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## BIOGRAPHICAL SKETCH

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| NAME<br>Fernando Gabriel Noriega                                   | POSITION TITLE<br>Professor of Biology |
| eRA COMMONS USER NAME (credential, e.g., agency login)<br>noriegaf |  |

| EDUCATION/TRAINING                           |                           |           |                      |
|--|---------------------------|-----------|----------------------|
| INSTITUTION AND LOCATION                     | DEGREE<br>(if applicable) | MM/YY     | FIELD OF STUDY       |
| Universidad Nacional De La Plata (Argentina) | BA                        | 03/81     | Zoology              |
| Universidad Nacional De La Plata (Argentina) | Ph.D.                     | 07/87     | Zoology              |
| University of Arizona                        | Postdoctoral              | 1989-1993 | Molecular Entomology |

### A. Personal Statement

My research program employs an integrative approach that combines experiments at the organismal, cellular and molecular level to understand the synthesis and roles of Juvenile Hormone in mosquitoes. Juvenile hormone (JH) is a major hormonal regulator in insects. In the female of *Aedes aegypti*, JH signals the completion of the ecdysis to the adult stage, and initiates reproductive processes. Our research, which integrates metabolomics, genomics and proteomics tools, is uncovering that mosquito regulation of JH synthesis has unique features that are related to the adaptation to blood-feeding and the cyclic regulation of ovarian development. These unique features provide potential research opportunities for identifying targets for novel specific chemical and/or genetic strategies to control mosquitoes. I have over 30 years of experience working on different *Aedes aegypti* physiological processes. My research has been always very innovative, and received continuous support from NIH for the 30 years.

### B. Positions and Honors

#### Positions and Employments

1981-1988 Graduate Fellow Parasites and Vectors Center, Univ. Nacional de La Plata, Argentina.  
1988-1989 Post-Doctoral Research Fellow, National Council of Scientific Research. Argentina.  
1989-1993 Research Associate, Center for Insect Sciences, University of Arizona. Tucson, AZ  
1994-2002 Research Assistant Professor, Department of Biochemistry, University of Arizona, Tucson, AZ  
2002-2003 Research Associate Professor, Department of Biochemistry, University of Arizona, Tucson, AZ  
2004-2007 Assistant Professor, Department of Biology, Florida International University. Miami, FL.  
2007-2012 Associate Professor, Department of Biology, Florida International University. Miami, FL.  
2012-2023 Professor, Department of Biology, Florida International University. Miami, FL.  
**2023-Present: Emeritus Professor, Department of Biology, Florida International University. Miami, FL.**  
**2023-Present: Professor, Department of Parasitology, University of South Bohemia, Czech Republic**

#### Other Experience and Professional Memberships

2010- Present Member Editorial Board Insect Biochemistry and Molecular Biology.  
2019-2023 Member Editorial Board Current Opinion on Insect Sciences.  
2009-2015 NIH/NIAID Vector Biology Study Section, permanent member  
2009-2012 Editor in Chief Journal Open Access Insect Physiology.  
2007-2009 NSF Integrative biology review panel, member  
2005-2009 NIH Peer Review Vector Biology Study Section ad hoc reviewer  
Honors  
1981-1988 National Council of Scientific Research Fellowship, Argentina. 2012

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| 1989 | National Council of Scientific Research Post-Doctoral Fellowship, Argentina                 |
| 1989 | Fulbright Foundation Travel Grant Award.  |
| 1994 | Biomedical Research Abroad Award (BRAVO-NIH). Univ South Bohemia, Czech Republic            |
| 2001 | Distinguish Visiting Professor Award. Mexico-United States Foundation for Sciences. Mexico. |
| 2010 | Selected as one of the 100 most prominent latinos in Miami.                                 |
| 2012 | FIU Top Scholar 2012.   |
| 2015 | FIU Top Scholar 2015.   |
| 2016 | FIU Senate Research Award.  |
| 2016 | FIU College Art Science Research Award.   |

