Bristol Institute for Transfusion Sciences
Incorporating the
International Blood Group Reference Laboratory

NHS Blood and Transplant

IBGRL RESEARCH PRODUCTS

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Antigen	Glut 1
Clone	BRAC 67
Product Code	9484
Immunoglobulin Class	Rat IgG2c, kappa

Antigen Description and Distribution

Glucose transporter 1 (or GLUT1), also known as solute carrier family 2, facilitated glucose transporter member 1 (SLC2A1) is a protein that in humans is encoded by the SLC2A1 gene[1]. GLUT1 facilitates the transport of glucose across the plasma membranes of mammalian cells[2]. The glucose transporter of erythrocytes (called GLUT1 to distinguish it from related glucose transporters in other tissues) is a type III integral protein with 12 hydrophobic segments, each of which is believed to form a membrane-spanning helix. The detailed structure of GLUT1 is not known yet, but one plausible model suggests that the side-by-side assembly of several helices produces a transmembrane channel lined with hydrophilic residues that can hydrogen-bond with glucose as it moves through the channel[3]. GLUT1 is responsible for the low-level of basal glucose uptake required to sustain respiration in all cells. Expression levels of GLUT1 in cell membranes are increased by reduced glucose levels and decreased by increased glucose levels. GLUT1 is also a major receptor for uptake of Vitamin C as well as glucose, especially in non vitamin C producing mammals as part of an adaptation to compensate by participating in a Vitamin C recycling process. In mammals that do produce Vitamin C, GLUT4 is often expressed instead of GLUT1[4].

Clone

BRAC 67 was made in response to a partial purified erythrocye membrane preparation. It has been used to elucidate protein distribution during human erythroblast enucleation[5].

References

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5. Bell AJ, Satchwell TJ, Heesom KJ, Hawley BR, Kupzig S, Hazell M, Mushens R, Herman A and Toye AM (2013). Protein Distribution during Human Erythroblast Enucleation *In Vitro*. PLoS ONE Volume 8 (Issue 4): e60300, pages 1-12. doi:10.1371/journal.pone.0060300.