



# Which Marker is more reliable for *malaria diagnosis* **Antigens or Antibodies?**



# **Malaria Serology**

## **Antibody detection**

**Malaria parasite elicit the production of antibodies specific against plasmodia antigen and non-specific against leukocytes, red blood cells, rheumatoid factors etc.**

- Serum from 98 Thai adults infected with Plasmodium falciparum were examined for the presence of auto antibodies
- Sera containing malarial antibodies were also revealed positive for anti-nuclear antibodies with fluorescence-speckled pattern, anti-smooth muscle antibodies, anti-mitochondria antibodies and rheumatoid factor.
- Determination of serum antibodies, by the elisa technique against an extractable nuclear antigen (ENA) in patients with P. falciparum infection gave 43.8% (43 of 98) positive result.
- In addition, sera contained malarial antibodies gave positive antibodies to ENA in 50% (49 of 98) by tanned red cell haemagglutination.
- Among the positive sera with antibodies to ENA, they showed the presence of antibodies to both ribonucleoprotein RNAase sensitive (RNP) and ribonucleoprotein RNAase resistance (Sm).

**The above observation indicate that malaria infection induces autoantibodies which were predominantly anti-nuclear antibodies.**

(Source: [www.anopheles.org/showabstract.php?pmid=6383670](http://www.anopheles.org/showabstract.php?pmid=6383670))

- Presence of specific antibodies only reflects past infection. positive test can not distinguish between past and present infection and therefore it has limited value for treatment decision.
- Because of the time required for development and persistence of antibodies serologic testing is not practical for routine diagnosis of acute malaria.

(Source: [www.cdc.gov/malaria/diagnosis\\_treatment/serology.htm](http://www.cdc.gov/malaria/diagnosis_treatment/serology.htm))

- Antibody responses to malaria parasites merozoite antigens are generally short-lived and this has implications for serological studies

(Source: [www.malariajournal.com/content/6/1/82](http://www.malariajournal.com/content/6/1/82))

# **Malaria Serology**

## **Antigen detection**

- Antigen detection in blood donors with the help of the MAB technique seems to be more sensitive and a practically feasible screening test to prevent transfusion malaria.

(Source: N Choudhury, JG Jolly, RC Mahajan, ML Dubey, NK Ganguly, SK Agnihotri  
Department of Transfusion Medicine, SGPGIMS, Lucknow, India.)

- Antigen detection by monoclonal antibody should be adopted as a routine screening procedure by the blood transfusion services in malaria endemic countries like India.

(Source: J.Indian Med Assoc 89:334-6,333(1991)  
N Choudhury, JG Jolly, NK Ganguly, RC Mahajan, ML Dubey  
Department of Transfusion Medicine, SGPGIMS, Lucknow.)

- Rapid diagnosis tests (RDTs) based on antigen for malaria might offer a valid alternative to microscopy.

(Source: **World Health Organization**. 1999. New perspectives: malaria diagnosis. Report of a joint WHO/USAID informal consultation, 25-7 October)

- These test show present infection only as antigens are not present in host circulation in case of dead parasite. Hence also used to confirm treatment effectiveness.

(Source: The use of malaria rapid diagnostic test, [www.wpro.who.int](http://www.wpro.who.int))

**HENCE ANTIGENS ARE BETTER MARKER  
FOR MALARIA DIAGNOSIS THAN ANTIBODIES**

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