

301. MICRO-ARN – A NEW CLASS OF BIOMARKERS AND THEIR ROLE IN NEUROLOGICAL DISEASES

Author: **Daniel Ruban**

Scientific adviser: Veronica Sardari, PhD, Associate professor, Department of Biochemistry and Clinical Biochemistry, *Nicolae Testemitanu* State University of Medicine and Pharmacy, Chisinau, Republic of Moldova

Introduction. Many studies have suggested that miRNAs can be important biomarkers in a variety of pathologies, including cancer, diabetes, cardiovascular diseases, aging, asthma, autoimmune, kidney and neurodegenerative diseases (NDDs). A significant fraction of miRNAs is specifically expressed in the central nervous system and plays a role in neuronal development. Consequently, it seems natural that miRNAs have been linked to NDDs as such as Alzheimer's, Parkinson's and Huntington's disease, which are caused by excessive neuronal death in the damaged brain. Due to the potential of miRNA as biomarkers, several studies have predicted that monitoring methods for miRNAs will be extensively useful for curing these diseases in the near future.

Aim of the study. To elucidate the role of miRNA as a biomarker in neurodegenerative pathological processes.

Materials and methods. To achieve the proposed goal of the study has been performed the literature analysis, using 125 bibliographic sources published during 1989-2020 in PubMed, Medline, MedScape and Hinari electronic libraries.

Results. The results of high efficiency sequencing experiments suggest that the number of miRNAs expressed in human brain should be over 1000. A number of studies have revealed that specific miRNAs are differentially expressed in the human brain and, more importantly, some of the miRNAs modulate genes associated with specific neurodegenerative disorders. Harraz et al. showed that among the sequenced 224 miRNAs, miR-133b, miR218-2, miR-15b, miR101-1, miR107, miR-335, and miR-345 were notably regulated in Parkinson Disease (PD) patients. Other miRNAs have been associated with Alzheimer diseases (AD), such as miR124, miR-132, and miR-153. Many miRNAs are involved directly or indirectly in other neurological disabilities, such as epilepsy, amyotrophic lateral sclerosis (ALS), traumatic brain injury, and prion diseases. Recent studies have highlighted the impact of numerous miRNAs on the pathogenesis and progression of NDDs. However, comprehensive profiles of the effects of different sets of miRNAs that are related to a specific disease remain elusive.

Conclusions. The current evidence clearly points to a significant role of miRNAs in NDDs. The miRNAs study is particularly promising for understanding the very prevalent, but poorly understood sporadic forms of NDDs, such as AD and PD. Now the challenge is to understand the role of specific miRNAs in biological models and to translate this knowledge to clinical studies.

Key words: micro-RNAs, biomarkers, neurodegenerative diseases.

302. VITAMIN D AND ITS ANTI-CANCER EFFECTS

Author: **Ana Stolareenco**

Co-author: Olga Morozan

Scientific adviser: Ala Fulga, PhD, University Assistant, Department of Biochemistry and Clinical Biochemistry, *Nicolae Testemitanu* State University of Medicine and Pharmacy, Chisinau, Republic of Moldova