FUNCTIONAL CHARACTERIZATION OF SMZF1, A TRANSCRIPCIONAL FACTOR FROM SCHISTOSOMA MANSONI, THROUGH INTERFERENCE RNA (RNAi)

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Introduction: Schistosomiasis is a disease caused by trematodes of Schistosoma genus. These parasites exhibit a complex life cycle during which they progress through many morphological and physiological transformations coordinated by alterations in gene expression control. Among the possible regulators of gene expression in Schistosoma mansoni, the transcriptional factor SmZF1, a zinc finger protein, may act in regulation of eggs hatching and parasite development. Objectives: The aim of this study is to provide a functional characterization of SmZF1 using the RNA interference (RNAi) approach. Material and Methods: Schistosomula were obtained by mechanical transformation of cercariae and soaked in supplemented MEM containing the dsRNA of SmZF1. The knockdown of the SmZF1 transcript was validated by qRT-PCR. Mice were infected with transformed schistosomula and adult worms were recovered from mice and counted at 45 days post-infection. The liver was also removed to evaluate the egg burden and histological sections were produced in order to evaluate the effect of SmZF1 silencing in granuloma formation. Results and conclusions: SmZF1 transcript knockdown ranged from 22 to 65% among biological replicates and in some cases there was no reduction in SmZF1 mRNA levels. There were no significant changes in the number of eggs retained in the liver and adult worms recovered from mouse infected with transformed schistosomula compared with the scrambled control. The histopathological analyses showed no differences in the area of granulomas, fibrosis and number of granulomas per area of liver. Thus our preliminary data indicate that SmZF1 transcript knockdown does not affect schistosomula development and reproduction of adult worm in the mammalian host.

Key words: Schistosoma mansoni, SmZF1 and RNAi.

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