

# How individual and spatial heterogeneity of immune responses against plasmodium falciparum can characterize low transmission sites in central highlands of Madagascar?

## Background

Malaria antibody dynamics are misunderstood In central highlands of Madagascar

## Data collection:

School-based serology study (SBS): from May-July 2014, investigations were carried out in 7-targeted districts of central highlands

## Statistical question:

How does the distribution of antibody responses vary among and between individual (e.g. age, sex) and spatial strata

=> Generalied Linear Mixed Model

## Mechanistic question:

How antibody titers can be used to characterize aspects of the transmission dynamics by the distribution of antibody response variation across individual and spatial scales?

=> Adaptive immune response model / Agent based model

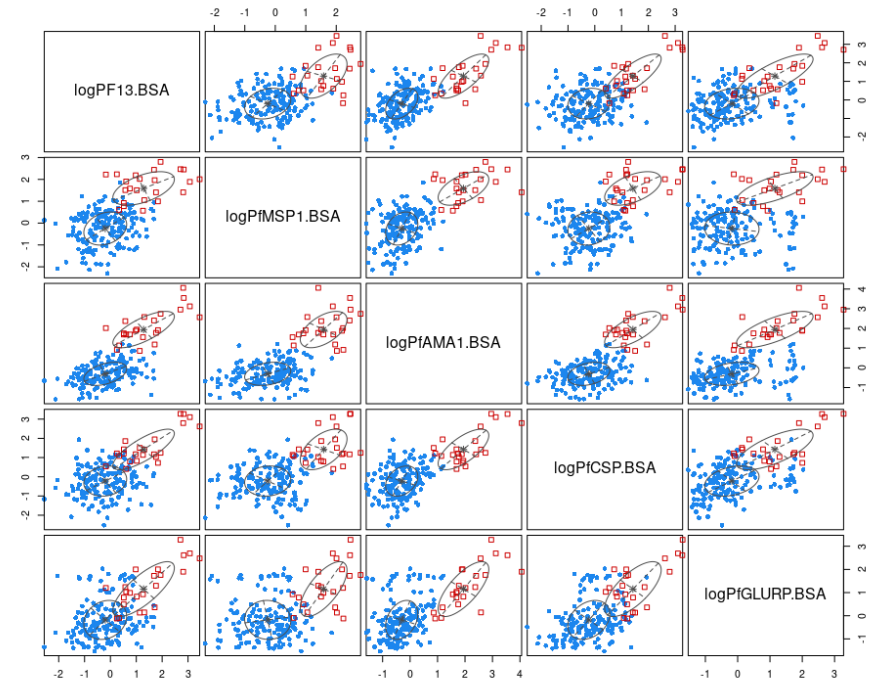


Fig 1: Distributions of 5 school-children anti-plasmodium falciparum (pf), Using Gaussian mixtures of two by two cluster (n=2)