier in the SLC17 family of transporters that includes sialin, a protein that when mutated in humans results in neurological disorders. *cima-1* does not function in neurons but rather functions in the nearby epidermal cells to correctly position glia during postlarval growth. Our findings indicate that CIMA-1 antagonizes the FGF receptor (FGFR), and does so most likely by inhibiting FGFR's role in epidermal-glia adhesion rather than signaling. Our data suggest that epidermal-glia crosstalk, in this case mediated by a transporter and the FGF receptor, is vital to preserve embryonically derived circuit architecture during postdevelopmental growth.

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