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Peptide-conjugated hyaluronic acid surface for the culture of human induced pluripotent stem cells under defined conditions

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Hyaluronic acid (HA) has been cross-linked to form hydrogel for potential applications in the self-renewal and differentiation of human pluripotent stem cells (hPSCs) for years. However, HA hydrogel with improved residence time and mechanical integrity that allows the survival of hPSCs under defined conditions is still much needed for clinical applications. In this study, HA was modified with methacrylate functional groups (MeHA) and cross-linked by photo cross linking method. After subsequent conjugation with adhesive peptide, these MeHA surfaces demonstrated performance in facilitating human induced pluripotent stem cells (hiPSCs) proliferation, and good pluripotency maintenance of hiPSCs under defined conditions. Moreover, MeHA films on glass-slides exhibited long residence time and mechanical stability throughout hiPSC culture. Our photo-cross linkable MeHA possesses great value in accelerating the application of HA hydrogel in hiPSCs proliferation and differentiation with the conjugation of adhesive peptides.

Biography

Shicheng Wei has completed his PhD from West China University of Medical Sciences. He has published more than 60 papers in reputed journals relating to fields of biomedical materials and tissue engineering, basic and clinical research of stomatology.

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