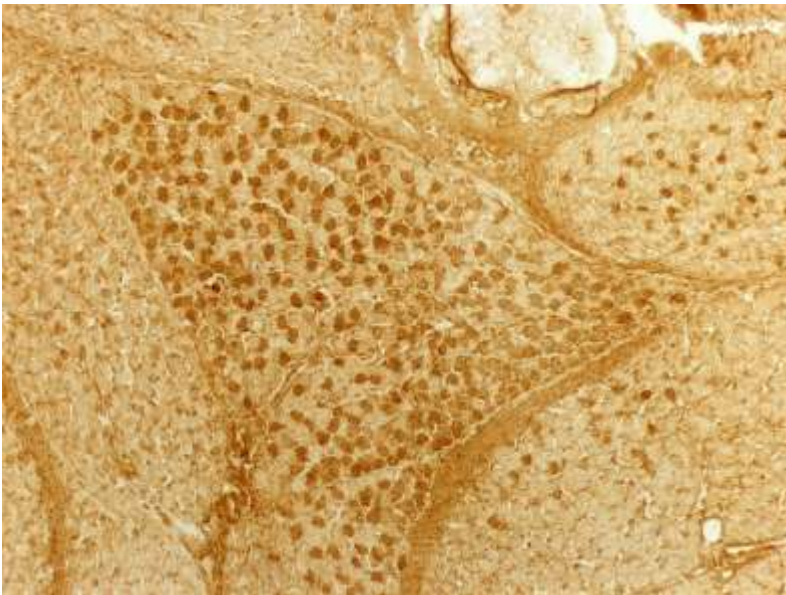


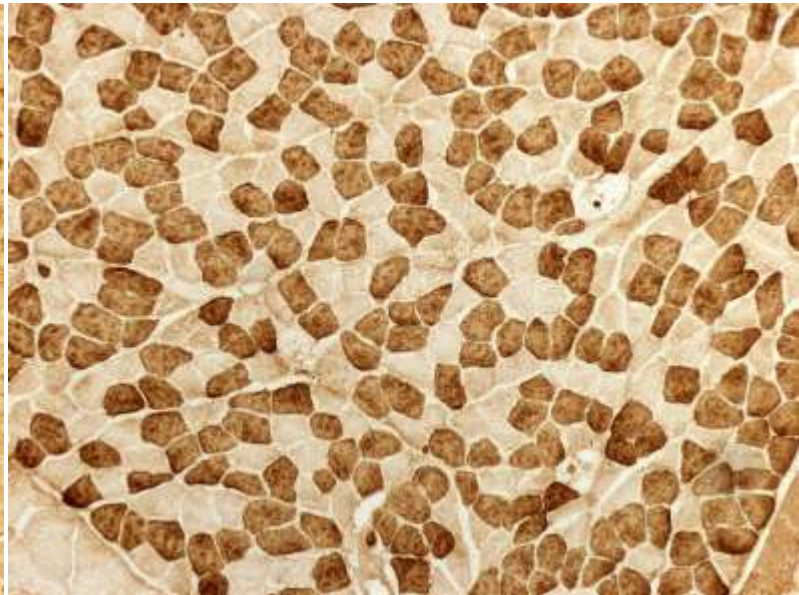
Exercise 1: Estimate the degree of MATURATION
HYPERTROPHY that occurs in mouse SOLEUS
muscle fibres between birth and adulthood

