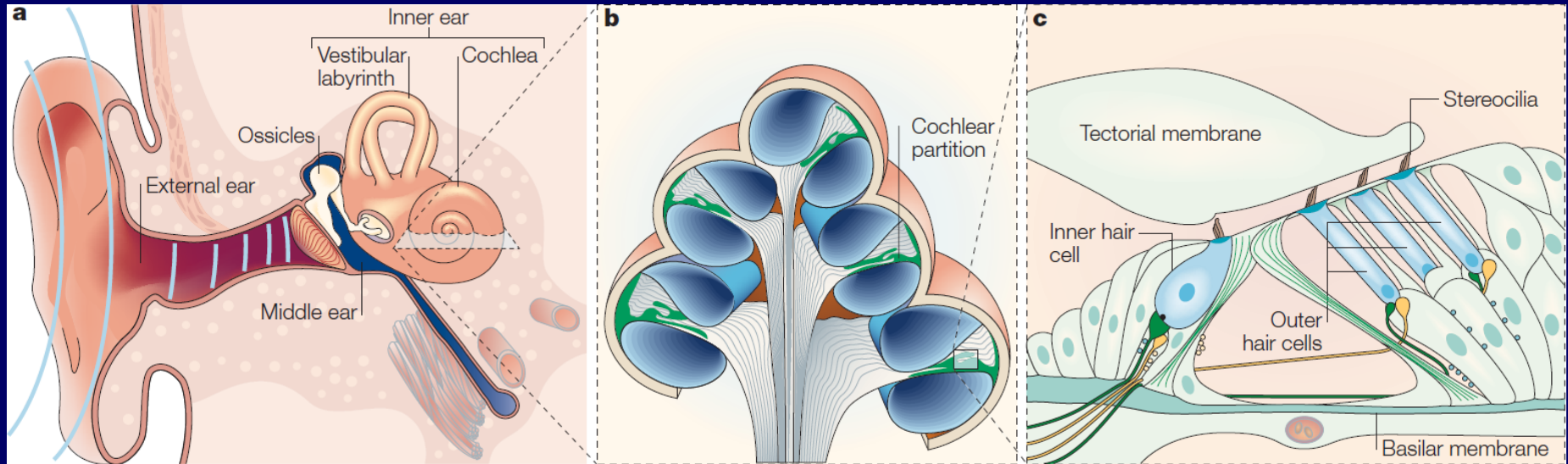


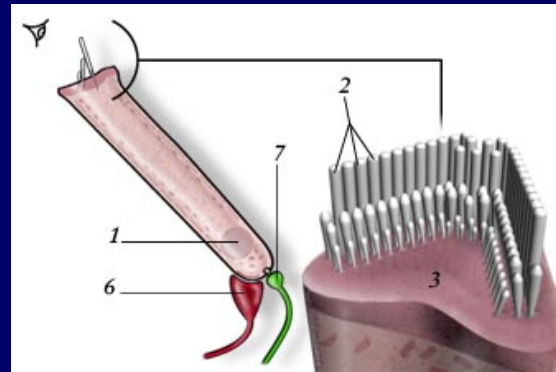
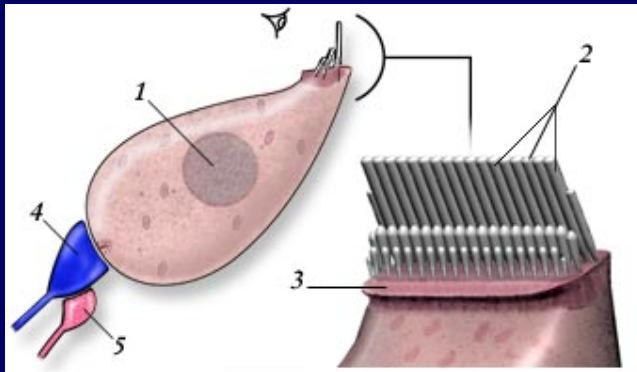
Adaptation beyond the primary sensory cells in the visual and auditory system (Adaptation of hair cells)

Csaba Harasztosi

Anatomy

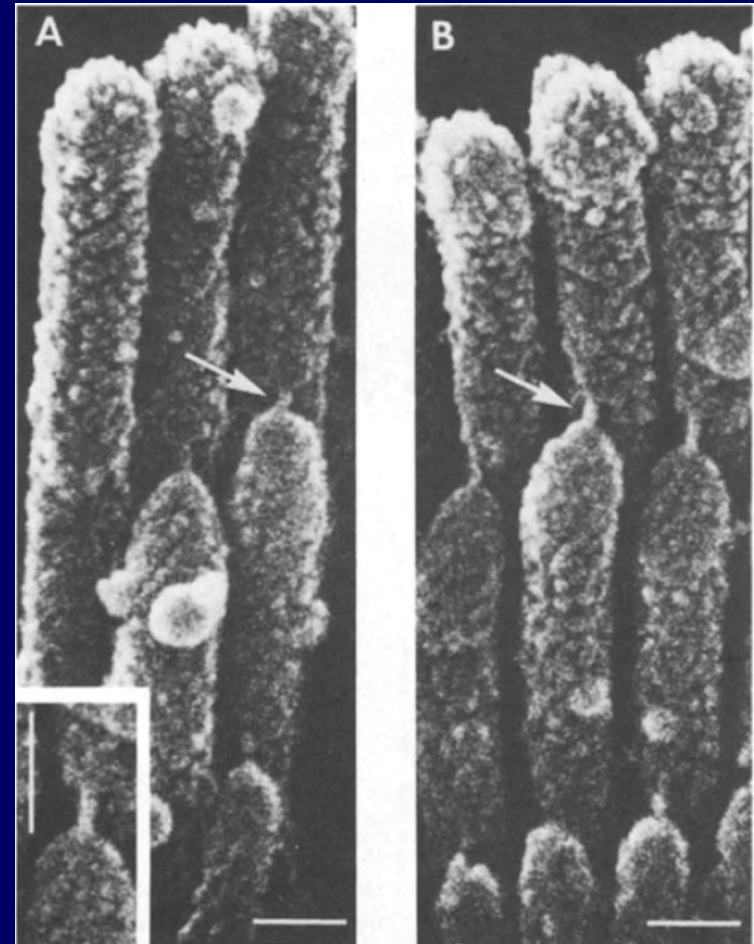
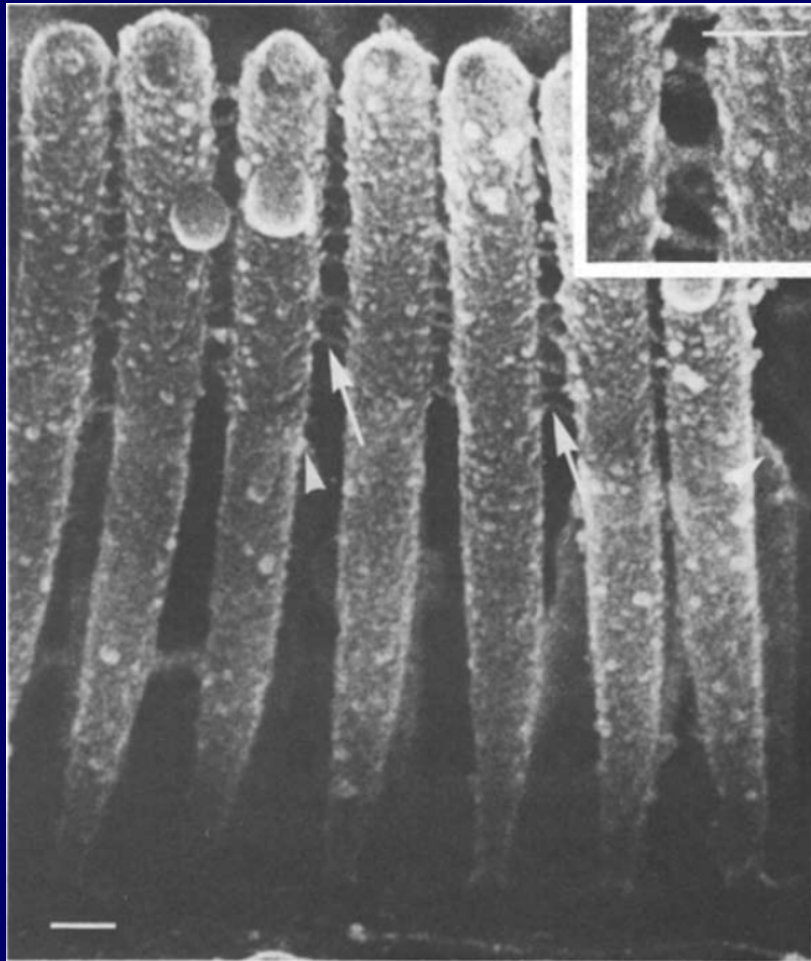


