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TITLE

COMPREHENDING THE MOLECULAR BASES OF DIFFERENTIAL CERCARIAL EMISSION IN SCHISTOSOMA MANSONI THROUGH INTEGRATIVE ANALYSIS

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ABSTRACT

Two distinct chronotypes of *Schistosoma mansoni*, presenting diurnal and nocturnal cercarial emission patterns, have been described (Mouahid et al., 2019). One emits at midday and the other at night. We performed mono-miracidial infections on *Biomphalaria pfeifferi*, and we sampled the cercarial emission every 4 hours over 2 days. RNA-seq and ChIPmentation were performed on each collected sample for the diurnal and nocturnal chronotypes.

We used MOFA2 to integrate the data and obtained factors that are explained by both omics that are related to sex and time of emission respectively. Furthermore, we identified a factor that represents the different sequencing batches.

The integrative analysis permitted us to select candidate genes implicated in the differential emission of cercariae by selecting the appropriate factors associated with it. This approach has allowed us to remove confounding factors like the sex of the sporocysts which, phenotypically, does not play a role in the differential emission.

In this work we will present the results of the GO term enrichment for the selected factors as well as the associated pathway enrichment analysis. We will also discuss the challenges presented by the analysis of non-model organisms.

Mouahid, G., Mintsu Nguema, R., Al Mashikhi, K.M., Al Yafae, S.A., Idris, M.A., Moné, H., 2019. Host-parasite life-histories of the diurnal vs. nocturnal chronotypes of *Schistosoma mansoni*: adaptive significance. *Trop. Med. Int. Health* 24, 692–700. <https://doi.org/10.1111/tmi.13227>

KEYWORDS

Integrative Analysis; Multiomics; Cercarial Emission; Chronobiology

FINANCIAL SUPPORT

ANR project: ANR-AAPG-2017-PRC