Review of: "Structure of the Blood Brain Barrier and the Role of Transporters in the movement of substrates across the barriers"

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Potential competing interests: No potential competing interests to declare.

This manuscript described the structure of blood-brain barrier and the role of transporters in the transfer of ions and organic molecules across the barrier.

The article contains numerous grammatical errors throughout. The authors need to edit the manuscript carefully, sentence by sentence, for grammatical and typographical errors.

Figures 1, 2, 3 provide little information on the topic. Nothing useful can be gained from these figures.

There are numerous errors in the information provided in Table 1.

BBB endothelial cells express primarily GLUT1, which is not a glucose sensor. The authors talk about glucokinase in the brain. Yes, glucokinase is a glucose sensor and it is expressed in the brain. But, is it expressed in the endothelial cells? How would it work inside the cells if the entry step is not dependent on the glucose levels in blood?

The authors mention PEP translocation pathway when discussing peptide transport systems in BBB endothelial cells. It seems that they are confusing the peptide transport system (PTS) in BBB with the phosphotransferase system (PEP or PTS) in bacteria. The peptide transport systems in BBB have nothing to do with phosphotransfer. The PTS in BBB are simple carrier systems whose molecular identities not yet established.

There are no ABC transporters in mammals that mediate influx. LmrA or any other influx transport systems are in bacteria.

What is the purpose of talking about many of the ABC transporters in terms of their function in the liver or leukocytes or intestine? What we need in this article is what these transporters do in BBB.

LAT1 is not Large endothelial amino acid transporter 1. It just refers to “Large Amino acid Transporter 1”.

Excitatory amino acid transporters do not transport glutamine. Contrary to what is given in Table 1, the excitatory amino acid transporters (EAATs) are all Na-coupled active transporters.

CNT2 is SLC28A2.

SMVT is not an ion transporter. It is a vitamin transporter.

The Conclusion section contains numerous erroneous statements. Glutamine is not neurotoxic. It is not transported by EAATs. Glycine is a preferred substrate for GlyT1 and GlyT2. Yes, amino acid transporters belonging System A and System N can transport glycine, but glutamine and other amino acids are also substrates. There should be some clarity in the identity of amino acid transporters for glycine, glutamate, and glutamine to avoid confusion.