

ME 411 / ME 511

Biological Frameworks for Engineers

Class Organization

- Hw 4 due today
- Lab 3 – Muscle Lab
 - Next Friday (11/15)
 - MEB 127
 - 1:30, 2:30, 3:30 sign-up

Class Organization

- *Tiny Workhorse Project*

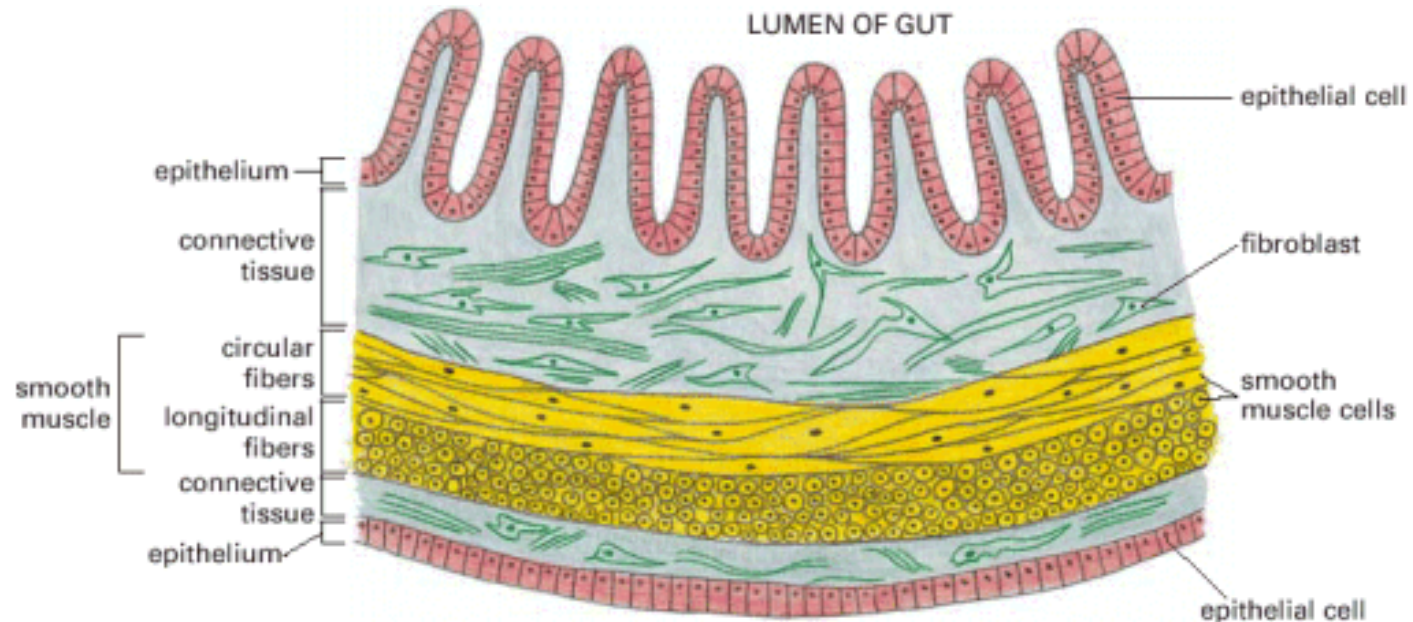
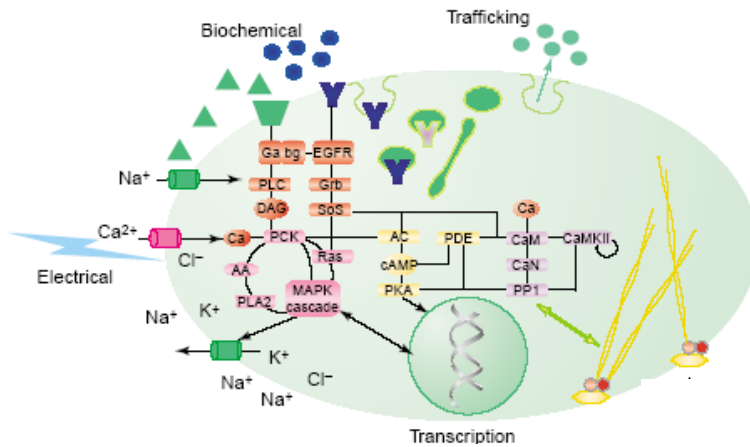
Motor Protein	Grad Student
	Morgan
	Nathan Lee
	Nathan Pepin
	Praveen
Myosin ?	Alex (Joseph)



