

CELL MEMBRANE STRUCTURE

CELL JUNCTIONS

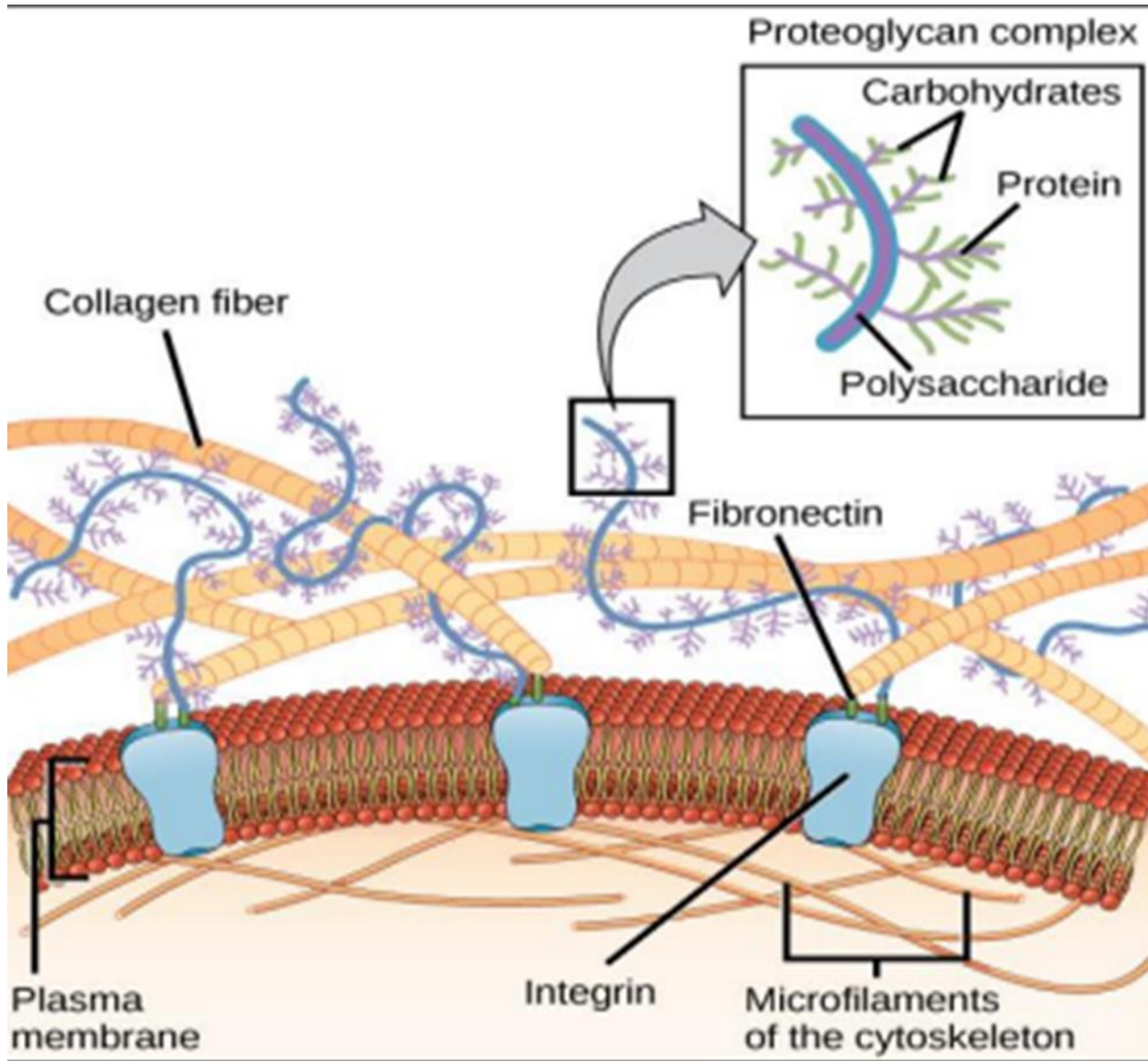


Fig: Extra cellular matrix

Most animal cells release materials into the extracellular space. The primary components of these materials are proteins, and the most abundant protein is collagen.