### C. Selected Peer-reviewed Publications (Selected from 91 peer-reviewed publications)

1. Mazhar Hussain, Zhi Qi, Lauren M. Hedges, Marcela Nouzova, Fernando G. Noriega and Sassan Asgari (2023). Investigating the role of aae-miR-34-3p in the regulation of juvenile hormone biosynthesis genes in the mosquito *Aedes aegypti*. *Scientific reports*. 13(1):19023
2. James W. Truman, Lynn M. Riddiford, Barbora Konopová, Marcela Nouzova, Fernando G. Noriega, Michelle Herko (2023). The embryonic role of juvenile hormone in the firebrat, *Thermobia domestica*, reveals its function before its involvement in metamorphosis. *Elife*. Preprint. 2023 Oct 10. doi: 10.1101/2023.10.06.561279
3. Yoshitomo Kurogi, Eisuke Imura, Yosuke Mizuno, Ryo Hoshino, Marcela Nouzova<sup>4</sup>, Shigeru Matsuyama, Akira Mizoguchi, Shu Kondo, Hiromu Tanimoto, Fernando G. Noriega, and Ryusuke Niwa (2023). Female reproductive dormancy in *Drosophila melanogaster* is regulated by DH31-producing neurons projecting into the *corpus allatum*. *Development*. 150, dev201186.
4. Mantica et al. (2023) Pervasive evolution of tissue-specificity of ancestral genes differentially shaped vertebrates and insects. *Nature Ecology and Evolution*. Under review.
5. Jimena Leyria, Alessandra Aparecida Guarneri, Marcelo Gustavo Lorenzo, Marcela Nouzova, Fernando G. Noriega, Samiha A. M. Benrabaa, Ian Orchard, Angela B. Lange. (2023). Effects of mating on female reproductive fitness in the insect model, *Rhodnius prolixus*, a vector of Chagas disease. *PLoS Neglected Tropical Diseases*. 17(9):e0011640
6. Barton, L.J., Sanny, J., Dawson, E., Nouzova, M., Noriega, F.G., Stadtfeld, M., Lehmann, R. (2022). Juvenile Hormone guide migrating germ cells to the embryonic gonad. *Current Biology*. doi: <https://doi.org/10.1101/2021.09.30.462471>.
7. Leyra et al (2022). Crosstalk between nutrition, insulin, juvenile hormone, and ecdysteroid signaling in the classical insect model, *Rhodnius prolixus*. *International Journal of Molecular Sciences*. 24(1):7.
8. Ramos, FO; Leyria, J; Nouzova, M; Fruttero, LL; Noriega, FG; Canavoso, LE (2022). Role of Methoprene-tolerant in the regulation of oogenesis in *Dipetalogaster maxima*. *Nature Scientific Reports*. 12:14195.
9. Nouzova, M., Edwards MJ. , DeGennaro, M., Fernandez-Lima, F., Noriega, F.G. (2022). Genetics tools for corpora allata specific gene expression in *Aedes aegypti* mosquitoes. *Nature Scientific Reports*. Nov 28;12(1):20426
10. Lilian V. Tose, Cesar E. Ramirez, Veronika Michalkova, Marcela Nouzova, Fernando G. Noriega, and Francisco Fernandez-Lima. (2022). Use of double-stable isotope 2H/13C-labelling and LC-TIMS-TOF MS/MS to study ovarian lipids in mosquitoes. *Analytical Chemistry*. 94(16):6139-6145
11. Hejníková, M., Nouzova, M., Ramirez, C.E., Fernandez-Lima, F., Noriega, F.G., Doležel, D. (2022). Sexual dimorphism of diapause regulation in the hemipteran bug *Pyrrhocoris apterus*. *Insect Biochemistry Molecular Biology*. 142:103721.
12. Chen Z., Rivera-Perez, C., Noriega, F.G., Kim, Y.J. (2022). The insect somatostatin pathway gates vitellogenesis progression during reproductive maturation and the post-mating response. *Nature Communications*.. 2022 Feb 18;13(1)
13. Nouzova, M., Edwards MJ., Michalkova V., Ramirez, CE., Ruiz , M., Areiza, M., DeGennaro, M., Fernandez-Lima, F., Feyereisen, R., Marek Jindra, M., Noriega, F.G. (2021). Epoxidation of juvenile hormone was a key innovation improving insect reproductive fitness. *PNAS*. Nov 9; 118 (45):e2109381118. doi: 10.1073/pnas.2109381118.

