

Most processes in nature are very effective concerning saving energy and minimizing waste. A good example of saving on cellular level is receptor recycling. Whether it concerns receptors for lysosomal enzymes or for proteins destined for secretion, after releasing their cargo protein the fate of the receptor would be sealed in lysosomes. Nevertheless, some transmembrane receptors contain a signal motif through which they are recognized by specific proteins or protein complexes and they escape the degradation in lysosomes. One such complex is the retromer. Its first discovered function was the recycling of receptors for lysosomal hydrolases in yeast. Later it was proved that it has a similar role in transport of many other proteins in other eukaryotes. The task for retromer is to sort the cargo proteins on the endosomal membrane and together with others auxiliary proteins create a transport vesicle which is then transported to the Golgi. This makes the cell able to recycle proteins that would otherwise be transported from endosomes to lysosomes for degradation.