Collagen fibers are interwoven with carbohydrate-containing protein molecules called proteoglycans.

Collectively, these materials are called the extracellular matrix.

Not only does the extracellular matrix hold the cells together to form a tissue, but it also allows the cells within the tissue to communicate with each other.

CELL JUNCTIONS

Intercellular Junctions:

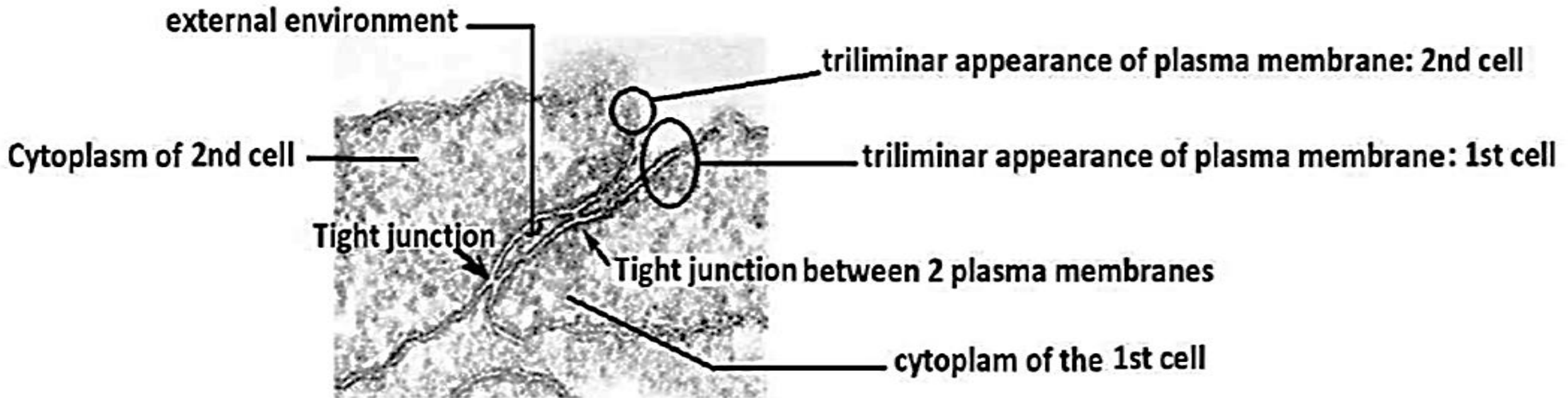
Cells can **communicate with each other** via direct contact, referred to as **intercellular junctions**. There are some differences in the ways that plant and animal cells do this.

Animal cell contacts include **occluding junction (tight junctions)**, **gap junctions** and **adherens**, whereas **plasmodesmata** are the junction between **plant cells**.

I, Occluding junctions (Tight Junctions)

The plasma membranes of adjacent cells essentially fuse together tightly in order to **limit the leakage of various substances between the two cells.**

