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ONLINE ISSN : 1881-1361

PRINT ISSN : 0287-4547

Dental Materials Journal

Vol. 26 (2007) , No. 2 p.178-185

[\[PDF \(817K\)\]](#) [\[References\]](#)**Carbon Nanotubes as Scaffolds for Cell Culture and Effect on Cellular Functions**[Naofumi AOKI](#)¹⁾, [Tsukasa AKASAKA](#)¹⁾, [Fumio WATARI](#)¹⁾ and [Atsuro YOKOYAMA](#)¹⁾

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(Received October 11, 2006)

(Accepted November 8, 2006)

Abstract:

To investigate the dependence of biocompatibility of carbon materials on crystal structure with the aim of developing biomedical applications, single-(SW) and multi-walled (MW) carbon nanotubes (CNTs) were employed as scaffolds for cell culture and compared with graphite (GP). SaOS2 cells were used to investigate the properties and response of osteoblast-like cells. Polycarbonate membranes (PC) coated with CNTs by vacuum filtration formed a meshwork nanostructure. Cells grown on CNTs greatly extended in all directions. In terms of cell proliferation, alkaline phosphatase (ALP) activity, and protein adsorption on the substrates, CNTs showed better results than PC and GP. SW showed the best cell proliferation and total ALP. These favorable results might be attributed to the structure of CNTs and the affinity of CNTs toward proteins, thereby suggesting that CNTs could be potential scaffold materials for cell culture.

Key words:[Carbon nanotubes](#), [Scaffold](#), [Osteoblast](#)[\[PDF \(817K\)\]](#) [\[References\]](#)

To cite this article:

Naofumi AOKI, Tsukasa AKASAKA, Fumio WATARI and Atsuro YOKOYAMA.
Carbon Nanotubes as Scaffolds for Cell Culture and Effect on Cellular Functions . Dent.
Mater. J. 2007; 26: 178-185 .

doi:10.4012/dmj.26.178

JOI JST.JSTAGE/dmj/26.178

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