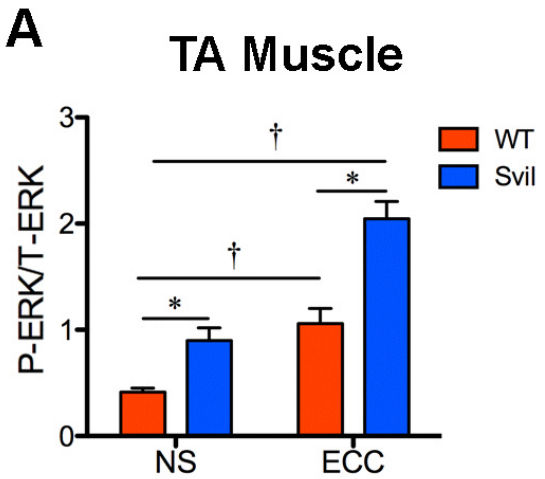
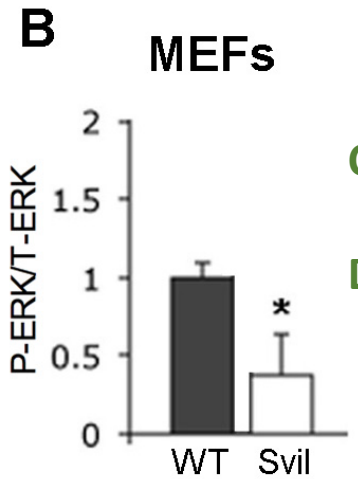
Mechanosensing & Survival Signaling

Loss of Svil isoform C-terminus increases pERK/ERK in skeletal muscle and decreases ERK signaling in Mouse Embryonic Fibroblasts.

Opposite to side effects on pERK signaling in chemo-therapy

Also seen in Limb-Girdle Muscular Dystrophies





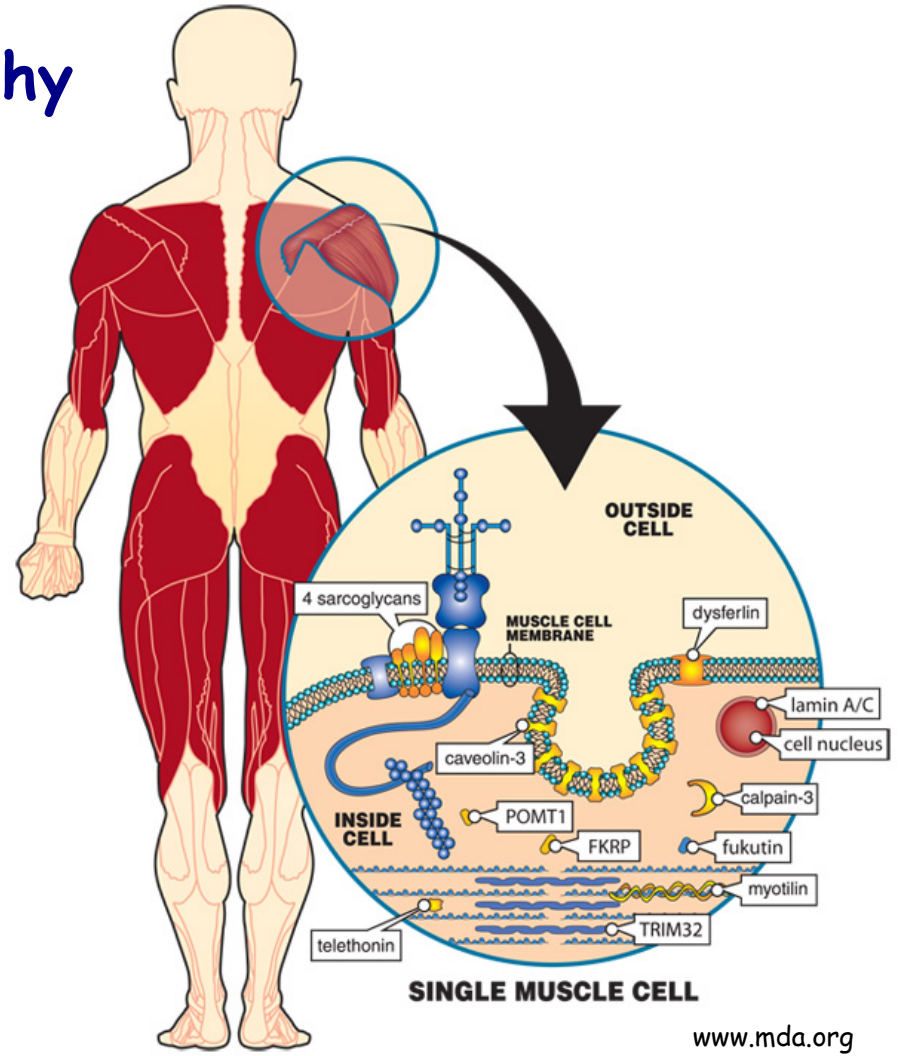
Causes cell death

Desirable in tumors

(Barton & Luna labs, NIH R01 AR069660)