ME 411 / ME 511

Cell-Cell and Cell-Matrix Interactions

No Cell is an Island



Cell Interactions

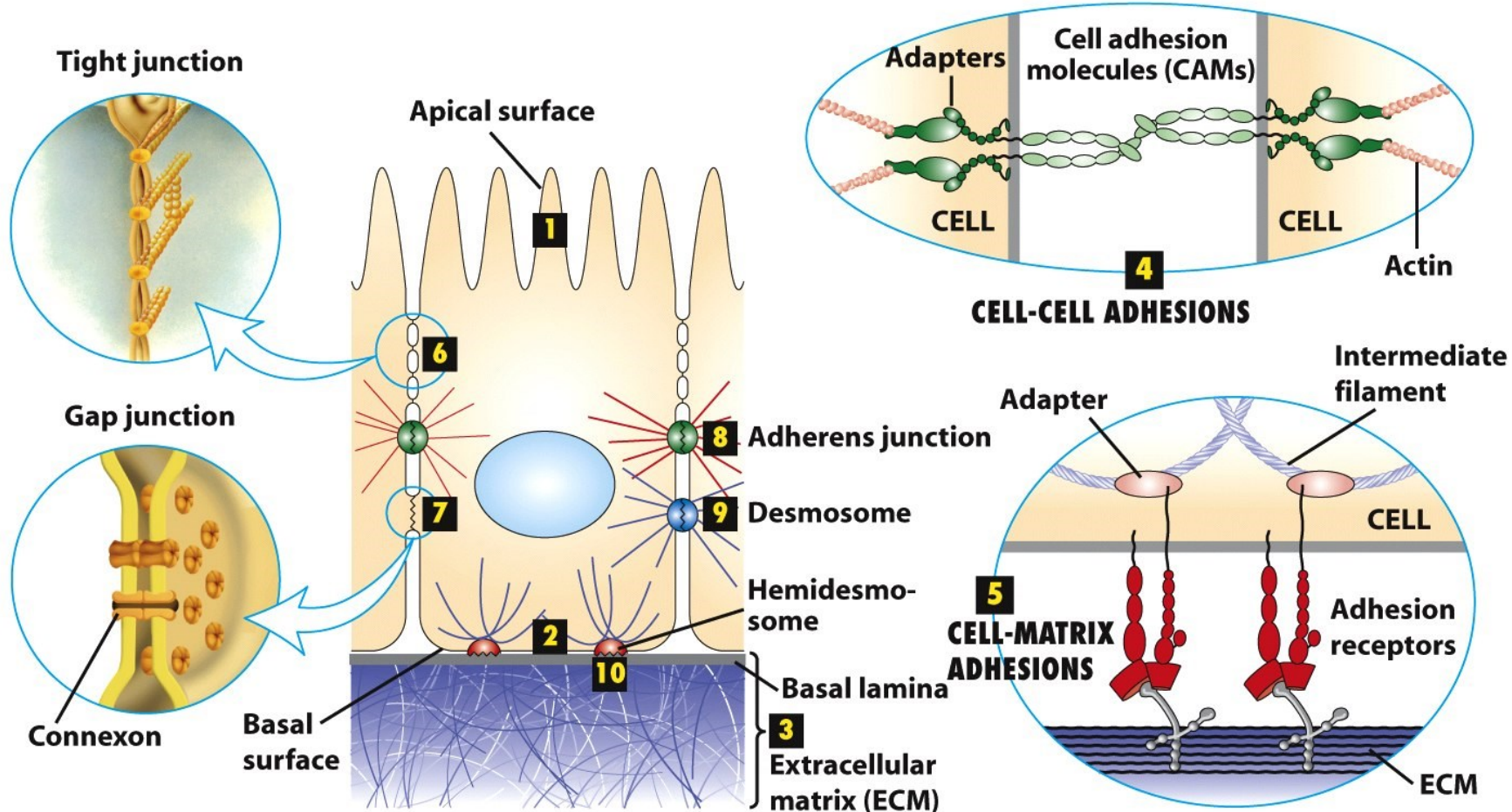
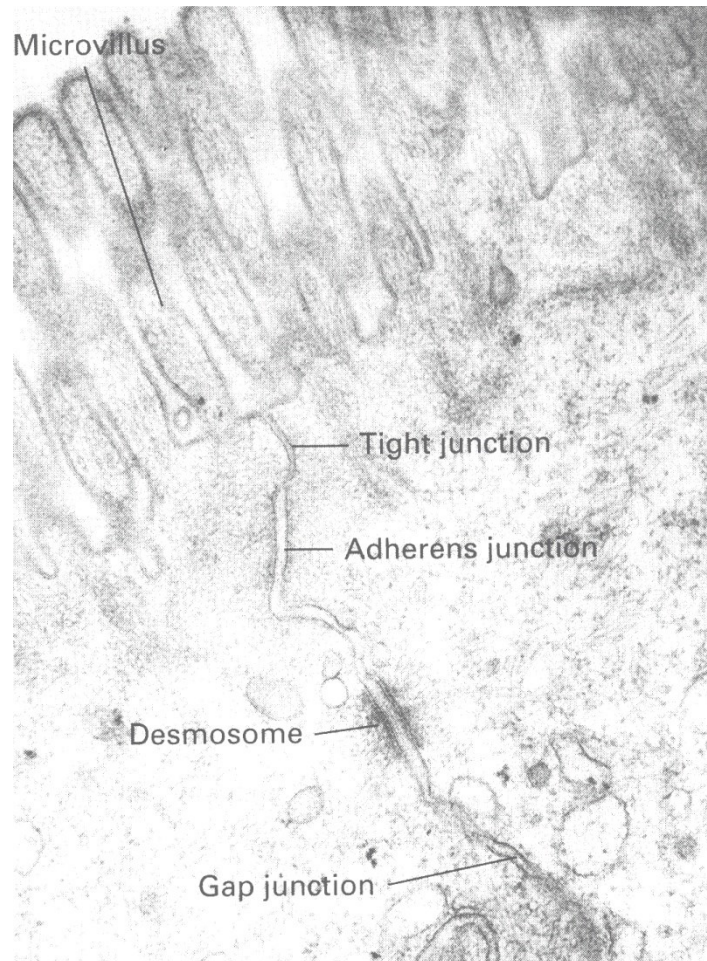


