

## Sorbents based on silica containing fullerenols for use in plasmapheresis

Nasonova K.V.\*<sup>1</sup>, Melenevskaya E.Yu.<sup>1</sup>, Shamanin V.V.<sup>1</sup>, Podosenova N.G.<sup>2</sup>

<sup>1</sup>*Institute of Macromolecular Compounds RAS, St.-Petersburg, Bolshoi pr. 31, Russia*

<sup>2</sup>*Institute for Analytical Instrumentation RAS, St.-Petersburg, Rizhsky pr., 26, Russia*

\*e-mail: kaiduk@mail.ru

Sorbents based on silica containing fullerenols  $C_{60}(OH)_{12-14}$  and  $C_{60}(OH)_{20-24}$  were obtained. In order to obtain the sorbents two essentially different approaches, a method of a solid-state reaction and a method of a two-step linking of fullerenols to silica network using dimethyldichlorosilane and amine, were used. The sorbents obtained were analyzed by IR and NMR spectroscopies.

It was shown in an *in vitro* system comprising blood plasma that the sorbents obtained have a high selectivity for low density lipoproteides, wherein the constant of elimination  $K_{el}$  is more than 0.8. This property allows these sorbents to be used for creating blood purification systems, in particular, for efferent therapy in atherosclerosis.