EVALUATION OF A NEW PCR-BASED ASSAY FOR THE SCREENING AND TYPING OF MALARIA INFECTIONS

M. Gramaglia (1), A. Moiana (2), L. Colletta (2), C. Russo (2), S. Gatti (2)
(1) Microbiology Unit – Laboratory Department Bambino Gesù Children Hospital – Health Care and Research Institute, Piazza S. Onofrio, 4 - 00165 Rome (Italy)
(2) Laboratory of Parasitology, Virchow-Sereni – Foundation-BCCS Polichinis San Matteo – 27100 Pavia (Italy)

Abstract (devisen)

Objectives. Malaria is a chronic, life-threatening parasitic disease caused by infection with any of four Plasmodium species. Plasmodium vivax, Plasmodium vivax, Plasmodium ovale, and Plasmodium malariae. The parasites colonize the liver where they multiply and infect the red blood cells that transfer to the entire body. Four are the species infecting humans: Plasmodium falciparum, P. vivax, P. ovale, and P. malariae. Each of the four species of Plasmodium that affects humans has different symptoms, including fever, headache, and vomiting, and usually appear between 10 and 15 days after the infected mosquito bite.

Methods. The aim of the present study is to introduce a new set of PCR-based assays for malaria detection objects designed to discriminate between the four different Plasmodium species affecting humans, one of each species Plasmodium falciparum, Plasmodium vivax, Plasmodium ovale, and Plasmodium malariae. The amplifications obtained with species of Plasmodia and the other four primers pairs for the specific detection of each of the different Plasmodium species in the sample with a sensitivity of 100%.

Results. The test shows a sensitivity and a specificity of 100% for the four different species of the panel.

Conclusion. The test shows a sensitivity and a specificity of 100% for the four different species of the panel. It can be considered a valuable tool for the diagnosis of subjects suspected to be infected with malaria. The PCR inhibition. The system contains an internal control to assess the functionality of the test, and to exclude false-positive results.

Design and Methods.

The test is a real-time PCR assay that uses all the required elements for the amplification of nucleic acid targets. In each of the two assay-specific primer sets, one for each amplification (Pf and Pm), the primer set designed to discriminate between the four different Plasmodium species affecting humans, one of each species Plasmodium falciparum, Plasmodium vivax, Plasmodium ovale, and Plasmodium malariae. Each of the four species of Plasmodium that affects humans has different symptoms, including fever, headache, and vomiting, and usually appear between 10 and 15 days after the infected mosquito bite.

The parasites colonize the liver where they multiply and infect the red blood cells that transfer to the entire body. Four are the species infecting humans: Plasmodium falciparum, P. vivax, P. ovale, and P. malariae. Each of the four species of Plasmodium that affects humans has different symptoms, including fever, headache, and vomiting, and usually appear between 10 and 15 days after the infected mosquito bite.

Conclusion.

The test shows a sensitivity and a specificity of 100% for the four different species of the panel. It can be considered a valuable tool for the diagnosis of subjects suspected to be infected with malaria.

The test is a real-time PCR assay that uses all the required elements for the amplification of nucleic acid targets. In each of the two assay-specific primer sets, one for each amplification (Pf and Pm), the primer set designed to discriminate between the four different Plasmodium species affecting humans, one of each species Plasmodium falciparum, Plasmodium vivax, Plasmodium ovale, and Plasmodium malariae. Each of the four species of Plasmodium that affects humans has different symptoms, including fever, headache, and vomiting, and usually appear between 10 and 15 days after the infected mosquito bite.

Conclusion.

The test shows a sensitivity and a specificity of 100% for the four different species of the panel. It can be considered a valuable tool for the diagnosis of subjects suspected to be infected with malaria.

The test is a real-time PCR assay that uses all the required elements for the amplification of nucleic acid targets. In each of the two assay-specific primer sets, one for each amplification (Pf and Pm), the primer set designed to discriminate between the four different Plasmodium species affecting humans, one of each species Plasmodium falciparum, Plasmodium vivax, Plasmodium ovale, and Plasmodium malariae. Each of the four species of Plasmodium that affects humans has different symptoms, including fever, headache, and vomiting, and usually appear between 10 and 15 days after the infected mosquito bite.

Conclusion.

The test shows a sensitivity and a specificity of 100% for the four different species of the panel. It can be considered a valuable tool for the diagnosis of subjects suspected to be infected with malaria.