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[\[PDF \(899K\)\]](#) [\[References\]](#)**Histochemical demonstration of monocarboxylate transporters in mouse brown adipose tissue**[Toshihiko Iwanaga](#)¹⁾, [Takuya Kuchiiwa](#)¹⁾ and [Masayuki Saito](#)²⁾

1) Laboratory of Histology and Cytology, Graduate School of Medicine, Hokkaido University

2) Department of Nutrition, School of Nursing and Nutrition, Tenshi College

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ABSTRACT

Proton-coupled monocarboxylate transporters (MCTs) are essential for the transport of lactate, ketone bodies, and other monocarboxylates through the plasma membrane. The present immunohistochemical study aimed to examine the expression of MCTs in the brown adipose tissue (BAT) of mice. An intense immunoreactivity for MCT1 was found in the plasma membrane of brown adipose cells at light and electron microscopic levels but not in white adipose cells. The expression of MCT1 in BAT was confirmed by Western blot and *in situ* hybridization analyses. In fetuses (E17.5) and neonates, the MCT1 mRNA expression of BAT was abundant and appeared more intense than that in adult animals. These results, together with the intense expression of CD147 (a functional partner of MCTs) and acetyl-CoA carboxylase-2 (a component of fatty acid oxidation) in perinatal periods, suggest the involvement of MCT1 in the uptake of monocarboxylates from the circulation for thermogenesis rather than lipogenesis.

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