

## IgG and IgG subclasses antibodies to *Plasmodium vivax* thrombospondin-related anonymous protein (PvTRAP) in Iranian individuals exposed to vivax malaria

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**Statement of the Problem:** The thrombospondin-related adhesive protein (TRAP) is one of the major sporozoite antigens that play an important role in the invasion of mosquito salivary glands and hepatocytes by sporozoites. A key tool for the control, elimination and eradication of *Plasmodium vivax* is the development of an effective vaccine. Therefore, it is very essential to assess the natural immune responses to a particular antigen in diverse populations with different genetic background and from various malaria-endemic settings.

**Methodology & Theoretical Orientation:** For our purpose, naturally acquired immune responses to PvTRAP was evaluated in patients from malaria-endemic areas of Iran (n=116). The PvTRAP gene was expressed in *Escherichia coli* and used as antigen in enzyme-linked immunosorbent (ELISA). The profile of immunoglobulin G (IgG) isotype and the avidity of IgG, IgG1 and IgG3 to PvTRAP, as well as the association between anti-PvTRAP isotype responses and host age were evaluated.

**Findings:** The results showed that only 42.24% of Iranian patients infected with *P. vivax* had positive anti-PvTRAP IgG. Furthermore, the positive responses of IgG1 and IgG3 antibody responses to PvTRAP revealed no significant correlation with age (p>0.05).

**Conclusion & Significance:** Individuals exposed to vivax malaria in the unstable malaria transmission areas are capable to produce antibodies to the PvTRAP antigen at all ages. The present data also suggests the presence of mature IgG1 and IgG3 antibodies with high to intermediate avidity against PvTRAP antigen that could help to understand the interactions between the host and *P. vivax* parasite in developing and testing a TRAP-based vaccine.

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## Intestinal tapeworms in fresh water teleost revealed through SEM: Threats and challenges before helminth taxonomists

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In recent biodiversity studies, the bio-molecules have been evaluated more for the chemical constituents and their configuration. Before these advanced study, it is essential to have baseline data on morphometrics and meristics. Tapeworm species of genus *Gangesia* (Woodland, 1924) were recollected and gene sequencing was carried by applying the specially designed primers. 169 Km stretch of River Godavari and its tributaries were visited in five years' time to examine the helminth infection in fresh water teleost (Bony fishes) at 15 sample stations. Only fresh dead and live adult host specimen of different size groups of teleost were rigorously examined. Standard protocols and procedures on helminth taxonomy were followed for collection, fixation and micro-preparation to evaluate under Nomarskee zoom of compound binocular light microscope and JEOL JSM Scanning Electron Microscopy. Rostellar folds, marginal fine denticles on suckers and ultraspinules, microtrichae and rostellar hooks were reported first time in the world for species of *Gangesia* to 1 micrometer. Biodiversity Protection Act should include the unseen helminth diversity for their management and prevention from being infected to host species. Parasite to host specificity was remarkable. Several reports on occurrence of new species of *Gangesia* were finalized under taxonomic description as species *inquirenda*, *nomena nuda*, *synonem*, poorly examined/ explained and data deficient. *G. agraisensis*, *G. bengalensis*, *G. macrons*, *G. vacchai*, *G. Parasiluri* were explained as existing species and other reported get synonym. Existence of *Silurotaenia* in the region is strongly rejected.

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