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## microRNAs in the Diagnosis of Human Schistosomiasis (Editorial)

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### Schistosomiasis and miRNAs

Schistosomiasis is a chronic disease, it comes after malaria in public health and socioeconomic importance among parasitic diseases<sup>(1)</sup>, it is estimated that about 779 million people are at risk of infection and about 240 million are infected (WHO, 2014)<sup>(2)</sup>, the infection depends on water contact activities with some risk factors so schistosomiasis control program in the infected areas should be done upon to educate the population on risk factors as age, gender, education residence, and occupation<sup>(3)</sup>, Schistosomiasis infection has been eliminated in Iran, Lebanon, Morocco and Tunisia with an absence of newly recorded cases in the past few years (WHO, 2007)<sup>(4)</sup>. the overall prevalence *S.haematobium* and *S.mansoni* fell to less than 0.2% in Egypt<sup>(5)</sup>. Recently, diagnostic techniques have been developed for the detection of schistosomiasis, ranging from basic microscopic detection to molecular approaches, Questionnaire and chemical reagent strip for haematuria and proteinuria can be considered for the diagnosis of *S. haematobium* in areas with a high prevalence of infection<sup>(6,7)</sup>, the sum of Nuclepore membranes filtration technique and Centrifugation sedimentation technique results used as a gold standard to evaluate other techniques<sup>(8)</sup>.

MicroRNAs (miRNAs) were discovered in 1993, These miRNAs account for only 1% of the human genome. miRNAs are highly conserved in nearly all organisms, about 18-22 nucleotides long and play a crucial role in the regulation of gene expression<sup>(9,10)</sup>, miRNAs are endogenous short single-stranded noncoding RNAs and they are post-transcriptional negative regulators of gene expression<sup>(11)</sup>, the discovery of miRNAs open new hope for diagnosis and effective treatment of many chronic diseases<sup>(12)</sup>. The presence of schistosome-specific miRNAs was first reported for the plasmas of *S. japonicum*-infected rabbits, by Cheng et al, they demonstrated elevations of several parasite-derived *S. mansoni* miRNAs, including sma-miR-277, sma-miR-3479-3p, and bantam, in a mouse model<sup>(13)</sup>. He et al. investigated the serum levels of host miRNAs in mice, rabbits, buffaloes, and humans infected with *S. japonicum*, and circulating miR-223 was suggested as a potential new biomarker for the detection of schistosome infection<sup>(14)</sup>, as in figure(1), these advances in determining schistosome-specific and host miRNA profiles provide some insight as to their future as early diagnostic markers of infection, in the evaluation of disease progression, and in determining therapeutic responses. However, they need to be applied in clinical settings, but the costs of the required reagents and resources required may limit their wide-scale applications<sup>(15)</sup>.

**Keywords:** MicroRNAs (miRNAs), schistosomiasis, molecular diagnosis, miR-223

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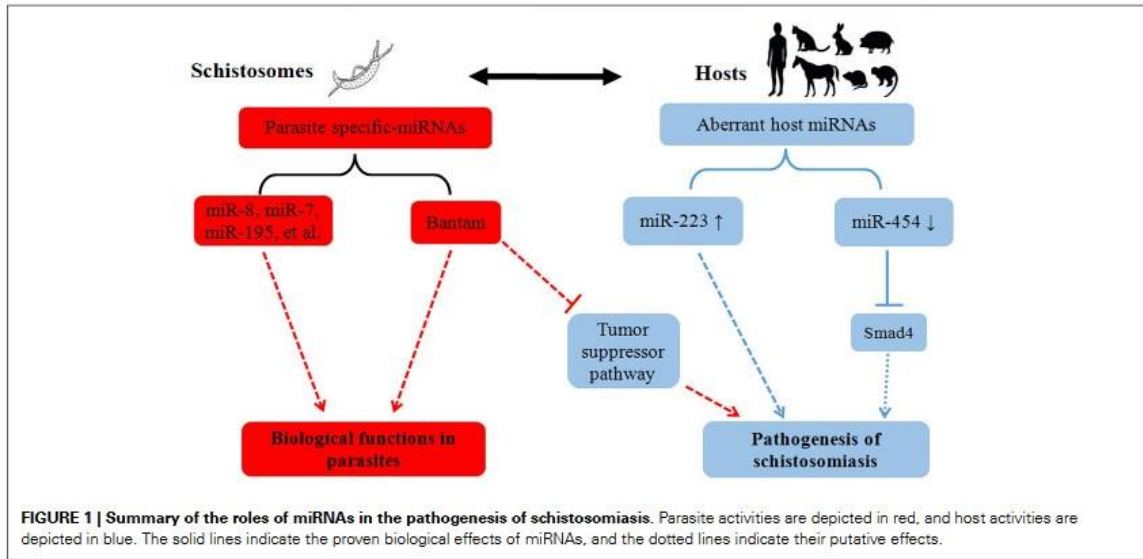


Figure 1(Lihui Zhu et, al) <sup>(15)</sup>

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