A cost-effective RGD peptide analog synthesis by sweet method

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The cell attachment is the most upstream concept of interaction between cell and substrate as a prerequisite of signaling cascade for migration, proliferation, and differentiation. Although RGD peptide analogues have been used for enhancement of cell attachment in many researches, there will be some immunologic issues when it applies to inner parts of human body for clinical use as ever. Also, the procedure of peptide synthesis is inefficient and hassle following after aspartate residue in RGD, because two carboxyl groups exist on it, thereby need cumbersome step to block one carboxyl group covalently binding with α carbon within residue. To throw light on these problems, aspartame (APM) consists of two analogues of L-aspartate (D) and L-phenylalanine (F) with much more inexpensive than thereof monomers. In these regards of advantages of APM, RGD peptides which have aspartate-phenylalanine residues can be simply synthesized more easily with better price. Therefore, in present study, to confirm the effect of synthesized RGD peptide on cell attachment, RG-APM was introduced to sodium alginate by activating carboxyl groups using 1-ethyl-3-(3-dimethylaminopropyl) -carbodiimide (EDC) mediated coupling reaction.