

## Session 1

L8

**ANTIRADICAL CAPACITY OF BIOLOGICAL FLUIDS IN STOMACH PRECANCER AND CANCER****L.Kondakova, N.Bochkareva, A. Sitozhevsky\*, I.Havalkin\*, V.Ivanov\*, L. Kolomiets.***Institute of Oncology, Russian Academy of Medical Sciences and \*Siberian Medical University, Tomsk, Russia.*

Free radicals have been proved to be an important factor in human carcinogenesis. Antioxidants that act to control the intensity of free radical oxidation in blood and tissues may be a defense regulating the development of cancer. In recent years it has become apparent that the total antioxidative capacity can be used to characterize the antioxidant homeostasis in organisms. In our study we have investigated antioxidative activities in human blood plasma, gastric juice and saliva of control donors, patients with stomach cancer and precancer (severe epithelium dysplasia was confirmed histopathologically). Antiradical capacity was measured as a decrease of ROO radical formation under thermal decomposition of 2-2-azo-bis-isobutironitrile. The concentration of free radical inhibitor in reaction volume was estimated as a luminol-dependent chemiluminescent response to the addition of sample. The decrease of antiradical activity was shown for all biological fluids of patients with stomach precancer and cancer with respect to the control group. Thus, antiradical activity of serum were decreased by 35% and 40-55%, respectively. The reduction of antiradical activity in gastric juice was more pronounced and ranged from 75% for precancer to 50-80% for stomach cancer. The measurement of antiradical capacity of gastric mucous glycoproteins revealed strong antioxidative effect of these compounds. The antiradical activity of saliva was associated with the uric acid level. In conclusion, the decrease of antiradical capacity of biological fluids might upset the body protection against oxidative stress and promote the development of stomach cancer.

## Session 1

L9

**EFFECTS OF FUNCTIONAL FOOD BIO-NORMALIZER AND OTHER ANTIOXIDANTS ON THE PARAMETERS OF OXIDATIVE STRESS IN PATIENTS WITH RHEUMATOID ARTHRITIS****Elena A. Ostrachovich,\* Ludmila G. Korkina,\*\*  
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Production of superoxide by neutrophils and monocytes, NADPH oxidase activity and "free" (nonheme) iron content in the cellular membrane were measured in 19 patients with rheumatoid arthritis (RA) (5 males and 14 females) in acute (10 patients) and chronic (9 patients) states. There was no significant difference in the measured parameters of oxidative stress between RA patients in acute and chronic states. Superoxide production by PMA-stimulated neutrophils and NADPH oxidase activity in plasmalemma from RA patients were enhanced by 1.5-2 times in comparison with donors. Similarly, there was a two-threefold increase in NADPH oxidase activity in monocytes, but in contrast, superoxide release by monocytes was drastically decreased. The content of "free" nonheme iron in the plasmalemma of RA neutrophils was enhanced by two-three times. We suggested that an increase in the NADPH oxidase activity of monocytes and neutrophils is a consequence of the priming effect of "free" irons. In the second part of this work we have studied the effects of several antioxidants and free radical scavengers (SOD, catalase, bioflavonoid rutin, and mannitol) and new non-toxic functional food Bio-normalizer (Sun O, intern, Japan) on the parameters of oxidative stress in RA patients. It was found that SOD, rutin, and Bio-normalizer efficiently inhibited oxygen radical overproduction by neutrophils and monocytes. However, only Bio-normalizer was able to decrease significantly the level of nonheme "free" iron in the plasmalemma. These *in vitro* findings suggest that non-toxic Bio-normalizer can be regarded as a perspective potential agent for the treatment of patients with rheumatoid arthritis.

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