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IMP2 expression in the mouse nervous system (727.4)

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Abstract

The three homologs of insulin like growth factor-II (IGF-II) mRNA binding protein (IMP) play an essential role in the posttranscriptional regulation of gene expression in nervous tissue. IMP1/ZBP1 (zipcode binding protein) regulates the localization and translation of specific mRNAs allowing for axon guidance and regeneration. Additionally, previous studies show that IMP1 and IMP3 expression decreases dramatically after birth, whereas IMP2 is sustained in brain, liver and other organs throughout life (Leeds et al., 1997; Mueller-Pillasch et al., 1999; Nielsen et al., 1999; Hansen et al., 2004; Gu et al., 2004; Hammer et al., 2005). Of the three homologs, IMP2 is least understood. Our pilot data implicates that IMP2 may play a role in axon regeneration by localizing specific mRNAs. Understanding IMP2 expression pattern is fundamental to further investigation of its functions. We hypothesized that IMP2 is present in both the central and peripheral nervous systems throughout life. Using a custom made IMP2-specific antibody, along with immunohistochemistry, Western Blot, and primary dorsal root ganglion (DRG) culture we examined the expression of IMP2 in the spinal cord and DRG of the mouse at embryonic, postnatal, and adult stages of life. We found that IMP2 expression is present in both the spinal cord and DRG through all developmental stages of life. Ongoing experiments are focused on the role of IMP2 in axon regeneration in the adult nervous system.