

Scientific Paper:

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## **Adult neural stem cells express glucose transporters GLUT1 and GLUT3 and regulate GLUT3 expression**

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### **Abstract:**

Abstract In the brain, glucose is transported by GLUT1 across the blood–brain barrier and into astrocytes, and by GLUT3 into neurons. In the present study, the expression of GLUT1 and GLUT3 mRNA and protein was determined in adult neural stem cells cultured from the subventricular zone of rats. Both mRNAs and proteins were coexpressed, GLUT1 protein being 5-fold higher than GLUT3. Stress induced by hypoxia and/or hyperglycemia increased the expression of GLUT1 and GLUT3 mRNA and of GLUT3 protein. It is concluded that adult neural stem cells can transport glucose by GLUT1 and GLUT3 and can regulate their glucose transporter densities.

Key-words: Neural stem cell, Neurosphere, Glucose transporter GLUT1; GLUT3, Rat brain subventricular zone