

Promising compound rapidly eliminates malaria parasite

A promising anti-malarial compound (+)-SJ733 found which tricks the immune system to rapidly destroy red blood cells infected with the malaria parasite but leave healthy cells unharmed. The compound disrupted the activity of the ATP4 proteins in the parasites which functions as pump and helps parasite to maintain the proper sodium balance. Inhibition of ATP4 in malaria –infected red blood cells trigger series of changes, typical of aging red blood cell and are rapidly eliminated by the immune system. In a mouse model of malaria , a single dose of (+)-SJ733 killed 80 percent of malaria parasites within 24 hours. After 48 hours the parasite was undetectable. Planning has begun for safety trials of the compound in healthy adults. The drug development effort is being led by a consortium that includes scientists at St. Jude, the Swiss-based non-profit Medicines for Malaria Venture and Eisai Co., a Japanese pharmaceutical company.

Reference

<http://www.sciencedaily.com/releases/2014/12/141205175027.htm>

María Belén Jiménez-Díaz, Daniel Ebert, Yandira Salinas, Anupam Pradhan, Adele M. Lehane, Marie-Eve Myrand-Lapierre, Kathleen G. O'Loughlin, David M. Shackleford, Mariana Justino de Almeida, Angela K. Carrillo, Julie A. Clark, Adelaide S. M. Dennis, Jonathon Diep, Xiaoyan Deng, Sandra Duffy, Aaron N. Endsley, Greg Fedewa, W. Armand Guiguemde, María G. Gómez, Gloria Holbrook, Jeremy Horst, Charles C. Kim, Jian Liu, Marcus C. S. Lee, Amy Matheny, María Santos Martínez, Gregory Miller, Ane Rodríguez-Alejandre, Laura Sanz, Martina Sigal, Natalie J. Spillman, Philip D. Stein, Zheng Wang, Fangyi Zhu, David Waterson, Spencer Knapp, Anang Shelat, Vicky M. Avery, David A. Fidock, Francisco-Javier Gamo, Susan A. Charman, Jon C. Mirsalis, Hongshen Ma, Santiago Ferrer, Kieran Kirk, Iñigo Angulo-Barturen, Dennis E. Kyle, Joseph L. DeRisi, David M. Floyd, R. Kiplin Guy. ()-SJ733, a clinical candidate for malaria that acts through ATP4 to induce rapid host-mediated clearance of Plasmodium. *Proceedings of the National Academy of Sciences*, 2014; 201414221 DOI: [10.1073/pnas.1414221111](https://doi.org/10.1073/pnas.1414221111)