Journal of Research and Development
ISSN: 2311-3278

Zanginyan et al., J Res Development 2017, 5:2
DOI: 10.4172/2311-3278.1000e105

Editorial Open Access

Opinion about Nitric Oxide Production in Cultured Endothelial Cells

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Introduction

The work is certainly valuable and interesting, given the modern preference for herbal preparations chemical. It completed a large volume of research. The methods are modern, but this work does not provide complete information about the herbal preparation. If the drug is a flavonoid, then it is known that flavonoids are antioxidants. It is ligamentally that, under the influence of this herbal preparation, the amount of NO should be significantly reduced, but in this work dosages are indicated for which NO is induced.

However, it is known from literature data that the term "nitrogen oxide" (or "nitric oxide") refers to the reduced form of nitrogen monoxide (NO) with a half-life of 2 to 30 seconds. NO is a colorless gas, soluble in water and fats, with unique physiological properties. Chemically, NO is a small lipophilic molecule consisting of one nitrogen atom and one oxygen atom and having an unpaired electron, which turns it into a highly reactive free radical that freely penetrates through biological membranes and readily reacts with other compounds.

In the body, NO is synthesized by cells from the amino acid L-arginine. This process is a complex oxidative reaction catalyzed by the enzyme NO synthase (NOS), which attaches molecular oxygen to the final nitrogen atom in the guanidine group of L-arginine.

There are three known types of NO-synthase. Neuronal (nNOS, type I) and endothelial (eNOS, III type) NO synthases are enzymes located in endotheliocytes, neurons, platelets, neutrophils and other cells. Their activity depends on the presence of calcium and calmodulin and provides neurotransmission in nitrergic neurons, relaxation of blood vessels and smooth muscle organs, antiadhesion and antiaggregation of circulating blood cells, regulation of synthesis and secretion of hormones [1-5].

Inducible NOS (iNOS, type II) is rapidly activated by the action of bacterial products, inflammatory cytokines and active forms of oxygen in immune, endothelial, smooth muscle cells, providing a much larger amount of NO synthesis than other isoforms [6].

Inducible NOS (iNOS, type II) is rapidly activated by the action of bacterial products, inflammatory cytokines and active forms of oxygen in immune, endothelial, smooth muscle cells, providing a much larger amount of NO synthesis than other isoforms [6]. The activity of iNOS does not depend on the presence of calcium. The main function of the NO produced by it is participation in immune processes.

This membrane-penetrating molecule is an important signal regulator of many processes, including mitochondrial respiration and the formation of ROS.

NO with a greater affinity than oxygen, binds to cytochrome oxidase, thereby inhibiting mitochondrial aerobic metabolism and controlling the rate of oxygen entry into the respiratory chain. With intensive generation of ROS, NO, interacting with radicals promotes the generation of reactive peroxynitrate [7].

In view of the above written there are some questions and suggestions to the author about the investigation.

For a more scientifically popular explanation of this article is necessary to describe more detailed about antioxidant effect of Calycosine. It is recommended to describe more detailed the extraction of Calycosine. The article will be more informative if Calycosin dose/effect table will provided in it.

References

1. Ivanov AA, Gladkikh OP, Kuznetsova AV, Danilova TI (2005) Intercellular and cell-matrix interactions in pathology. Molecular medicine 2- 16-21.
2. Menshikova EB, Zenkov NK, Reutov VP (2000) Nitric oxide and NO-synthase in the mammalian organism under various functional states. Biochemistry 65: 485-503.
3. Proskuryakov SYa, Biketov SI, Ivannikov AI, Skvortsov VG (2000) Nitric oxide in mechanisms of the pathogenesis of intracellular infections. Immunology 4: 49-20.
4. Tsoukias NM, Popel AS (2003) A model of nitric oxide capillary exchange. Microcirculation 10: 479-495.
5. Culotta E, Koshland DE (1992) NO news is good news. Science 258: 1862-1865.
6. Forstermann U, Closs EI, Pollock JS, Nakane M, Schwarz P, et al. (1994) Nitric oxide synthase isozymes, characterization, purification, molecular cloning and function. Hypertension 23: 1121-1131.
7. Stuart-Smith K (2002) Demystified: Nitric oxide. Mol Pathol 55: 360-366.

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Received March 29, 2017; **Accepted** March 29, 2017; **Published** April 05, 2017

Citation: Zanginyan H (2017) Opinion about Nitric Oxide Production in Cultured Endothelial Cells. J Res Development 5: e105.