Figure 19-1
Molecular Cell Biology, Sixth Edition
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Cell-to-Cell



Adherens Junctions

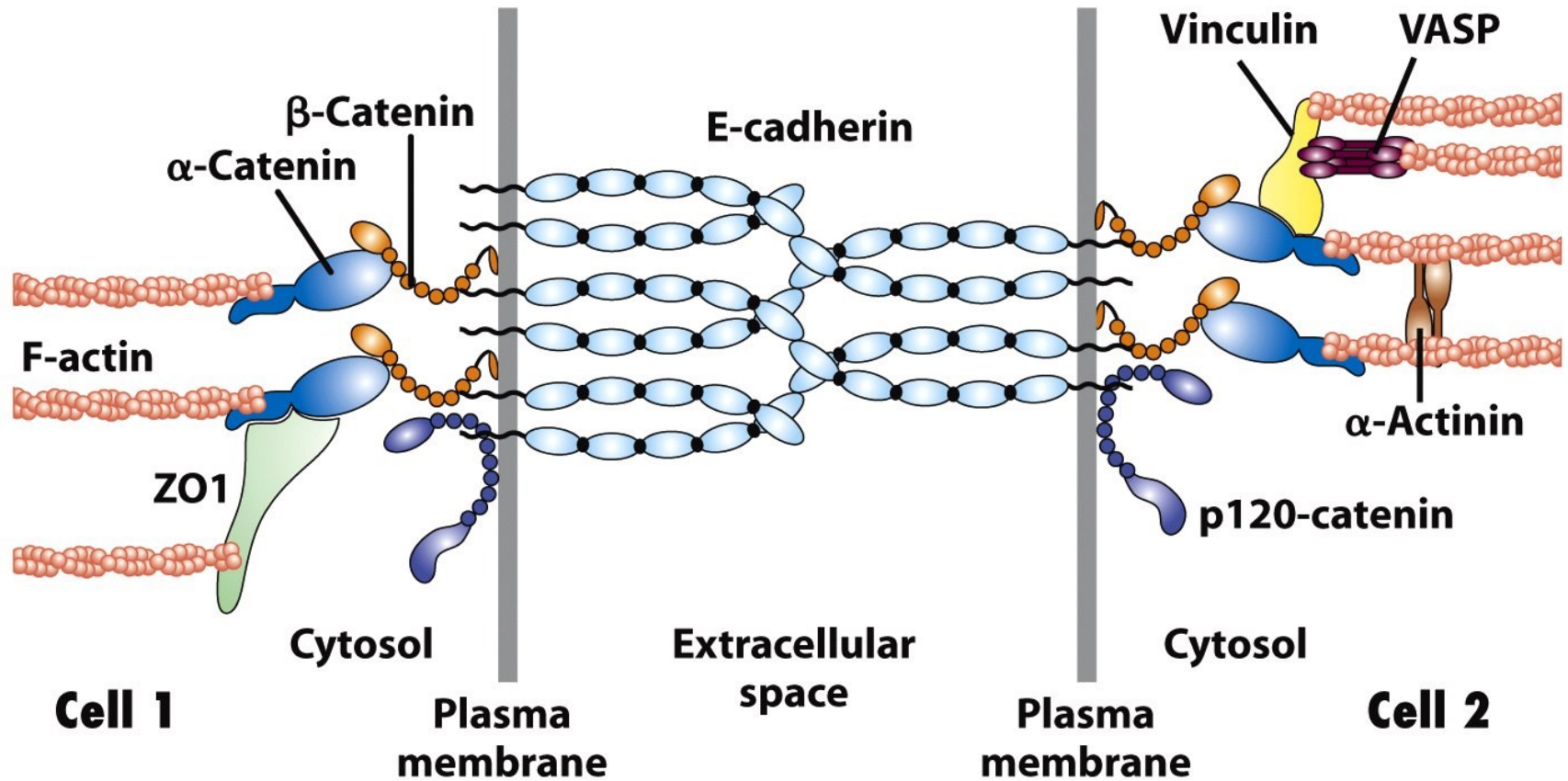
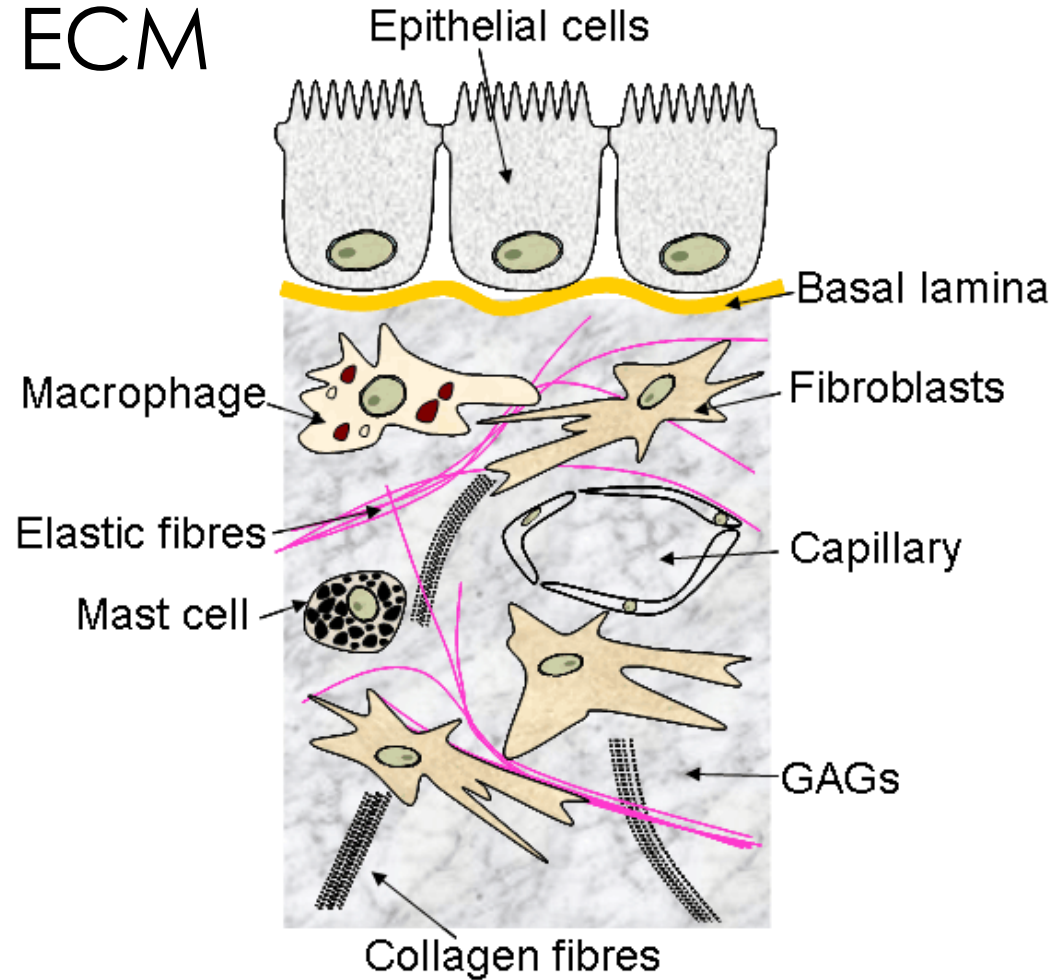
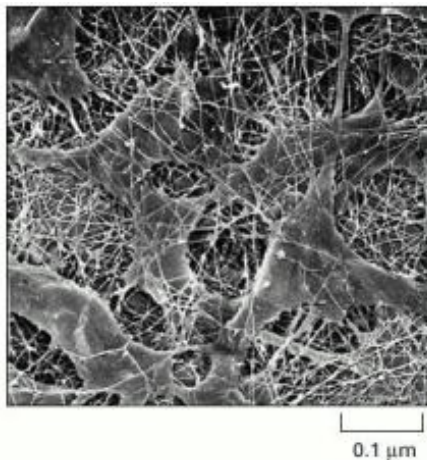




