

**P-20** **Observation of stromal cells interaction following acute muscle trauma with FIB-SEM**

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In this study, rats skeletal muscle tissue was observed after the trauma with focused ion beam scanning electron microscope (FIB-SEM) into 600 slice pictures, which were reconstructed into 3D images by program to develop the localization and formation of stromal cells.

As a result, it was observed that many cells invaded it in muscle fibers, and three kinds of cells were observed in the interstitial space of the gastrocnemius muscle at the 2 day after trauma.

The first cells had a spindle shape. The second cells that had rough endoplasmic reticulum (r-Er) developed to cell body. The third was granulocyte-like cells. These 3 types cells were contacted each other and formed network. It was suggested that these cells exchanged information each other. Therefore, it may be important that stromal cells were some roles in regeneration process after muscle trauma, including the possibility that they are niche.

**Key words:** FIB-SEM, skeletal muscle, trauma

**P-21** **Short-term endurance exercise training affects myosin heavy chain phenotype in young rat fast-twitch muscles**

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**Purpose:** This study investigates the effects of short-term endurance exercise training on the myosin heavy chain (MHC) isoform distribution in locomotor fast-twitch muscles in young developing rats.

**Method:** Twenty male Wistar rats were assigned to 28-day (Con 28) or 46-day controls (Con 46) and every-other-day exercised (Ex 1) or everyday-exercised (Ex 2) groups. Both groups of exercised animals performed exercise training on a motorized treadmill at 30 m/min, 10% grade, 50 min/day progressively for 18 days consecutively. The MHC isoforms were measured in extensor digitorum longus (EDL) and tibialis anterior (TA) muscles. All fibers from EDL and TA were analyzed by SDS—PAGE for their individual MHC expression.

**Results:** The percentage profile of MHC in two muscles did not differ between Con 28 and Con 46, or between Con 46 and Ex 1. Only Ex 2 resulted in an increase in the percentage of type II a MHC in EDL and TA, but showed a decrease in the percentage of type II b MHC, as compared with Con 46.

**Discussion:** These data suggest that short-term endurance exercise training elevates the percentage of the slower fiber type II a MHC (5%) from fastest fiber type II b MHC (-7%) via an intermediate fiber type II d/x MHC in these predominantly fast-twitch muscles.

*Key words:* everyday-exercised; every-other-day exercised; endurance exercise training; fiber type; myosin heavy chain (MHC)