Frolenkov 2004

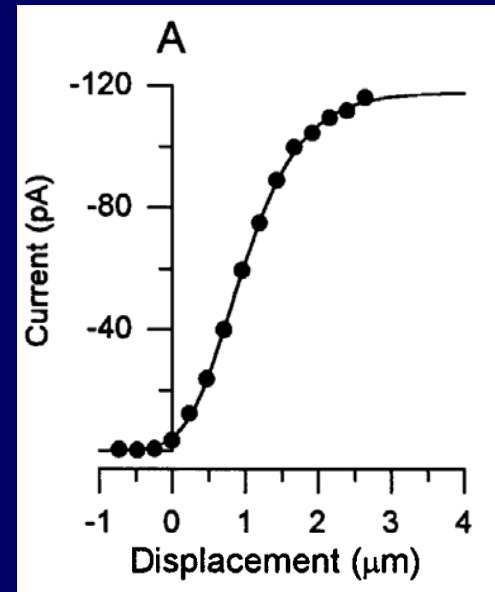
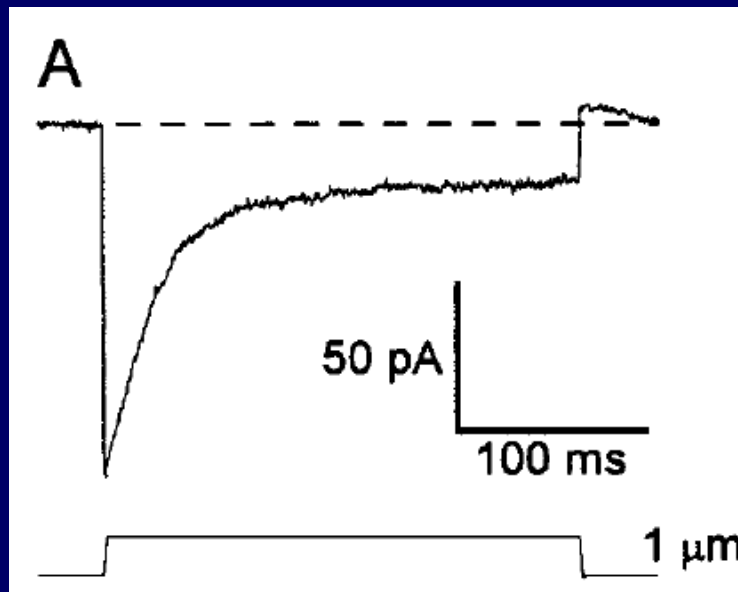
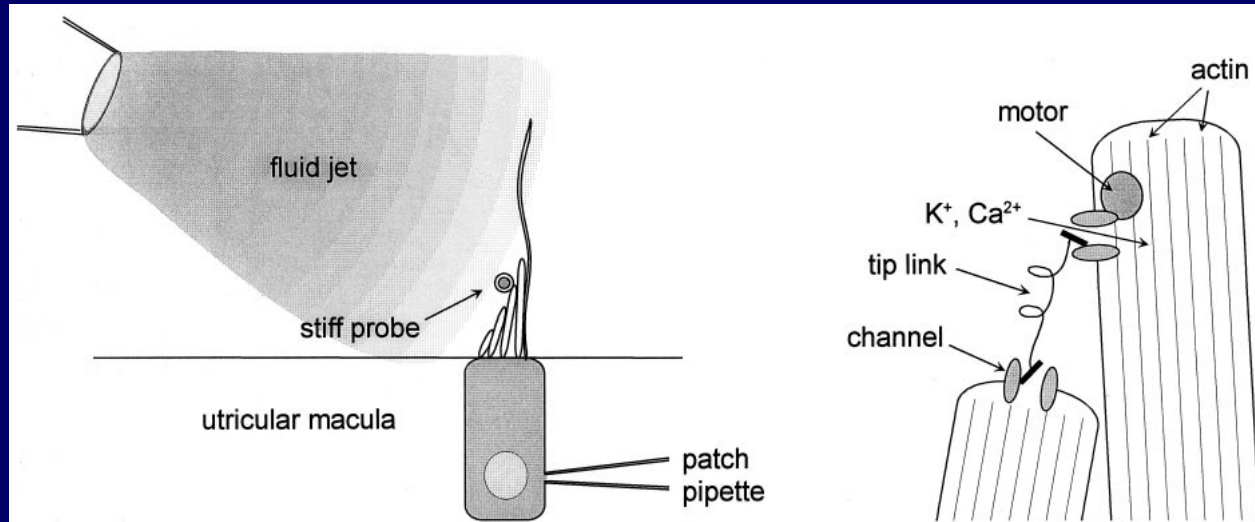


