## 9 - Molecular Cell Biology

### OC-027 - (23836) - MYHC COMPOSITION IN THE RAT LARYNX BEFORE AND AFTER RLN INJURY

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Authors declare no conflict of interest.

The larynx, which acts as a sphincter, is the primary organ for voice production. Vocal fold movement is facilitated by the coordinated action of intrinsic laryngeal muscles (ILM). Muscle fibers constituting each ILM express specific myosin-heavy chain (MYHC) isoforms that govern contraction speed. Notably, the larynx displays heightened complexity for three possible explanations. First, the presence of two unique superfast muscle fiber types. Second, the distribution of MYHC isoforms varies within ILM due to their roles in vocal fold motion. Third, muscle fibers often exhibit hybridizations of MYHC types.

First, rat larynxes were cut, and sections were immunostained to identify the different MYHC. Automated protocols for MYHC quantification in the ILM were evaluated. In a separate series of experiments, animals underwent a laryngeal nerve transection and reconnection. Larynxes were analyzed at 2, 4, and 8 weeks post-injury, and changes in MYHC composition were assessed bilaterally.

Several automated protocols were challenging to apply to the rat larynx, so the authors were forced to use manual quantification to obtain results. Significant differences were observed among the ILM analyzed. RLN nerve injury

dramatically affected the composition of the MYHC within the rat larynx, but the composition changed over time after the injury. However, a similar composition to the ones checked in the control group was never observed.

Automate methods for MYHC quantification need to improve. Changes of MYHC composition over time after RLN injury may be associated with the ILM reinnervation process but affects differently among the different ILM.

**Palavras-chave : larynx, reinnervation, MYHC**