Proteomic analysis of exosomes extracted from the medium of cell cultures derived from patients with schizophrenia and controls


Abstract
Exosomes are cell-derived nano vesicles that play multiple roles as mediate cellular communication, elimination of undesirable components and transport of molecules such as RNAs and proteins. Misfolded proteins associated to the development of pathologies may be also transported by exosomes. This study aims to perform a quantitative proteome analysis of exosomes collected from cell cultures derived from patients with schizophrenia and mentally healthy controls, in order to find differentially expressed proteins possibly associated to the disease.

Key words:
Exosomes, proteome, proteomics, schizophrenia.

Introduction
Schizophrenia is a complex psychiatric disorder, which is influenced by genetic and environmental factors1. The disease manifest through several symptoms as hallucinations, cognitive problems and social withdraw, which are generally managed by antipsychotic drugs. Proteomics is one of the tools which have been employed in order to better understand schizophrenia from the molecular point of view. The proteome corresponds to the set of proteins expressed in an individual under certain physiological conditions2. And by proteomic analysis it is possible to identify proteins and relate them to the metabolic pathways in which they operate3. In diseases affecting the central nervous system, such as schizophrenia, cell-derived vesicles are released. These can transport molecules and proteins which might be associated with the development of pathology. The exosomes are nano-vesicles present in various body fluids, working on communication and cell signaling, transfer of molecules and elimination of unwanted proteins4,5. This study aims to analyze for the first time the proteome of exosomes obtained from the cell culture medium of cells derived from patients with schizophrenia and controls, in order to identify possible proteins expressed differently associated to schizophrenia. Before that, we are testing the separation of exosomes and the extraction of their proteins.

Results and Discussion

Conclusions
This work wasn’t finished at the time of submission to this congress, and the data generated will be presented in the poster.