Highly stable *E. coli* –expressed humanized anti-EGFR scFv

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In the current work, we show how to design an intrinsically stable single chain antibody (scFv) that can be easily produced in bacterial expression systems as a soluble protein. Summarily, CDR loops are grafted on intrinsically stable framework regions derived from VH3 and VL3 human germline sequences. Human VH3 and VL3 candidates should carry CDR loops with desired canonical classes and contain special residues in their hydrophobic cores. Recombinant variable fragments resultant from CDR grafting are subjected to 3D modeling, mutated (if necessary), and superposed to parental variable domains. Recombinant type 3 variable domains with the least RMSD (Root-Mean-Square Deviation) values are chosen to constitute scFv moieties. The scFv designed using this method was shown to be soluble when expressed in bacterial cells and able to recognize EGFR-overexpressing cancer cells.

Biography

Kamal Veisi has completed his PhD degree in medical biotechnology. He is an Assistant professor of Shahid Beheshti University of Medical Sciences and Kermanshah University of Medical Sciences, his research interest is antibody engineering.

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