

Surface treatment of PDMS thin film for optimized cell growth

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Polydimethylsiloxane (PDMS) is one of suitable polymers which can be applied as scaffold for the cell growth due to its characteristics of biocompatibility, transparency and flexibility. The thickness of the PDMS film was controlled by diluting PDMS solution in hexane to reduce resistance to activity. However, it is difficult to grow cells on the original PDMS film because the PDMS surface is hydrophobic and this property hinders the attachment of cells on the surface. The wettability of the surface was controlled by corona and 3-chloropropyltriethoxysilane (CPTES) treatment. Then, the surface gained hydrophilic characteristic, which provides appropriate environment for cell growth. In this study, HeLa cells and mesenchymal stem cells were cultivated on the PDMS film to check its effectiveness. The growth of cells on the CPTES-coated PDMS film was comparable to the control plate. This result demonstrates the suitability of the CPTES-coated PDMS film as a scaffold for the growth of diverse cells.