

P013 Lead optimisation of antibody drugs by ribosome and phage display

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Phage display has been employed for the potency optimisation of many antibodies at Cambridge Antibody Technology, including several which are currently in pre-clinical or clinical development. On recent programmes we have integrated ribosome display, an in-vitro display technology, as an alternative tool for the optimisation of antibody potencies. Having optimised a panel of 30 antibodies for therapeutic programmes, including seven antibodies for which phage and ribosome display were used in parallel, it is possible to perform a comparison of the effectiveness of the different display technologies for lead optimisation.

From the analysis of the potency gains observed in antibodies derived from the two display methods, we can conclude that both methods are highly effective at selecting for affinity, and therefore potency. It has been possible to isolate clones which are over 10,000-fold improved in potency using either display technology. From the head-to-head comparison ribosome display always performs at least as well as phage display and in two of the seven examples leads to larger potency gains due to the benefits of additional mutations from error-prone PCR.