

## Curriculum Vitae

### Antónia Monteiro

#### Contact information:

Department of Biological Sciences  
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**Nationalities:** Portuguese, British, and American

#### Education:

**Ph.D.** 1997. University of Edinburgh, U.K. "The evolutionary genetics and developmental basis of eyespot morphology in butterfly wings".

**B.S.** 1992. University of Lisbon, Portugal. Zoology and Environmental Sciences.

#### Positions:

**2013-present: Associate Professor.** Department of Biological Sciences, National University of Singapore.

**2013-present: Associate Professor.** Yale-NUS College, Singapore

**2006-2013: Assistant Professor.** Department of Ecology and Evolutionary Biology. Yale University

**2006-2013: Assistant Curator of Entomology,** Peabody Museum of Natural History, Yale University

**2001-2006: Assistant Professor.** Department of Biological Sciences. University at Buffalo.

**1999-2001: Postdoctoral Fellow.** Department of Evolutionary Biology. Leiden University.

**1997-1998: Postdoctoral Fellow.** Department of Organismic and Evolutionary Biology. Harvard University.

#### Honors and Awards:

**2018** National Research Foundation Investigatorship.

**2018** Offered a Full Distinguished Professorship at the University of Oxford, Merton College, UK.

**1999** Kees Bakker Prize for the best PhD thesis in the field of Population Biology. Leiden University

**1997** Awarded a Milton Fund Fellowship, Harvard University, to work on the molecular phylogeny of *Bicyclus* butterflies.

**1997** Awarded a 3-year Post-doctoral Fellowship from Junta Nacional de Investigação Científica, Programa Praxis XXI, Portugal.

**1993** First prize for best poster of a total of over 1000 posters at the XXI International Congress of Genetics, Birmingham, UK.

**1992** Awarded a 4-year PhD Fellowship from Junta Nacional de Investigação Científica, Programa Ciência, Portugal.

**1991** Awarded an Erasmus Fellowship to do final year undergraduate research project at Leiden University.

**Research Funding:** Total funding as PI = US\$ 9.5 Million, and as Co-PI an additional \$US 2 Million.

**Current research funding:**

**NRF Investigatorship “The locus of evolution of a novel complex trait”**

PI: Antónia Monteiro

Project dates: 1-Mar-2019 to 28-Feb-2024

S\$2,989,000

Major goals: To discover the mutations that led to the origin of eyespot patterns on the wings of nymphalid butterflies using RNA-Seq, ATAC-Seq, and transgenic protocols in a comparative framework.

**MOE2018-T2-1-092 (Singapore Ministry of Education Tier 2)**

**“Mechanisms of sex pheromone preference learning and inheritance in a butterfly”**

PI: Antónia Monteiro, Collaborator: Dr. Emilie Dion

Project Dates: Feb 2019-Jan 2022

S\$609,000

Major goals: To study the genetic and epigenetic mechanisms of sex pheromone preference learning and inheritance in *B. anynana* butterflies using transcriptomics and CRISPR-Cas9.

**NRF CRP20-2017-0004: “From genes to products: Study and application of insect structural color for biological manufacture”**

PI: Antónia Monteiro, Co-PIs: Javier Fernandez (SUTD); Vinod Saranathan (Yale-NUS), Joel Yang (SUTD)

Project Dates: Jan 2019 – Dec 2023

S\$4,881,217

Major goals: To explore the different ways that butterfly wing scales produce structural and pigmentary colors; To discover the genetic basis of color; To mimic these nano-morphologies using chitosan, a natural product derived from crustacean chitin, and; To grow these colors in the petri dish by growing wings and scale cells of particular colors.

**MOE2015-T2-2-159 (Singapore Ministry of Education – Tier 2)**

**“The evolution of a novel and complex trait: butterfly eyespots”**

PI: Antónia Monteiro

Project dates: 1-Jul-16 to 30-Jun-19

S\$ 670,683 (total costs), S\$558,903 direct costs

Major goals: To investigate the developmental origin of butterfly eyespot patterns in butterflies by examining whether cis-regulatory elements of genes that became expressed in eyespots, at the time of eyespot origins, are pleiotropic.

