

Fasciola hepatica Aspartic Protease

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Fasciola hepatica is an economically important parasite of livestock and a zoonotic pathogen of people, with fasciolosis affecting 2.4 million people in over 70 countries, with 180 million people at risk of infection. Understanding fluke biology, particularly those proteins that act at the host-parasite interface and are involved in virulence and survival is a major focus. We have identified an aspartic protease (FhApr) in the secretome of the newly excited juvenile (NEJ). In contrast to other blood feeding helminths, analysis of *F.hepatica* genome has revealed FhApr to be transcribed as a single copy gene expressed throughout the lifecycle. Aspartic protease are typically difficult to express recombinantly. Recombinant expression of FhApr was carried out in three expression systems (bacteria, yeast and baculovirus), with expression restricted to inclusion bodies. Protein extraction methods and refolding protocols were carried out to improve solubility. We also report the characterisation of native FhApr from adult somatic fluke extract and secretome. Inhibition studies were carried out using a range of parameters and inhibitors including several HIV protease inhibitors used in AIDS therapy. Further work could determine FhApr as a potential target for further control strategies.