Anti-cancer potential of *Fasciola hepatica* extracts

Ferreira S¹, Fernandes R¹,², Alves ³,⁴, Richter J.⁵, Botelho M.C. ²,³

I Ciências Químicas e Biomoléculas, Escola Superior de Tecnologia da Saúde do Porto, Instituto Politécnico do Porto, Portugal, ² i3S, Instituto de Investigação e Inovação da Universidade do Porto, Portugal, ³ INSA, National Institute of Health Dr. Ricardo Jorge, Department of Health Promotion and Chronic Diseases, Porto, Portugal, ⁴ Fundação Professor Ernesto Morais, Porto, Portugal, ⁵ Institute of Tropical Medicine and International Health, Charité – Universitätsmedizin Berlin, Germany

**AIM**

To investigate the oncogenic role of *F. hepatica* extracts.

**BACKGROUND**

• Fascioliasis is a food borne disease caused by infection with a liver fluke termed *Fasciola (F.) hepatica*. Fascioliasis, as a neglected tropical disease, commonly affects poor people from developing countries. It has been estimated that at least 2.6 million people are infected with fascioliasis worldwide.

• According to the International Agency for Research on Cancer, two other liver flukes *Opisthorchis viverrini* and *Clonorchis sinensis*) have been recognized as definitive causes of cancer (IARC, 2012).

• On the other hand even long-lasting and/or repeated *F. hepatica* infections have not been associated with cancer, so far. There are any known causative associations between this parasite and cholangiocarcinoma or liver cancer.

**METHODOLOGICAL STRATEGY**

Chine Hamster Ovary (CHO) cells were treated with *F. hepatica* extracts and cell proliferation was assessed by using the indirect method for estimating cell number based on the mitochondrial dehydrogenase activity, which reduces sodium 2,3-bis(2-Methoxy-4-nitro-5-sulfophenyl)-2H-tetrazolium-5-carboxyanilde inner salt) with MTS cell proliferation reagent.

**RESULTS**

Surprisingly we observed unexpected death of CHO cells when treated with *F. hepatica* extracts.

![Cell proliferation assay of Fasciola haepatica and Schistosoma haematobium extracts-treated cells.](image)

**CONCLUSIONS**

• We now hypothesize that some molecules contained in *F hepatica* extracts could have a potential as a preventive or even curative anti-cancer substance.