



TITLE: Expression of plasma microRNAs as biomarkers of osteoarthritis in humans

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ABSTRACT

Osteoarthritis (OA) is the most prevalent degenerative condition in the joint system leading to chronic pain and physical disability, especially in the elderly population. It presents a multifactorial etiology combining, at the affected site, systemic and biomechanical factors. MicroRNAs (miRNAs) are short non-coding molecules, averaging 22 nucleotides in length, involved in gene expression regulation through translational inhibition or transcript degradation. This work aimed at the identification of miRNAs associated with OA physiopathology that may be used as early diagnostics tools for this disease. A questionnaire was applied and blood was collected from 46 individuals encompassing clinical cases and controls. The samples were collected from June 2016 to November 2016 and stored in a freezer at -80°C at the UFC (Sobral) for subsequent extraction of the miRNAs and evaluation of the gene expression.

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The amount of target miRNAs (miR-885 and miR-let7e) was normalized using an endogenous reference miRNA (miR-let7c) and a synthetic one (Cel-miR-39). The Ct values were <35 for all samples. The results of gene expression analysis showed that there was no statistical difference between patients with OA and controls for miR-885 ($p = 0.575$). However, the expression for miR-let-7e was lower in patients compared to healthy controls ($p = 0.045$). In this context, it is concluded that miR-let7e may be a potential knee OA biomarker.

BIOGRAPHY

Kedmo Lira completed the master's program in Biotechnology at the UNINTA – University Center (2018). Do you have a Postgraduate Degree (Specialization) in Phytotherapy and Prescription of Phytotherapics (2021), in Clinical Osteopathy (2020) and Physiotherapy in the ICU – from neonatology to adults (2009). He has training in the Scar Acceleration Method - MAC, in the areas of tissue repair and sports (Orthopedics, Rheumatology and Musculoskeletal Disorders), with the seal of the Brazilian Society of Physiotherapy (2021), in Neural Therapy by the Institute of Teaching and Research in Clinical Physiotherapy with seal from the Brazilian Society of Physiotherapy (2019), Postural Balance from the Hands On Seminars Brazil (2016).