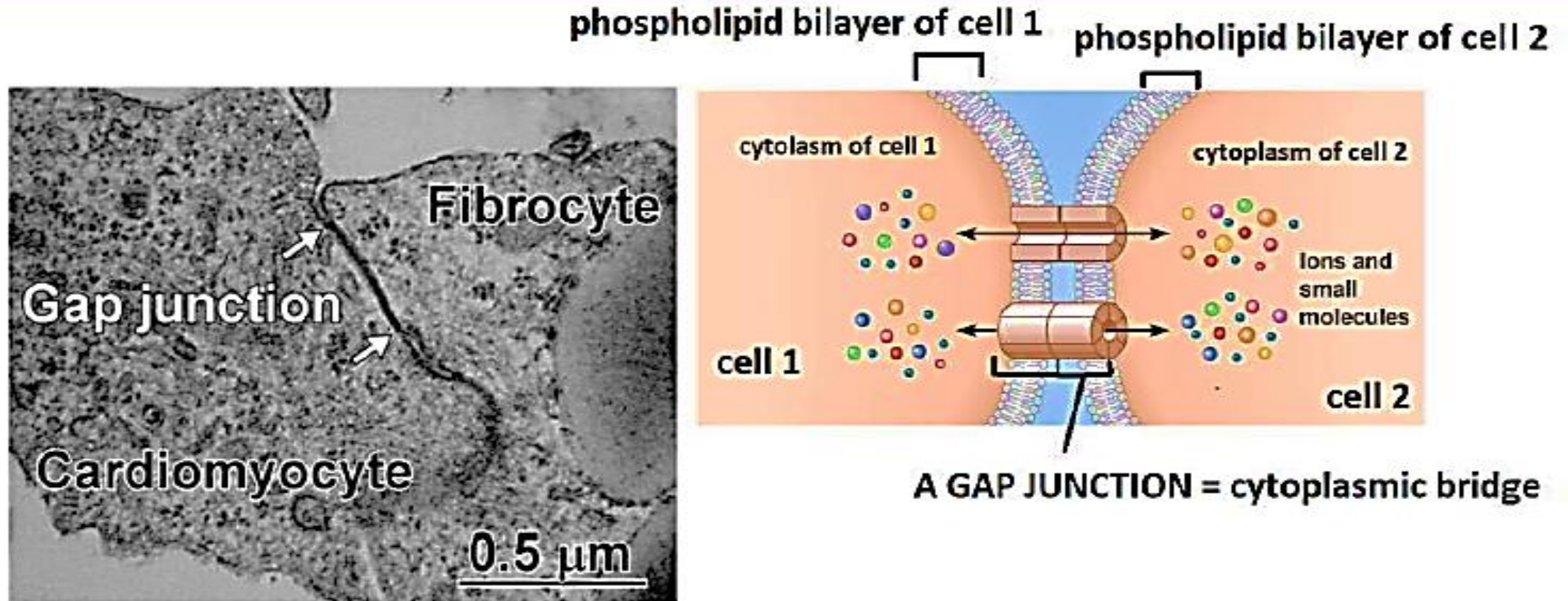
For example: In the skin, they keep us somewhat watertight and help keep allergens out of our body.



Title: Two (2) tight junctions observed in an electron microscopy

(Titre: 2 jonctions serrées observées au microscope électronique)

2, Gap Junctions: also called communicating junctions, consist of a number of transmembrane channels called pores, These permit the free passage between the cells of ions and small molecules (up to a molecular weight of about 1000 daltons).



Title: A GAP - JUNCTION OBSERVED IN ELECTRON MICROSCOPE

(Titre: Une jonction communicante observée au microscope électronique)

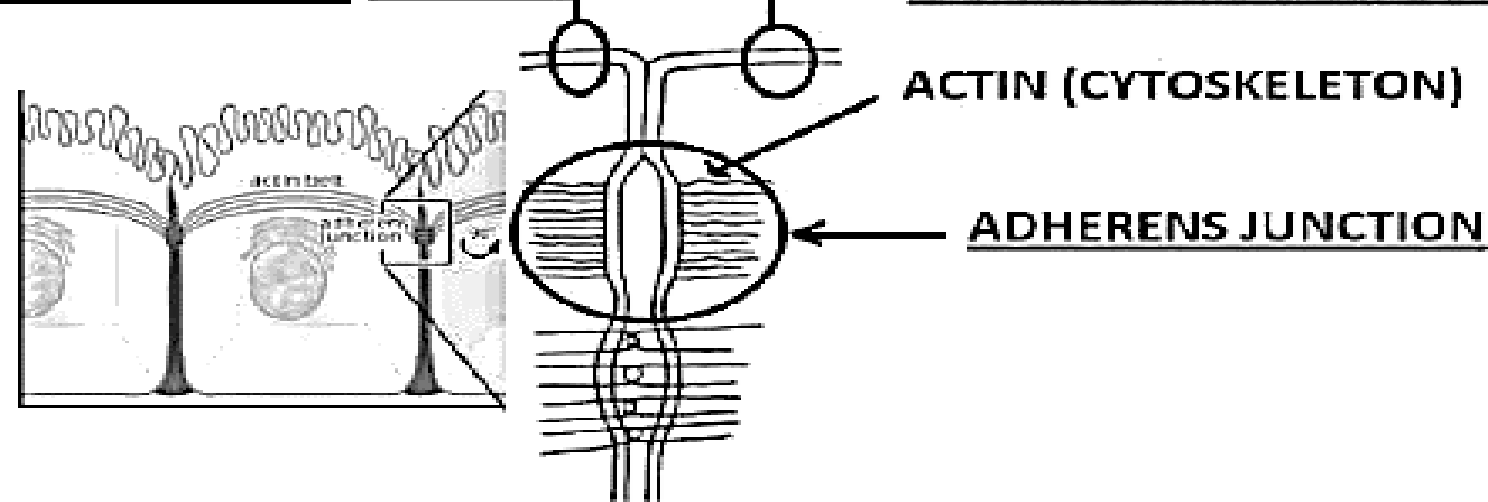
3, Anchoring junctions (Adherens Junctions): Anchoring/Adherens junctions are also referred to as **zonula adherens, intermediate junction, or as belt desmosomes**. They provide strong mechanical attachments between adjacent cells (ensures excellent adhesion between cells)

