

➔ BITING BACK

Imperial's laboratories are home to tens of thousands of mosquitoes that are specially bred to help researchers understand and prevent the spread of devastating diseases.

01 ❁ TAMING THE BEASTS With over 300 million people affected by malaria every year and no immediate prospects of a vaccine, scientists keenly seek new ways to tackle this disease, which is transmitted by the bites of the female *Anopheles* mosquito. Around 50 Department of Life Sciences staff are dedicated to breeding mosquitoes and analysing their interactions with the malaria parasite *Plasmodium* in labs in the Sir Alexander Fleming Building. Mosquitoes are kept at a tropical 80 per cent humidity and 28°C, similar to conditions in their natural habitats in Africa, India and Asia.

02 ❁ LIFE IN THE LAB Mosquito eggs hatch in their hundreds in large white trays partially filled with salted water. Just one millimetre long, the swimming larvae feed on algae and bacteria, growing to eight millimetres in one week before forming a chrysalis and emerging as adults after another week. The flying insects are then transferred to meshed cages, like the one held here by Dr Dina Vlachou and Professor George Christophides, where they feed on infected animal or human blood sucked through a membrane that mimics real skin. Imperial's researchers are particularly interested in adult mosquitoes; research indicates the spread of malaria can be halted most effectively at this stage.

03 ❁ FIGHTING FEVER Imperial has long been at the forefront of efforts to halt malaria. Over a decade ago Professor Andrea Crisanti bred the first transgenic *Anopheles* mosquitoes. Now researchers aim to stop the disease by creating mosquitoes genetically immune to *Plasmodium*, blocking its transmission to humans, or suppressing the insect populations by creating sterile males. Their work is funded by the Wellcome Trust and Bill and Melinda Gates Foundation, among others. Professor Christophides coordinates a European Union-backed study in sub-Saharan Africa, where scientists are testing how malaria parasites and their mosquito carriers react to potential vaccines and drugs.