

**GOVERNMENT OF INDIA
HEALTH AND FAMILY WELFARE
LOK SABHA**

UNSTARRED QUESTION NO:1985

ANSWERED ON:08.03.2013

RESEARCH ON ANTI-MALARIAL DRUGS AND VACCINES

Adhi Sankar Shri ;Gandhi Smt. Maneka Sanjay;Singh Shri Uday Pratap

Will the Minister of HEALTH AND FAMILY WELFARE be pleased to state:

- (a) whether the Government is supporting a number of research projects to develop new and affordable anti-malarial drugs and vaccines in the country;
- (b) if so, the details thereof;
- (c) the present status and outcome of such research projects;
- (d) whether a nano-capsule for target therapy of malaria has reportedly been designed by a team of researchers at Indian Institute of Technology (IIT) Kanpur and if so, the details and the present status thereof; and
- (e) the further measures taken/proposed by the Government to promote research on malaria in the country?

Answer

THE MINISTER OF STATE IN THE MINISTRY OF HEALTH AND FAMILY WELFARE (SHRI ABU HASEM KHAN CHOUDHURY)

(a): Yes. The various research projects to develop new and affordable anti-malaria drugs and vaccines in the country, inter alia, includes the following:

(1) The Indian Council of Medical Research (ICMR) through its National Institute of Malaria Research (NIMR) at Delhi has conducted various clinical trials of anti-malarial drugs as per the requirement of the national health programme. These trials include Phase -III trial of new combination of antimalarials (ACT's) namely Artesunate + Amodiaquine (AS+AQ), Artesunate + Mefloquine (AS+MQ), Dihydroartemisinin + Piperaquine (DHA+PPQ), Pyronaridine + Artesunate, ap arteether, bulaquine and azithromycin.

(2) Further the NIMR, New Delhi in collaboration with medical colleges and hospitals across Orissa, Karnataka and Jharkhand conducted clinical trials to evaluate Arterolane + Piperaquine (developed by Ranbaxy) as part of multi-country trials in India, Thailand and Africa. Subsequently, this combination was launched under the generic name 'Synriam'.

(3) A Phase II prospective comparative randomized clinical trial was conducted in patients of uncomplicated vivax malaria to compare the efficacy of Ayush- 64 vs chloroquine. Ayush- 64, is a plant product formulation patented by Council of Ayurveda and Siddha was compared with chloroquine.

(4) The Department of Biotechnology (DBT) is supporting establishment of a high throughput drug-screening centre at ICGB for screening of drugs against TB and malaria.

(5) The Council for Scientific and Industrial Research (CSIR) is supporting a program on open source drug discovery for malaria.

(6) The Department of Biotechnology (DBT), is supporting the International Centre for Genetic Engineering and Biotechnology (ICGEB), New Delhi and Malaria Vaccine Development Program (MVDP), New Delhi to develop vaccines for both P. falciparum malaria and P. vivax malaria.

(7) Further, the NIMR, New Delhi has developed two vaccine trial sites in Sundergarh district, Odisha and Jabalpur district, Madhya Pradesh.

(b): The details of drug and vaccine development projects supported by the Government of India are Annexed.

(c): The present status of the research projects are given below:

Drugs

The combinations of anti-malarials, namely, (AS+AQ), (AS+MQ), Arterolane + Piperaquine, bulaquine, ap arteether have been registered for marketing in India.

Vaccines

The next generation blood stage vaccine candidates for *P. falciparum*, JAVAC-2 and JAVAC-3 are currently being tested in pre-clinical studies for immunogenicity. Vaccine for *P. vivax* malaria and pre-erythrocytic vaccine against *P. falciparum* are under development.

As per the newspaper report published in the Times of India (Kolkata edition) dated 28.01.2013, it was reported that scientists in the Department of Chemistry, IIT Kanpur are working on a micro-sized nano-capsule to be filled with the anti-malaria drug.

As per the above news, this micro-sized nano-capsule is proposed to protect the anti-malaria drug from degradation in the human system and ensure effective delivery of the drug to its site of action, minimizing wastage. The scientists are trying to design a soft, hollow container of peptides which may serve as such a capsule. The details in this regard are not available with Indian Council of Medical Research (ICMR).

(e): Following measures are being taken by the government to promote research on malaria control in the country:

1. Introduction of Artemisinin-based combination therapy for treatment of uncomplicated *P. falciparum* malaria throughout the country
2. Continuous monitoring the efficacy of recommended antimalarial drugs in the country
3. Introduction of rapid diagnostic test kits in the remote periphery areas for early diagnosis and prompt treatment; these include the recently introduced bivalent rapid diagnostic kits for diagnosis of two major malaria species
4. Introduction of second line of anti-malarials in the north-eastern region following high proportion of treatment failure of recommended antimalarial combinations in this region
5. A clinical trial has been planned to improve compliance of antirelapse therapy with primaquine in *vivax* malaria.
6. Introduction of new tools for vector control