**Endocytosis**

Edocytosis is a cellular process in which substances are brought into the cell. In other words it means to import macromolecules from the extracellular fluid.

There are three types of endocytosis:

1. **Receptor mediated**

Receptor-mediated endocytosis begins at the surface of the cell and involves receptor ligand interaction. Receptors can possibly bind with the ligands. After binding there would be the recruitment of adapter proteins in the cytosolic half of this receptor. Additional proteins (called bar proteins) lead to membrane curvature (not shown on the picture). After this, there is the recruitment of molecules, known as clathrin on the cytoplasmatic side. They organise themselves with the help oft he previously mentioned adapter proteins and form a clathrin coat. The curved area oft he membrane closes in on itself, creating a clathrin coated vesicle. Those hang from the membrane till the point where a protein known as dynamine would pinch them off from the membranes. The vesicle is now internalised. Once internalised this vesicle can fuse with the endosome. Due tot the low pH inside the endosome, there is a dissociation of the ligands from the receptor. From here there are several things that could happen to the receptors and/or ligands:

1. => Ligand degraded and receptor recycled
2. => Ligand recycled and receptor recyled
3. => Ligand degraded and receptor degraded
4. ?????=> Ligand recycled and receptor degraded????
5. **Phagocytosis**
6. **Pinocytosis**

**Glossary**

Ligands: Ligands can be a variety of molecules, including hormones, neurotransmitters, ions, drugs, or even other proteins

Purpose: To initiate a biological response by bindeng to a receptor. This binding can eithe activate or inhibit the receptor’s function (depending on the type of lingand and receptor involved)

Key roles: Signal Transmission; regulation of Cellular Activity; Mediating Cell Communicaion; Facilitating Transport of Endocytosis; Drug Targeting

Example: Insulin is a hormone that acts as a ligand by binding to insulin receptors on the surface of cells, particularly in muscle and fat tissue. This binding triggers a signaling pathway that allows cells to take up glucose from the blood, lowering blood sugar.