

<http://www.ncbi.nlm.nih.gov/pubmed/11976205>

Pharmacological interventions against aging through the cell plasma membrane: a review of the experimental results obtained in animals and humans.

[Zs-Nagy I.](#)

Source

Department of Gerontology (VILEG Hungarian Section), University of Debrecen, Medical and Health Science Center, H-4012 Debrecen, Hungary. izsnagy@jaguar.dote.hu

Abstract

As was shown in a recent review by this author (Ann. N.Y. Acad. Sci., 928: 187-199, 2001), oxyradicals cannot be considered only as harmful by-products of the oxidative metabolism, but living cells and organisms implicitly require their production. This idea is supported by numerous facts and arguments, the most important of which is that the complete inhibition of the oxyradical production by KCN (or by any block of respiration) kills the living organisms long before the energy reserves would be exhausted. This new theoretical approach not only helps our understanding of the normal functions of the living organisms, such as the basic memory mechanisms in the brain cells, but also helps in identifying the site-specific, radical-induced damaging mechanisms that represent the undesirable side effects of oxygen free radicals. First of all, these effects make the cell plasma membrane vulnerable and cause a series of intracellular functional disorders, as described by the membrane hypothesis of aging (MHA). The logical way for any antiaging intervention therefore should be to increase the available number of loosely bound electrons inside the plasma membrane that are easily accessible for OH(*) free radical scavenging. The present review summarizes the available knowledge regarding the theory of the use of membrane-related antiaging pharmaca, like centrophenoxine (CPH), tested in both animal experiments and human clinical trials. A modified, developed version of CPH coded as BCE-001 is also reported.