

---

**Comparison of the specificity of antibodies to VAR2CSA in Cameroonian multigravidae with and without placental malaria: a retrospective case-control study.**

**Journal:** Malar J

**Publication Year:** 2015

**Authors:** Anna Babakhanyan, Rui Fang, Andrew Wey, Ali Salanti, Grace Sama, Canisia Efundem, Robert J I Leke, John J Chen, Rose G F Leke, Diane W Taylor

**PubMed link:** 26626275

**Funding Grants:** San Jose State University Stem Cell Internships for Laboratory-based Learning (SJSU SCILL)

**Public Summary:**

**BACKGROUND:** Antibodies (Ab) to VAR2CSA prevent Plasmodium falciparum-infected erythrocytes from sequestering in the placenta, i.e., prevent placental malaria (PM). The specificity of Ab to VAR2CSA associated with absence of PM is unknown. Accordingly, differences in the specificity of Ab to VAR2CSA were compared between multigravidae with and without PM who had Ab to VAR2CSA. **METHODS:** In a retrospective case-control study, plasma collected from Cameroonian multigravidae with (n = 96) and without (n = 324) PM were screened in 21 assays that measured antibody levels to full length VAR2CSA (FV2), individual VAR2CSA DBL domains, VAR2CSA domains from different genetic backgrounds (variants), as well as proportion of high avidity Ab to FV2. **RESULTS:** Multigravidae with and without PM had similar levels of Ab to FV2, the six VAR2CSA DBL domains and different variants, while the proportion of high avidity Ab to FV2 was significantly higher in women without PM at delivery (p = 0.0030) compared to women with PM. In a logistic regression model adjusted for gravidity and age, the percentage of high avidity Ab to FV2 was associated with reduced likelihood of PM in multigravidae. A 5 % increase in proportion of high avidity Ab to FV2 was associated with a nearly 15 % lower likelihood of PM. **CONCLUSION:** Ab avidity to FV2 may be an important indicator of immunity to PM.

**Scientific Abstract:**

**BACKGROUND:** Antibodies (Ab) to VAR2CSA prevent Plasmodium falciparum-infected erythrocytes from sequestering in the placenta, i.e., prevent placental malaria (PM). The specificity of Ab to VAR2CSA associated with absence of PM is unknown. Accordingly, differences in the specificity of Ab to VAR2CSA were compared between multigravidae with and without PM who had Ab to VAR2CSA. **METHODS:** In a retrospective case-control study, plasma collected from Cameroonian multigravidae with (n = 96) and without (n = 324) PM were screened in 21 assays that measured antibody levels to full length VAR2CSA (FV2), individual VAR2CSA DBL domains, VAR2CSA domains from different genetic backgrounds (variants), as well as proportion of high avidity Ab to FV2. **RESULTS:** Multigravidae with and without PM had similar levels of Ab to FV2, the six VAR2CSA DBL domains and different variants, while the proportion of high avidity Ab to FV2 was significantly higher in women without PM at delivery (p = 0.0030) compared to women with PM. In a logistic regression model adjusted for gravidity and age, the percentage of high avidity Ab to FV2 was associated with reduced likelihood of PM in multigravidae. A 5 % increase in proportion of high avidity Ab to FV2 was associated with a nearly 15 % lower likelihood of PM. **CONCLUSION:** Ab avidity to FV2 may be an important indicator of immunity to PM.

---

**Source URL:** <https://www.cirm.ca.gov/about-cirm/publications/comparison-specificity-antibodies-var2csa-cameroonian-multigravidae-and>