S. Blatrix

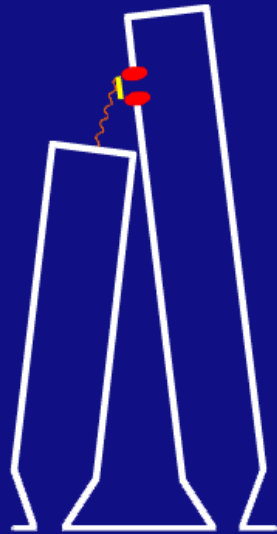
Side and tip links



Receptor current of utricular hair cells



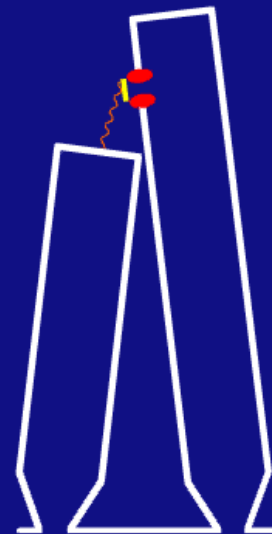
Adaptation modell



Mechanical stimulus



Transduction current

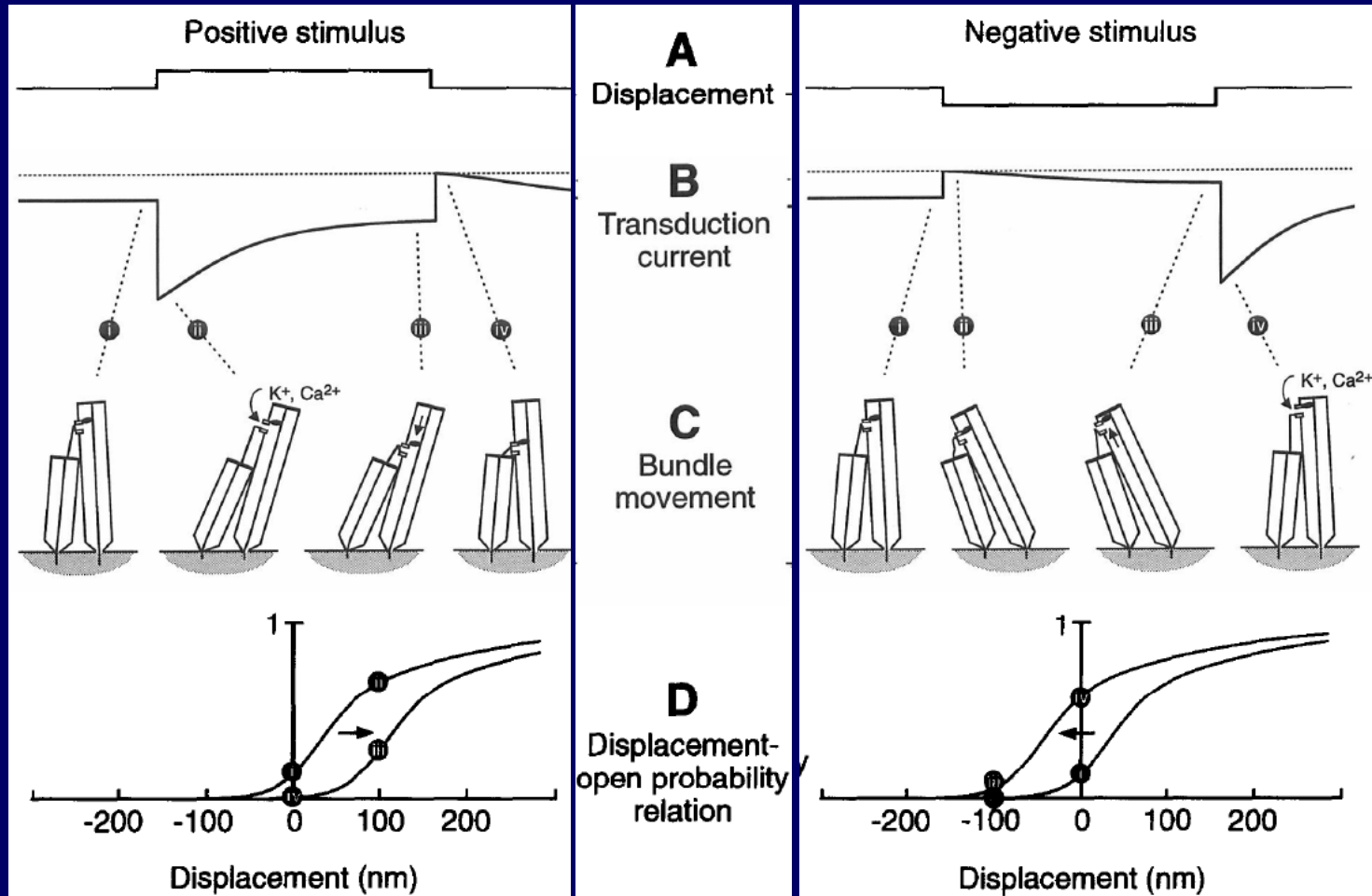


Mechanical stimulus

