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<https://forum2018.fens.org/>

PRESS RELEASE

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**THIRST FOR BLOOD: HOW DO MOSQUITOES CHOOSE WHO TO BITE,
AND CAN THEY BE STOPPED?**

Over half a million people die every year from disease spread by mosquitoes, and hundreds of millions more experience pain and suffering from such conditions. Scientists from America may now be closer than ever to knowing how mosquitoes choose their human hosts, and how this can be stopped.

Male mosquitoes do not bite, but feed on flower nectar, while female mosquitoes need to bite people or animals in order to obtain a blood protein to complete their egg production cycle. In so doing, they spread dangerous diseases such as malaria, dengue, Zika, chikungunya, and yellow fever.

Professor Leslie Vosshall and colleagues at the Rockefeller University of New York are studying how mosquitoes decide who to bite. “We attract mosquitoes via multiple sensory cues including emitted body odour from lactic acid, heat and carbon dioxide in our breath, and mosquitoes can sense differences between these cues to determine which animal or human to target for blood-feeding,” she said today (8 July). “We also know that neither carbon dioxide from human breath or lactic acid, part of human body odour, alone will make you a target, but in combination they are fiercely attractive to mosquitoes. We are thus exploring questions such as why are some people more attractive to mosquitoes than others, how do insect repellents work and what happens within the mosquito brain when they seek out a host to bite?”

Professor Vosshall told delegates at the FENS Forum of Neuroscience in Berlin about her team’s work, which could prove crucial in helping to develop more effective ways of stopping mosquito/host attraction.

Among these, one study seeks to better understand how DEET, the commonest insect repellent, works, further to the finding that mosquitoes genetically modified so that they cannot smell it, will not bite a DEET-treated arm.

Looking to the female egg production cycle, once the blood protein has been ingested by the mosquito, enabling her to produce eggs, she is no longer attracted to the host until after she has laid these eggs. Why does this switch occur, is it possible to interrupt the cycle of biting and egg laying, and what physiological properties of individuals make them especially attractive to mosquitoes? Are good human hosts determined for example by their genes, or their diet?

Taken together, this work points at the importance of learning more about the internal workings of the mosquito brain, to see whether there are points in its cycle of perception of human hosts that could be artificially altered, breaking the cycle of biting, disease spread and egg production.

END

Plenary lecture: P03 - Thirst for blood: The neurobiology of mosquito behaviour

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NOTES TO EDITORS

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The 11th FENS Forum of Neuroscience, the largest basic neuroscience meeting in Europe, organised by FENS and hosted by the German Neuroscience Society will attract more than 7,000 international delegates. The Federation of European Neuroscience Societies (FENS) was founded in 1998. With 43 neuroscience member societies across 33 European countries, FENS as an organisation represents 24,000 European neuroscientists with a mission to advance European neuroscience education and research. <https://forum2018.fens.org/>