Images taken at same magnification – low power

BIRTH



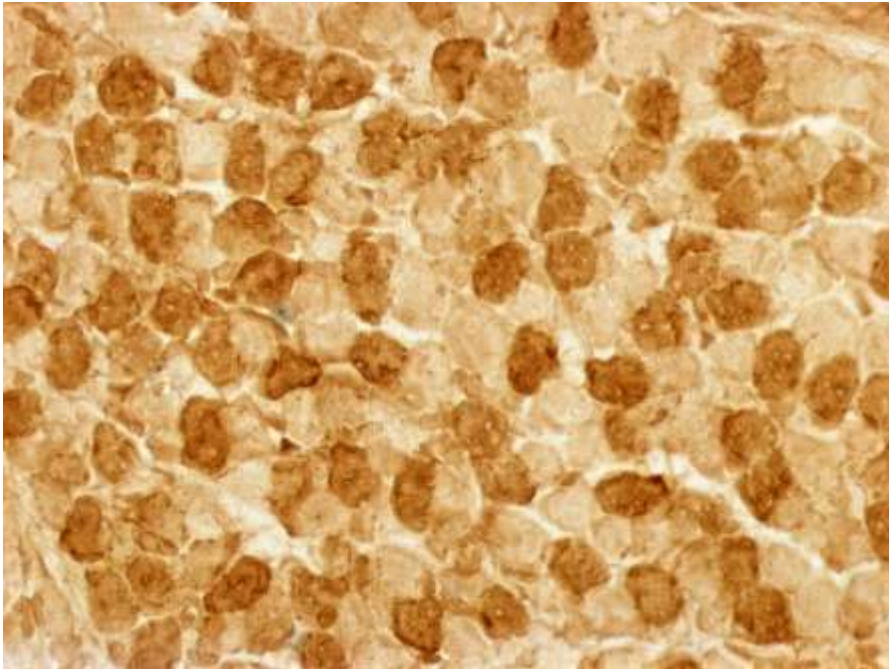
ADULT



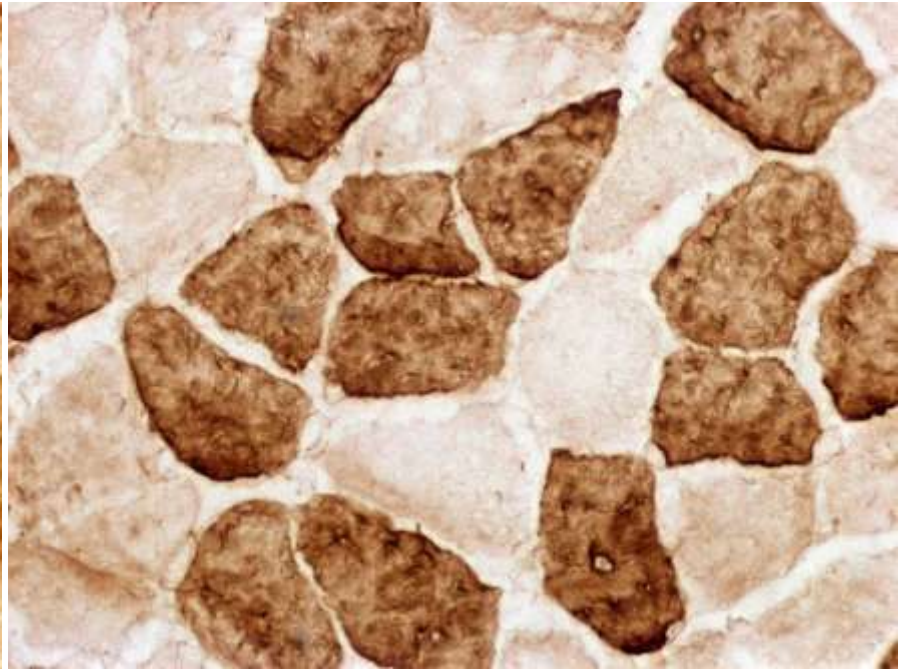
Exercise 1: Estimate the degree of MATURATION HYPERTROPHY that occurs in mouse SOLEUS muscle fibres between birth and adulthood