14. Ramos, FO; Leyria, J; Nouzova, M; Fruttero, LL; Noriega, FG; Canavoso, LE (2021). Juvenile hormone mediates lipid storage in the oocytes of *Dipetalogaster maxima*. *Insect Biochemistry and Molecular Biology*.
15. Valadares-Tose, L., Weisbrod, C.R., Michalkova, V., Nouzova, M., Noriega, F.G., Fernandez-Lima, F. (2021) Following de novo triglyceride dynamics in ovaries of *Aedes aegypti* dynamics during the previtellogenic stage. *Nature Scientific Reports*.
16. Noriega, FG; Nouzova, M (2020). Approaches and tools to study the roles of juvenile hormone in controlling insect biology. *Insects* 2020, 11, 858; doi:10.3390/insects11120858.
17. Kim IH., Castillo, JL, Aryan, A., Martin-Martin, I., Nouzova, M., Noriega, FG., Barletta, ABF., Calvo, E., Adelman., ZN., Ribeiro, JMC., Andersen, JFA. (2020) mosquito juvenile hormone binding protein (mJHBP) regulates the activation of innate immune defenses and hemocyte development. *PLoS Pathog.* 2020 Jan 21;16(1):e1008288.
18. Villalobos-Sambucaro, MJ, Nouzova, M., Ramirez, C.E., Alzugaray, ME., Fernandez-Lima, F., Ronderos, JR, Noriega FG. (2020). The juvenile hormone described in *Rhodnius prolixus* by Wigglesworth is juvenile hormone III skipped bisepoxide. *Scientific Reports*. (2020) 10:3091 | <https://doi.org/10.1038/s41598-020-59495-1>
19. Ramirez, C.E., Nouzova, M., Michalkova, V., Francisco Fernandez-Lima, F., Noriega FG. (2019). Common structural features facilitate the simultaneous identification and quantification of the five most common juvenile hormones. *Insect Biochemistry and Molecular Biology* 116 (2020) 103287
20. Nouzova, M., Clifton, M.E., Noriega FG (2019). Mosquito adaptations to hematophagia impact pathogen transmission. *Curr Opin Insect Sci.* 34:21–26.
21. Hernández-Martínez, S., Cardozo-Jaime, V., Nouzova, M., Michalkova, V., Ramirez, CE., Fernandez-Lima, F., Noriega, FG. (2019). Juvenile hormone controls ovarian development in female *Anopheles albimanus* mosquitoes. *Nature Scientific Reports*. 9:2127 | <https://doi.org/10.1038/s41598-019-38631-6>.
22. Nouzova, M., Michalkova, V., Ramirez, CE., Fernandez-Lima, F., Noriega, FG. (2019) Inhibition of juvenile hormone synthesis in mosquitoes by the methylation inhibitor 3-deazaneplanocin A (DZNep). *Ins. Bioch. Molec. Biol.* 113: 103183.
23. Nouzova, M., Clifton, M.E., Noriega FG (2019). Mosquito adaptations to hematophagia impact pathogen transmission. *Curr Opin Insect Sci.* 34:21–26.
24. Hernández-Martínez, S., Cardozo-Jaime, V., Nouzova, M., Michalkova, V., Ramirez, CE., Fernandez-Lima, F., Noriega, FG. (2019). Juvenile hormone controls ovarian development in female *Anopheles albimanus* mosquitoes. *Nature Scientific Reports*. 9:2127 | <https://doi.org/10.1038/s41598-019-38631-6>.
25. Castellanos A, Ramirez CE, Michalkova V, Nouzova M, Noriega FG, Fernández-Lima F. (2019). Three Dimensional Secondary Ion Mass Spectrometry Imaging (3D-SIMS) of *Aedes aegypti* ovarian follicles. *J. Anal. At. Spectrom.* DOI: 10.1039/c8ja00425k
26. Nouzova, M., Etebari, K., Noriega, FG., Asgari, S. (2018). A comparative analysis of *corpora allata-corpora cardiaca* microRNA repertoires revealed significant changes during mosquito metamorphosis. *Insect Biochem. Molec. Biol.* 96: 10–18
27. Nouzova, M., Michalkova, V., Hernández-Martínez, S., Rivera-Perez, C., Ramirez, CE., Fernandez-Lima, F., Noriega, FG. (2018). JH biosynthesis and hemolymph titers in adult male *Aedes aegypti* mosquitoes. *Insect Biochem. Molec. Biol.* 95: 10-16.
28. Nouzova, M, Rivera-Perez, C., Noriega, F.G. (2018). Omics approaches to study juvenile hormone synthesis. *Curr Opin Insect Sci.* 29:49–55
29. Deshpande, S., Meiselman, M., Hice, R., Arensburger, P., Rivera-Perez, C., Kim, D-H., Croft, R., Noriega, FG, Adams, M. (2018). Ecdysis Triggering Hormone Receptors Regulate Male Courtship Behavior via Antennal Lobe Interneurons in *Drosophila*. *Gen Comp Endocrinol* S0016-6480(18)30323-X. doi: 10.1016/j.ygcen.2018.12.003
30. Noriega FG, Oliveira PL (2018). Editorial overview: Molecular physiology: from omics data encyclopedia to physiology ‘short stories’. *Curr Opin Insect Sci.* 29: vi–viii.
31. Zhe Qu, William G. Bendena , Wenyan Nong , Kenneth W. Siggins , Fernando G. Noriega , Zhen-peng Kai , Yang-yang Zang , Ho Yin Edwin Chan , Ting Fung Chan , Ka Hou Chu , Hon Ming Lam , Michael Akam , Stephen S. Tobe , Jerome Ho Lam Hui. (2017). MicroRNAs regulate the sesquiterpenoid hormonal pathway in *Drosophila* and other arthropods. *Proceedings of the Royal Society B*. In press.