For example:

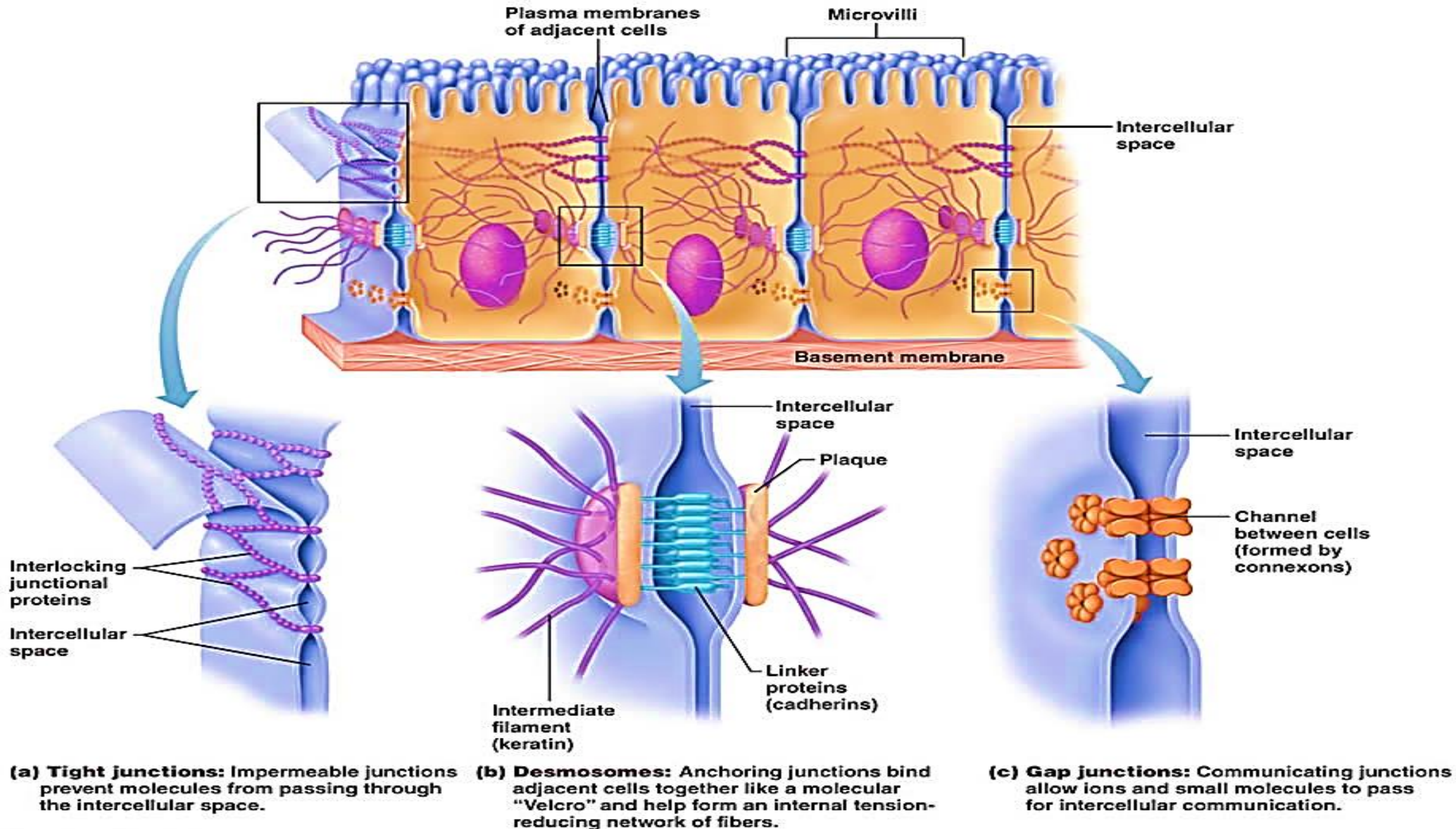
- 1, They hold cardiac muscle cells tightly together as the heart expands and contracts.
- 2, They hold epithelial cells together.