Images taken at same magnification – HIGH power

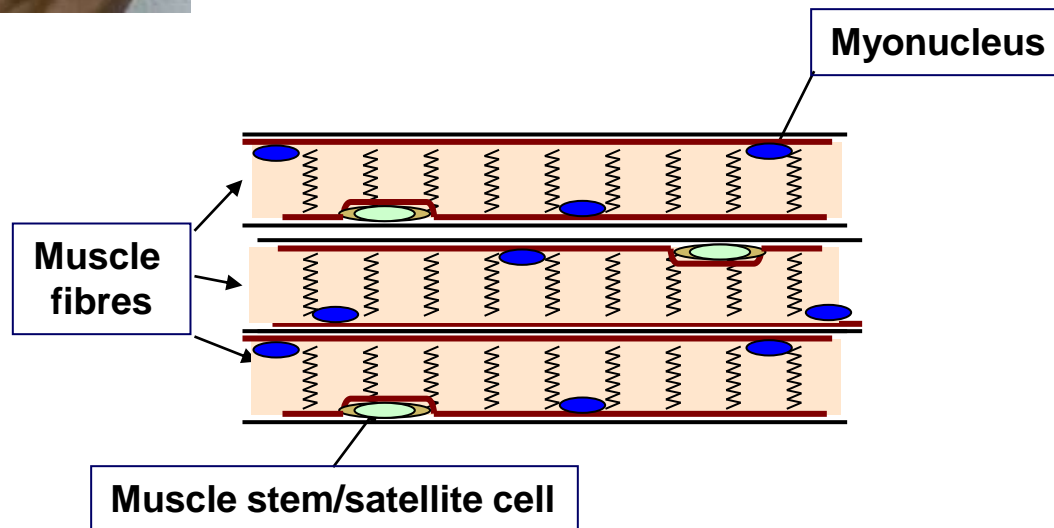
BIRTH



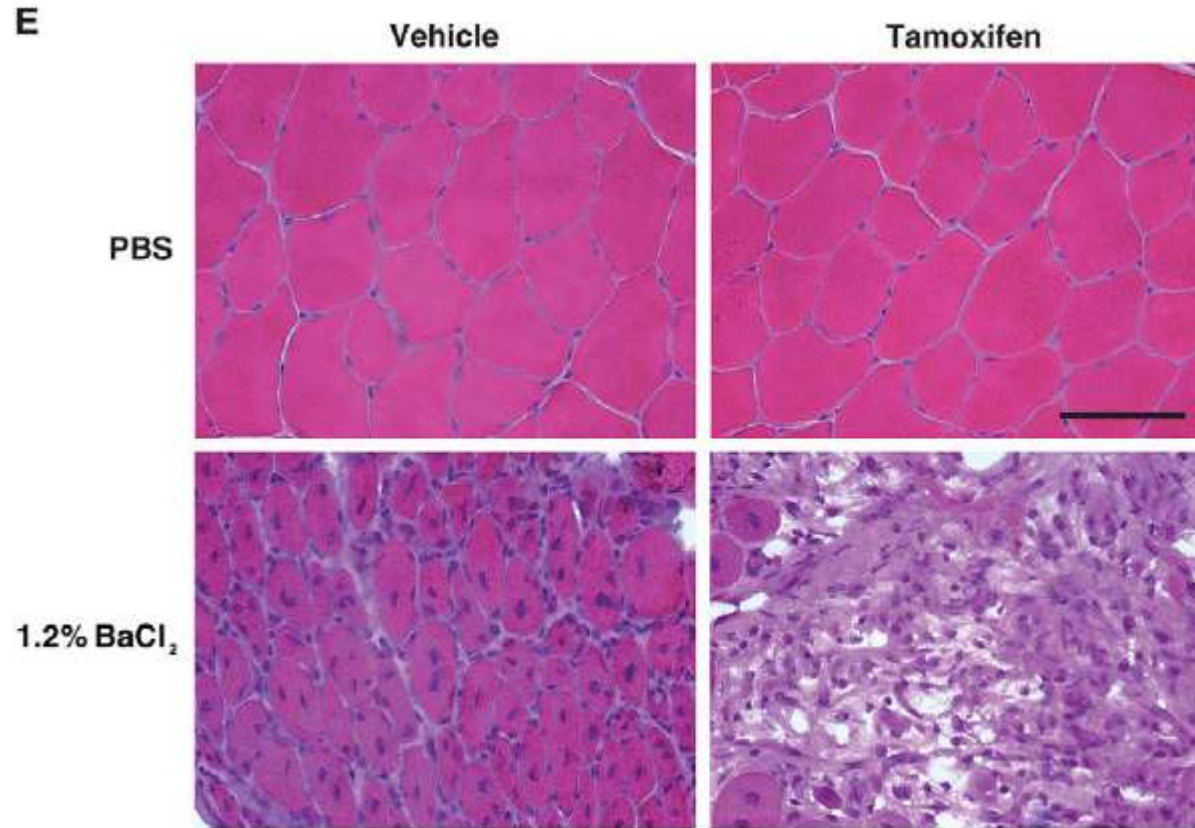
ADULT



Exercise 2: Are satellite cells necessary for muscle hypertrophy?



