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Anti-angiogenic peptides

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Signal transduction through vascular endothelial growth factor (VEGF) and its receptor play a crucial role in Angiogenesis. Therefore, the development of a biotechnological product with anti-angiogenic properties is widely investigated for fighting cancer. For that purpose, antibodies, recombinant antibodies and peptides are generated or selected from various libraries. Previously, we have discovered anti-angiogenic peptides against VEGF by using a 7-mer phage displayed peptide library. The sequence of the peptides was determined after DNA sequence analysis. The anti-proliferative activity of the selected peptides was monitored *in vitro* on Human Umbilical Vascular Endothelial Cells (HUVEC). Here, we have synthesized and purified several peptides derived from the original anti-VEGF peptide by changing one by one all the amino acids by Alanine. This process so called "alanine scanning" was done for the determination of critical amino acids responsible in the binding of the peptide to VEGF and the ones necessary for blocking the activity of VEGF. Each of the synthesized peptides was tested *in vitro* on human umbilical vein endothelial cells for their anti-proliferative effect. With this work, new peptides with higher affinity and anti-angiogenic properties are intended to be developed.

Biography

B Koray Balcioglu is a senior Molecular Biologist with experiences in Antibody Engineering, Phage Display Technology, Molecular Biology and Recombinant Protein and Antibody Purification. His research projects experience includes the development of antio-angiogenic peptides and recombinant antibodies for cancer therapy, the development of gold binding bi-functional antibodies for biosensor applications. He is interested in new biopharmaceutical drug development, biosimiliars and theranostic agents. He has completed his PhD in Molecular Biology and Genetics Department from Technical University of Istanbul. He has one national patent and one international patent regarding the development of peptides and recombinant antibodies against angiogenesis.

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