**NUS - Departmental Grant (DPRT)**

**“South East Asian Biodiversity Genomics (SEABIG)”**

PIs: Rudolf Meier, Antónia Monteiro, and Greg Tucker-Kellogg

Project dates: 1-Jan-15 to 31-Dec-17 (extended to 30-June-2019)

S\$1,982,000 total costs

Major Goals: To develop a DBS Bioinformatics Center (SEABIG) with the hiring of a full-time faculty member and three postdoctoral researchers in the area of Genomics and Bioinformatics of non-model organisms. The goals of the center will be to train students and staff in these emerging areas and to provide seed funding for internal genomic and transcriptomic projects.

**Previous Research Funding:**

**MOE2014-T2-1-146 (Singapore Ministry of Education – Tier 2)**

**“The origin and evolution of phenotypic plasticity”**

PI: Antónia Monteiro

Project dates: 1-Jan-15 to 30-June-2018

S\$545,875 (total costs), S\$436,700 direct costs

Major goals: To investigate the developmental origin of phenotypic plasticity of butterfly eyespot phenotypes in relation to rearing temperature using a comparative framework.

**LKYPDF (Lee Kuan Yew Postdoctoral Fellowship)**

**“Understanding the origin of complex evolutionary structures: an evolutionary development study of *de novo* abdominal appendages in *Themira superba*”**

PI: Kathy Su, Co-PIs: Rudolf Meier and Antónia Monteiro

Project dates: 1-Aug-14 to 31-Jul-17

S\$179,366 direct costs

Major goals: To describe the regulatory network of the novel abdominal appendage of *Themira superba* using transcriptomics.

**MOE – Tier 1 R-154-000-602-112 (Singapore Ministry of Education)**

**“Spot-on! The genetic regulation of serial homologues”**

PI: Antónia Monteiro

Project dates: 1-Oct-14 to 30-Sep-16

S\$180,000 direct costs.

Major goals: To clone a gene, Spotty, that introduces two eyespots on the wings of *Bicyclus anynana* forewings. To describe the eyespot gene regulatory network using transcriptomics.

**NSF Research Coordination Network**

**EDEN (Evo-Devo-Eco Network): A research coordination network to promote technique and community development across the Eco-Evo-Devo field**

PI: Cassandra Extavour (Co-PIs: Antónia Monteiro, Scott Hodges, Elena Kramer, Michael Shapiro)

Project dates: 1/1/10 – 12/31/15

\$503,000 total costs, \$481,000 direct costs

Major goals: To foster active interchange of tools and techniques among labs working on emerging model systems. To train undergraduates in Eco-Evo-Evo.

**NSF PHY 0957860**

**The evolution of structural color in butterfly wing scales**

PI: Antónia Monteiro (Co PI: Hui Cao, Yale University)

Project dates: 9/15/10 - 8/31/14

\$578,000 total costs, \$395,000 direct costs

Major goals: To perform artificial selection on the color of butterfly wing scales to observe and document the nano-structural modifications that lead to the evolution of color. To describe the nano-structural morphologies of scales of similar color that evolved within the butterfly genus *Bicyclus* and discover whether multiple nano-structural solutions to produce the same color have evolved.

**NSF IOS 1146933**

**A butterfly for all seasons: physiological mechanisms underlying environmentally induced morphologies and behaviors in *Bicyclus anynana***

PI: Antónia Monteiro (co-PI Kathleen Prudic, Yale University)

Project dates: 2/1/12 – 1/31/15

\$606,964 total costs, \$381,820 direct costs

Major goals: To describe hormonal profiles and hormone receptor expression in wings and brains of wet season and dry season *Bicyclus anynana* butterflies that may underlie the evolution of phenotypic plasticity in morphology and behavior in this species. To test

whether observed changes in hormone profiles can explain the wing patterns and adult behaviors characteristic of each seasonal form.

#### **NSF IOS 0818731**

##### **The evolution of serial homology: a case study with nymphalid butterfly eyespots**

PI: Antónia Monteiro (co-PI William Piel)

Project dates: 8/15/08-8/31/13

\$540,000 total costs, \$340,000 direct costs

Major goals: To understand how eyespot number evolved within Nymphalid butterflies and to test two alternative hypotheses regarding the origin and evolution of these repeated modules. The project involved mapping eyespot presence/absence in each of the wing compartments of the dorsal/ventral and fore/hindwing surfaces of each sex for 400 Nymphalid species of butterfly with a known phylogeny. The goal was to reconstruct the ancestral wing pattern for the Nymphalids and test whether eyespot number has increased or decreased over time. Also, to perform comparative immunohistochemistry across twenty different nymphalid species, using five eyespot focus marker genes, to attempt to understand how the complex eyespot gene network evolved.

