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Generation of a ScFv monoclonal antibody library against Fasciola hepatica.

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Infection by the parasite Fasciola results in considerable losses to the global agriculture industry, with significant numbers of people estimated to be infected. Characterising and understanding the roles of parasite proteins will help in the detection and treatment of parasitic diseases. Appropriate antibodies can be used in a range of assays in such research. Antibody libraries offer a means to obtain monoclonal antibodies, or antibody fragments that can facilitate research into parasite proteins.

In this work we generated an immune single-chain variable fragment (scFv) library. Rats were exposed to two subsequent infections of Fasciola hepatica. RNA was then obtained from the spleens of the rats and used to create a library using a phagemid vector. Assessment of the library was undertaken by restriction mapping and nucleotide sequence analysis. Subsequent panning of the library using a range of recombinant F. hepatica antigens, as well as recombinant antigens from other parasites, was then undertaken. The panning and screening results suggest the generated library can be used to obtain monoclonal antibody fragments that are specific against parasite antigens.

Characterising parasite antigens is vital to gaining a complete understanding of the invasion process, parasite biology and the host-parasite interplay. In the future, we hope that the antibody fragments from this library will be able to facilitate this research.

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