



## How is ExoClinic Applied?

Exosomes, which are turned into a ready-to-use product after the production phase, can be applied intranasally as often as the physician decisions appropriate, although they vary according to the indications.



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# ExoClinic

MSC DERIVED EXOSOMES



Cord Blood, Cell and Tissue Center

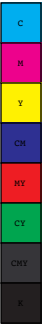
# ExoClinic

MSC DERIVED EXOSOMES



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# Mesenchymal Stem Cell Derived EXOSOME

## What is an Exosome?

Exosomes are protein-containing lipid vesicles obtained by special processes from the culture medium of cells, containing many growth factors, which have the capacity to regulate cellular and biochemical events that play a role in cell renewal, regulation of the immune system(immunomodulation) and protection of neurological functions. ExoClinic, are protein-containing lipid vesicles obtained by special processes from the culture medium of mesenchymal stem cells (MSCs) obtained from umbilical cord tissue (Wharton jelly), which contain many growth factors and have the capacity to regulate cellular and biochemical events that play a role in the protection of neurological functions and regulation of the immune system (immunomodulation).

- Stimulates cell proliferation and migration.
- Increases angiogenesis and neurogenesis.
- Regulates the immune system, inflammation, and immune response.
- Provides protection of neurological functions.

## What are the Potential Uses of Exosomes?

**Exosomes are used in the fields of neurology and neurosurgery, targeting the regulation of the immune system, cell regeneration and protection of neurological functions.**

**These potential application fields are;**

- Treatment of Neurological Diseases,
- Treatment of Neurodegenerative Diseases,
- Treatment of Neurodevelopmental Disorders,
- Treatment of Psychiatric Diseases,
- Treatment of Neurobehavioral Disorders.
- The growth factors and cytokines it contains play an important role in ensuring treatment efficacy and provide immunomodulatory and neuroprotective effects.

## How are Exosomes Produced?

Exosomes are obtained from umbilical cord accepted to Stembio Laboratory after undergoing all quality control processes in accordance with cGMP conditions. Mesenchymal stem cells separated from the tissue are multiplied in special culture dishes with cell-specific medium. Dead cell debris is removed from the culture medium. After the pre-treatment steps, exosomes are isolated by high-speed spinning using ultracentrifugation method. After the obtained exosomes pass quality control tests, the product is ready for use and stored under appropriate conditions.



| Growth Factors (pg/ml)                                | Effects of Growth Factors                                                                                                  |
|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| AR (Androgen receptor)                                | Regulation of nervous system development and maintenance                                                                   |
| EGF (Epidermal growth factor)                         | Cellular proliferation, differentiation, and survival                                                                      |
| EG-VEGF (Endocrine gland-derived VEGF)                | Stimulation of angiogenesis and cell proliferation                                                                         |
| GDF15 (Growth differentiation factor -15)             | Regulation of inflammation, apoptosis, cell regeneration and growth                                                        |
| GDNF (Glial cell-derived neurotrophic factor)         | Survival of neurons                                                                                                        |
| IGF1 (Insulin-like growth factor 1)                   | Stimulation of neurogenesis                                                                                                |
| IGFBP2 (IGF binding protein-2)                        | One of six IGF binding proteins that bind IGF-1 and IGF-2                                                                  |
| IGFBP3 (IGF binding protein-3)                        | One of the IGF binding protein                                                                                             |
| IGFBP6 (IGF binding protein-6)                        | One of the IGF binding protein                                                                                             |
| NGF (Nerve growth factor)                             | Protection, proliferation, survival, and growth of                                                                         |
| NGFR (Nerve growth factor receptor)                   | Neural cell growth factor receptor                                                                                         |
| NT3 (Neurotrophin-3)                                  | Stimulation of neurogenesis                                                                                                |
| NT4 (Neurotrophin-4)                                  | Growth and survival of nerve cells                                                                                         |
| TGFB1 (Transforming growth factor beta 1)             | Stem cell differentiation, T cell regulation and differentiation                                                           |
| BDNF ELISA Kit (Brain-derivedneurotrophic factor)     | Promoting the survival and growth of neurons                                                                               |
| IGFBP1 ELISA Kit (IGF binding protein-1)              | Growth factor binding                                                                                                      |
| IGFBP4 ELISA Kit (IGF binding protein-4)              | Anti-tumorigenic effect                                                                                                    |
| SCFR/CD117/C-kit ELISA Kit Stem Cell Factor Receptor) | Cell survival, proliferation, and differentiation                                                                          |
| TGF-α ELISA Kit (Transforming growth factor alpha)    | Cell migration, growth and differentiation                                                                                 |
| TGF-β3 ELISA kit(Transforming growth factor beta 3)   | The most important anti-inflammatory protein. Conversion of inflammatory T cells into anti-inflammatory regulatory T cells |
| VEGF ELISA Kit (Vascular endothelial growth factor)   | Formation of new blood vessels                                                                                             |

