ISOLATION OF THE EXOSOMES FROM HUC-MSCS

A.Ye. Sekenova, V.B. Ogay

National Center for Biotechnology, Republic of Kazakhstan, 000010, Astana, Qorgalzhyn highway 13/5
e-mail: a.sekenova@biocenter.kz

The studies on the potential application of exosomes isolated from stem cells are expanding every year. Researchers and medical clinics are interested in them in the regard that exosomes contain different molecules that have therapeutic and regeneration potential. This study aimed to investigate the exosomes of human umbilical cord-derived mesenchymal stem cells (hUC-MSCs).

The hUC-MSCs were isolated from the human umbilical cord using the standard protocol. Obtained cells were cultivated till 3rd passage. Then, the conditioned medium (CM) was collected, centrifuged and ultracentrifuged using the standard protocol for exosome isolation. The isolated exosomes were identified in 63 x magnification in the inverted microscope and the concentration of DNA and RNA was measured by nanodrope equipment.

The obtained hUC-MSCs showed typical morphology of MSCs. We isolated exosomes from the CM of UC-MSCs. The obtained exosomes were round-shaped and had a distinct border. The DNA concentration and RNA concentration in obtained exosomes were 13.4 ng/ml and 17.0 ng/ml, respectively.

Our hUC-MSCs-derived exosomes demonstrated the initial characteristics of normal exosomes and also contained DNA and RNA. Further study is needed to determine their functional properties.