32. Lee, SS., Ding Y., Karapetians N., Rivera-Perez, C., Noriega FG., Adams ME. (2017). Hormonal Signaling Cascade During an Early Adult Critical Period Required for Courtship Memory Retention in *Drosophila*. *Current Biology*, 2017 Sep 25;27(18):2798-2809.e3 doi: 10.1016/j.cub.2017.08.017
33. Rivera-Perez, C., Clifton, M.E., Noriega, F.G. (2017). How micronutrients influence the physiology of mosquitoes. *Current Opinion in Insect Science*, in press.
34. Meiselman, M., Lee, SS., Tran, RT., Dai, H., Ding, Y., Rivera-Perez, C., Wijesekera, TP, Dauwalder, B., Noriega, FG., Adams, ME. (2017). An Endocrine Network Essential for Reproductive Success in *Drosophila melanogaster*. *PNAS*, 114(19):E3849-E3858.
35. Hernández-Martínez, S., Sánchez-Zavaleta, M., Brito, K., Herrera-Ortiz, A., Ons, S., Noriega, FG (2017) Allatotropin: a pleiotropic neuropeptide that elicits mosquito immune responses. *PLoS One*. 12(4):e0175759. doi: 10.1371/journal.pone.0175759
36. Martínez-Rincón, RO, Rivera-Pérez, C, Diambra, L and Noriega. FG (2017) Modeling the flux of metabolites in the juvenile hormone biosynthesis pathway using generalized additive models and ordinary differential equations. *PLoS ONE*. e0171516. doi: 10.1371/journal.pone.0171516.
37. Ramirez, C.E., Nouzova, M., Benigni, P., Quirke, J.M., Noriega, F.G., Francisco Fernandez-Lima, F. (2016). Fast, ultra-trace detection of juvenile hormone III from mosquitoes using mass spectrometry. *Talanta*. 159: 371-8.
38. Zhu, J and Noriega FG (2016). The role of juvenile hormone in mosquito development and reproduction. *Advances in Insect Physiology*. *Progress in Mosquito Research*. Editor. Alex Raikhel. 51:93-113.
39. Mesquita, R. D. et al. (2015). The genome of *Rhodnius prolixus*, an insect vector of Chagas disease, reveals unique adaptations to hematophagy and parasite infection. *PNAS* 112:14936-14941. Epub 2015 Nov 16.
40. Nyati, P., Rivera-Perez, C., and Noriega, FG. (2015). Negative feedbacks by isoprenoids on a mevalonate kinase expressed in the *corpora allata* of mosquitoes. *PLoS ONE* 10(11): e0143107.doi:10.1371/journal.pone.0143107
41. Areiza, M., Nouzova, M., Rivera-Perez, C., and Noriega FG (2015). 20-hydroxyecdysone stimulation of juvenile hormone biosynthesis by the mosquito *corpora allata*. *Insect Biochemistry and Molecular Biology*. 64:100-105.
42. Hernandez-Martinez, S., Rivera-Perez, C., Nouzova M., and Noriega. FG (2015) Coordinated changes in JH biosynthesis and JH hemolymph titers in *Aedes aegypti* mosquitoes. *J. Insect Physiology*. 72: 22-27.
43. De Loof, A., Marchal, E., Rivera-Perez, C., Noriega, FG., Schoofs, L. (2015) Farnesol-like endogenous sesquiterpenoids in vertebrates: the probable but overlooked functional "inbrome" anti-aging counterpart of juvenile hormone of insects? *Frontiers in Endocrinology*. doi: 10.3389/fendo.2014.00222.
44. Nouzova, M., Rivera-Perez, C., Noriega FG. (2015) Allatostatin-C reversibly blocks the transport of citrate out of the mitochondria and inhibits juvenile hormone synthesis in mosquitoes. *Insect Biochemistry and Molecular Biology*. 57: 20-26.
45. Wen, D., Rivera-Perez, C., Abdou, M., Jia, Q., He, Q., Zyaan, O., Bendena, WB., Tobe, SS., Noriega, FG., Palli, SR., Wang, J., Li, S. (2015) Methyl Farnesoate Plays a Dual Role in Regulating *Drosophila* Metamorphosis. *PLoS Genet* 11(3): e1005038. doi:10.1371/journal.pgen.1005038
46. Villalobos-Sambucaro MJ., Lorenzo-Figueiras, AN., Riccillo, FL., Diambra, LA., Noriega, FG., Ronderos, JR (2015). Allatotropin modulates myostimulatory and cardioacceleratory activities in *Rhodnius prolixus* (Stal). *PLoS One*. 2015 Apr 21;10(4):e0124131. doi: 10.
47. Rivera-Perez, C., Nyati, P., Noriega, FG. (2015) A *corpora allata* farnesyl diphosphate synthase in mosquitoes displaying a metal ion dependent substrate specificity. *Insect Biochem Mol Biol*. 64:44-50.
48. Noriega, FG. (2014) Juvenile hormone biosynthesis in insects: What is new, what do we know, what questions remain? *ISRN*. doi.org/10.1155/2014/967361
49. Rivera-Perez, C., Nouzova, M., Lamboglia, I. and Noriega FG. (2014) Metabolomics Reveals Changes in the Mevalonate and Juvenile Hormone Synthesis Pathways. *Insect Biochemistry and Molecular Biology*. 51: 1-9.

