AN IMMUNOMODULATOR AGAINST MALARIA INFECTION

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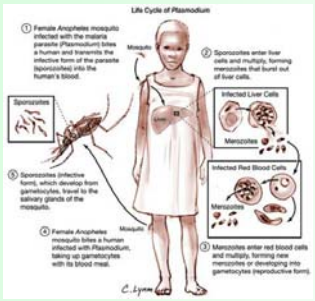
BACKGROUND: Malaria is one of the world's most common diseases caused by parasite.



- *Plasmodium vivax, P. falciparium*, *P. malariae e P. ovale.*
- Female *Anopheles* mosquito.
- 500 million of people/year has been sick around the world.
- Children < 5 years are the most effected group in África.
- One child dies each 30 seconds.
- 1 to 3 million people dies/year.

P-MAPA

- Obtained in cultures of *Aspergillus oryzae*
- Proteic agregate (316 kDa)

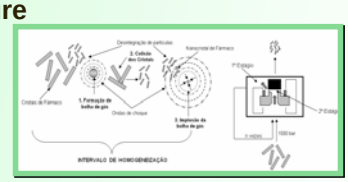
- Solid white powder of fine crystals
- It's composition: phosfate
  magnesiun
  ammonium
  lipids
  protein
- Protein is 0.5 % of molecule (PM~16 k Da)
- 35.2 % is Arg.

OBJETIVES:

Optimize and confirme the activities *in vivo* of P-MAPA´s micro and nanocrystals on *P. falciparum*, and in experimental infection models.

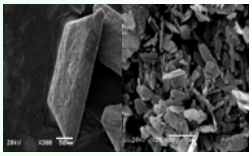
METHODS:

- Homogenization to high pressure

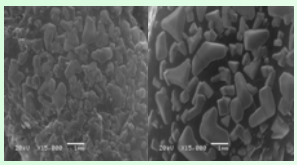


- Re-precipitation

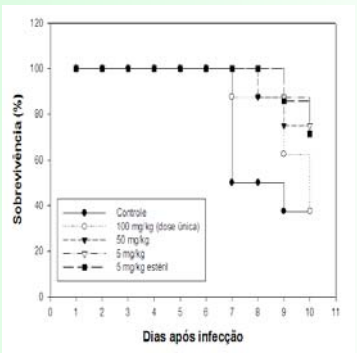
RESULTS: We have obtained the nanocrystals and are optimizing the two nanonization method's conditions with aim to achieve as uniform as possible nanocrystals.



Homogenization by high pressure of P-MAPA in surfactant: A) crystals (x300) e B) micro and nanocrystals (x 25000).



By a re-precipitation method, nanocrystals were obtained with sizes around 200-1000 nm and polymorph. At the moment, the P-MAPA crystals have been tested and the strong bioactivity against malaria was observed *in vivo*.



The assessment of the P-MAPA activity against malaria was conducted in groups of 7-10 C57BL/6 female mice (5-8 week-old) (pathogen-free animals). P-MAPA inhibited the parasitemia up to 100 % with only one dose of 100 mg/kg until sixth-day in the infected mice. When only the 50 % of the control group survived. With 5 mg/kg per day, 90 % of mice survived the ninth day, meanwhile 60 % of control mice died .

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