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Author	Sepideh Lalehzari	
Title (English)	The role of MCT1 and MCT4 in astrocyte lactate efflux	
Title (Swedish)		
Abstract	<p>Monocarboxylate transporters (MCTs) are a family of 14 members which are involved in the transport of lactate, pyruvate and ketone bodies. MCT1, 2 and 4 have been associated with lactate transport in the brain, MCT1 and MCT4 being responsible for the lactate efflux from astrocytes, and MCT2 responsible for the uptake of lactate into neurons. The transport of lactate is of interest because lactate has been shown to be an important energy substrate for neurons during activity. During neuronal activity, the transport of glucose directly into neurons is inhibited and astrocytes provide neurons with lactate as an alternative energy source, through a system called the "Astrocyte-neuron lactate shuttle" (ANLS). The transport of lactate and the function of MCTs are of interest because a link between cognitive impairment (a major symptom of Alzheimer's disease) and reduction in energy metabolism in the brain has been established, as well as evidence suggesting that neurons are able to take up and utilise lactate as efficiently as glucose. In this project, the function of the MCTs in the brain is explored. Specifically, the role of the astrocyte-specific MCTs (1 & 4) is investigated by siRNA-mediated knockdown experiments. In addition, experiments to validate antibodies against the known MCTs in the brain (MCTs 1, 2 and 4) are performed.</p>	
Keywords	MCT, ANLS, Lactate transport, neuronal energy metabolism, antibody validation, siRNA knockdown	
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