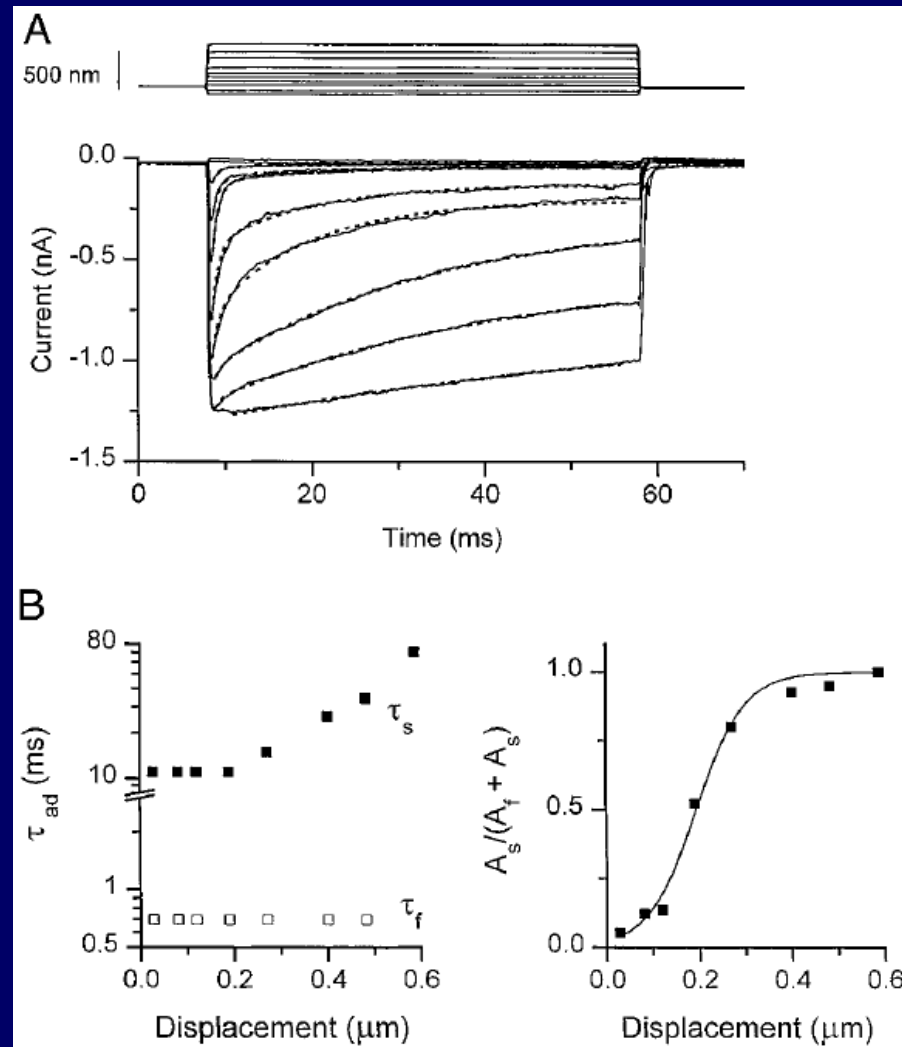


Transduction current

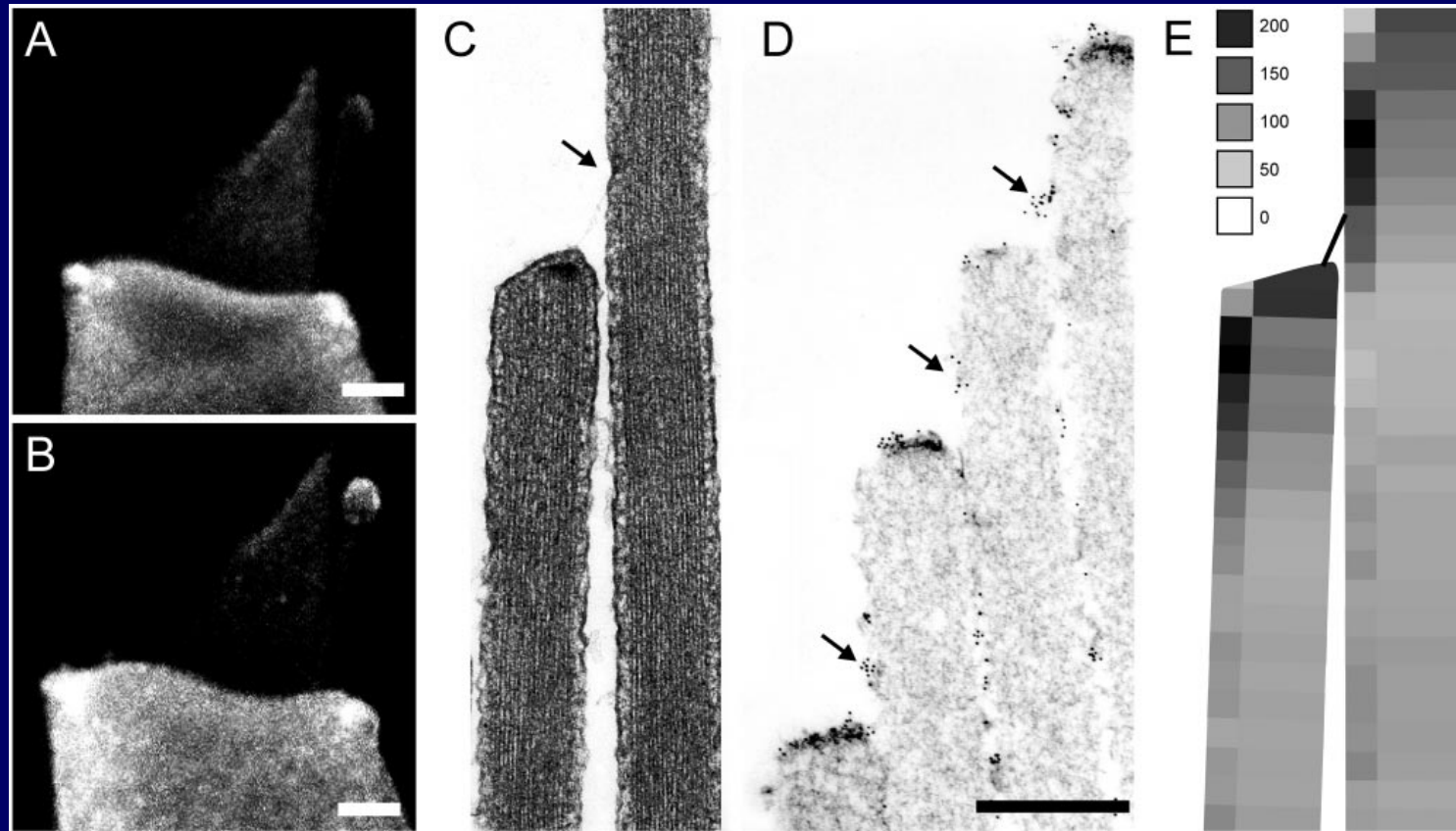
Adaptation



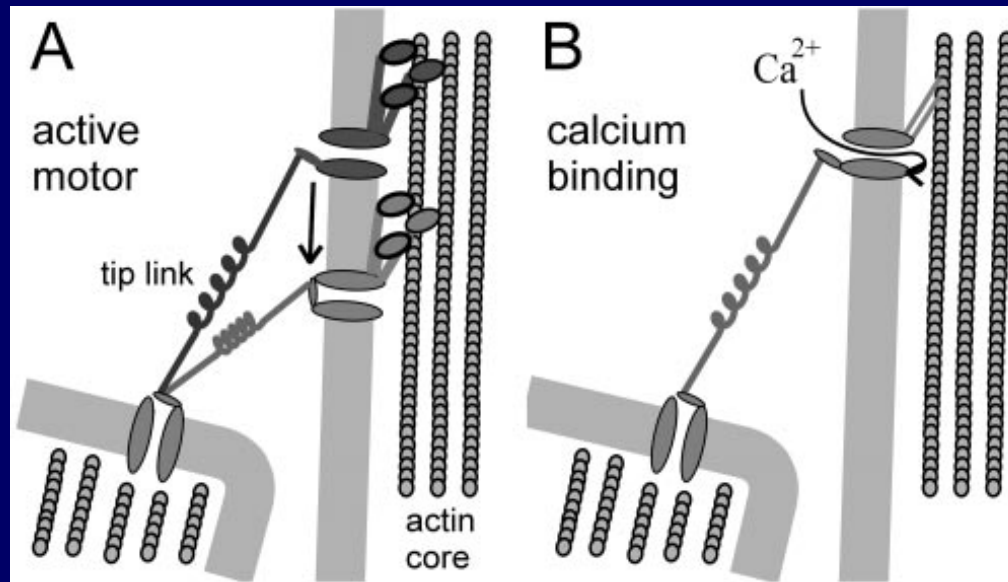
Two components of adaptation



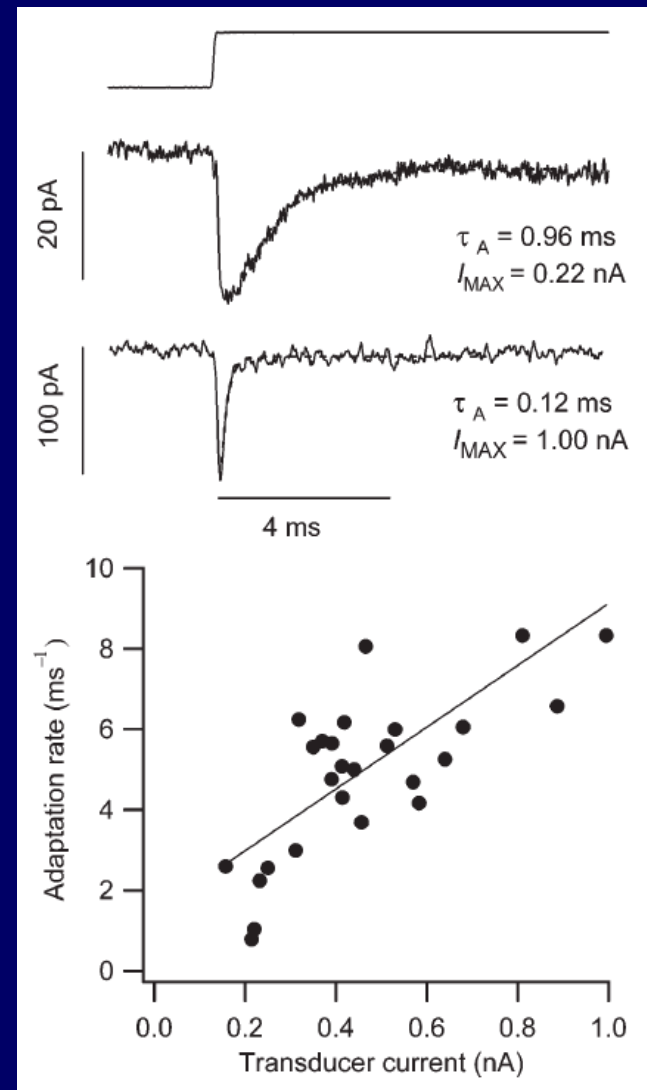
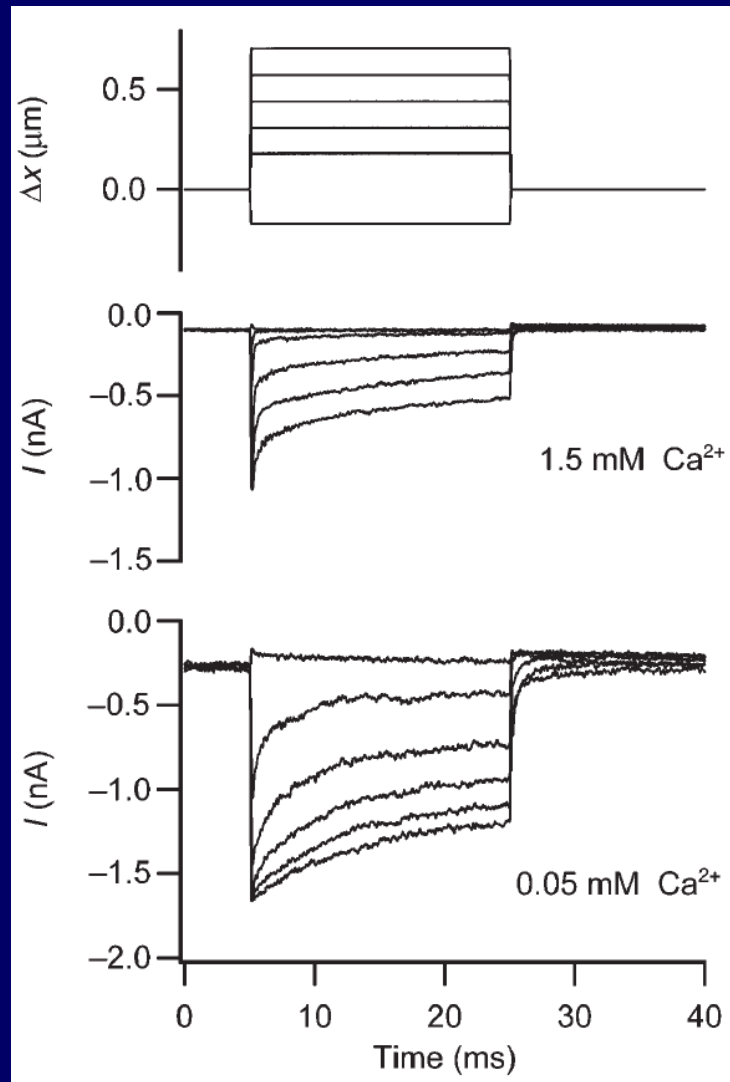
Myosin isoforms at both ends of tip link