50. Rivera-Perez, C., Nouzova, M and Noriega, FG. (2014) New Approaches to Study Juvenile Hormone Biosynthesis in Insects. In: Short Views on Insect Biochemistry and Molecular Biology. Chapter 7. 185-216.
51. Chandrasekar, R., Brintha, PG., Park, EY., Pelsoi, P., Liu, F., Goldsmith, M., Ejiolor, A., Pittendrigh, BR., Han, YS., Noriega, FG., Sugumaran, M., Tyagi, BK., Zheng, Z., Zhu, GF., Patnaik, BB and Michailova, P. (2014) Introduction to Insect Molecular Biology. In: Short Views on Insect Biochemistry and Molecular Biology. Chapter 1. 3-56.
52. Areiza, M., Nouzova, M., Rivera-Perez, C., and Noriega FG (2014). Ecdysis triggering hormone ensures proper timing of juvenile hormone biosynthesis in pharate adult mosquitoes. *Insect Biochemistry and Molecular Biology*.54: 98-105.
53. Clifton M.E., Correa S, Rivera-Perez, C., Nouzova, M and Noriega, FG. (2014). Male *Aedes aegypti* mosquitoes use JH III transferred during copulation to influence previtellogenic ovary physiology and affect the reproductive output of female mosquitoes. *J Insect Physiology*. *Journal of Insect Physiology*. 64: 40-47.
54. Perez-Hedo, M., Rivera-Perez, C. and Noriega, FG. (2014) Starvation increases insulin sensitivity and reduces juvenile hormone synthesis in mosquitoes. *PLoS One* 9:e86183
55. Perez M., and Noriega, FG. (2014). The sub-lethal larval metal stress response of the Dengue Fever Mosquito. *Physiological Entomology*. 39:111-119.
56. Alzugaray, ME., Adami, ML, Diambra L., Hernandez-Martinez, S., Damborenea, C., Noriega, FG, Ronderos, JR. (2013). Allatotropin: an ancestral myotropic neuropeptide involved in feeding. *PLoS ONE* 8(10): e77520. doi:10.1371/journal.pone.0077520
57. Nyati, P., Nouzova, M., Rivera-Perez, C., Clifton, ME., Mayoral, JG and Noriega, FG. (2013). Farnesyl phosphatase, a corpora allata enzyme involved in juvenile hormone synthesis in *Aedes aegypti*. *PLoS ONE* 8(8): e71967. doi:10.1371/journal.pone.0071967
58. Rivera-Perez, C., Nouzova, M., Clifton, ME., Martin Garcia, E., LeBlanc, E., and Noriega, FG. (2013) Aldehyde Dehydrogenase 3 Converts Farnesal into Farnesoic Acid in the *Corpora Allata* of Mosquitoes. *Insect Biochem. Molec. Biol.* 43:675-682.
59. Perez-Hedo, M., Rivera-Perez, C. and Noriega, FG. (2013) The Insulin/TOR signal transduction pathway is involved in the nutritional regulation of juvenile hormone synthesis in *Aedes aegypti*. *Insect Biochem. Molec. Biol.* 43:495-500.
60. Perez M., and Noriega, FG. (2013) *Aedes aegypti* pharate 1st instar quiescence: A case for anticipatory reproductive plasticity. *Journal of Insect Physiology*. 59: 318-324.
61. Mayoral, JG., Leonard, KT., Defelipe, LA., Turjanski, AG. and Noriega, FG. (2013). Functional Analysis of a Mosquito Short Chain Dehydrogenase Cluster. *Archives of Insect Biochemistry and Physiology*. 82:96-115.
62. Rivera-Perez, C., Nouzova, M and Noriega, FG. (2012) A quantitative assay for juvenile hormones and their precursors using fluorescent tags. *PLoS ONE* 7(8): e43784. doi:10.1371/journal.pone.0043784.
63. Diaz, M., Mayoral, JM., Priestap, H., Nouzova, M., Rivera-Perez, C., Noriega, FG. (2012). Characterization of an Isopentenyl Diphosphate Isomerase involved in the Juvenile Hormone pathway in *Aedes aegypti*. *Insect Biochem. Molec. Biol.* 42: 751-757.
64. Clifton M.E. and Noriega, FG. (2012). The fate of follicles after a blood meal is dependent on previtellogenic nutrition and juvenile hormone in *Aedes aegypti*. *Journal of Insect Physiology* 58: 1007–1019.
65. Perez M., and Noriega, FG (2012). *Aedes aegypti* pharate 1st instar quiescence affects larval fitness and metal tolerance. *Journal of Insect Physiology*. 58: 824-829.
66. Nouzova, M., Mayoral, J.M, Brockhoff, A Goodwin, M., Meyerhof, W. and Noriega F.G (2012). Functional characterization of an allatotropin receptor expressed in the corpora allata of mosquitoes. *Peptides*. 34:201-208.
67. Sanborn AF, Heath, JE, Phillips PK, Heath MS, and Noriega FG (2011) Thermal adaptation and diversity in tropical ecosystems: Evidence from Cicadas (Hemiptera, Cicadidae). *PLoS One*. 6 (12) :e29368. Epub 2011 Dec 29.

