

**VIRTUAL BIOLOGY COLLOQUIUM**

Friday, 10 June 2022 | 10 am | Online Zoom Session

Hosted by Dr Nalini Puniamoorthy

Seminal contributions: how male-derived proteins regulate reproduction

By Mariana Federica Wolfner*Distinguished Professor of Arts and Sciences in
Molecular Biology & Genetics, Cornell University***About the Speaker**

Mariana Federica Wolfner (B.A., Cornell, Ph.D. Stanford, postdoc UCSD) is Cornell's Distinguished Professor of Arts and Sciences in Molecular Biology & Genetics, Stephen H. Weiss Presidential Fellow, and Associate Department Chair. She studies the molecular/genetic bases for the important processes that span the time when a sperm fertilizes an egg. Using the *Drosophila* model, her laboratory studies the molecular signals that "activate" an oocyte to initiate embryo development and studies how seminal proteins modulate the reproductive physiology and behavior of female insects. Mariana has mentored 43 graduate students, 30 postdoctoral scholars, and over 90 undergraduate students. She has been honored by awards from the Genetics Society of America, the Entomological Society of America, the International Congress of Entomology Council, and by Cornell for her teaching and advising/mentoring. Mariana is a member of the US National Academy of Sciences and a Fellow of the American Association for the Advancement of Science.

Mating profoundly changes the physiology of female animals, impacting their reproductive success and their progeny. Males' seminal fluid molecules induce these changes – but how do they do so? Their mechanisms can be dissected by using a genetic model, *Drosophila*, whose post-mating changes are dramatic (increased egg production, sperm storage, modulated behaviors, physiology, and transcriptome/proteome) and that is amenable to genetic, imaging, molecular, and 'omic, etc. analyses. I will present what we've learned and are learning using this model system about how seminal proteins act, how they influence interactions between males and females or between males and rival males, and the reproductive and evolutionary consequences of their actions. I will set these findings into the context of analogous fertility roles of seminal proteins in insects that transmit diseases, and in mammals, and potential applications of this knowledge.

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