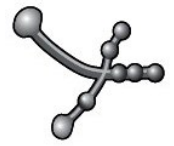

Figure 19-12
Molecular Cell Biology, Sixth Edition
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Cell-to-ECM

- Tissue = cells + ECM



Extracellular Matrix

Collagens	Sheet forming (e.g., type IV)		
	Fibular collagens (e.g., types I, II, and III)		
Multiadhesive matrix proteins	Laminin	2D	
	Fibronectin	3D	

Collagen I

Collagen II

Collagen III

Collagen IV

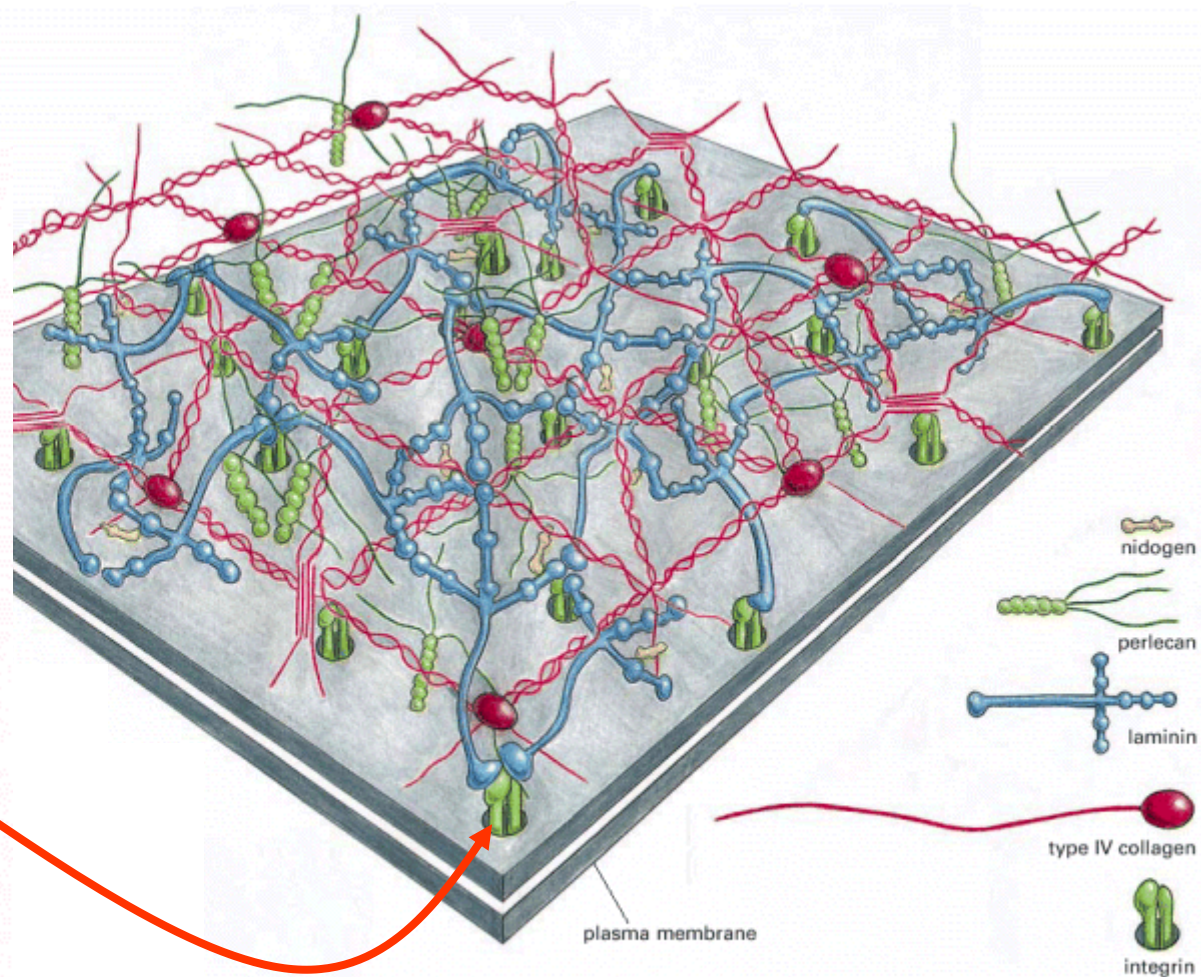
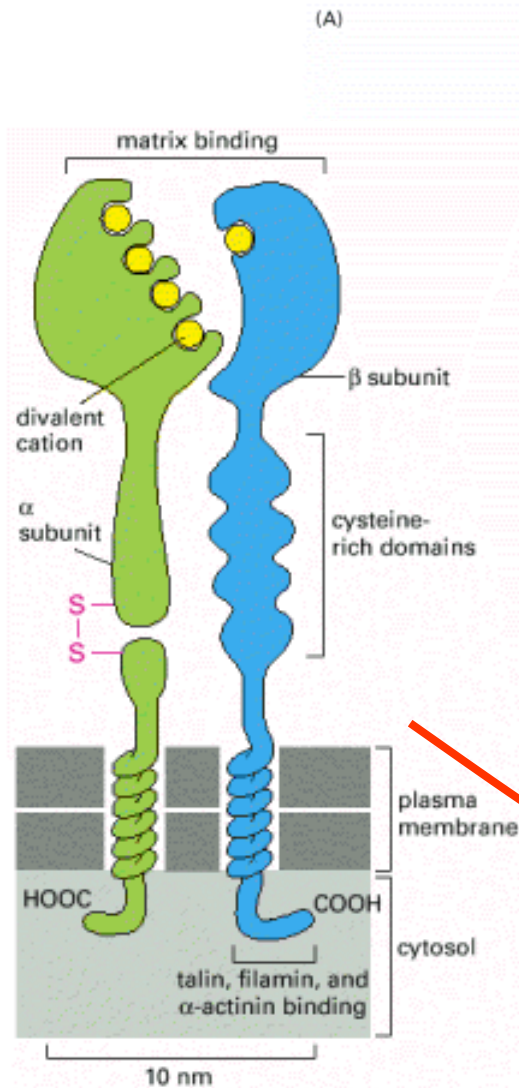
bONE - main component of bone

