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[\[PDF \(2461K\)\]](#) [\[References\]](#)**Localization of 3-phosphoglycerate dehydrogenase, an enzyme involved in *de novo* L-serine biosynthesis, in the peripheral nervous system and non-neuronal tissues of mice**Akihiro KONNO¹⁾, Yoshiaki OOTA¹⁾, Yoshiharu HASHIMOTO¹⁾, Yasuhiro KON¹⁾ and Toshihiko IWANAGA²⁾

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ABSTRACT

The non-essential amino acid L-serine is biosynthesized from 3-phosphoglycerate by astrocytes, and functions as a key mediator of neurotrophic support in the brain. In the present study, the cellular localization of 3-phosphoglycerate dehydrogenase (3PGDH), a key enzyme in L-serine production, in tissue outside the central nervous system of the mouse was examined by immunohistochemistry and *in situ* hybridization. In the peripheral nervous system of adult mice, 3PGDH immunoreactivity was found in satellite cells of the dorsal root ganglia and intestinal nerve plexuses. Endocrine tissues contained 3PGDH-immunoreactive supporting cells, such as stellate cells of the adenohypophysis and sustentacular cells of the adrenal medulla. In genital tissues, Sertoli cells and spermatogonia of the testis and oocytes in the primary ovarian follicle were immunolabeled with the 3PGDH antibody. The lens epithelium and retinal pigment epithelium were most intensely immunoreactive among sensory organs. The expression of 3PGDH mRNA in the eye and testis was detected by *in situ* hybridization in cells corresponding to those in which it was detected by immunohistochemistry. Moreover, 3PGDH immunoreactivity was confirmed in the lens placode and in both the Sertoli and primitive germ cells of embryos, all of which are tissues affected by congenital diseases in human 3PGDH deficiency.

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