

ANALYSIS OF THE EFFECT OF SEXUAL PAIRING AND HOST SEX ON GENE EXPRESSION IN SCHISTOSOMA MANSONI USING DNA MICROARRAYS

^{1,2}Waisberg, M; ¹Lobo, F.P.; ^{2,3}Cerqueira, G.C.; ⁴Passos, L.K.J.; ⁴Carvalho, O.S;
^{2,5}El-Sayed, N.M.; ¹Franco, G.R.

¹Lab. Genética Bioquímica, UFMG; ²TIGR, USA; ³Lab. Genética Molecular de Tripanosomatídeos, UFMG; ⁴CPqRR, FIOCRUZ; ⁵University of Maryland, USA.

Schistosomiasis affects approximately 200 million people around the globe. Since much of the pathology is associated with the eggs, understanding the mechanisms involved in oogenesis and sexual maturation is an important step towards the discovery of new targets for drug therapy. We compared the gene expression profiles of sexually mature and immature parasites and of parasites from either male or female hosts using microarrays. Our results show that 274 transcripts are differentially expressed in adult females and 53 in adult males when mature and immature worms are compared. Of the genes differentially expressed, 55% are more expressed in paired females while the remaining 45% are more expressed in unpaired ones and 56.6% are more expressed on paired male worms while the remaining 43.4% are more expressed in immature parasites. RT-PCR analysis confirmed the results. Genes more expressed in unisex females were mostly related to energy generation while genes that were down-regulated (i.e. more expressed in bisexual worms) related to RNA metabolism, reactive oxygen species metabolism, electron transport, organelle organization and biogenesis and protein biosynthesis. Our results confirm previous results and add new data related to gene expression induced by sexual maturation and host sex in Schistosomes.