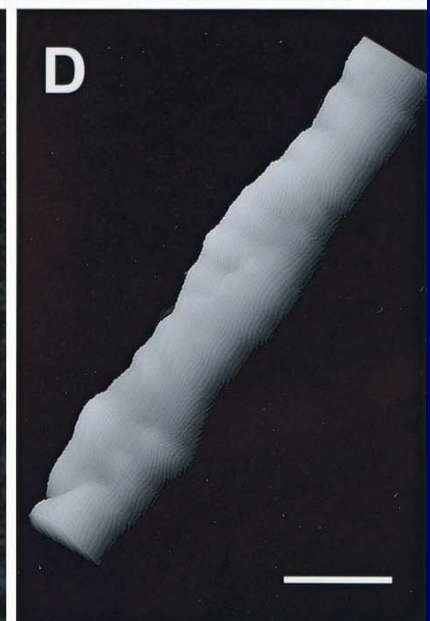
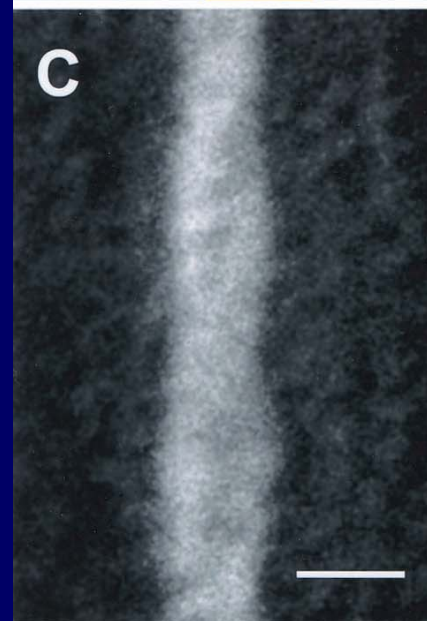
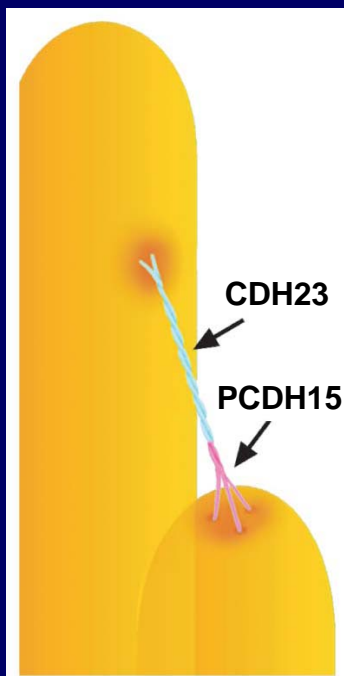
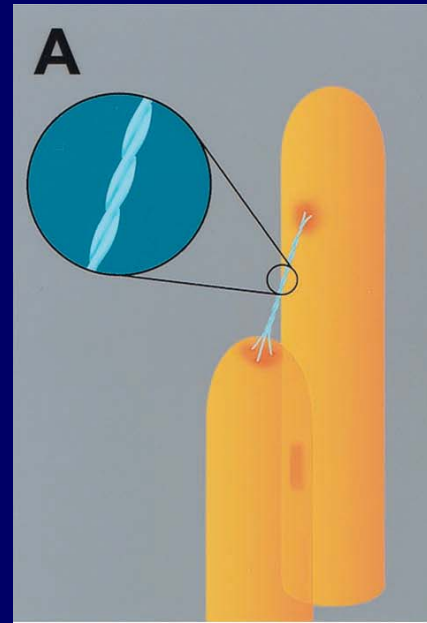
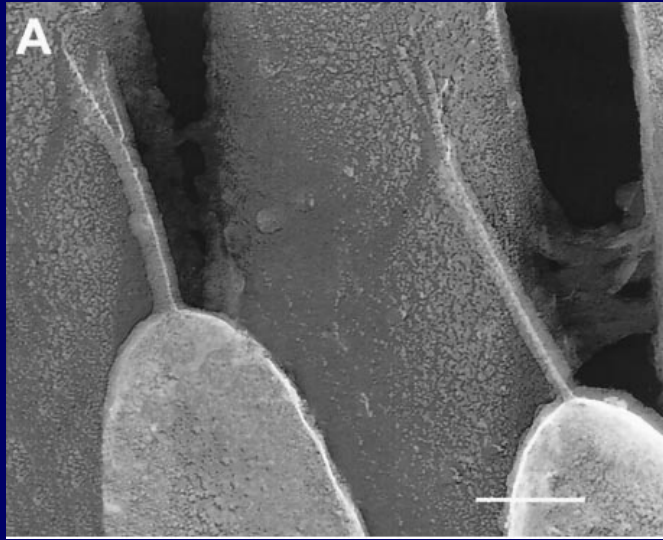
Two mechanisms of adaptation



