

Original Paper

Glycoconjugates distribution in the lateral walls of spinal cord during mouse morphogenesis using lectin histochemical method

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Abstract

Background and Objective: Different organizers are involved in spinal cord development and differentiation by sending various messages. Specific glycoconjugates secreted from the cells of lateral wall of spinal cord can also act as neurogenesis and neural differentiation messengers. This study was carried out to determine the distribution of sugar compounds in the lateral walls of spinal cord during mice morphogenesis using lectin histochemistry method.

Methods: In this experimental study, sections of BALB/c mice from 10-16 embryonic days were fixed in formalin and then histological sections were prepared. Tissue samples for reaction to the glycoconjugates were incubated with DBA, OFA, GSA1B4 and MPA lectins. Alcian blue with pH equal 2.5 was used for background staining.

Results: DBA lectin did not react with the lateral wall of the spinal cord. MPA lectin showed severe reaction but consistent, especially in nerve fibers of the lateral wall of spinal cord. GSA1B4 lectin showed weak reaction in the cells and nerve fibers of the spinal cord, but severe reaction was clearly observed in blood vessels. OFA lectin showed severe reaction with -L-Fucose terminal sugar in the lateral walls of the spinal cord in early stages of morphogenesis.

Conclusion: The most reaction in the lateral walls of the spinal cord was related to OFA, which reflects the importance of fucose terminal sugar by connecting (1 6) to the penultimate sugar N-acetyl-D-glucosamin (Glc-Nac) in the development of spinal cord. Due to severe reaction of GSA1B4 to blood vessels of spinal cord, use of this lectin for vascular studies, is recommended.

Keywords: Development, Spinal Cord, Lectin, Histochemistry, OFA Lectin, Mouse

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