

POSTER PRESENTATION

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# Effect of farnesyltransferase inhibitor on the function of mitochondria of *Plasmodium falciparum*

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## Background

Malaria is one of the world's public health problems in terms of medical emergency with a high risk of mortality. The protozoan malaria parasites are transmitted by infected female mosquitoes [1]. The most pathogenic human malaria parasite, *Plasmodium falciparum*, has gradually expanded in last three decades [2]. Chloroquine is the cheapest and the most widely used drug in almost endemic countries. However, *Plasmodium falciparum* exhibits resistance to their drug. Resistance to the combination of sulfadoxine-pyrimethamine was also already emerged [3]. Farnesyltransferase have been identified in eukaryotic organisms, including pathogenic protozoa of the genera *Plasmodium* [3,4]. Therefore, the inhibition of farnesyltransferase has been suggested as a new strategy for the malaria treatment. However, the exact mechanism of action of this class of agents is still unknown [5]. In addition, the effect of farnesyltransferase inhibitor on malaria mitochondria level is not fully understood. In this study, the effect of farnesyltransferase inhibitor on the function of mitochondria of *Plasmodium falciparum* were investigated experimentally. The oxygen distribution and the morphological shape of farnesyltransferase inhibitor-treated mitochondria were examined under *in vitro* condition. From this study, we found farnesyltransferase inhibitor is very important to understand the mitochondrial function of *Plasmodium falciparum* as an antimalarial drug.

## Materials and methods

Culture of malaria parasites.

Synchronization of *Plasmodium falciparum*.

Determination of oxygen gradients in malaria.

## Results

In this study, farnesyltransferase inhibitor was treated to RBCs (Red blood cells) uninfected by *Plasmodium falciparum*. Farnesyltransferase inhibitor has noticeable effects on mitochondrial function of malaria parasites, compared to the control case for non-infected RBCs.

## Conclusion

Oxygen distribution and morphological shape of farnesyltransferase inhibitor-treated mitochondria were investigated under *in vitro* condition. The farnesyltransferase inhibitor was observed to be very important to understand the mitochondrial function of malaria parasite as an effective antimalarial drug.

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