

## **Nobel Prize Awarded for Fight against Malaria, an IMBB Research Priority**

Malaria is one of the most deadly diseases in the world, with several hundred million cases mostly in the poor countries in Africa and Southeast Asia. Every year about half a million people die of the disease with children and pregnant women most at risk. Malaria is caused by microscopic parasites which develop inside the red blood cells of the patient causing symptoms such as fever, shivering, pain and anemia while in some cases the brain is attacked leading to death. The parasite is transmitted from person to person by the bite of a mosquito of the genus *Anopheles*. Due to this, attempts to combat the disease are based on drugs to treat the patients combined with measures to minimize the exposure to mosquitoes. Global organizations and the scientific community have made tremendous efforts during the last decades to develop efficient tools to control or even eliminate malaria. A recognition of these efforts is this year's Nobel Prize in Physiology or Medicine which was awarded to researchers discovering new drugs against parasitic diseases. Professor Youyou Tu was awarded the prize for the discoveries of a novel therapy against malaria. The drug she discovered was artemisinin, which today is the drug of choice for treating malaria. Its use, together with other interventions against the mosquito malaria vector has led to a reduction of lethal cases of about 50% during the last 15 years, and it is estimated that about 100 000 lives are saved each year. Still about half of million lives are lost because of this disease and new methods are urgently needed to combat the disease.

At IMBB research on insect-borne diseases and specifically malaria has been a long-standing strategic priority, with three research groups studying the mosquito transmitting malaria as well as the parasite itself with the aim at developing new tools and knowledge to be used in control of the disease. Within this framework the group led by Professor Giannis Vontas at IMBB was recently awarded a large grant from the competitive EU Horizon 2020 Programme to develop innovative molecular diagnostic tools for mosquitoes transmitting malaria. "This is a highly innovative and critical programme for health world-wide that also promotes the excellence and international recognition of IMBB-FORTH in the strategic field of vector borne diseases" commented Director of IMBB Prof. Tavernarakis.

The programme will develop an automated molecular diagnostic platform to be used to analyze samples of mosquitoes to determine the species of mosquito (if they can transmit malaria or not), if the mosquito is infected with the malaria parasite and if it is resistant to insecticides. It will be used in areas where the disease is endemic and allow efficient control measures against the mosquitoes transmitting malaria.

Research at IMBB/FORTH in this area will be strengthened and developed further with the goal to expand the research to the needs of the geographical area of the Eastern Mediterranean with studies both on insects transmitting disease agents, such as viruses, bacteria and parasites, as well as on these organisms. Research in this area contributes to prevention and treatment of these diseases, and it provides opportunities to young scientists to continue their research at IMBB/FORTH and in the broader academic community in Crete.