**Cellular Behavior Control of NIH/3T3 Fibroblasts on the nano-topography with curvature controlled using Liquid Phase Deposition**

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Biochemical cues ignore cellular microenvironments such as cell to cell interaction and extracellular matrix (ECM). Since the cells in vivo are communicated with ECM and cell-to-cell interaction, studies of topological cues are associated with cell in vivo. In recent year, various studies have shown that nanotopological cues regulate cell behavior such as cell adhesion, cell proliferation, migration, polarity, and differentiation. Although many previous studies have investigated cell behavior using various topographical cues, the results have meant topographical confinement by nanostructured architecture. Therefore, it is essential for surface topography to be studied through controlling the size, shape and density of the nanostructure. In previous study, we investigated the effects of the hexagonally close-packed silica bead arrays on cellular behavior, especially adhesion and proliferation.

In this study, the size of the beads was kept constant and the curvature of the beads was adjusted by Liquid phase deposition (LPD) to control the degree to which cells adsorbed to the surface, and accordingly, the behavior of the cells was examined. LPD is a useful method for the deposition of oxide films at low temperatures under aqueous conditions. Using this process, the oxide films were produced without the use of electrochemical methods, vacuum systems, or sensitive organometallic precursors. As the LPD reaction time increases, the surface becomes flatter, and accordingly, the adsorption, migration, and speed of cells change as cells adsorb onto the nano-topography change.