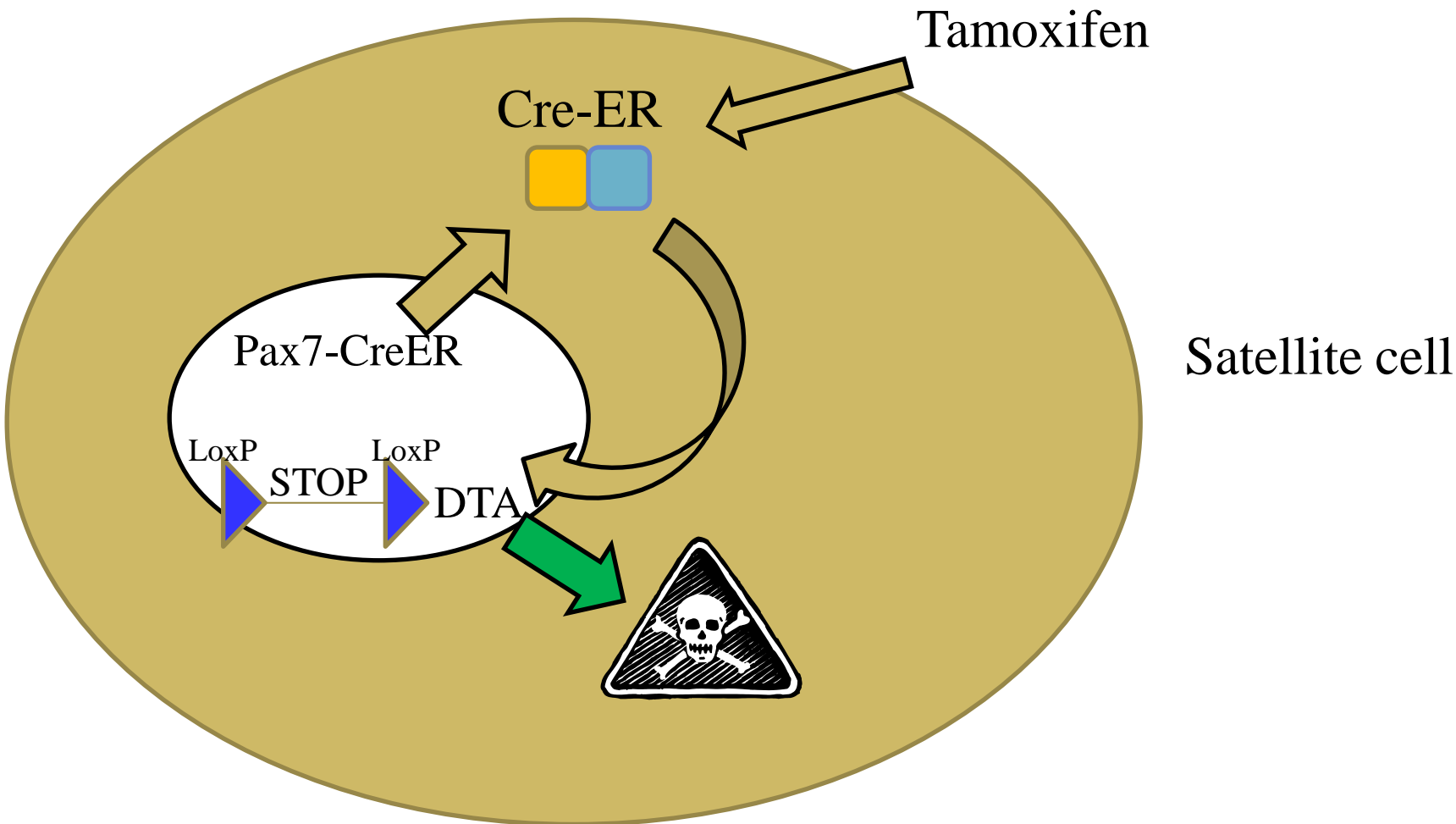
$Pax7^{CreER/CreER}$ mice crossed with Floxed DTA mice
Treated with Tamoxifen to induce the Cre expression



