



EUROPEAN UNION

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Press Release

.../for immediate release

EU-funded breakthrough in malaria treatment in the run up to World Malaria Day

Ahead of World Malaria Day (25 April), EU-funded researchers have discovered that drugs originally designed to inhibit the growth of cancer cells can also kill the parasite that causes malaria. They believe this discovery could open up a new strategy for combating this deadly disease, which, according to [World Health Organisation statistics](#), infected around 225 million and killed nearly 800 000 people worldwide in 2009. Efforts to find a treatment have so far been hampered by the parasite's ability to quickly develop drug resistance. The research involved four projects funded by the EU (ANTIMAL, BIOMALPAR, MALSIG and EVIMALAR) and was led by laboratories in the UK, France and Switzerland with partners from Belgium, Germany, Denmark, Greece, Spain, Italy, Netherlands, Portugal, and Sweden, along with many developing nations severely affected by malaria.

Research, Innovation and Science Commissioner Máire Geoghegan-Quinn said: "*This discovery could lead to an effective anti-malaria treatment that would save millions of lives and transform countless others. This demonstrates yet again the added value both of EU-funded research and innovation in general and of collaboration with researchers in developing countries in particular. The ultimate goal is the complete eradication of the global scourge of malaria and collaborative work across many borders is the only way of confronting such global challenges effectively.*"

Cancer drugs to kill malaria parasite

Malaria is caused by a parasite called Plasmodium, which is transmitted via the bites of infected mosquitoes. In the human body, the parasites reproduce in the liver, and then infect and multiply in red blood cells. Joint research led by EU-funded laboratories at the Inserm-EPFL Joint Laboratory, Lausanne, (Switzerland/France), Wellcome Trust Centre for Molecular parasitology, University of Glasgow (Scotland), and Bern University (Switzerland) showed that, in order to proliferate, the malaria parasite depends upon a signalling pathway present in the host's liver cells and in red blood cells. They demonstrated that the parasite hijacks the kinases (enzymes) that are active in human cells, to serve its own purposes. When the research team used cancer chemotherapy drugs called kinase inhibitors to treat red blood cells infected with malaria, the parasite was stopped in its tracks.

A new strategy opens up

Until now the malaria parasite has managed to avoid control by rapidly developing drug resistance through mutations and hiding from the immune system inside liver and red blood cells in the body of the host, where it proliferates. The discovery that the parasite needs to hijack some enzymes from

the cell it lives in opens up a whole new strategy for fighting the disease. Instead of targeting the parasite itself, the idea is to make the host cell environment useless to it, by blocking the kinases in the cell. This strategy deprives the parasite of a major modus operandi for development of drug resistance.

Several kinase-inhibiting chemotherapy drugs are already used clinically in cancer therapy, and many more have already passed phase-I and phase II clinical trials. Even though these drugs have toxic side-effects, they are still being used over extended periods for cancer treatment. In the case of malaria, which would require a shorter treatment period, the problem of toxicity would be less acute. Researchers are proposing therefore that these drugs should be evaluated immediately for anti-malarial properties, drastically reducing the time and cost required to put this new malaria-fighting strategy into practice.

The next steps will include mobilising public and industrial partners to verify the efficacy of kinase inhibitors in malaria patients and to adjust the dose through clinical trials, before the new treatments can be authorised and made available to malaria patients worldwide.

Background

Since 2002, the EU has invested nearly EUR 180 million in malaria research through the EU's Framework Programmes for Research (FP6, 2002-2006, and FP7, 2007-2013).

The EU also contributes to the European and Developing Countries Clinical Trials Partnership (EDCTP) which aims to accelerate the development of new or improved drugs, vaccines and microbicides against HIV/AIDS, malaria and tuberculosis. Established in 2003, this successful ongoing European and African collaboration focuses on clinical trials as well as capacity building in sub-Saharan Africa. To date, 10 clinical trials on malaria costing EUR 69 million have been financed under EDCTP with EUR 35 million support from the EU.

