Intermediate filaments

cuz intermediate size

diseases

- keratin genetic mutations
  - ↳ blisters in rats
  - ↳ epidermolysis bullosa simplix (Human)
- Amyotropic lateral Sclerosis (ALS)
  - ↳ due to problems in NF, keratins, ABP, MMP

functions

1. provides mechanical strength
2. scaffold that integrates AF & MT
3. organize internal structure of cell (mainly nucleus)

- Not dynamic → stable unlike MT & AF

Types

- in cell cytoplasm soft
- nails & hard hair ↑S-S ↑strength

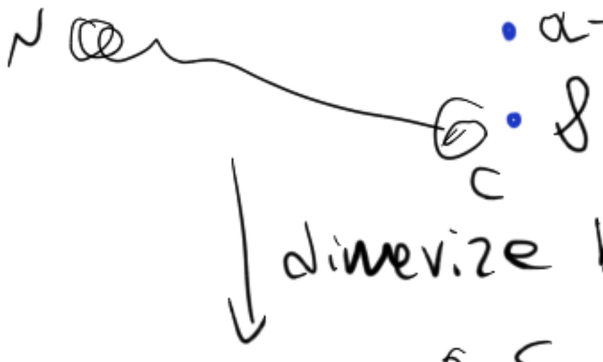
→ like keratin

I	acidic	epithelium
II	basic	
III	*vimenten	SM, fibroblasts, WBCs, mesenchyme
	desmin	muscles
IV	NF	neuron axon
V	*lamins	Nuclear envelope component

*vimenten & lamins are regulated via phosphorylation at termini → leads to dissociation at ends.

Structure

- Polypeptide
- α-helical center rod
- & C, N termini → their diff → 2° Seq. size } determine function



nucleus	* keratin * Vimenten * lamins → component of NE	} anchoring NE
muscle	- desmen	connects actin fils together & to the PM → synchronise contractility
neurons	- NF	bridge actin fils & MT together to provide stability
epithelium	- desmosomes • Cell-Cell • like adherins junctions	IF connect to cadherin-like transmembrane proteins & intermediate binding proteins
	- hemidesmosomes • Cell-Substratum • like focal adhesion	IF connect to integrins (transmembrane receptors) & intermediate fil. binding protein