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Frequency of the *HFE C282Y* and *H63D* polymorphisms in Brazilian malaria patients and blood donors from the Amazon region

F.R. Torres[1], W.C. Souza-Neiras[1,2], A.A. D'Almeida Couto[3], V.S.C. D'Almeida Couto[3], C.E. Cavasini[2], A.R.B. Rossit[2], R.L.D. Machado[2] and C.R. Bonini-Domingos[1]

[1]Laboratório de Hemoglobinas e Genética das Doenças Hematológicas, Departamento de Biologia, Instituto de Biociências, Letras e Ciências Exatas (IBILCE-UNESP), São José do Rio Preto, SP, Brasil
[2]Departamento de Doenças Dermatológicas, Infecciosas e Parasitárias, Centro de Investigação de Microrganismos, Faculdade de Medicina de São José do Rio Preto, São José do Rio Preto, SP, Brasil
[3]Faculdade SEAMA, Macapá, AP, Brasil

Corresponding author: C.R. Bonini-Domingos
E-mail: bonini@ibilce.unesp.br

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ABSTRACT. Malaria is an endemic parasitosis and its causitive agent, *Plasmodium*, has a metabolism linked to iron supply. *HFE* is a gene with the polymorphisms *C282Y* and *H63D*, which are associated with a progressive iron accumulation in the organism leading to a disease called hereditary hemochromatosis. The aim of the present study was to determine the allelic and genotypic frequencies of the *HFE* gene polymorphisms in malaria patients and blood donors from the Brazilian Amazon region. We screened 400 blood donors and 400 malaria patients for the *HFE C282Y* and *H63D* polymorphisms from four states of the Brazilian Amazon region by polymerase chain reaction and restriction fragment length polymorphism analysis. We did not find any *C282Y* homozygous individuals, and the only five heterozygous individuals detected were from Pará State. The most frequent genotype in the North region of Brazil was the *H63D* heterozygote, in both study groups. Our

results contribute to the concept that the Brazilian Amazon region should not be regarded as a single entity in South America. These polymorphisms did not influence the symptoms of malaria in the population studied, as neither severe signs nor high parasitemia were observed. Therefore, different hereditary hemochromatosis diagnostic and control measures must be developed and applied within its diverse locations. Investigations are currently being carried out in our laboratory in order to determine the importance of the coexistence of hereditary hemochromatosis in patients affected by parasitic diseases, such as malaria.

Key words: Malaria; *HFE* gene polymorphisms; Blood donors; Brazilian Amazon region