Links

Article on the research:

<http://www.ncbi.nlm.nih.gov/pubmed/21371233>

About malaria:

http://ec.europa.eu/research/health/infectious-diseases/poverty-diseases/malaria_en.html

<http://ecdc.europa.eu/en/healthtopics/malaria/Pages/index.aspx>

http://ec.europa.eu/health/communicable_diseases/policy/index_en.htm

http://www.who.int/malaria/world_malaria_report_2010/worldmalariaireport2010.pdf

<http://www.edctp.org>

Annex: Details on research projects involved in the discovery

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Annex – Details on research projects involved in the discovery

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ANTIMAL - Development of new drugs for the treatment of malaria

<http://www.antimal.eu/>

See video at <http://www.comed-project.org/index.php?id=5>

Start date: 01/12/2005

Duration: 66 months

EU contribution: 17.75 million euro

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Participants:

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UNIVERSITY OF CAPE TOWN	SOUTH AFRICA
AFRICAN INSTITUTE OF BIOMEDICAL SCIENCE AND TECHNOLOGY	ZIMBABWE
CENTRE NATIONAL DE RECHERCHE ET DE FORMATION SUR LE PALUDISME	BURKINA FASO
UNIVERSITY OF LIVERPOOL	UNITED KINGDOM
COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH	SOUTH AFRICA
INSTITUTE OF PRIMATE RESEARCH	KENYA
KENYA MEDICAL RESEARCH INSTITUTE/WELLCOME TRUST RESEARCH PROGRAMME	KENYA
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UNIVERSITA DEGLI STUDI DI MILANO	ITALY
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	FRANCE

UNIVERSITE LOUIS PASTEUR	FRANCE
KIADIS B. V.	NETHERLANDS
NATIONAL TECHNICAL UNIVERSITY OF UKRAINE, KPI	UKRAINE
LUDWIG-MAXIMILIANS UNIVERSITY MUNICH	GERMANY
GHENT UNIVERSITY	BELGIUM
JUSTUS-LIEBIG UNIVERSITY GIESSEN	GERMANY
NEED PHARMACEUTICALS	ITALY
PALUMED S A	FRANCE
COSMOS LIMITED	KENYA
4SC AG	GERMANY
LICA PHARMACEUTICALS A/S	DENMARK
AFRICAN CENTRE FOR CLINICAL TRIALS	KENYA
UNIVERSITY OF NAIROBI	KENYA
MEDICAL RESEARCH UNIT, ALBERT SCHWEITZER HOSPITAL	GABON
UNIVERSITA DEGLI STUDI DI SIENA	ITALY
SWISS TROPICAL INSTITUTE	SWITZERLAND
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	SPAIN
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FOUNDATION BIOMEDICAL PRIMATE RESEARCH CENTER	NETHERLANDS
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UNIVERSITY OF YORK	UNITED KINGDOM
LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE	UNITED KINGDOM

BIOMALPAR - Biology and pathology of the malaria parasite

www.biomalpar.org

Start date: 01/04/2004

Duration: 66 months

EU contribution: 16 million euro

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UNIVERSITY OF GENEVA	SWITZERLAND
INSTITUTE OF ENDEMIC DISEASES UNIVERSITY OF KHARTOUM	SUDAN
MALARIA RESEARCH AND TRAINING CENTER, DEAP, FMPOS, U. OF BAMAKO, MALI	MALI
MAKERERE UNIVERSITY KAMPALA	UGANDA
FOUNDATION FOR RESEARCH & TECHNOLOGY HELLAS - INSTITUTE OF MOLECULAR BIOLOGY & BIOTECHNOLOGY	GREECE
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ISTITUTO SUPERIORE DI SANITÀ	ITALY
MEDICAL RESEARCH COUNCIL	UNITED KINGDOM

MALSIG - Signalling in life cycle stages of malaria parasites

<http://www.malsig.lille.inserm.fr/>

Starting date: 01/02/2009

Duration: 36 months

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EVIMALAR - Towards the establishment of a permanent European virtual institute dedicated to malaria research

<http://www.evimalar.org/>

Starting date: 01/10/2009

Duration: 60 months

EU contribution: 12 million euro

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UNIVERSITA DEGLI STUDI DI ROMA LA SAPIENZA	ITALY
MAKERERE UNIVERSITY	UGANDA
UNIVERSITY OF MELBOURNE	AUSTRALIA
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