

Fullerenes and Living Cells

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Previously it was shown that the mechanisms of antiviral and virucidal actions of pristine fullerene C₆₀ depends on the type of water soluble fullerene forms and experimental conditions (illumination or darkness). Now we studied the action of crystalline pristine fullerene and some of its water soluble forms on the cell cultures. The polypropylene surface modified by fullerene is suitable for cultivation of various cell cultures. The surface modified by fullerene or its water soluble forms shows the properties of pro- or antioxidant depending on the conditions of experiment. In the conditions of cultivating the cells if prooxidant action is observed, the main input among various reactive oxygen species is caused by singlet oxygen. Some water soluble forms of fullerene C₆₀ show biological activity also due to the other mechanisms, changing, for example, the properties of membranes. Therefore the action of pristine fullerene on living cells depends on how it is introduced in the contact with biological object and conditions of experiment.