#### **ROA supplement to NSF IOS 0818731**

PI: Antónia Monteiro (Co-PI: Diane Ramos)

Project dates: 7/1/12-8/31/12

\$24,998 total costs, \$15,063 direct costs

#### **NSF IOS-1110523**

##### **Dissertation Research: The proximate basis of behavioral plasticity in the butterfly *Bicyclus anynana*.**

PI: Antónia Monteiro; (Co-PI: Ashley Bear)

Project dates: 7/15/11 – 8/31/13

\$14,310 total costs

#### **NSF IOS-1110382**

##### **Dissertation Research: Pre-mating multimodal signal experience influences the development of female mate preference in the butterfly *Bicyclus anynana***

PI: Antónia Monteiro (Co-PI: Erica Westerman)

Project dates: 8/15/11 – 8/31/13

\$14,965 total costs

#### **Endowed Postdoctoral Fellowship in the Biological Sciences**

##### **The function of butterfly eyespots: interactions with mantid predators**

PI: Antónia Monteiro on behalf of Kathleen Prudic (postdoc)

Project dates: 8/1/2011-1/31/2012

\$19,250 direct costs

Major goals: To use praying mantids as invertebrate predators of *B. anynana* butterflies to test the functional role of eyespot size plasticity in this species.

#### **NIH Supplement to RO1 grant**

##### **Genetics of leg size variation in insects**

PI: Aleksandar Popadic (co-PI Antónia Monteiro)

Project dates: 8/1/09 – 7/31/11

\$74,000 total costs, \$45,000 direct costs

Major goals for Monteiro lab: To test the function of a developmental gene, *Ultrabithorax*, in wing development in *Bicyclus anynana*. This involves producing transgenic lines that over-

express *Ubx* throughout the wing, and quantifying the effect on the embryonic and adult phenotypes.

**NSF IOB 0653399**

**Role of developmental genes in controlling butterfly eyespot patterns II**

PI: Antónia Monteiro

Project dates: 11/1/05 – 10/31/09

\$390,000 total costs, \$248,000 direct costs.

Major goals: To test the role of three developmental genes, *Distal-less*, *engrailed*, and *spalt* in eyespot development in *B. anynana*.

**NSF IBN 0316283**

**Role of developmental genes in controlling butterfly eyespot patterns**

PI: Antónia Monteiro

Project dates: 8/1/03 – 7/31/06

\$246,000 total cost, \$158,000 direct costs

Major goals: To produce germ-line transformations in the butterfly *Bicyclus anynana*. To test the heat-shock promoter from *Drosophila Hsp70* as an inducible promoter in *Bicyclus*.

**National Human Genome Research Institute (NHGRI)**

**The construction of four lepidopteran BAC libraries**

PI: Antónia Monteiro (co-PIs - 11 US and European researchers)

Project dates: 2004

Major goals: The construction of four lepidopteran BAC libraries, including one library for *B. anynana*.

This collaborative proposal involved 11 US and European researchers that use lepidopterans as their model organisms. The proposal was successful and libraries are currently stored at the Clemson Institute of Genomics.

**Joint Genomes Institute: Community Sequencing Program**

**Genomic resources for *Bicyclus anynana*: a butterfly evo-devo model**

PI: Anthony Long (Co-PIs Patricia Beldade, Antónia Monteiro, Paul Brakefield)

Project dates: 2005

Major goals: EST sequencing: 50K reads from each of five cDNA libraries made from wing imaginal discs at different stages, one library made from a head, and another library made from wing discs from an inbred line (350K reads total). Sequencing 10 BAC clones from *B. anynana*

**Endowed Postdoctoral Fellowship in the Biological Sciences**

**The evolution of serial homology: a case study with nymphalid butterfly eyespots**

PI: Antónia Monteiro on behalf of Jeffrey Oliver (postdoc)

Project dates: 1/1/2008-12/31/2008

\$37,500 direct costs

Major goals: To use the comparative method to evaluate alternative hypothesis regarding wing pattern evolution in the butterfly genus *Bicyclus*.

**Endowed Postdoctoral Fellowship in the Biological Sciences**

**The developmental genetics of butterfly wing patterns.**

PI: Antónia Monteiro on behalf of Andrew Stoehr (postdoc)

Project dates: 8/1/06 – 31/7/2007

\$37,000 direct costs

Major goals: To produce transgenic *Pieris rapae* butterflies in order to test the function of the candidate gene *spalt* in the control of wing patterns.

