

## **Investigation of the viability and proliferative activity of nerve cells on the CNT films obtained by vapor deposition**

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Functional conjugation of biological systems with electronic systems of information processing and transmission is now attracting attention of developers working on the creation of hybrid nanoelectronic devices, including biosensors. One of the possible interface components are carbon nanotubes (CNT), demonstrating a high biocompatibility, chemical stability and unique electrical properties [1,2]. This work aims at developing methods for the synthesis of CNT films, and clarification of the influence of the synthesis parameters of CNTs on the viability and proliferative activity of the nerve cells grown. Thin CNT films were fabricated by chemical vapor deposition (CVD) technique on silicon oxidized wafers and quartz substrates. We investigated the structural properties of the films, and measured their resistance and transmittance.

The nerve cells were grown on the obtained CNT-films. Viability and proliferative activity of the cells grown, have been studied by MTT method and via visualizing the cultures by optical and electron microscopy. Possible toxic effect of the used catalyst on the cells is also discussed. The results show that the use of CNTs hardly reduces the viability and proliferative activity of cells and don't affect the cell morphology. That means no toxic effect of carbon nanotubes on nerve cells, which, combined with good electrical conductivity of CNTs makes these hybrid systems a promising material for biosensors.

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