

Junctions

Junction	Transmembrane proteins	Cytoskeletal	Junction	Medical Significance
Tight / occluding (Seal, most apical)	Claudin and Occludin	actin filaments	• intercellular Seal, transcellular route • separates apical and basolateral	Defects in occludin ↓ * fetal blood-brain barrier * neurological disorders
Adherent junctions (Zonula adherens) <small>usually below Tight junction</small>	• <u>e-cadherin</u> of each cell in presence of Ca^{++} ↳ bind <u>catenins</u> that link to actin with actin binding protein	actin	linking cytoskeleton of adjacent cells strengthening the tissue	loss of e-cadherin ↓ epithelial tumor [carcinomas]
Desmosomes or macula adherens	* Cadherin family called <u>desmogleins</u> & <u>desmocollins</u> ↳ bind <u>catenin-like</u> proteins to intermediate filament	intermediate filament (keratins)	Strong intermediate coupling between adjacent cell, strengthening the tissue	autoimmunity against desmoglein → * dyshesive skin disorders → reduced cohesion in epidermal
Gap junctions	<u>Connexins</u> → form hexameric complexes called <u>connexons</u>	_____	intercellular communication ↳ direct transport of small molecules from one cell to another	maturation in connexin genes ↓ deafness & peripheral neuropathy
Hemidesmosomes	↳ <u>integrins</u> ↳ bind primarily to laminin	intermediate filament	anchors cytoskeleton to basal lamina	maturation in integrin β_4 gene ↳ epidermolysis bullosa → skin blistering disorder