

Adiponectin Receptors

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Adiponectin Receptors

Adiponectin binds to receptors expressed on various cell and tissue types which include: visceral and subcutaneous (sc) fat, endothelial cells, hepatocytes, osteoblasts, skeletal muscle, spleen, and macrophages (1-4). The adiponectin receptors are seven-spanning transmembrane receptors which demonstrate opposite topology of G protein coupled receptors in that adiponectin receptors have an external C-terminus with an internal N-terminus. These receptors exist in two forms, AdipoR1 and AdipoR2 (2;3). Although adiponectin receptors are ubiquitous, the AdipoR1 receptor is more abundant in skeletal muscle while AdipoR2 has a higher abundance in liver (2). Differential abundance has been demonstrated in swine as AdipoR1 mRNA was abundant in skeletal muscle, visceral and sc fat tissues with AdipoR2 mRNA expression being abundant in liver, heart, skeletal muscle, visceral fat and sc fat tissue(3;5).

The importance of cellular regulation through these receptors is an area of intense research interest. It has been shown that TNF α down regulates adiponectin and AdipoR2 but not AdipoR1 mRNA expression in stromal vascular cell culture (5). Additionally, peroxisome proliferator-activated receptor (PPAR α and PPAR γ) and liver X receptor (LXR) ligands have been found to modulate AdipoR1 and AdipoR2 expression in human macrophages (4).

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