Adaptation is Ca^{2+} dependent



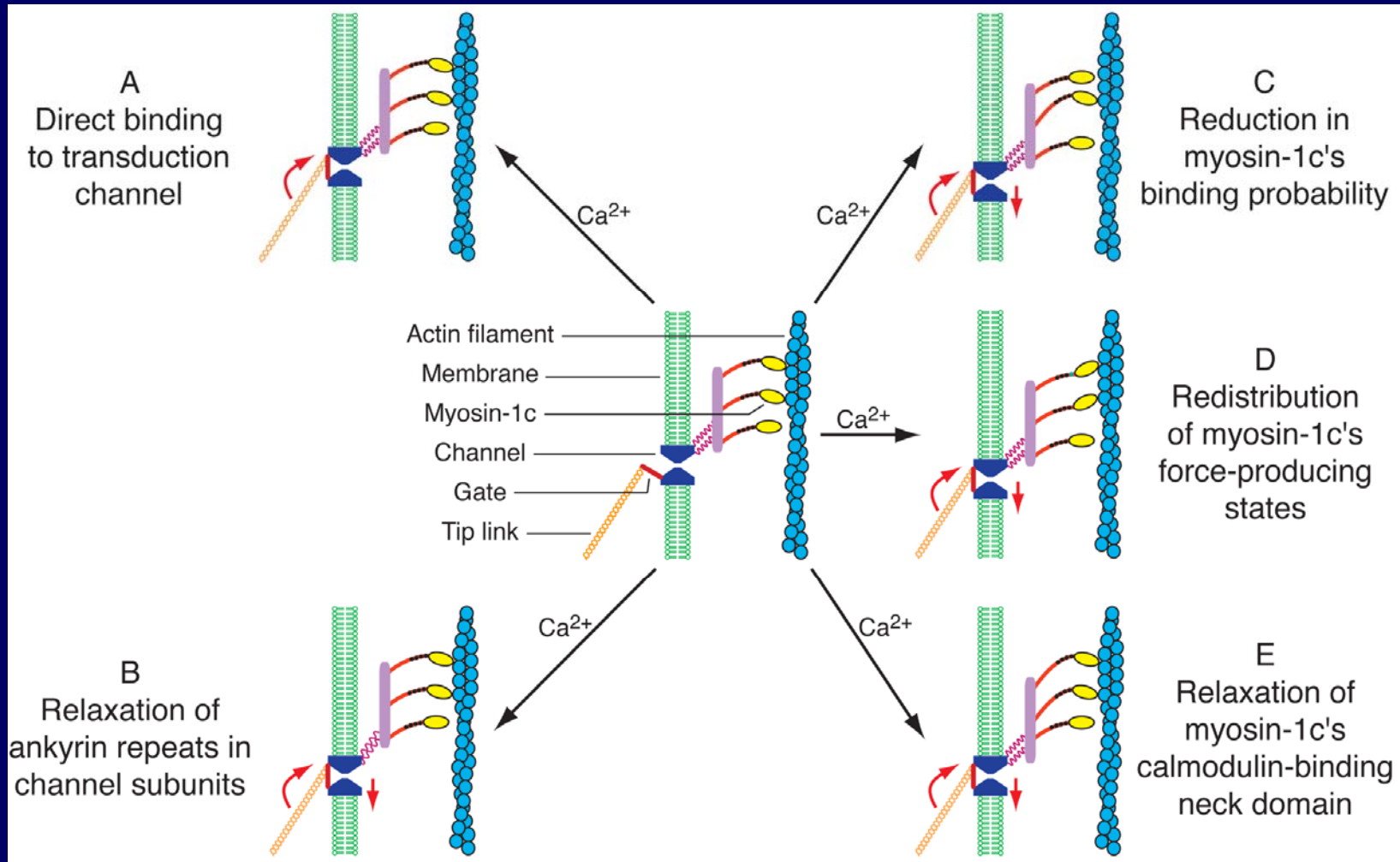
Tip link



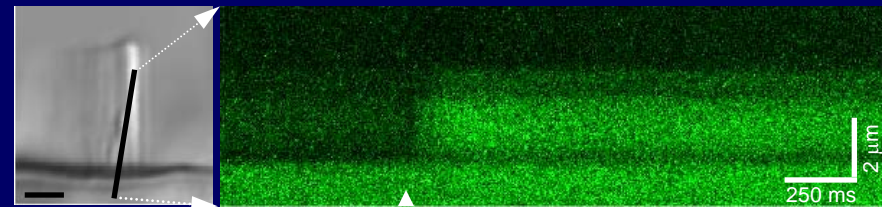
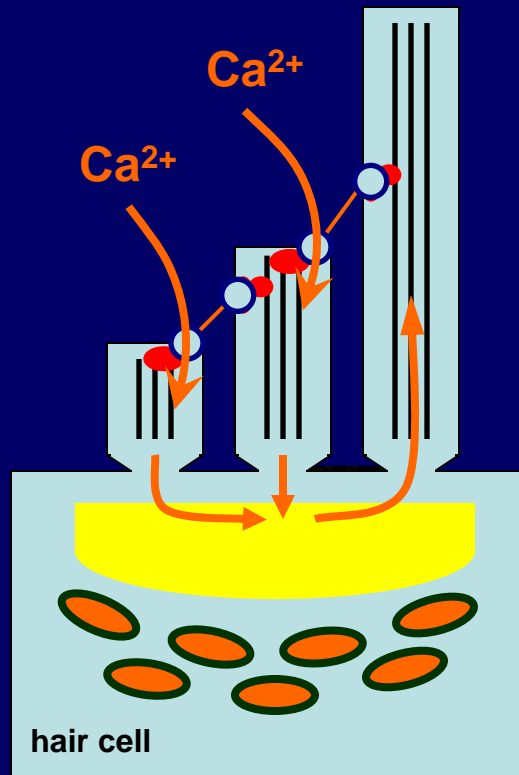
Kazmierczak et al. 2007

Kachar et al. 2000

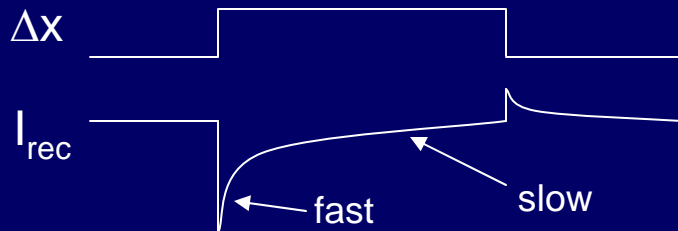
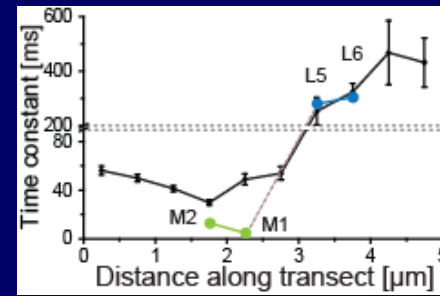
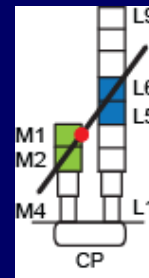
Possible mechanisms of Ca^{2+} -induced adaptation



