This paper suggests a new role for lactate as a volume transmitter in the brain, besides its role in energy metabolism. It is shown that the lactate receptor GPR81 downregulates cyclic adenosine monophosphate (cAMP) production in brain in response to increased lactate levels, such as those that occur during physical exercise. The receptor is concentrated at the postsynaptic membranes of glutamatergic synapses, including in the hippocampus and cerebellum. It is known that, whereas brain cAMP levels increase acutely in arousal, chronically increased cerebral cAMP, such as in chronic stress and old age, is associated with cognitive impairment. Hence these findings point to the lactate receptor as a potential therapeutic target in brain.

Disclosures
None declared

Add Comment

Cite this Recommendation


Cite this page

F1000Prime Recommendations, Dissents and Comments for [Lauritzen KH et al., Cereb Cortex 2013]. In F1000Prime, 16 Aug 2013; F1000Prime.com/718027781