PLASMA MEMBRANE OF THE 2nd CELL

PLASMA MEMBRANE OF THE 1st CELL



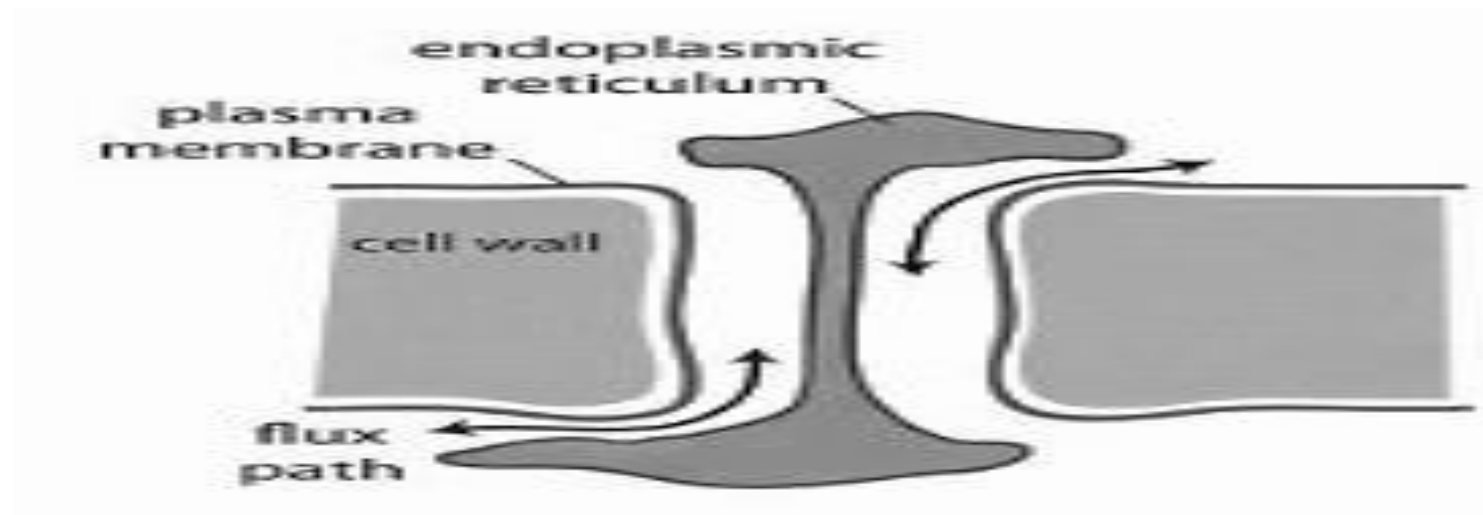
Title: AN ADHERENS JUNCTION OBSERVED IN ELECTRON MICROSCOPE
(Titre: Une jonction adherens observée au microscope électronique)



4, Plasmodesmata:

is a channel passing through the cell wall of plants, providing the pathway for water, solutes, phytohormones and plant pathogen viruses to spread throughout the plant.

Plasmodesmata are lined with plasma membrane that is continuous with the membranes of the two cells. Each plasmodesma has a thread of cytoplasm extending through it, containing an even thinner thread of endoplasmic reticulum



Plasmodesmata Connect Cytoplasm of Adjacent Cells

direct cell-to-cell movement of solutes or water through the plasmodesmata