**Publications including book chapters:**

**(Total citations in Oct 2018 =4515; H index=33)**

- (97) Dion\*, E, **A Monteiro\***, C Nieberding\* (in press) The Role of Learning on Insect and Spider Sexual Behaviors, Sexual Trait Evolution and Speciation. **Frontiers in Ecology and Evolution** (\* co-corresponding author)
- (96) Tan YQ, E Dion, and A Monteiro (2018) Artificial haze impacts survival of butterflies. **Scientific Reports**.
- (95) Banerjee T and **A Monteiro** (2018) CRISPR-Cas9 mediated gene editing in *Bicyclus anynana* butterflies. **Methods and Protocols** 18 1(2):16; <https://doi.org/10.3390/mps1020016>
- (94) Palmer D\*, Tan YQ, S. Finkbeiner, A Briscoe, **A Monteiro\***, M Kronforst\* (2018). Experimental field tests of Batesian mimicry in the swallowtail butterfly *Papilio polytes*. **Ecology and Evolution** 8(15): 7657-7666 (\* co-corresponding author)
- (93) Matsuoka Y and **A Monteiro** (2018) Melanin pathway genes regulate color and morphology of butterfly wing scales. **Cell Reports** 24(1): 56-65.
- (92) Prakash A and **A Monteiro** (2018) *apterous A* specifies dorsal wing patterns and sexual traits in butterflies. **Proceedings of the Royal Society of London B** 285(1873): 20172685.
- (91) Low XH and **A Monteiro** (2018) Dorsal forewing white spots of male *Papilio polytes* not maintained by female mate choice. **J. Insect Behavior** 31(1): 29-41.
- (90) Bhardwaj, S, KL Prudic, A Bear, M Das Gupta, WF Cheong, MR Wenk, **A Monteiro** (2018). Sex differences in 20-hydroxyecdysone hormone levels control sexual dimorphism in butterfly wing patterns. **Molecular Biology and Evolution** 35:465-472.
- (89) Oszu N and **A Monteiro** (2017) Wound healing, calcium signaling, and other novel pathways are associated with the formation of butterfly eyespots. **BMC Genomics** 18:788.
- (88) Xiong G, X Tong, T Gai, C Li, L Qiao, **A Monteiro**, H Hu, M Han, X Ding, S Wu, Z Xiang, C Lu & F Dai (2017) Body shape and coloration of silkworm larvae are influenced by a novel cuticular protein. **Genetics** 300300.2017
- (87) **Monteiro A** (2017) Physiology and evolution of wing pattern plasticity in *Bicyclus* butterflies: a critical review of the literature. In Diversity and Evolution of Butterfly Wing Patterns: An Integrative Approach. Eds Sekimura, T and HF Nijhout. Springer. pp 91-105.
- (86) Desplan, C, N Plachta, **A Monteiro**, K Guillemin, and J Briscoe (2017) What is the future of Developmental Biology?. **Cell** 170(1), 6-7.
- (85) Oszu N, QY Chan, B Chen, M das Gupta, and **A Monteiro** (2017) *Wingless* is a positive regulator of eyespot color patterns in butterflies. **Developmental Biology** 429: 177-185 (Cover article).
- (84) Ng, SY, S Bhardwaj, and **A Monteiro** (2017) Males become choosier in response to manipulations of female wing ornaments in dry season *Bicyclus anynana* butterflies. **J. Insect Science** 17(4):81; 1-6.
- (83) Nowell, RW, B Elsworth, V Oostra, BJ Zwaan, CW Wheat, M Saastamoninen, IJ Saccheri, AE Van't Hof, BR Wasik, H Connahs, ML Aslam, S Kumar, RJ Challis, **A Monteiro**, PM Brakefield, M Blaxter (2017) A high-coverage draft genome of the mycalesine butterfly *Bicyclus anynana*. **Gigascience** 6:1-7
- (82) Bear, A, KL Prudic, and **A Monteiro** (2017) Steroid hormone signaling during development has a latent effect on adult male sexual behavior in the butterfly *Bicyclus anynana*. **PLoS One** 12(3):e0174403.
- (81) Zhang, L, A Martin, MW Perry, KRL van der Burg, Y Matsuoka, **A Monteiro\***, and RD Reed\* (2017) Genetic basis of melanin pigmentation in butterfly wings (\*co-corresponding authors) **Genetics** 205(4): 1537-1550.
- (80) Wee, J and **A Monteiro** (2017). Yellow and the novel aposematic signal, red, protect *Delias* butterflies from predators. **PLoS One** 12(1):e0174403.

