**Journal of Health Disparities Research and Practice**
**Volume 9, Special Edition 1, Summer 2016, pp. 134**

School of Community Health Sciences
University of Nevada, Las Vegas

# Indirect ELISA for Detection of Fascioliasis IgG Antibodies in Human Sera

Ernesto Raúl Ramos Maldonado
Ana M. Espino, PhD, University of Puerto Rico, Medical Sciences Campus
**Coordinating Center:** University of Nevada Las Vegas

**ABSTRACT**

Currently, coprological examination based on egg detection in stool samples is used as the most ideal standard for the diagnosis of human fascioliasis. However, this method has been proven not to be adequate when being employed in the acute phase of the disease, and presents a poor sensitivity during the chronic phase. Serodiagnosis has become an excellent alternative to coprological examination in efforts to combat the effects of fascioliasis on human and animal health. Human fascioliasis is usually recognized as an infection of the bile ducts and liver caused by *Fasciola hepatica*, known to affect over 2 million humans.

In this research, Indirect Enzyme-linked Immunosorbent Assay (ELISA) was performed to discern between positive and negative IgG antibody titers in sera in collaboration with a lab in Peru. A batch of approximately 325 samples of human sera of endemic *Fasciola hepatica* from regions in Peru was gathered and sent to the laboratory in order to be examined with the method explained in the following paragraph.

In the search for a test for the diagnosis of fascioliasis on humans, indirect ELISA started to be employed in order to determine positive and negative values. In the indirect ELISA test, the sample antibody is sandwiched between the antigen coated on the plate and an enzyme-labeled, anti-species globulin conjugate. The addition of an enzyme substrate-chromogen reagent causes color to develop. This color is directly proportional to the amount of bound sample antibody. The more antibody present in the sample, the stronger the color development in the test wells. Positive samples presented a very strong optical density value, while negative samples were clear or low optical density value, measured with the aid of a spectrophotometer.

**Key words:** Antigen, *Fasciola hepatica,* Antibody, Indirect ELISA

**ACKNOWLEDGEMENTS**

The STEP-UP HS program is supported by the National Institute of Diabetes and Digestive and Kidney Diseases of the National Institutes of Health, Grant number: 1R25DK098067-01.