carTWOlage - main component of cartilage

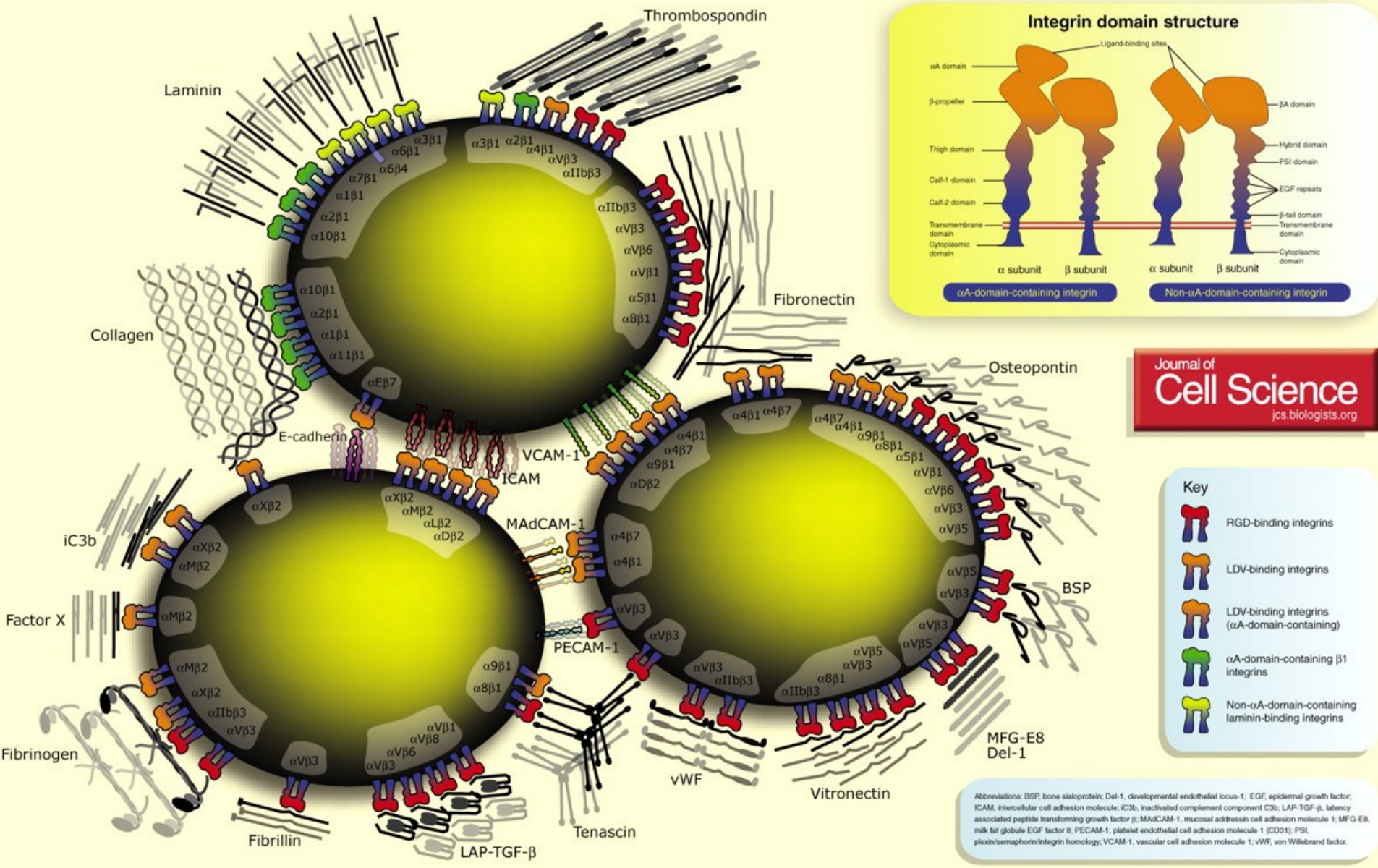
streTcHREE- flexible tissues (skin, lung, vascular)

