Long-acting Release Pasireotide

National Cancer Institute

Source

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A long-acting release (LAR) formulation containing pasireotide, a synthetic long-acting cyclohexapeptide, with somatostatin-like activity. Upon intramuscular administration of the LAR formulation of pasireotide, this somatostatin analog strongly binds to and activates somatostatin receptor (SSTR) subtypes 1, 2, 3, and 5. This leads to an inhibition in the secretion of human growth hormone (hGH) and results in decreased production of insulin-like growth factor (IGF-1), which may inhibit IGF-1-mediated cell signaling pathways. This may lead to an inhibition in tumor cell growth and an increase in apoptosis in IGF-1-overexpressing tumor cells. In addition, this agent causes a reduction in adrenocorticotropic hormone (ACTH), which leads to an inhibition of cortisol secretion. ACTH-producing tumors cause hypersecretion of cortisol which results in many unwanted symptoms. This agent may also block other key survival pathways such as the phosphatidylinositol 3-kinase (PI3K) and the mitogen-activated protein kinase (MAPK) signaling pathways. Pasireotide also inhibits vascular endothelial growth factor (VEGF) secretion, thereby decreasing angiogenesis and tumor cell growth in VEGF-overexpressing tumor cells. The long-acting form of pasireotide allows for less frequent administration as compared to the original form of this agent. SSTRs are overexpressed by some neuroendocrine and non-neuroendocrine tumor cells.