

## Beta-Endorphinization and their Functioning in the Nervous System

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**Received:** February 02, 2022; **Published:** June 29, 2022

Endorphins are endogenous opioids, neuropeptides, produced in the pituitary gland. There are betaendorphins, enkephalins and dynorphins three types of endorphins binds with  $\mu$ ,  $k$  and  $\gamma$  receptors situated on the immune cells and nervous system.

Endorphins especially abundant endorphins has got analgesic activity by inhibiting substance p, a neurotransmitter of pain at peripheral nervous system after binding with its  $\mu$  receptors situated on the peripheral nerves and central nervous system. At the CNS (Central nervous system) inhibiting the GABA and release of dopamine, which is involved in the analgesic activity and stress reduction.

Betaendorphins has got immune stimulatory activity by binding to its  $\mu$  receptors on the innate and adaptive immune cells release its mediators such as IFN- $\gamma$ , opsonin, granzyme B and antibodies involved in antiviral, anti-inflammatory and antitumor activity. Betaendorphins inhibits oxidative stress by inhibiting NF-KB, a key transcription factor releases free radicals such as ROS, RNS involved in cell aging, cell injury, and cell death there by prolonging aging and delay aging by lengthening telomeres. Endorphins produced during intense physical exercise, music therapy, yoga, meditation. With beta-endorphins analgesic activity, anti-inflammatory activity, immune stimulatory activity, stress buster activity, it can be used in natural holistic management of diseases such as cancer, infectious diseases, neurological diseases, psychological diseases, autoimmune diseases, metabolic diseases without adverse effects and inexpensive.

**Volume 10 Issue 7 July 2022**

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