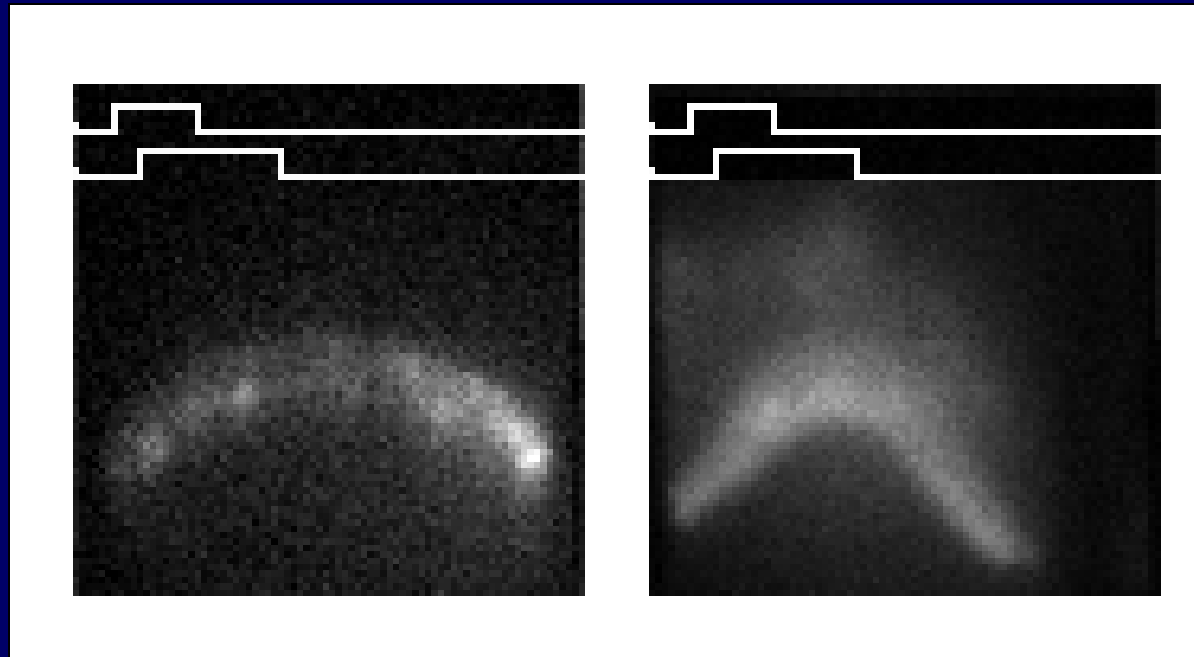
Location of MET channels



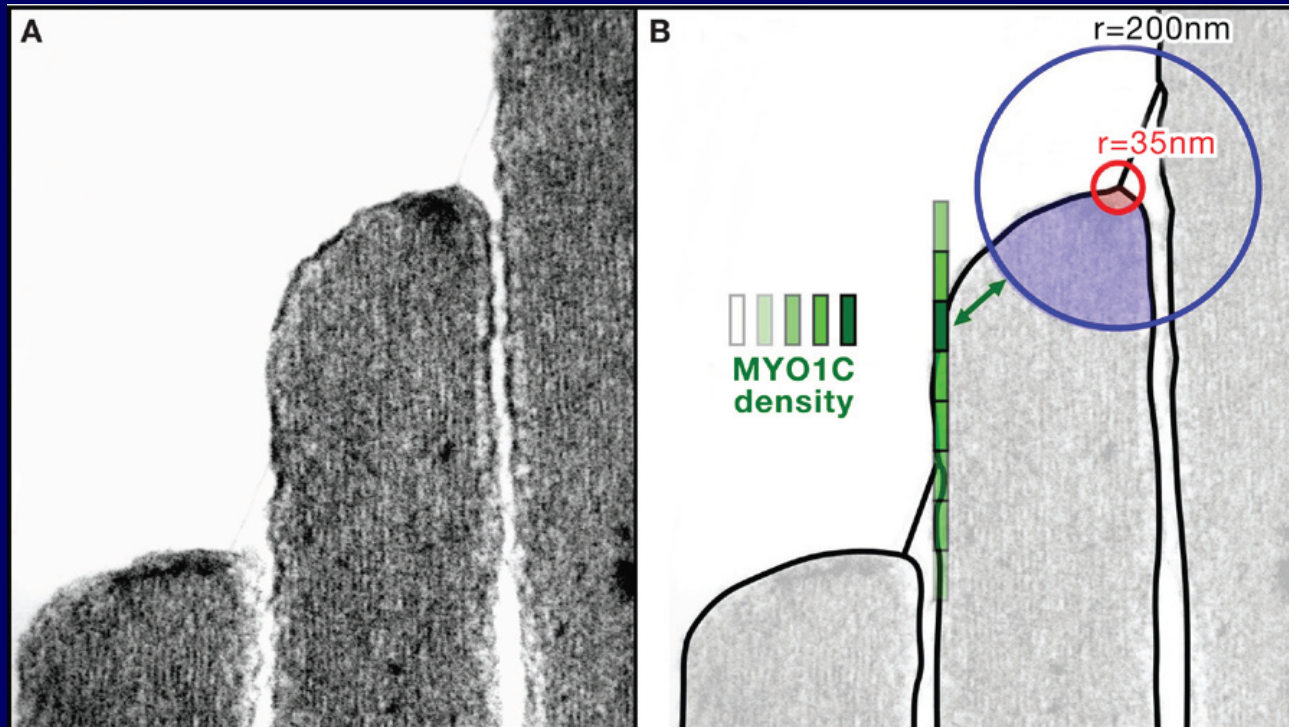
time



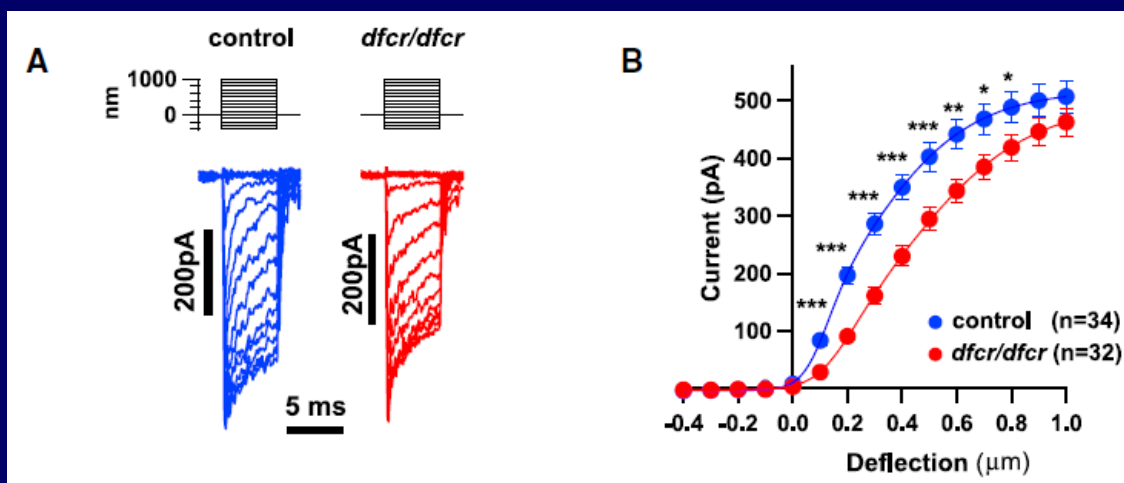
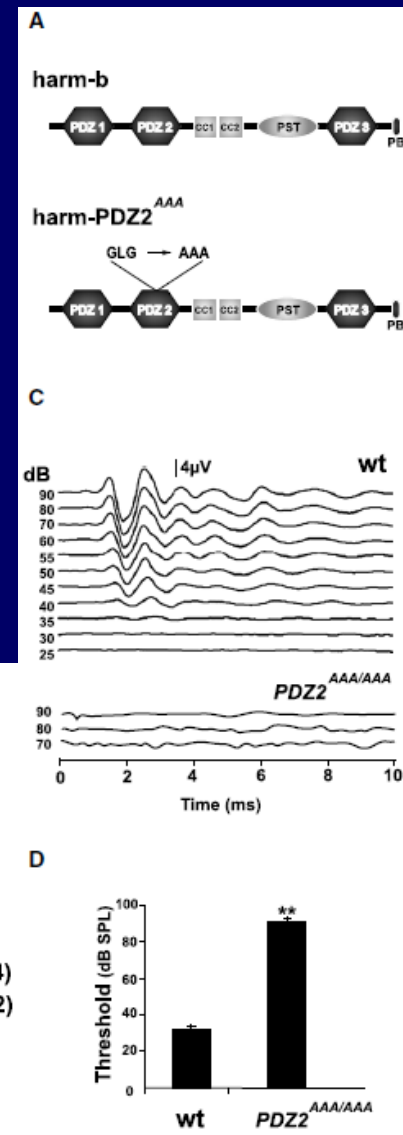
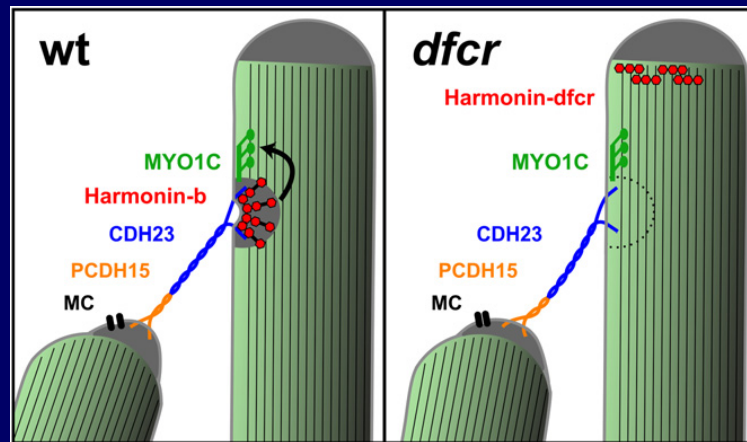
Ca²⁺ flux into the hair bundle



