Reviewer's report

Title: Selection, affinity maturation, and characterization of a human scFv antibody against CEA protein.

Version: 1 Date: 2 January 2006

Reviewer: hua-liang huang

Reviewer's report:

The authors have been successful in selecting a scFv against the human CEA protein from human synthetic scFv library ETH-2, and proved its capacity to recognize human and murine CEA. Then they generated two successive maturation libraries for the purpose of improving affinity of selected scFv MA39 antibody. As a result, they obtained a number of more highly reactive scFvs, which gained mutations outside of CDR zones. These mutations appear to be important for protein folding, reducing the formation of aggregates, a known limiting process in the production of many recombinant proteins, including recombinant antibodies. Among which, scFv E8 exhibited higher affinity than original MA39 scFv, did not reveal any non-specific reactivity on normal tissue and cells, and strongly reacts with CEACAM1, CEACAM3 and CEACAM5. It is suggested that the scFv E8 would be valuable for diagnoses or therapy.

The work is good and valuable for reference, so I agree to publish the paper in BMC Cancer. One suggestion is: it is better to explain how to devise the primers for construction of maturation libraries in Methods in detail.

What next?: Accept after minor essential revisions

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes

Declaration of competing interests:

I declare that I have no competing interests