

Technical University of Denmark



Dispersal, behavioral responses and thermal adaptation in *Musca domestica*

Kjaersgaard, Anders; Blackenhorn, Wolf U.; Pertoldi, Cino; Loeschcke, Volker; kaufmann, Christian; Hald, Birthe; Pages, Nonito; Bahrndorff, Simon

Publication date:
2014

Document Version
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

Citation (APA):
Kjaersgaard, A., Blackenhorn, W. U., Pertoldi, C., Loeschcke, V., kaufmann, C., Hald, B., ... Bahrndorff, S. (2014). Dispersal, behavioral responses and thermal adaptation in *Musca domestica*. Abstract from 7th international symposium on molecular insect science, Amsterdam, Netherlands.

DTU Library

Technical Information Center of Denmark

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.



Seventh International Symposium on Molecular Insect Science

13-16 July 2014

NH Grand Krasnapolsky, Amsterdam, The Netherlands



Dispersal, behavioral responses and thermal adaptation in *Musca domestica*.

Anders Kjærsgaard^{1,2}, Wolf U. Blanckenhorn², Cino Pertoldi^{3,4}, Volker Loeschcke¹,
Christian Kaufmann², Birthe Hald⁵, Nonito Pagès⁶, Simon Bahrndorff^{5,3}

¹Aarhus University, Denmark. ²University of Zurich, Switzerland. ³Aalborg University, Denmark.

⁴Aalborg Zoo, Denmark. ⁵Technical University of Denmark, National Food Institute, Denmark.

⁶Centre de Recerca en Sanitat Animal (CRESA), Spain.

Behavioral traits can have great impact on an organism's ability to cope with or avoidance of thermal stress, and are therefore of evolutionary importance for thermal adaptation. We compared the morphology, heat resistance, locomotor (walking and flying) activity and flight performance of three European populations of *Musca domestica* (Diptera: Muscidae) originating from different thermal conditions (Spain, Switzerland and Denmark) at benign and high temperatures. Spanish flies showed higher heat resistance compared to the Swiss and Danish populations. Similarly, at the high temperature (41.5°C) Spanish flies flew longest and Danish flies shortest. Swiss flies were the most active in terms of locomotor activity at the benign temperature (24°C), whereas the Spanish flies were able to stay active longer at the high temperature (43°C). Population differences in behavioral traits and heat resistance were obtained with flies held for several generations in a laboratory common garden setting, therefore we suggest that exposure to and avoidance of high temperatures under natural conditions has been an important selective agent causing the suggested adaptive differentiation between the populations.