

**P012** Complexes of ceruloplasmin with proteins of neutrophils and their probable biochemical roles

**Vadim Vasilyev<sup>a</sup>, Alexey Sokolov<sup>a,b</sup>, Keera Ageeva<sup>a</sup>, Olga Cherkalina<sup>a</sup>, Maria Pulina<sup>a</sup>, Elena Zakharova<sup>a</sup>, Vladimir Prozorovskiy<sup>c</sup>, Oleg Panasenko<sup>b</sup>**

<sup>a</sup>*Institute for Experimental Medicine, Saint-Petersburg;*

<sup>b</sup>*Institute of Physico-Chemical Medicine, Moscow;* <sup>c</sup>*Orekhovich Institute of Biomedical Chemistry, Moscow; Russia*

Human plasma ceruloplasmin (CP) forms specific complexes with lactoferrin (LF), myeloperoxidase (MPO) and other neutrophilic proteins, which seems important for inflammation. In plasma of patients with inflammation we found CP-LF, CP-MPO and CP-LF-MPO complexes and modeled them *in vitro* estimating K<sub>d</sub>, stoichiometry and kinetic parameters of reactions catalyzed by CP and MPO within complexes. Several methods provided evidence of multi-component complexes formed by MPO, CP and very low and/or low density lipoproteins (VLDL/LDL). Such complexes were obtained using pure MPO, CP and VLDL/LDL, and by adding MPO to donors' plasma. Patients with atherosclerosis had both types of complexes in their plasma. Neither MPO formed complexes with HDL, nor CP formed such with lipoproteins in the absence of MPO. Antibodies against apoB-100 release lipoproteins from VLDL-MPO-CP and LDL-MPO-CP complexes. Diameter of LDL-MPO complex detected by photon-correlation spectroscopy was 28±1.9 nm, that of LDL-MPO-2CP was 29±1.7 nm, while diameters of 2VLDL-MPO and 2VLDL-MPO-2CP were, respectively, 85.9±8.9 and 129±9.7 nm. Lipoproteins affect the inhibition of MPO peroxidase activity by CP, K<sub>i</sub> for VLDL determined as ~0.3 nM and that for LDL as ~0.14 nM.