Synopsis of Original Research Paper

Design and Synthesis of Biomaterials Hybridized with Biosignal Molecules to Enhance Cell Growth

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Insulin or epidermal growth factor (EGF) was conjugated with synthetic polymers. One was coupling with water-soluble polymer, poly (acrylic acid), another immobilized on water-insoluble polymer, poly (acrylilc aicd)-grated polystyrene film or surface-hydrolyzed poly (methyl methacrylate) film. While conjugation with poly (acrylic acid) slightly altered the mitogenic activity of the polypeptides, immobilization on films significantly enhanced the effect. Small amounts of immobilized insulin and EGF (1 to 10% of the required amount of native insulin and EGF) were sufficient to stimulate growth of mouse fibrobalst STO cells and Chinese hamster ovary cells overexpressing EGF receptors, respectively.