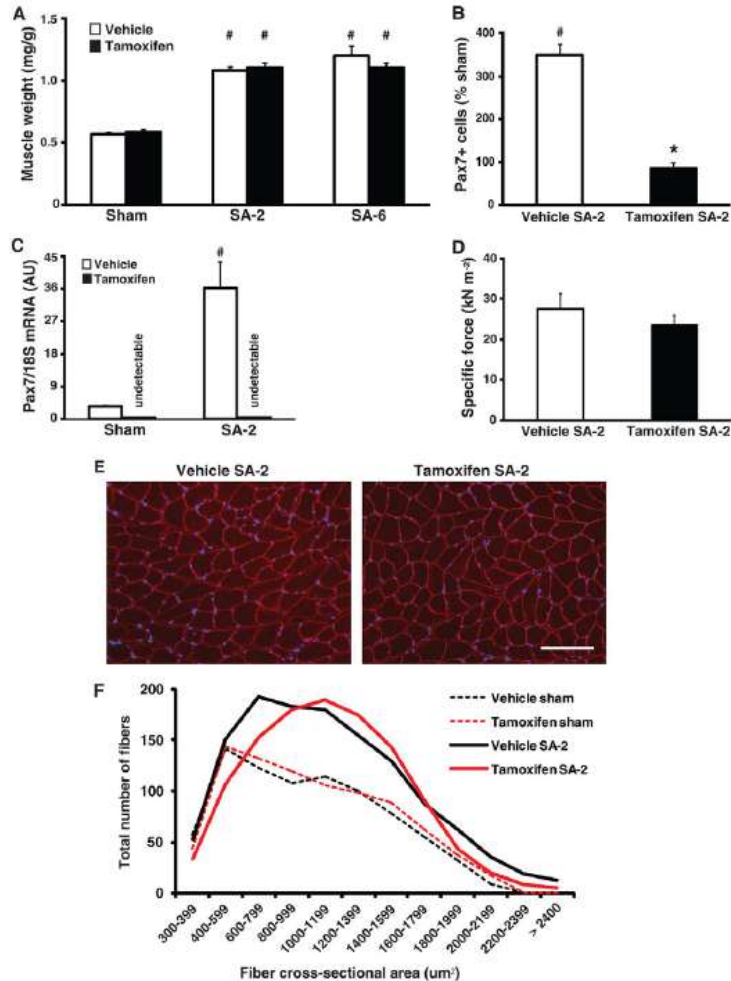
Barium Chloride BaCl₂ causes muscle damage

CRE-ER: Cre DNA recombinase fused to the estrogen receptor

Floxed-DTA: Diphtheria toxin A gene flanked by LoxP sites, which are recombined by the Cre protein



Synergist ablation (SA): removing nearby muscles to induce hypertrophy experimentally in the Pax7-DTA mice

