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Development of a multiwalled carbon nanotube coated collagen dish

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Abstract:
Carbon nanotubes (CNTs) are one of the most interesting nanomaterials because of their excellent characteristics. In this study, a transparent CNTs coating for cell culture dishes was developed and its properties for cell culture were estimated. Carboxylated multiwalled carbon nanotubes (MWCNTs) were dispersed in aqueous sodium cholate solution and applied on a collagen type I-coated cell culture dish (cover glass). The dish surface was homogeneously covered by MWCNTs without aggregation. The MWCNT-coated dish was slightly gray and had good transparency, so conventional optical microscopic observation of the cells on the MWCNT-coated dish was possible. Rat osteoblast-like cells cultured on the MWCNT-coated dish showed slightly lower viability and proliferation compared to the collagen-coated dish. The cell adhesion on the MWCNT-coated dish was much higher than that on the collagen-coated dish. Therefore, MWCNT-coating for dishes will be a useful new material for cell culture.

Key words:
Multiwalled carbon nanotubes (MWCNTs), Collagen, Cell culture

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