Motor learning mechanisms at #SfN25

Björn Brembs

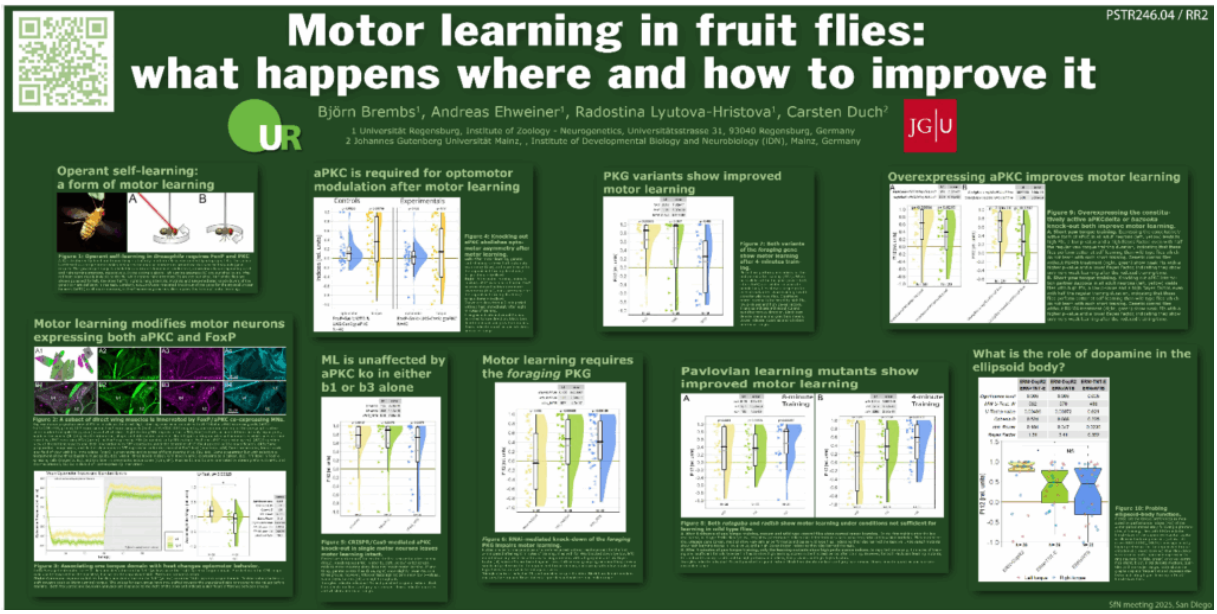
Blog post published November 13, 2025 in *bjoern.brembs.blog*
https://doi.org/10.59350/b97pv-5gj20

Abstract

Due to political developments, the US have become a much less welcoming and hence dramatically less attractive place for academic conferences. This year, nobody from our research group was interested in attending our otherwise regular meeting of the Society for [...] ↓ Read the rest of this entry...

Keywords

Cognitive Neuroscience (Subfield), Motor Control and Adaptation (Topic), Own Data, aPKC, FoxP, Motor Neuron, Operant



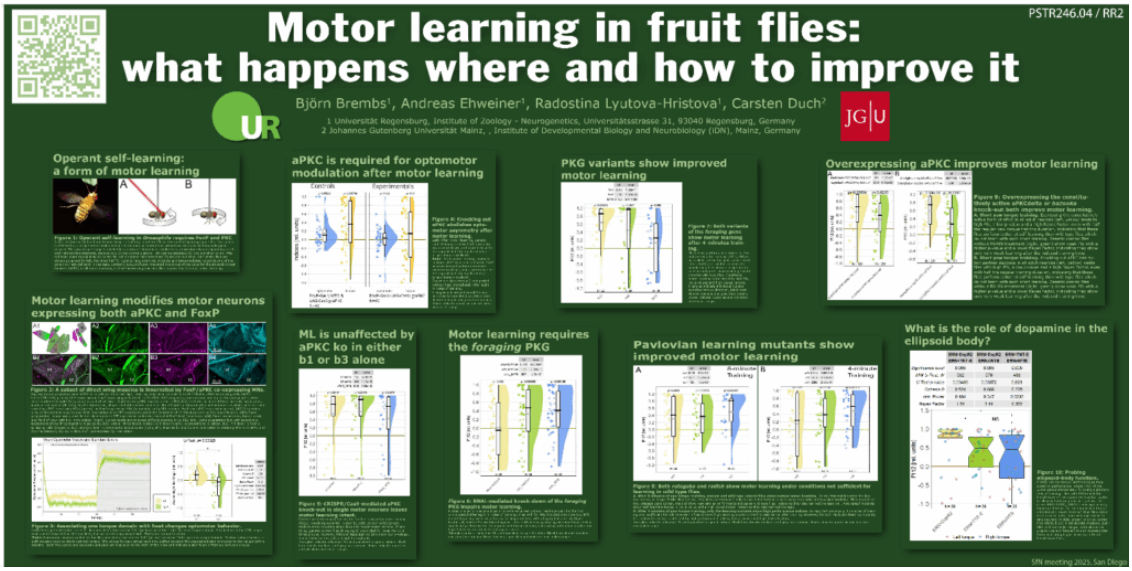
Recommended citation

Brembs, B. (2025, November 13). Motor learning mechanisms at #SfN25. *Bjoern.brembs.blog*. https://doi.org/10.59350/b97pv-5gj20

Copyright

Copyright © Björn Brembs 2025. Distributed under the terms of the Creative Commons Attribution 4.0 International License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Due to political developments, the US have become a much less welcoming and hence dramatically less attractive place for academic conferences. This year, nobody from our research group was interested in attending our otherwise regular meeting of the Society for Neuroscience (SfN). Thus, it will be only me who will attend and present our only poster:



On this poster, we describe how we discovered that an important site of plasticity in motor learning are motor neurons. The type of motor learning we study here is a form of operant self-learning where tethered flies (flying stationarily, fixed at a torque meter measuring the angular force the fly generates around its vertical body axis) receive heat-punishment for attempting to turn in a particular direction (i.e., either to the left or to the right). The motor neurons we have discovered express both the genes for aPKC and FoxP, conserved genes for motor learning among bilaterians. Knocking out any of these genes abolishes plasticity and learning. We also show preliminary evidence that the *foraging* PKG may also be involved in this type of learning. Pavlovian learning mutants show improved motor learning and overexpressing aPKC with two different methods also improves motor learning. Finally, we start exploring the role of dopamine and the ellipsoid-body ring neurons in this type of motor learning.

Usually, there are more than 30k attendees at this conference. Given the circumstances, I would not be surprised if this year's attendance were less than 20k. We will see. Depending on future developments, this may be the last time anyone from our research group will be able to attend a meeting in the USA for the foreseeable future.

On the other hand, all of our group (a total of now six people) will be attending the FENS meeting next year in Barcelona.