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69. Nouzova, M., Edwards M., Mayoral J.M., Noriega, F.G. (2011) A coordinated expression of biosynthetic enzymes controls the flux of juvenile hormone precursors in the corpora allata of mosquitoes. *Insect Biochemistry and Molecular Biology* 41: 660-669.
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71. Navare A., Mayoral, J.G., Nouzova, M., Noriega, F.G., Fernández, F.M. (2010) Rapid Direct Analysis in Real-Time (DART) Mass Spectrometric Detection of Juvenile Hormone (JH) III and its Terpene Precursors. *Analytical & Bioanalytical Chemistry*. 398:3005-3013.
72. Mayoral, J.G., Nouzova, M., Brockhoff, A., Goodwin, M., Hernandez-Martinez, S., Richter, D., Meyerhof, W and Noriega, F.G. (2010). Allatostatin-C receptors in mosquitoes. *Peptides*, 31: 442-450
73. Jaime G. Mayoral, Francisco J. Alarcón, Tomás F. Martínez, Pablo Barranco and F.G. Noriega (2010) An improved End-Point Fluorimetric Procedure for the Determination of Low Amounts of Trypsin Activity in Biological Samples Using Rhodamine-110-Based Substrates. *Applied Biochem Biotechnology*. 160:1-8
74. Mayoral, J.G, Nouzova, M., Navare, A. and Noriega, F.G. (2009) NADP<sup>+</sup>-dependent farnesol dehydrogenase, a *corpora allata* enzyme involved in juvenile hormone synthesis PNAS, 106: 21091-21096
75. Mayoral, J.G., Nouzova, M., Michiyo Yoshiyama, Tetsuro Shinoda, Salvador Hernandez-Martinez, Elena Dolgih, Adrian G. Turjanski, Adrian E. Roitberg, Horacio Priestap, Mario Perez, Lucy Mackenzie, Yiping Li, and Fernando G. Noriega (2009) Molecular and functional characterization of a juvenile hormone acid methyltransferase expressed in the corpora allata of mosquitoes. *Insect Biochemistry Molecular Biology*. 39: 31-37.
76. Navare A., Nouzova, Fernando G. Noriega, Salvador Hernández-Martínez Christoph Menzel, Facundo M. Fernández (2009) On-Chip Solid-phase Extraction Preconcentration/Focusing Substrates Coupled to Atmospheric Pressure Matrix-Assisted Laser Desorption/Ionization Ion Trap Mass Spectrometry for High Sensitivity Neuropeptide Detection and Protein Identification *Rapid Communications in Mass Spectrometry* 23: 477-486.
77. Berry, J.P., Gantar, M., Perez, M.H., Berry, G., and Noriega F.G. (2008) Cyanobacterial Toxins as Allelochemicals with Potential as Algaecides, Herbicides and Insecticides. *Marine drugs* 6: 117-146.
78. Navare, A., Zhou, M., McDonald, J., Noriega, F.G., Sullards, C. and Fernandez, F.M. (2008) Serum Biomarker Profiling by Solid-Phase Extraction with Particle-Embedded Micro Tips and Matrix-Assisted Laser Desorption/Ionization Mass Spectrometry. *Rapid Communications in Mass Spectrometry* 22:997-1008.
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82. Telang, A., Li, Y., Noriega F.G., and Brown M.R. (2006) Effects of larval nutrition on the endocrinology of mosquito egg development. *J. Experimental Biology* 209, 645-655.
83. Martinez-Hernandez, S., Li, Y., Rodriguez, M.H., Lanz-Mendoza H. and Noriega, F.G. (2005). Allatotropin and PISCF- and YXFGL-amide-allatostatins distribution in *Aedes aegypti* and *Anopheles albimanus* mosquitoes. *Cell Tissue Research*, 321:105-113.