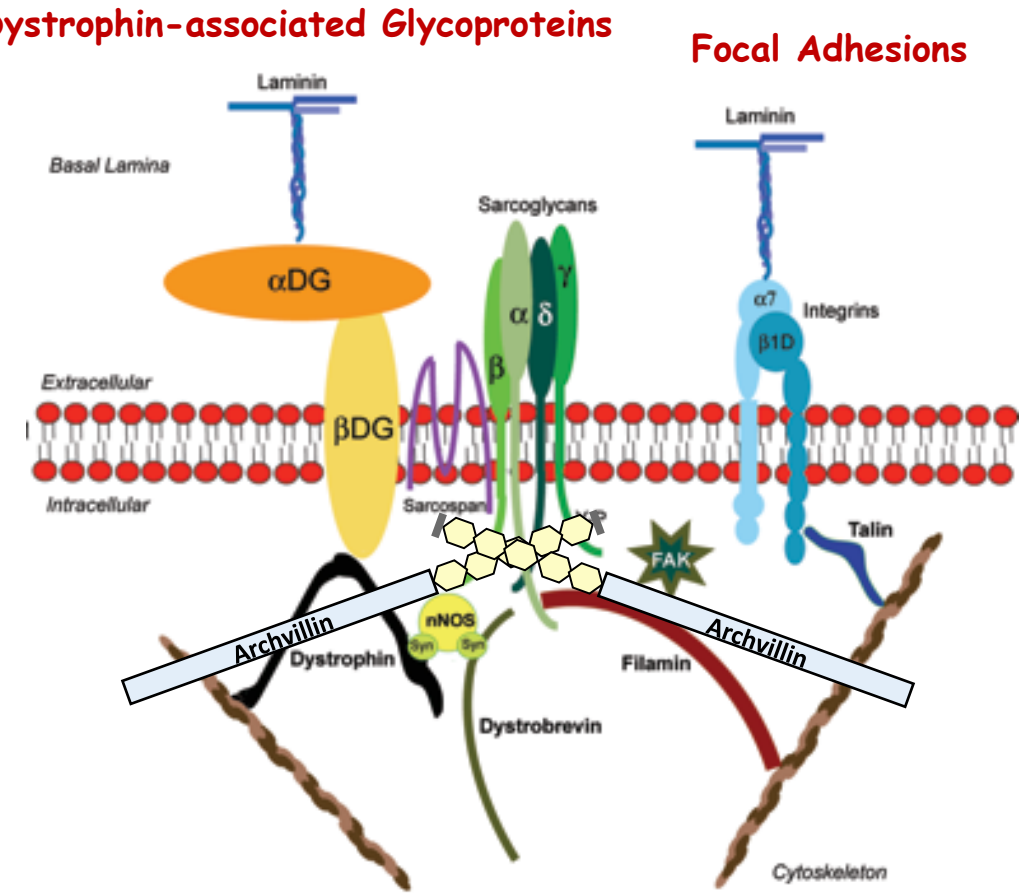
Limb-Girdle Muscular Dystrophy

- Multiple forms, ≥ 30 genes
- Prevalence: 4 - 7 / 100,000
- Autosomal dominant (LGMD1) or autosomal recessive (LGMD2)
- Age of onset: all (75%, 5-20 yr), diff. due to "genetic modifiers"
- Progressive, starts with proximal muscles
- Symptoms can overlap with those of FSHD or DMD carriers
- Free genetic test at lgmd-diagnosis.org; ~3 new genes/yr



Proteins in the Muscle Sarcolemma (Plasma Membrane)

- Identified **archvillin** as a link beween dystrophin & sarcoglycans
- Binds & regulates focal adhesions
- Scaffold for ERK activation
- Muscle-specific interactors
- Matrix stiffness detector
- Genetic modifier of LGMD and other MD symptoms (?)



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Trainer, wide-field microscope
Cell culture room, S7-231

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