



## ON-SITE BIOLOGY COLLOQUIUM

Friday, 22 Mar 2024 | 4 pm | DBS Conference Room 1, Blk S3 Level 5

Hosted by Prof Antonia Monteiro

Map to Block S3



# Understanding Fruit Flies in Context: Evolution, Toxins, and Behavior

**By Justin Crocker**

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### **About the Speaker**

*Justin Crocker received his Ph.D. in 2010 from Dartmouth College. Following a postdoctoral fellowship at Princeton University and Howard Hughes Medical Institute's Janelia Research Campus, he became a group leader at EMBL Heidelberg in 2017.*

Global insect biomass is decreasing, primarily due to climate change and pesticide use. Our study, utilizing a chemical library of 1,024 molecules (insecticides, herbicides, fungicides, and plant growth regulators), aimed to understand their impact on insect populations at sublethal doses. We discovered that 57% of these chemicals changed larval behavior at sublethal levels, with many also decreasing survival rates. The adverse effects of these agrochemicals intensified with higher temperatures. We also explored the effects of multiple chemicals at realistic concentrations, finding negative impacts on development, behavior, and reproduction in larvae. Further research extending to other species like flies, mosquitoes, and butterflies showed consistent behavioral alterations due to sublethal pesticide exposure. Our results underscore that sublethal agrochemical doses, worsened by temperature changes, significantly contribute to the global decline in insect populations.