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## D. Research Support

### Ongoing Research Support

R21 AI167849 Noriega (PI)

01/24/21-01/31/23

Regulation of Juvenile Hormone titers in mosquitoes

The goal is to study the mechanisms of regulation of juvenile hormone synthesis by allatoregulatory peptides.

Role: PI. Total Cost: \$ 368.000.

### Completed Research Support (selected list)

R01 AI045545-10 Noriega (PI)

06/15/15-05/31/21

Regulation of Juvenile Hormone titers in mosquitoes

The goal is to study the mechanisms of regulation of juvenile hormone synthesis by allatoregulatory peptides.

Role: PI. Total Cost: \$ \$ 2.561.035

R01 AI045545-05 Noriega (PI)

. 04/01/05-06/14/10

Regulation of Juvenile Hormone titers in mosquitoes

The goal was to study the mechanisms of regulation of juvenile hormone synthesis by allatoregulatory peptides.

Role: PI. Total Cost: \$1,844,038.

R01 AI045545-01 Noriega (PI)

07/01/01-06/31/04

Regulation of Juvenile Hormone titers in mosquitoes

The goal was to identify and characterize peptides that regulate juvenile hormone synthesis in mosquitoes.

Role: PI. Total Cost: \$ 888,399.

R01 AI031951 Wells (PI), Noriega (coPI)

01/01/95-12/31/00

Blood digestion in vectors

The goal was to understand the regulation of trypsin synthesis in the midgut of *Aedes aegypti* mosquitoes.

Role: coPI. Total Cost: \$1,237,432.