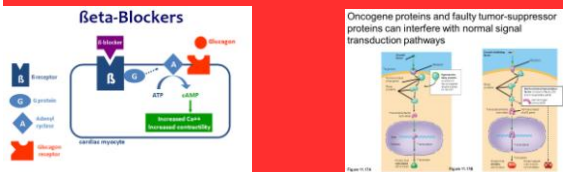


4.4 Changes in Signal Transduction Pathways

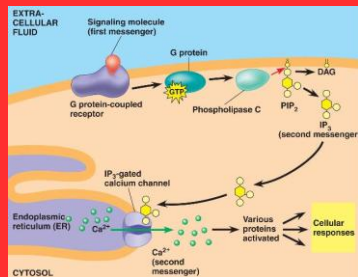


ENDURING UNDERSTANDING

IST-3 Cells communicate by generating, transmitting, receiving, and responding to chemical signals.

IST-3.G Explain how a change in the structure of any signaling molecule affects the activity of the signaling pathway.

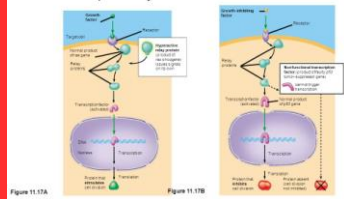
- Changes in signal transduction pathways can alter cellular response



IST-3.G Explain how a change in the structure of any signaling molecule affects the activity of the signaling pathway.

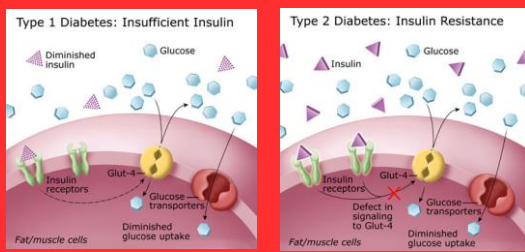
- Mutations in any domain of the receptor protein or in any component of the signaling pathway may affect the downstream components by altering the subsequent transduction of the signal

Oncogene proteins and faulty tumor-suppressor proteins can interfere with normal signal transduction pathways



Diabetes

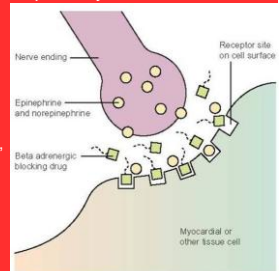
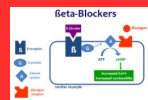
- Type 1- Defect in insulin production
- Type 2- Defect in glucose transport signal



IST-3.G Explain how a change in the structure of any signaling molecule affects the activity of the signaling pathway.

- Chemicals that interfere with any component of the signaling pathway may activate or inhibit the pathway.

- Beta-blockers compete with catecholamines (NO, E) for adrenergic receptors.
- Block the adrenergic binding sites on the myocardial tissue
- Inhibiting or alleviating muscle contraction, high blood pressure, and increased cardiac output.



Neurotoxins

- Block Calcium channels
- Prevent release of neurotransmitters