- (79) Dion, E, **A Monteiro**, and J Yew (2016) Phenotypic plasticity in sex pheromone production in *Bicyclus anynana* butterflies. **Scientific Reports** 6:39002
- (78) Prakash A and **A Monteiro** (2016) Molecular mechanisms of secondary sexual development in insects. **Current Opinion in Insect Science** 17: 40-48.
- (77) **Monteiro, A** and M Das Gupta (2016). Identifying co-opted networks and causative mutations in the origin of novel complex traits. **Current Topics in Developmental Biology** 119: 205-226.
- (76) Chen, B, WH Piel, **A Monteiro** (2016) The Distal-less homeobox genes of insects and spiders: genomic organization, function, regulation and evolution. **Insect Science** 23: 335-352.
- (75) Labandeira, CC, Q Yang, JA Santiago-Blay, CL Hotton, **A Monteiro**, Y-J Wang, Y Goreva, C Shih, S Siljeström, TR Rose, D L Dilcher, and D Ren (2016). The evolutionary convergence of mid-Mesozoic lacewings and Cenozoic butterflies. **Proc. Royal. Soc. Lond B.** 283: 20152894.
- (74) Westerman, E and **A Monteiro** (2016) Rearing temperature influences adult response to changes in mating status. **PLoS One.** 11(2): e0146546.
- (73) Ho S, S Schachat, WH Piel, and **A Monteiro** (2016). Attack risk for butterflies changes with eyespot number and size. **Royal Society Open Science** 3: 150614.
- (72) Macias-Muñoz A, G Smith, **A Monteiro** and AD Briscoe (2016). Transcriptome-wide differential expression in *Bicyclus anynana* butterflies: Female vision-related genes are more plastic. **Molecular Biology and Evolution** 33: 79-92.
- (71) **A Monteiro**, X Tong, A Bear, SF Liew, S Bhardwaj, BR Wasik, A Dinwiddie, C Bastianelli, WF Cheong, MR Wenk, H Cao, and KL Prudic (2015) Differential expression of ecdysone receptor leads to variation in phenotypic plasticity across serial homologs. **PLoS Genetics** 11(9):e1005529.
- (70) Stoehr AM, X Tong, O Podlaha, and **A Monteiro** (2015) Progress toward the germ line transformation of the butterfly *Pieris rapae* L. **Gene Technology** 4: 123. doi: 10.4172/2329-6682.S1-001
- (69) Das Gupta, M, SK Chan and **A Monteiro** (2015) Natural loss of *eyeless/Pax6* in eyes of *Bicyclus anynana* adult butterflies likely leads to exponential decrease of eye fluorescence in transgenics. **PLoS ONE** 10(7): e0123882.
- (68) Schachat, S, JC Oliver, and **A Monteiro** (2015) Nymphalid eyespots are co-opted to novel wing locations following a similar pattern in independent lineages. **BMC Evol. Biol.** 15:20. doi:10.1186/s12862-015-0300-x
- (67) Prudic, KL, A Stoehr, BR Wasik, and **A Monteiro** (2015). Invertebrate predators attack eyespots and promote the evolution of phenotypic plasticity. **Proc. Roy. Soc. Lond. B.** 282 (1798): 20141531
- (66) **A Monteiro** (2015) Origin, development, and evolution of butterfly eyespots. **Annual Reviews of Entomology.** 60:253-271.
- (65) Tong X, A Popadic, S Hrycaj, **A Monteiro** (2014). *Ultrabithorax* over-expression alters embryos and wing patterns in the butterfly *Bicyclus anynana*. **Developmental Biology** 394:357-66.
- (64) Wasik, BR, D Lilien, S Fatt Liew, AJ Dinwiddie, H Noh, M Graham, H. Cao, **A Monteiro** (2014) Artificial selection for structural color on butterfly wings and comparison to natural evolution. **Proc. Nat. Acad. Sci.** 111:12109-12114.
- (63) Oliver, JC, Beaulieu J, LF Gall, WH Piel, and **A Monteiro** (2014) Nymphalid eyespot serial homologs originate as a few individualized modules. **Proc Roy Soc B** 281(1787). pii: 20133262.
- (62) Westerman, E, CB Drucker, and **A Monteiro** (2014) Male and female mating behavior is dependent on social context in the butterfly *Bicyclus anynana*. **J. Insect Behavior** 27:478-495.