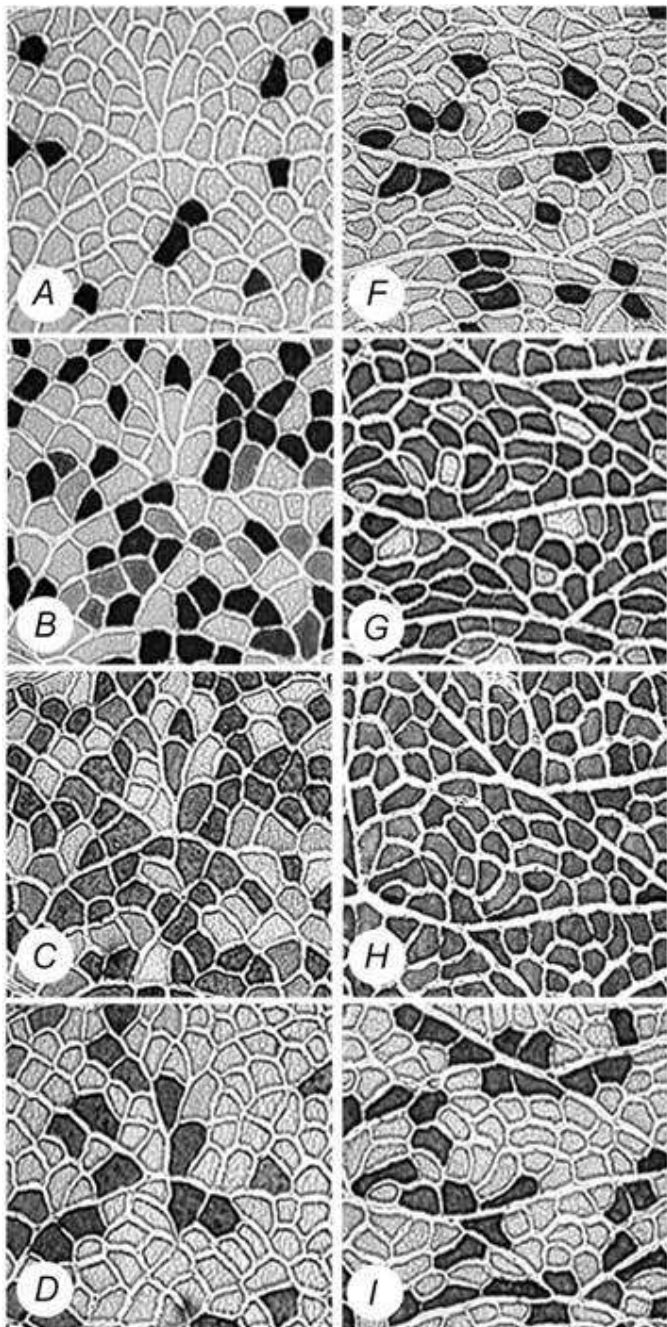


Exercise 2: read the results section of the McCarthy et al. 2011 paper

Discuss

Exercise 3: Experimental induction of muscle fibre type change

Using Chronic low frequency stimulation (CLFS)



Antibody

MyHC I

MyHC IIa

All MyHC
but not IIx

MyHC IIb

Exercise 3: Chronic Low Frequency Stimulation Experiment – Rat left common peroneal nerve stimulated 21 days with CLFS. Transverse sections of Tibialis Anterior muscle stained with Antibodies against the different MyHC protein isoforms (dark coloured fibres)

