

## Selection of High Affinity Antibodies by Phage Display: A Strategy for Production of Human Monoclonal scFvs Against the AF1q Antigen

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### *Awards*

Best poster award (top 6 out of 80) for Life Science Summit (Ngee Ann Polytechnic)

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### SUMMARY

The *AF1q* gene, an *MLL* gene fusion partner of unknown function, was initially identified in a patient with acute myeloid leukaemia (AML) whose leukaemic cells carried the t(1; 11)(q21; q 23) translocation. AF1q expression is not usually detectable in normal terminally differentiated blood cells, but is highly expressed in normal haematopoietic precursors and various leukaemic cells. Recent data suggested that elevated AF1q expression was related to poor clinical outcome in paediatric AML and the *AF1q* gene may be related to leukaemogenesis. Monoclonal antibodies (mAb) against the AF1q gene product/protein will have immediate application in studies on haematological malignancies, and may possibly be useful for therapy. In order to develop anti-AF1q mAbs for diagnosis and therapy of patients with haematological malignancies, we explored the feasibility of using phage display of a human antibody library for the generation of single chain fragment variable (scFv) against the AF1q antigen. This fully human mAb would be specific against AF1q and less likely to induce human anti-antibody response. A trial selection of phage scFv against test antigen (lysozyme) was performed and

confirmed 3 clones with consistent high affinities. The AF1q gene was cloned into a mammalian expression vector, and the AF1q protein is currently being produced for the use as a purified antigen in the phage display strategy. The results obtained from the test antigen were encouraging, while further preparative and analytical experiments of AF1q protein are currently being undertaken.

### FIGURE LEGEND

Vertical axis shows readings from a phage ELISA assay, which reflect the affinity of the phage for the target antigen. Figure 1 shows a progressive increase in phage-target antigen affinity with progressive rounds of selection.

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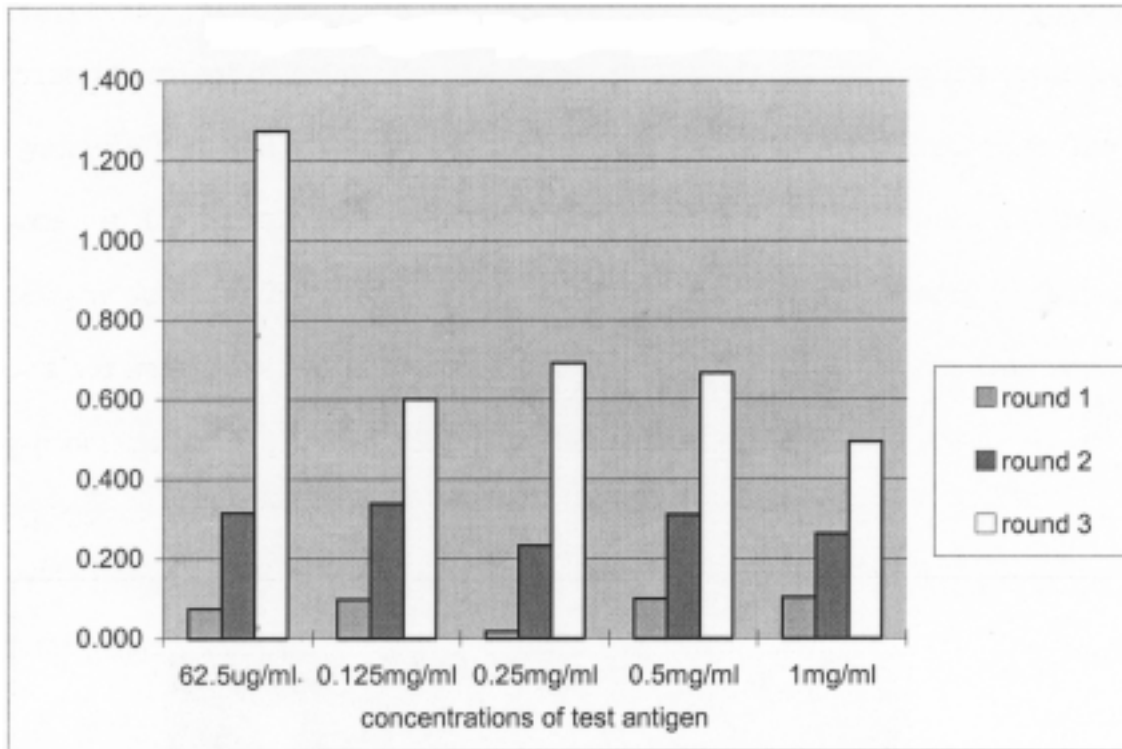


Fig. 1. Polyclonal Phage ELISA for three rounds of selection against target antigen.

students a chance to be attached to the laboratory, and all research and laboratory technicians for teaching us different assays and experimental techniques.

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