- (61) Westerman, E, N Chirathivat, E Schyling, and **A Monteiro** (2014) Mate preference for a phenotypically plastic trait is learned, and may facilitate preference-phenotype matching. **Evolution** 68(6):1661-70.
- (60) Chen, B and **A Monteiro** (2014) A method for inducible over-expression and down-regulation in emerging model species using pogostick. **Methods in Molecular Biology** 1101: 249-66.
- (59) Tokita, CK, JC Oliver and **A Monteiro** (2013) A survey of eyespot sexual dimorphism across nymphalid butterflies. **Int. J. Evol. Biol.** Vol 2013: article 926702.
- (58) Westerman, E and **A Monteiro** (2013) Odor influences whether females learn to prefer or to avoid novel wing patterns in male butterflies. **Animal Behaviour** 86 (6): 1139-1145.
- (57) Bear, A and **A Monteiro** (2013) Both cell-autonomous mechanisms and hormones contribute to sexual development in vertebrates and insects. **BioEssays** 35(8): 725-732. (Cover article)
- (56) Oliver, JC, D Ramos, KL Prudic and **A Monteiro** (2013) Temporal gene expression variation associated with eyespot size plasticity in the butterfly *Bicyclus anynana*. **PLoS One** 8(6): e65830.
- (55) Bear, A and **A Monteiro** (2013) Male courtship plasticity in the butterfly *Bicyclus anynana* is controlled by temperature experienced during the pupal and adult stages. **PLoS One** 8(5): e64061.
- (54) **Monteiro A**, B Chen, D Ramos, J Oliver, X Tong, WK Wang, L Fazzino, and F Kamal (2013) *Distal-less* regulates wing patterns and melanization in *Bicyclus* butterflies. **J Exp Biol Part B** 320(5): 321-331.
- (53) Stoehr A, J Walker, and **A Monteiro** (2013) Spalt expression and the development of melanic color patterns in pierid butterflies. **EvoDevo** 4:6
- (52) Losos, JB, SJ Arnold, G Bejerano, ED Brodie III, D Hibbett, HE Hoekstra, DP Mindell, **A Monteiro**, C Moritz, HA Orr, DA Petrov, SS Renner, RE Ricklefs, PS Soltis, and TL Turner (2013) Evolutionary Biology for the 21<sup>st</sup> Century. **PLoS Biology** 11(1): e1001466.
- (51) Everett A, X Tong, AD Briscoe, and **A Monteiro** (2012) Phenotypic plasticity in opsin expression in a butterfly compound eye complements sex role reversal. **BMC Evol. Biol** 12:232.
- (50) **Monteiro A** (2013) Evolution and development: molecules. Princeton Guide to Evolution. Jonathan Losos (editor). Pg: 444-451. **Princeton University Press**
- (49) X Tong, A Lindemann, and **A Monteiro** (2012) Differential involvement of Hedgehog signaling in butterfly wing and eyespot development. **PLoS One** 7(12): e51087.
- (48) Oliver JC, X Tong, LF Gall, WH Piel, and **A Monteiro** (2012). A single origin for butterfly eyespots followed by widespread loss of associated gene expression. **PLoS Genetics** 8:8 e1002893. (Cover article) **(Highlighted in Faculty of 1000)**
- (47) Westerman CE, Hodgins-Davis A, A Dinwiddie, and **A Monteiro** (2012). Biased learning affects mate choice in a butterfly. **Proc. Nat. Acad. Sci.** 109(30): 12260. **(Highlighted in Faculty of 1000)**
- (46) Kronforst, M, G Barsh, A Kopp, J Mallet, **A Monteiro**, S Mullen, M Protas, E Rosenblum, C Schneider, and H Hoekstra (2012). Unraveling the thread of nature's tapestry: the genetics of diversity and convergence in animal pigmentation. **Pigment Cell & Melanoma Research** 25: 411-423. (Cover article)
- (45) **Monteiro A** (2012) Gene regulatory networks reused to build novel traits. **BioEssays** 34: 181-186. (Cover article)
- (44) Piel, WH and **A Monteiro** (2011) Flies in the ointment make for convincing poop. **Yale Environmental News.** 16:2
- (43) Chen B, S Hrycaj, JB Schinko, O Podlaha, EA Wimmer, A Popadic, and **A Monteiro** (2011) *Pogostick*: A versatile *piggyBac* vector for inducible gene over-expression and down-regulation in emerging model systems. **PLoS ONE** 6(4): e18659.



