

Publication

A PKC-dependent recruitment of MMP-2 controls semaphorin-3A growth-promoting effect in cortical dendrites

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There is increasing evidence for a crucial role of proteases and metalloproteinases during axon growth and guidance. In this context, we recently described a functional link between the chemoattractive Sema3C and Matrix metalloproteinase 3 (MMP3). Here, we provide data demonstrating the involvement of MMP-2 to trigger the growth-promoting effect of Sema3A in cortical dendrites. The in situ analysis of MMP-2 expression and activity is consistent with a functional growth assay demonstrating in vitro that the pharmacological inhibition of MMP-2 reduces the growth of cortical dendrites in response to Sema3A. Hence, our results suggest that the selective recruitment and activation of MMP-2 in response to Sema3A requires a PKC alpha dependent mechanism. Altogether, we provide a second set of data supporting MMPs as effectors of the growth-promoting effects of semaphorins, and we identify the potential signalling pathway involved.

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