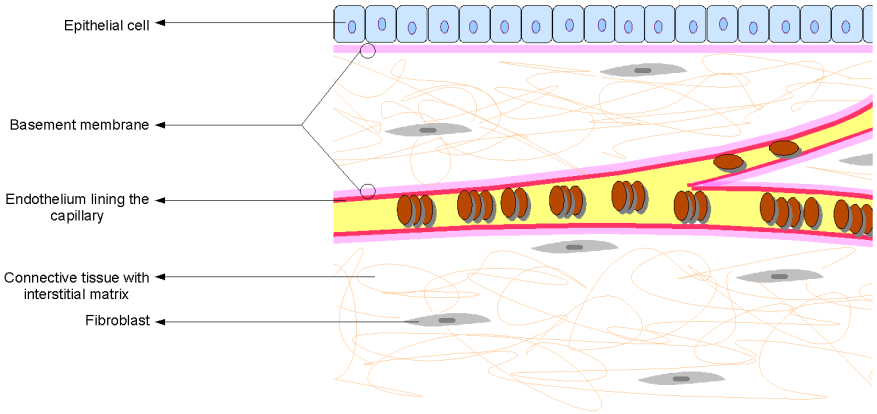
CONCEPT: EXTRACELLULAR MATRIX

- The **extracellular matrix (ECM)** is a collection of fibers and protein which provide support to cells and tissues
  - □ **Collagen fibrils** are long bundles of _____ which make up the ECM
    - Forms connective tissues
    - *Fibroblasts* are cells that secrete collagen and other extracellular matrix components
  - □ **Elastin** is a protein that provides the ECM with elasticity
  - □ **Fibronectins** are cellular glycoproteins that connect cells to collagen in the ECM
  - □ **GAGs** are carbohydrates that can be bound to proteins in the ECM
    - **Hyaluron** is a simple GAG that is a space filler in the ECM
    - Provides the ECM with a gel consistency

EXAMPLE:

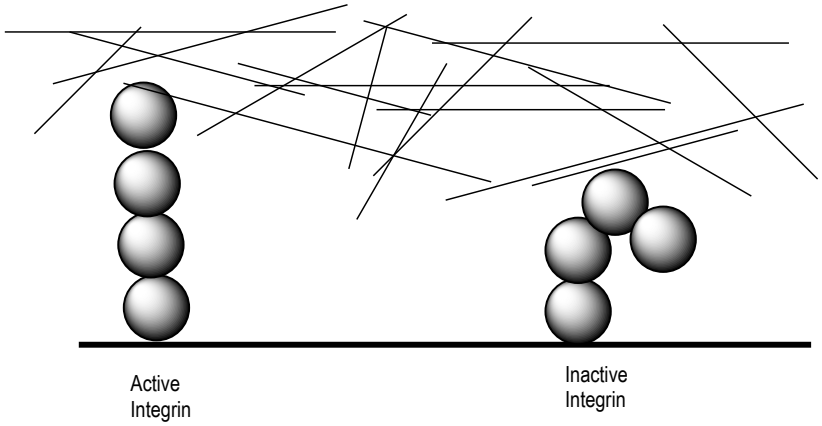


- **Integrins** are cellular transmembrane proteins that help attach the ECM to the cell's cytoskeleton
  - □ Integrins are made up of two alpha and two beta _____
  - □ Integrins have active and inactive conformations
  - □ **Anchorage dependent growth**, is when cells depend on attachment for cell growth, proliferation, and survival
    - Integrins control this process

□ Integrins help control signaling between the extracellular and intracellular environment

- MAPK pathway

EXAMPLE:



PRACTICE:

1. Which of the following proteins are not found in the ECM
    a. Fibronetics
    b. Elastin
    c. Collagen
    d. Bip

2. Which of the following ECM proteins connect collagen to the ECM?
    a. Fibronetics
    b. Elastin
    c. Collagen
    d. GAGs