- (42) Terenius et al. (2011) RNA interference in Lepidoptera: An overview of successful and unsuccessful studies and implications for experimental design. **J. Insect Physiol.**
- (41) Oliver JC, and **A Monteiro** (2011). On the origin of sexual dimorphism in butterflies. **Proc. Roy. Soc. Lond. B** 278:1981-1988
- (40) Prudic KL, C Jeon, H Cao, and **A Monteiro** (2011) Developmental plasticity in sexual roles drives mutual sexual ornamentation. **Science** 331:73-75.  
**(press coverage in the Wall Street Journal; BBC Earth News; Huffington Post; Guardian, among others)**
- (39) Wolfe JM, JC Oliver, **A Monteiro** (2011) Evolutionary reduction of the first thoracic limb in butterflies. **J. Insect. Sci.** 11:66.
- (38) **Monteiro A** (2010) Biological research at butterfly farms in Costa Rica. **Yale Environmental News.** 16:1
- (37) Bear A, A Simons, E. Westerman, and **A Monteiro** (2010) The genetics of a dark larval color mutant in the butterfly *Bicyclus anynana*. **PLoS ONE** 5(7): e11563.
- (36) **Monteiro A** and KL Prudic (2010) Multiple approaches to study color pattern evolution in butterflies. **Trends in Evolutionary Biology** 2:e2.
- (35) **Monteiro A** (2009) Developmental Biology meets Ecology. **Cell** 138: 421-422 (review of Gilbert and Epel's Ecological Developmental Biology, Sinauer 2008).
- (34) Oliver JC, K Robertson and **A Monteiro** (2009). Accommodating natural and sexual selection in butterfly wing pattern evolution. **Proc. Roy. Soc. Lond. B** 276: 2369-2375.  
**(Highlighted in Faculty of 1000; press coverage in Nature)**
- (33) **Monteiro A** and O Podlaha (2009) Wings, horns, and butterfly eyespots: How do complex traits evolve? **PLoS Biology** 7(2): e1000037.  
**(the idea developed in this paper was adopted as a web-based exercise for DJ Futuyama's "Evolution" textbook, 2<sup>nd</sup> edition, chapter on Natural Selection and Adaptation)**
- (32) Silveira M and **A Monteiro** (2009) Automatic recognition of eyespot patterns on images of butterfly wings. **Biosystems** 95:130-136.
- (31) Abzhanov A, C Extavour, A Groover, S Hodges, H Hoekstra, E Kramer and **A Monteiro** (2008) Are we there yet? Tracking the development of new model systems. **Trends in Genetics** 24:353-360.
- (30) **Monteiro A** (2008) Alternative models for the evolution of eyespots and serial homology on lepidopteran wings. **BioEssays** 30:358-366.
- (29) Ramos DM and **A Monteiro** "An *in situ* protocol for pupal wings of the butterfly *Bicyclus anynana*"(05/28/2007) **Journal of Visualized Experiments**, 4, <http://www.jove.com/Details.htm?ID=208&VID=170>
- (28) Ramos DM and **A Monteiro** (2007) Transgenic approaches to study wing color pattern development in Lepidoptera. **Molecular Biosystems** 3: 530-535
- (27) **Monteiro A**, B Chen, L Scott, L Vedder, JH Prijs, A Belicha, PM Brakefield (2007) The combined effect of two mutations that alter serially homologous color pattern elements on the fore and hindwings of a butterfly. **BMC Genetics** 8:22
- (26) Golden, K., V Raju, N Markwarth, B Chen, **A Monteiro** (2007) *In vivo* electroporation of DNA into the wing epidermis of a butterfly. **J. Insect Sci.** 7:53, available online: [insectscience.org/7.5](http://insectscience.org/7.5)
- (25) Costanzo, K and **A Monteiro** (2007) The use of chemical and visual cues in female choice in the butterfly *Bicyclus anynana*. **Proc R. Soc. Lond. B.** 274: 845-851.
- (24) **Monteiro A**, G Glaser, S Stockslagger, N Glansdorp, and DM Ramos (2006) Comparative insights into questions of Lepidopteran wing pattern homology. **BMC Developmental Biology** 6:52.

