Effects of progressive resistance training on the expression of long non-coding RNAs in skeletal muscle of young adults

## Abstract

## Introduction

The skeletal muscle is important for physical health and vitality and responds to both use and disuse by hypertrophying and loss of muscle strength and mass respectively (*1*) . It adapts to physical activty or inactivity. It is therefore of necessity that increasing research is focused on exploring and understanding mehanisms through which the skeletal muscle can contribute to improved human health. Progressive resistance exercise training (PRET); a type of exercise where the skeletal muscle is exercised against progressively increased types of resistance (*2*) such as free weights , is the most potent non-pharmacological method of stimulating muscle hypertrophy and countering the loss in muscle strength and mass (*1*)

Several studies have explored the expression of genes in response to PRET to determine which mRNAs are differentially expressed and thus the mechanisms through which PRET elicits the beneficial effects i t is reputed to have.

Long non-coding RNAs (lncRNAs) are said to regulate gene expression and are poorly annotated functionally. Diverse research suggest different lncRNAs play functional roles in the cell such as cell cycle regulators (*3*) , differentiation (**del?**)�s2017 and in metabolism (*4*) (*5*) As regards PRET, we deem it important to explore the deferentially expressed lncRNAs and the protein coding genes coexpressed with them, hoping to contribute to the body of knowledge about lncRNAs and their functions especially as regards PRET .

We hope to identify llncRNAs that are differentially expressed based on exercise conditions, ie between the trained and untrained and between volumes among the trained. This should help us characterise the impact of lncs in PRET conditions

Identify protein-coding genes that show the same expression pattern with the DElncS

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