A,B,C,D – Control no CLFS
F,G,H,I – CLFS for 21 days

Discuss findings

Measuring fibre type conversion using immunohistochemistry on muscle sections

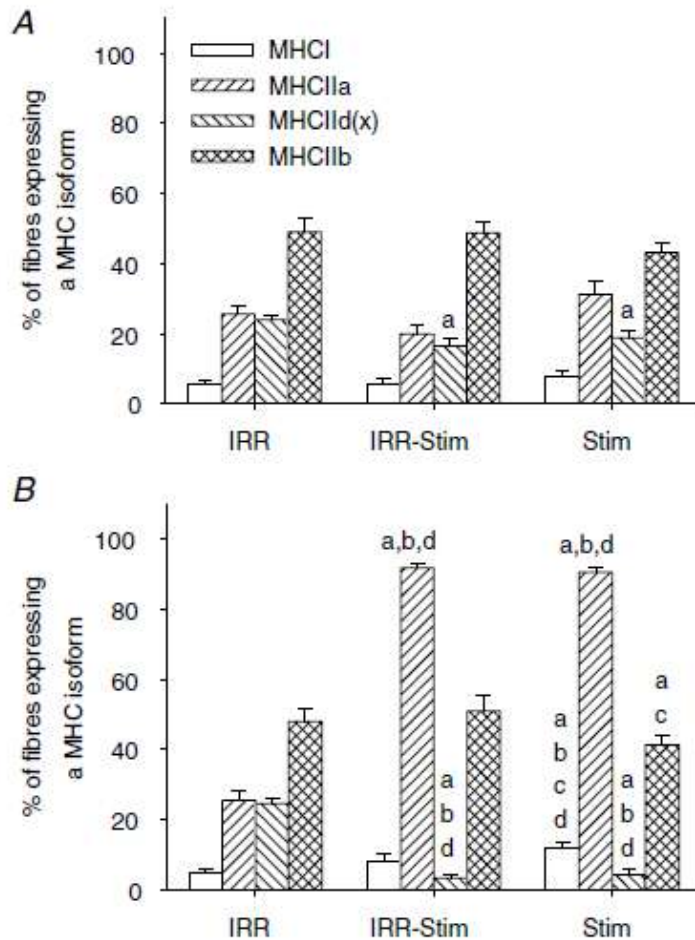
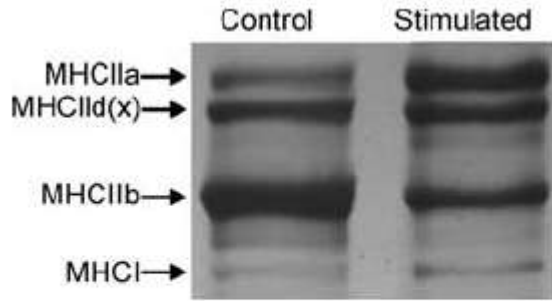


Figure 6
 The percentage of fibres expressing a particular MHC isoform in contralateral control (A) and stimulated/sham rat tibialis anterior muscles (B). Statistical symbols as in Fig. 2.



Measuring fibre conversion using protein gels

Figure 8

Example of the electrophoretic method used to quantify MHC isoform composition of rat tibialis anterior muscles. Control (IRR-control) and stimulated (Stim) are shown.

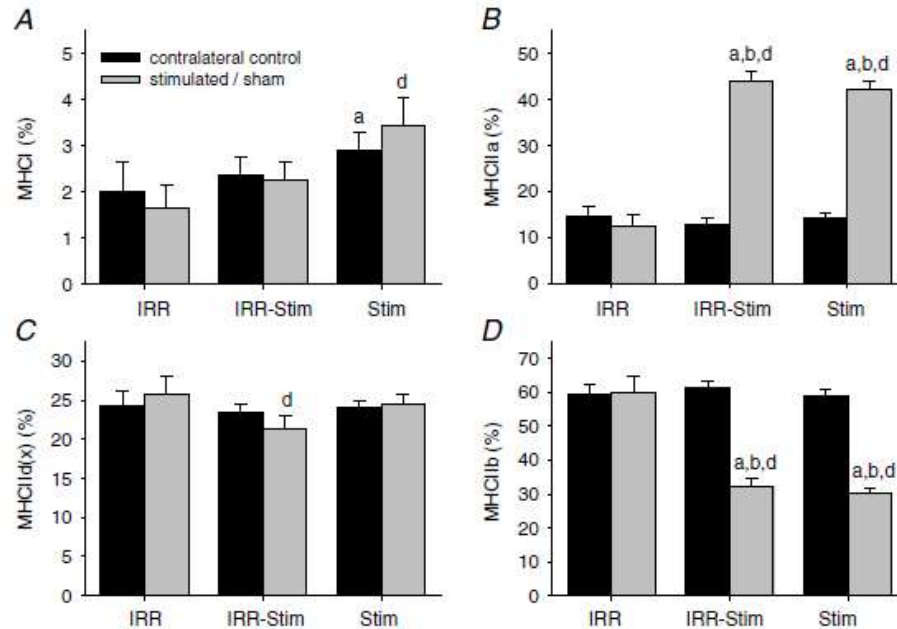


Figure 9

Percentage of MHCI (A), MHCIIa (B), MHCII d(x) (C) and MHCIIb (D) distribution as determined by densitometric evaluation of triplicate gels. Statistical symbols as in Fig. 2.