3.3 Active transport

Active transport

- **Definition:**

It is the movement of particles through a cell membrane from a region of lower concentration to a region of higher concentration using energy from respiration

- **Importance of active transport as a process for movement of molecules or ions across membranes, including ion uptake by root hairs**

  The concentration of magnesium ions is greater inside the vacuole of the root hair cell as compared to the water in the soil. Still the magnesium ions are not lost by the plant and their concentration is kept high inside the root hair cell by a process called active transport.

- **Protein carriers move molecules or ions across a membrane during active transport**
  - The carrier proteins are present in the cell membrane.
  - These carrier proteins span the cell membrane and provide means by which ions and molecules can enter or leave a cell by active transport.

  Process:

  - First the molecule or ion combines with a carrier protein.
  - Energy from respiration enables the carrier protein to change its shape to carry the ion or molecule to the inside of the membrane.
  - The molecule or ion is released to the inside of the membrane and the carrier protein reverts to its original shape.