

## BIOLOGICAL FRAMEWORKS FOR ENGINEERS

### Session #12 [ $\mu$ m: Cell Interactions]

#### General Objectives:

- ✓ Discuss cellular communication in general.
- ✓ Examine cell-cell and cell-ECM interactions and discuss the importance of each connection from a physiologic perspective.

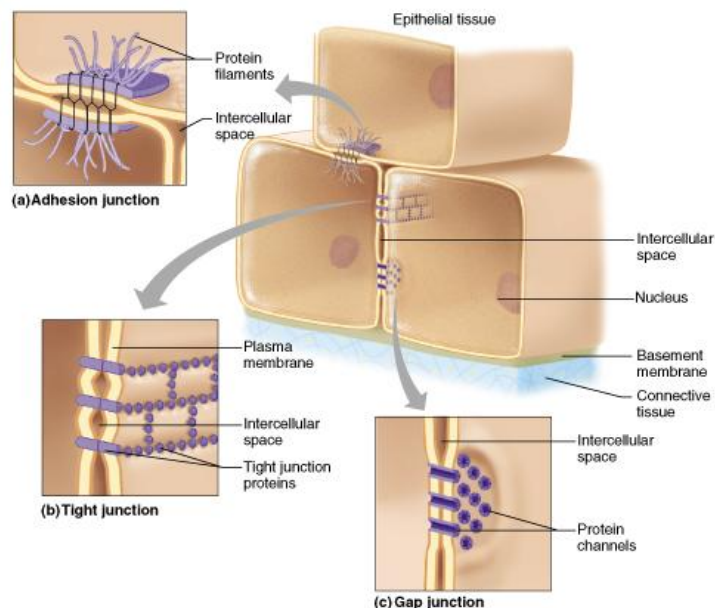
#### Central Framework:

- ✓ Cell-cell interactions facilitate integrated responses and the passing of information—chemical, mechanical, or electrical.

#### Session Outline:

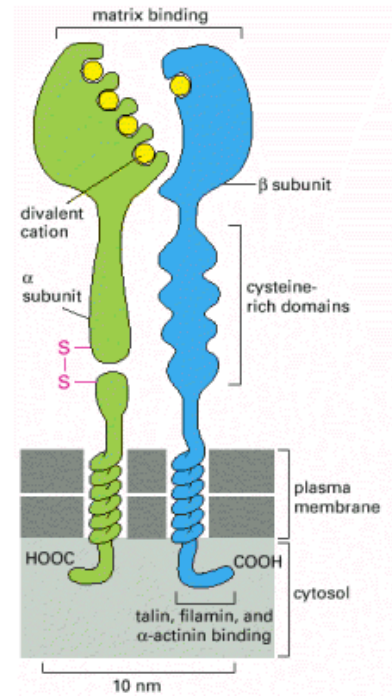
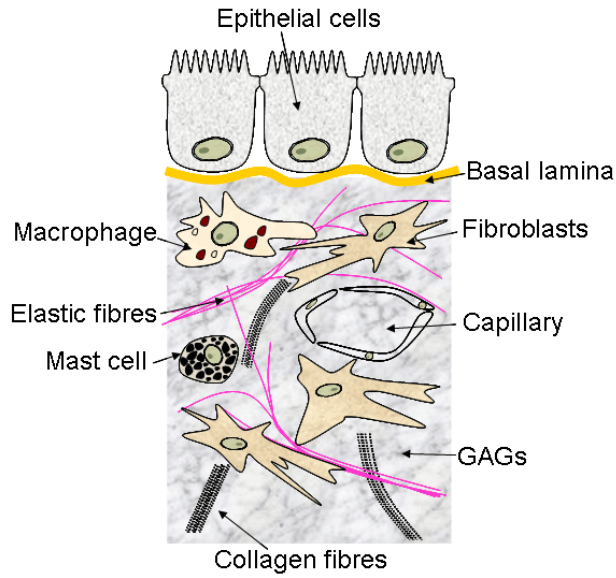
No cell lives in isolation, cell-to-cell, matrix-to-cell, and environment-to-cell communication controls: metabolic processes, growth, differentiation, protein synthesis, protein secretion, and homeostasis.

#### A. Cell-to-Cell



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B- Cell-to-ECM



C. Receptor Signaling

