

P006 Essential role of the p110 δ PI 3-kinase in axonal growth and regeneration of sensory neurons
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Mammals have three distinct catalytic subunits of class IA PI3K for which the precise distribution and function in the nervous system are unknown. Here we report strong enrichment of the p110 δ PI3K in the nervous system. Inactivation of p110 δ in mice did not affect gross neuronal development but led to reduced PI3K signaling, increased vulnerability to growth cone collapse and decreased axonal extension in sensory neurons. Loss of p110 δ activity also affected axonal regeneration following peripheral nerve injury in adult mice and impaired functional recovery of locomotion. Our results pinpoint p110 δ as a key PI3K signaling component for axonal elongation, a function that cannot be compensated by other PI3K isoforms.