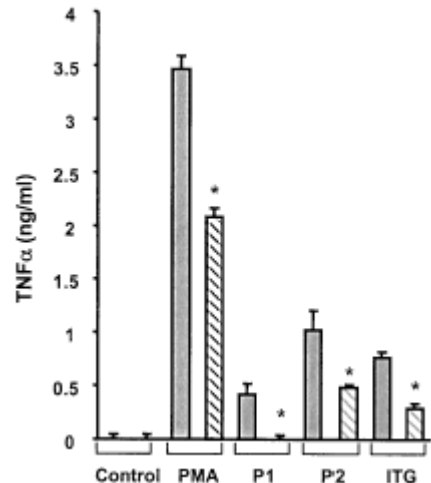


## Treatment for Severe and Cerebral Malaria

### Overview of Technology:

Malaria produces an estimated 247 million cases per year among 3.3 billion individuals at risk of the disease and results in nearly one million deaths, mostly in children under five years of age. A large majority of these deaths are due to the cerebral form of the disease which has a 15% or greater fatality rate and typically occurs in non-immune individuals such as young children living in malarious areas and travelers (who are visiting these regions in increasing numbers). Dr. Kain has developed a novel approach to prevent and treat severe and cerebral malaria that utilizes existing medications.

Dr. Kain's studies demonstrate that stimulating expression of the CD36 receptor (the major receptor mediating clearance of malaria in nonimmune individuals) increases clearance of malaria and decreases the excessive pro-inflammatory responses that have been linked to severe and cerebral malaria. This novel therapeutic strategy relies on stimulating the CD36 gene promoter with PPAR-gamma RXR agonists drugs which are currently on the market for the treatment of other indications. A Phase I clinical trial of this technology has been successfully completed.



*PPARγ agonists reduce P. falciparum-induced TNF-α from human monocytes*

### Related Publications:

Serghides, L. and Kain, K.C. Peroxisome proliferator-activated receptor gamma-retinoid X receptor agonists increase CD36-dependent phagocytosis of Plasmodium falciparum-parasitized erythrocytes and decrease malaria-induced TNF-alpha secretion by monocytes/macrophages. *J Immunol.* **166(11)**, 6742-8 (2001)

McGilvray, I.D., Serghides, L., Kapas, A., Rotstein, O.D., and Kain, K.C. Non-opsonic monocyte phagocytosis of Plasmodium falciparum-parasitized erythrocytes: a role for CD36 in malaria clearance. *Blood.* **96**, 2131-3240 (2000)

Serghides, L., *et al.* Rosiglitazone modulates the innate immune response to Plasmodium falciparum infection and improves outcome in experimental cerebral malaria. *J Infect Dis.* **199(10)**, 1536-45 (2009)

### Patents:

South Africa - ZA2002/3099 Granted Sept 23, 2003, Sri Lanka - LK12733 Granted - Jun 29, 2006 and India IN/PCT/2002/00403/DEL - Filed - Oct 18, 2000

### Inventors:

Kevin Kain & Lena Serghides

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