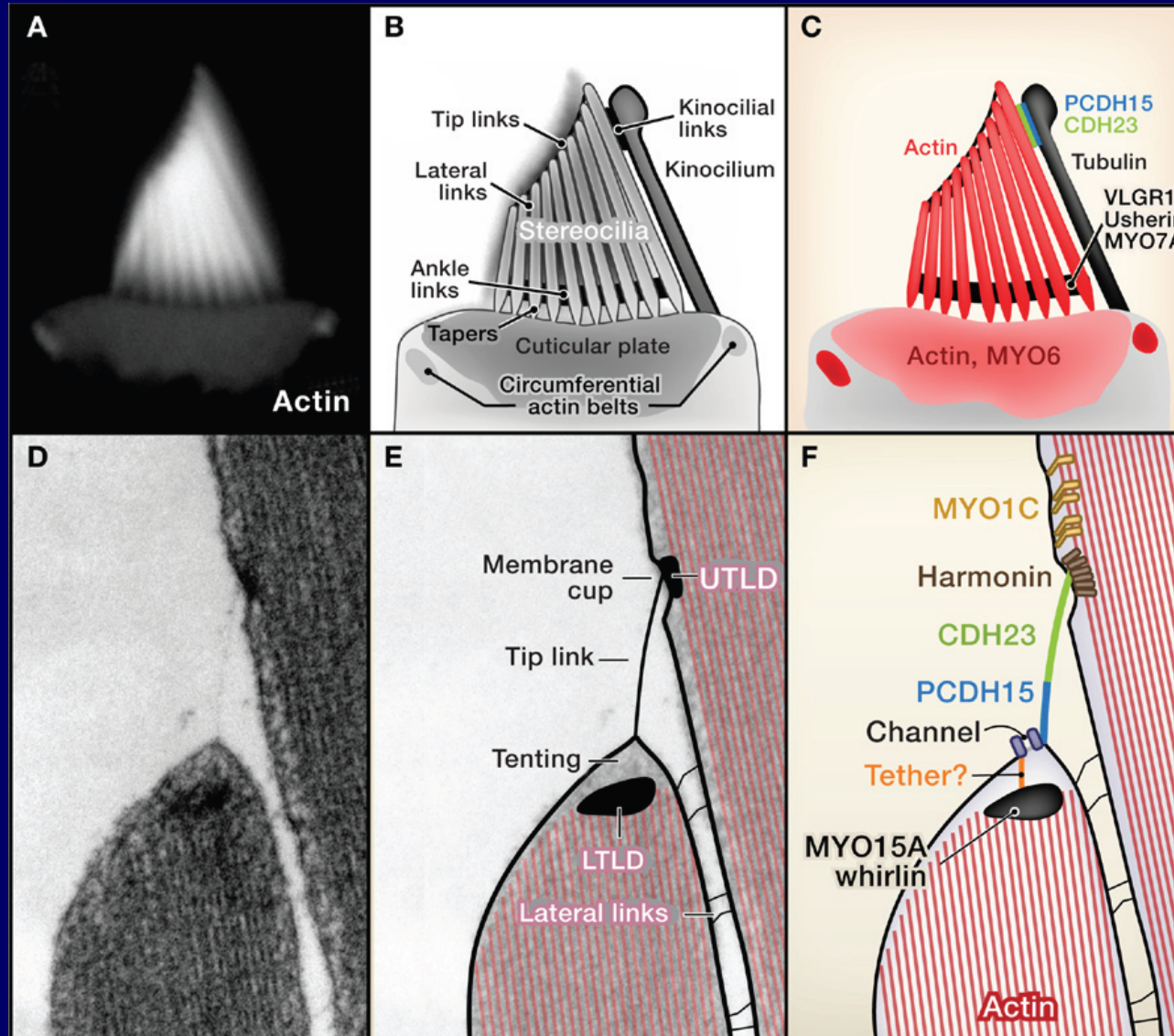
Ca²⁺ diffusion during adaptation



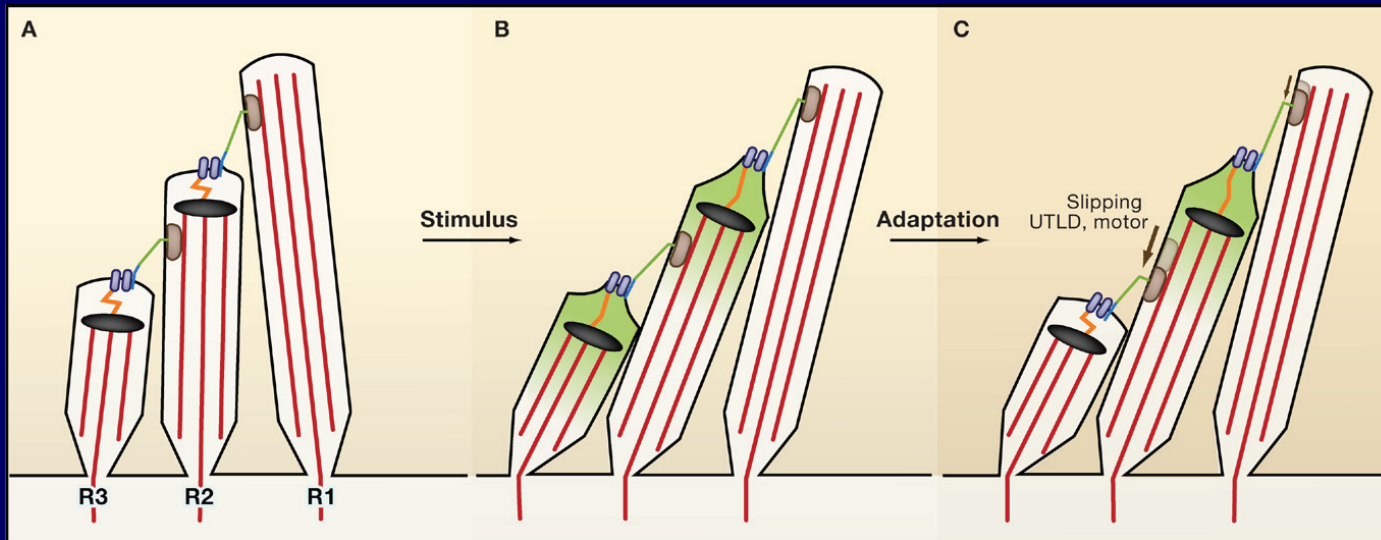
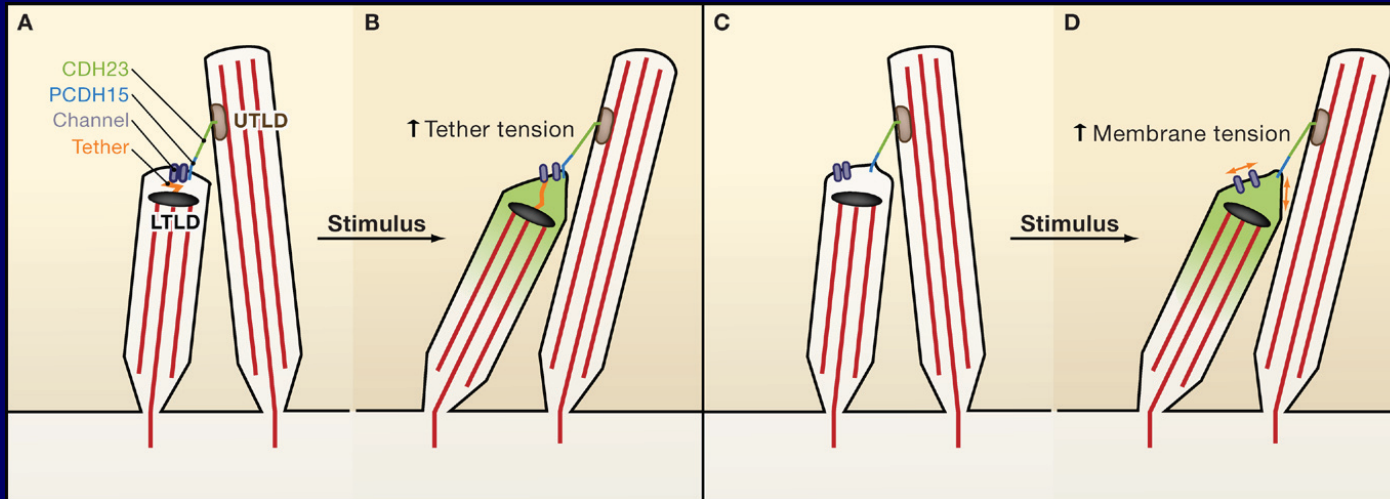
Harmonin mutation cause mechanotransduction defects



Key molecules of adaptation



Transduction models



Thank You!

