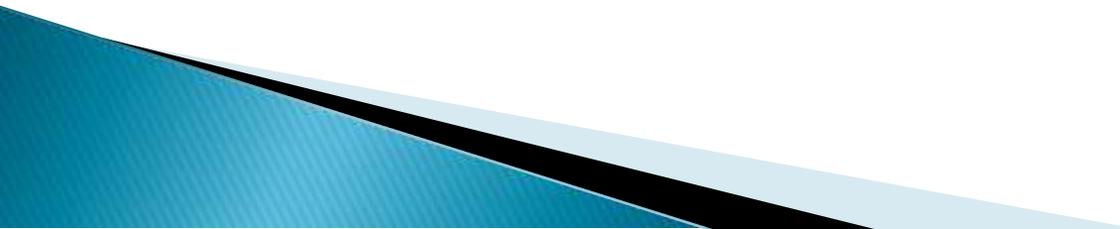


# Reduce spleen-IFN- $\gamma$ correlated with CXCL9 levels during Cerebral Malaria Phase in *Annona muricata*-treated swiss mouse study

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# Introduction

- ▶ Cerebral malaria (CM) cause malaria mortality. Anti-plasmodial and immunomodulatory properties of *A. muricata*-leaf extract (AME) may provide benefices for CM-patients.
  - ▶ IFN- $\gamma$ , a pivotal cytokine in the CM-immunopathology, is modulated by CXCL9, IL-10 and IL-12.
  - ▶ The aim was to determine factors correlated with spleen-IFN- $\gamma$  production in healthy and CM phase with/without ethanolic AME treatment.
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# Material and Method

- ▶ A post test only control group design study using 30 swiss mice randomly divided in 6 groups was performed.
- ▶ The *Plasmodium berghei* ANKA (PbA)-inoculated and healthy mice were grouped in C(+) and C(-).
- ▶ The healthy mice treated with AME 100 and 150 mg/Kg BW/day were grouped in X1 and X2.
- ▶ The PbA-inoculated and received either AME dose were grouped in X3 and X4.
- ▶ Phytohemagglutinin (PHA) induced spleenocyte IFN- $\gamma$  production, while lipopolysaccharide (LPS) induced IL-10, IL-12 and CXCL9. Elisa was used to measure the observed cytokine production.
- ▶ One-way ANOVA and post hoc test were done in normally distributed data; otherwise Kruskal-Wallis and Mann-Whitney test were used.

# Results

- ▶ IFN- $\gamma$  were significantly lower in C(+), X3 and X4 than C(-) group, and this was also observed in CXCL9.
- ▶ IL-10 were significantly higher in X3 and X4 than C(+) group ( $p=0.003$  and  $p=0.004$ ). IL-12 were not different among all six groups ( $p=0.071$ ).
- ▶ Spearman correlation test showed a correlation between IFN- $\gamma$  and CXCL9 produced during CM-phase regardless AME treatment ( $r=0.581$ ;  $p=0.009$ )
- ▶ IFN- $\gamma$  was correlated with IL-10 levels in healthy groups with/without AME treatment ( $r=0.544$ ;  $p=0.029$ ).

# Conclusion

- ▶ The reduce spleen-IFN- $\gamma$  production might regulate differently in healthy and CM phase.