FLOUR - forms the basement membrane

Integrins

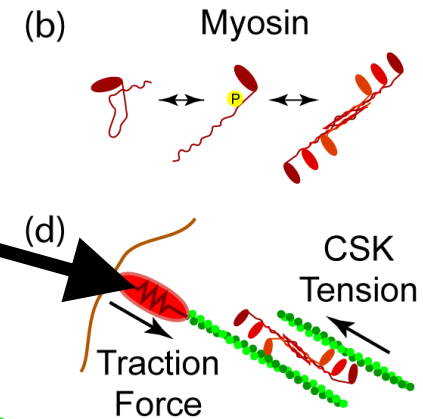
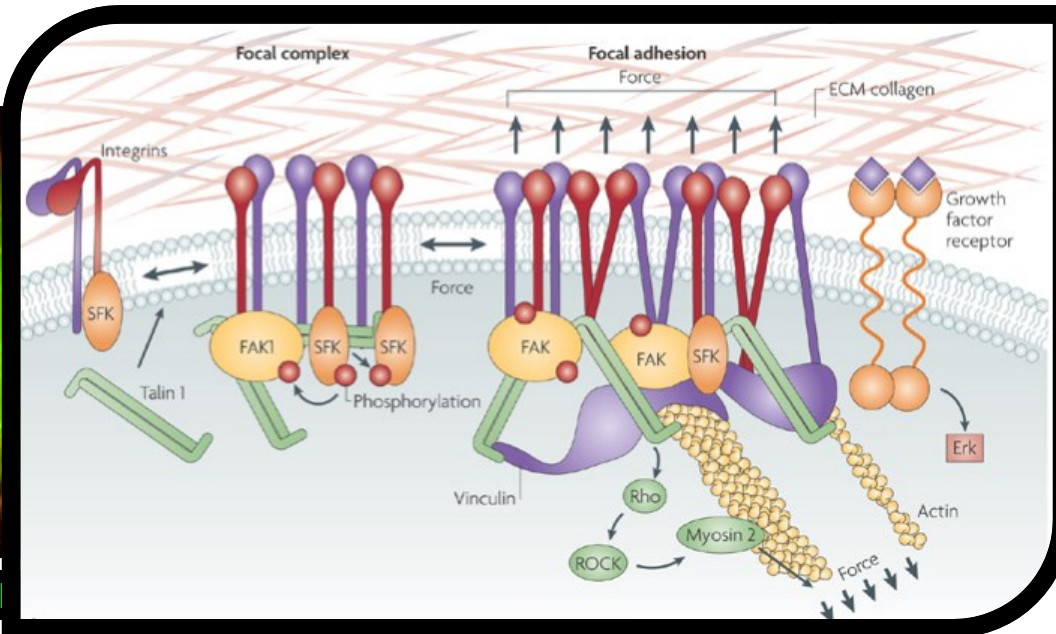
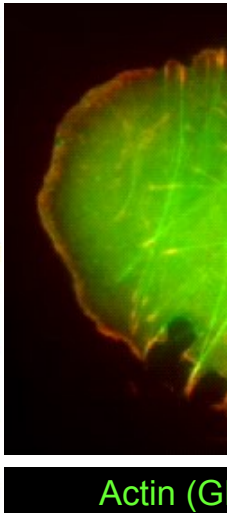


Integrin-ECM Binding



Focal Adhesions

- Mechanosensory protein complexes at the cell-ECM interface



Questions?