''बेटी बचाओ, बेटी पढ़ाओ''

JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR

FACULTY OF HOMOEOPATHIC SCIENCE

Faculty Name : JV'n Dr. M.P. Sharma

Teaching Methodology of physiology

Program : BHMS 1st year

Course : PHYSIOLOGY

Session : Cell junction

Academic Day starts with –

- Greeting with saying **'Namaste'** by joining Hands together following by 2-3 Minutes Happy session, Celebrating birthday of any student of respective class and **National Anthem**

Lecture Starts with-

- **Review of previous Session-** In previous session as I had discussed about introduction of fetal circulation. Now tell me about placenta?
- **Topic to be discussed today-** Today I will discuss about cell junction. I will start this topic from CELL junction.

CELL JUNCTION-

Cell junction is the connection between the neighboring cells or the contact between the cell and extracellular matrix. It is also called **membrane junction.**

Cell junctions are classified into three types:

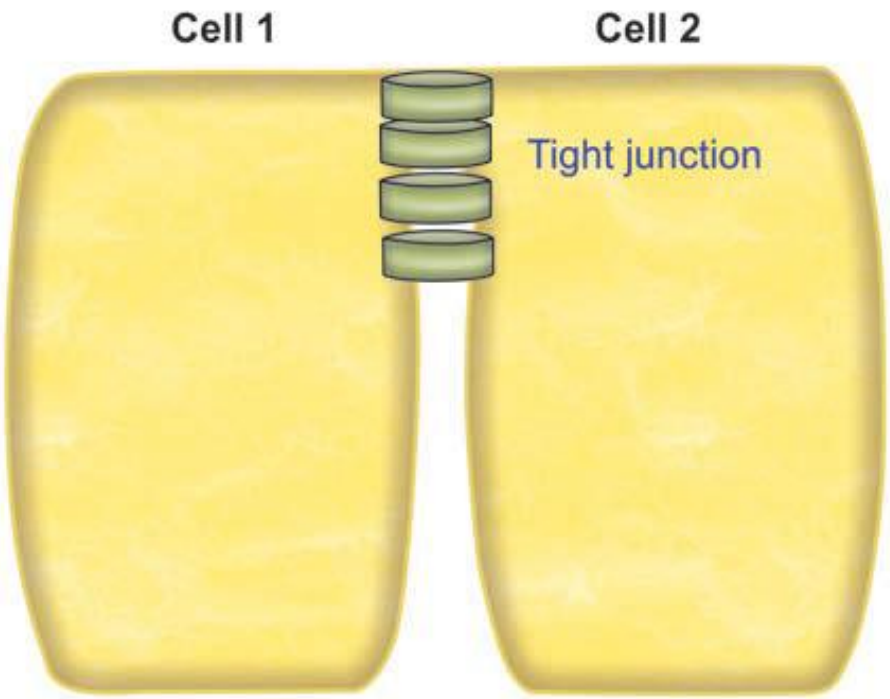
1. Occluding junctions
2. Communicating junctions
3. Anchoring junctions

Tight junction is the intercellular occluding junction that prevents the passage of large molecules. It is also

Cell Junctions called **zonula occludens.** It is the region where the cell membranes of the adjacent cells fuse together firmly. This type of junction is present in the **apical margins** of epithelial and endothelial cells in intestinal mucosa, wall of renal tubule, capillary wall and choroid plexus.

Structure of Tight Junction

Tight junction is made up of a **ridge** which has two halves. One half of the ridge is from one cell and another half is from the other cell. Both halves of the ridge fuse with each other very tightly and occupy the space between the two cells . Each half of the ridge consists of **tight junction strands.**



COMMUNICATING JUNCTIONS

Cell junctions which permit the intercellular exchange of substances are called communicating junctions,

i.e. these junctions permit the movement of ions and molecules from one cell to another cell. Gap junction and chemical synapse are the communicating junctions.

