

# Role of adenosine transport in gestational diabetes-induced L-arginine transport and nitric oxide synthesis in human umbilical vein endothelium

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Gestational diabetes is associated with increased L-arginine transport and nitric oxide (NO) synthesis, and reduced adenosine transport in human umbilical vein endothelial cells (HUVEC). Adenosine increases endothelial L-arginine/NO pathway via A2 purinoceptors in HUVEC from normal pregnancies. It is unknown whether the effect of gestational diabetes is associated with activation of these purinoceptors or altered expression of human cationic amino acid transporter 1 (hCAT-1) or human equilibrative nucleoside transporter 1 (hENT1), or endothelial NO synthase (eNOS) in HUVEC. Cells were isolated from normal or gestational diabetic pregnancies and cultured up to passage 2. Gestational diabetes increased hCAT-1 mRNA expression (2.4-fold) and activity, eNOS mRNA (2.3-fold), protein level (2.1-fold), and phosphorylation (3.8-fold), but reduced hENT1 mRNA expression (32%) and activity. Gestational diabetes increased extracellular adenosine (2.7  $\mu$ M), and intracellular L-arginine (1.9 mM) and L