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Authors (Underline the presenting author)	B Wessner
Department, Institution, Country	Institute of Sport Science & Research Platform Active Ageing; University of Vienna; Vienna, Austria.
Address Corresponding Author	Auf der Schmelz 6, A-1150 Vienna, AUSTRIA barbara.wessner@univie.ac.at
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Regulation of Immunological Pathways by MicroRNAs in Health and Disease

WESSNER B

Institute of Sport Science & Research Platform Active Ageing; University of Vienna; Vienna, Austria.

ABSTRACT

MicroRNAs (miRNAs) are small, non-coding, single stranded RNA molecules (19-24 nucleotides in length) that influence mRNA or protein levels by promoting either mRNA degradation or by preventing protein translation. In silico target prediction has revealed that they might regulate more than two thirds of human genes therefore playing an important role in physiological as well as pathophysiological processes (Ambros 2004; Lim, Lau et al. 2005). As such miRNAs have been identified as mediators of biological processes such as inflammation, angiogenesis, mitochondrial metabolism, cardiac and skeletal muscle contractile force generation and muscle hypertrophy and are suggested to play a significant role in exercise immunology by influenceing important immunological pathways such as the Nf-κB or the TGF-β signaling pathways (Wessner, Gryadunov-Masutti et al. 2010; Bronevetsky and Ansel 2013)

Besides their functional role within cells, significant levels of miRNAs were detected in serum and other body fluids such as plasma, saliva, and urine. In serum they are remarkably stable due to their association with RNA-binding proteins, exosomes or HDL. Given this stability and the fact that the expressions of certain miRNAs are linked to specific tissues, expectations for the use of circulating miRNA as non-invasive biomarkers for the diagnosis, prognosis and therapeutic appraisal of diseases such as cancer, cardiac failure, diabetes mellitus, acute hepatitis but also inflammageing and muscle damage after intense exercise are raised (Olivieri, Spazzafumo et al. 2012; Weiland, Gao et al. 2012)

References:

Ambros, V. (2004). "The functions of animal microRNAs." Nature **431**(7006): 350-355.

Bronevetsky, Y. and K. M. Ansel (2013). "Regulation of miRNA biogenesis and turnover in the immune system." Immunol Rev **253**(1): 304-316.

Lim, L. P., N. C. Lau, et al. (2005). "Microarray analysis shows that some microRNAs downregulate large numbers of target mRNAs." Nature **433**(7027): 769-773.

Olivieri, F., L. Spazzafumo, et al. (2012). "Age-related differences in the expression of circulating microRNAs: miR-21 as a new circulating marker of inflammaging." Mech Ageing Dev **133**(11-12): 675-685.

Weiland, M., X. H. Gao, et al. (2012). "Small RNAs have a large impact: circulating microRNAs as biomarkers for human diseases." RNA Biol **9**(6): 850-859.

Wessner, B., L. Gryadunov-Masutti, et al. (2010). "Is there a role for microRNAs in exercise immunology? A synopsis of current literature and future developments." Exerc Immunol Rev **16**: 22-39.