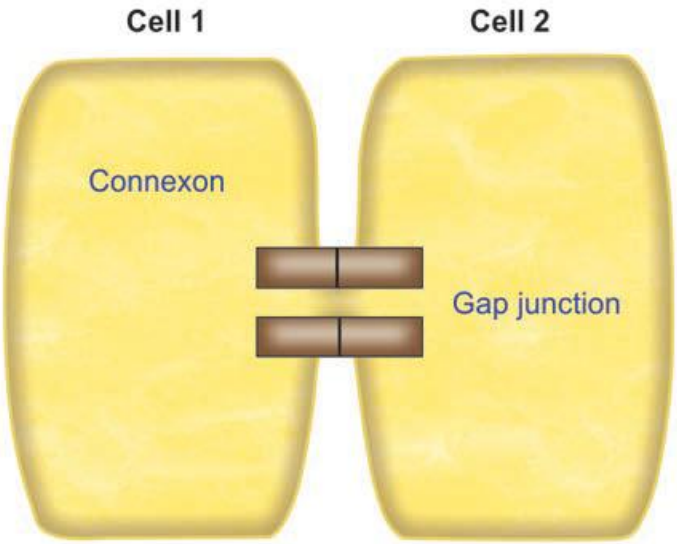
GAP JUNCTION

Gap junction is the intercellular junction that allows passage of ions and smaller molecules between the

cells. It is also called **nexus.** It is present in heart, basal part of epithelial cells of intestinal mucosa, etc.

Structure of Gap Junction

Membranes of the two adjacent cells lie very close to each other and the intercellular space is reduced from the usual size of 2.5 to 3 nm. Cytoplasm of the two cells is connected by the channels formed by the membranes of both cells. So, the molecules move from one cell to another cell directly through these channels, without having contact with extracellular fluid (ECF).

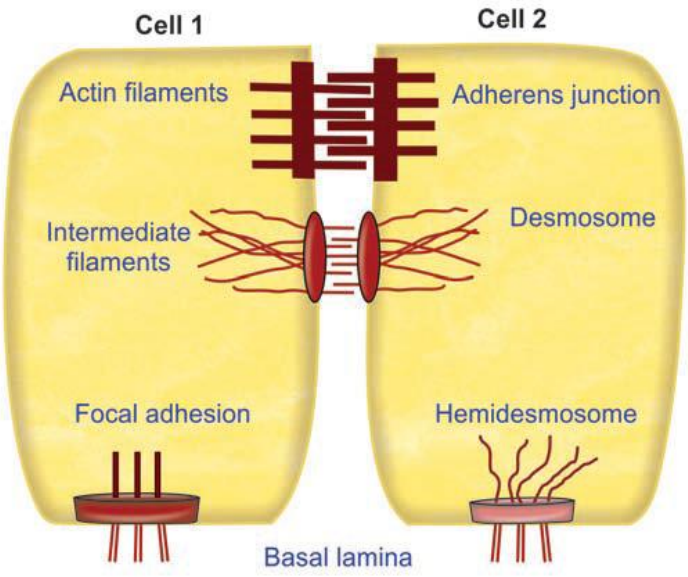


ANCHORING JUNCTIONS

Anchoring junctions are the junctions, which provide strength to the cells by acting like mechanical attach ments, i.e. these junctions provide firm structural attach ment between two cells or between a cell and the extracellular matrix (Fig. 2.3). Anchoring junctions are responsible for the **structural integrity** of the tissues and are present in the tissues like heart muscle and epidermis of skin, which are subjected to severe mechanical stress. The firm attachment between two cells or between

a cell and the **extracellular matrix** is provided by either actin filaments or the intermediate filaments. Depending upon this, anchoring junctions are classified into four types:

1. Actin filament attachment
    i. Adherens junction (cell to cell)
    ii. Focal adhesion (cell to matrix)
2. Intermediate filament attachment
    i. Desmosome (cell to cell)
    ii. Hemidesmosome (cell to matrix)



Reference

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- **Suggestions to secure good marks to answer in exam-**
  - Give answer with complete labeled diagrams.
  - Explain answer with key point answers
- **Questions to check understanding level of students-**
  - Write about ribosome?
  - What is primary protein?
- **Next Topic-**
  - carbohydrate

Academic Day ends with-

National song' Vande Mataram'