- (23) Ramos, DM, F Kamal, EA Wimmer, A Cartwright, **A Monteiro** (2006) Temporal and spatial control of transgene expression using laser induction of the hsp70 promoter. **BMC Developmental Biology** 6:55.  
**(press coverage in Nature, The Telegraph; Biotechniques, among others)**
- (22) Chen, B, T Kayukawa, **A Monteiro**, and Y Ishikawa (2006) Cloning and characterization of the *HSP70* gene, and its expression in response to diapauses and thermal stress in the onion maggot, *Delia antiqua*. **Journal of Biochemistry and Molecular Biology** 39:749-758.
- (21) Chen B, D Zhong, and **A Monteiro** (2006) Comparative genomics and evolution of the HSP90 family of genes across all kingdoms of organisms. **BMC Genomics** 7:156.
- (20) Chen, B, WH Piel, L Gui, E Bruford, and **A Monteiro** (2005) The HSP90 family of genes in the human genome: insights into their divergence and evolution. **Genomics** 86: 627-637.
- (19) Chen, B, T Kayukawa, **A Monteiro**, and Y. Ishikawa (2005) The expression of *HSP90* gene in response to winter and summer diapauses and thermal-stress in the onion maggot, *Delia antiqua*. **Insect Molecular Biology** 14: 697-702.
- (18) Robertson, KA and **A Monteiro** (2005) Female *Bicyclus anynana* butterflies choose males on the basis of their dorsal UV-reflective eyespot pupils. **Proc R. Soc. Lond. B.** 272: 1541-1546. **(press coverage in Science, AAAS Science Society Radio, Der Spiegel)**
- (17) Masci, J and **A Monteiro** (2005) Visualizations of the early embryo of the butterfly *Bicyclus anynana*. **Zygote** 13: 139-144.
- (16) Chen, B, Y Ishikawa, T Kayukawa, H Jiang, **A Monteiro**, S Hoshizaki (2005) *DaTrypsin*, a novel clip-domain serine proteinase is upregulated during winter and summer diapauses of the onion maggot, *Delia antique*. **Gene** 347: 115-123.
- (15) Marcus, JM, DM Ramos, and **A Monteiro** (2004) Germ line transformation of the butterfly *Bicyclus anynana*. **Proc R. Soc. Lond. B (Suppl)** 271: S263-S265.  
**(press coverage in BBC News, The Telegraph, Science News, among others)**
- (14) Arbesman, S., Enthoven and **A Monteiro** (2003) Ancient wings: animating the evolution of butterfly wing patterns. **Biosystems** 71: 289-295.  
**(press coverage in Nature Science Update)**
- (13) **Monteiro A**, Prijs, J., Bax, M., Hakkart, T. Brakefield, PM (2003) Mutants highlight butterfly wing pattern modularity. **Evolution & Development** 5: 180-187.
- (12) Brakefield, PM and **A Monteiro** (2003) The evolution of butterfly eyespot patterns *in* Ecology and Evolution Taking Flight: Butterflies as Model Study Systems. Chicago Press.
- (11) McMillan O, **A Monteiro** and D Kapan (2002) Development and evolution on the wing. **Trends in Ecology and Evolution** 17:125-133 **(press coverage in The Telegraph)**
- (10) Janssen J, **A Monteiro\*** and PM Brakefield (2001). Correlations between scale structure and pigmentation in butterfly wings. **Evolution & Development** 3: 415-423.  
(\*Corresponding author)
- (9) Brunetti CR, SE Selegue, **A Monteiro**, V French, PM Brakefield, & SB Carroll (2001) The generation and diversification of butterfly eyespot colour patterns. **Current Biology** 11: 1578-1585.
- (8) **Monteiro A**, V French, H Metz, G Smith and PM Brakefield (2001) Butterfly eyespot patterns: evidence for specification by a morphogen diffusion gradient. **Acta Biotheoretica** 49:77-88.
- (7) **Monteiro A** and N Pierce (2001) Phylogeny of *Bicyclus* (Lepidoptera: Nymphalidae) inferred from COI, COII and EF-1alpha gene sequences. **Molecular Phylogenetics and Evolution** 18: 264-281.
- (6) **Monteiro A**, PM Brakefield and V French (1997) Butterfly eyespots: the genetics and development of the color rings. **Evolution** 51: 1207-1216

- (5) **Monteiro A**, PM Brakefield and V French (1997) The relationship between eyespot shape and wing shape in the butterfly *Bicyclus anynana*: a genetic and morphometrical approach. **Journal of Evolutionary Biology**. 10: 787-802
- (4) **Monteiro A**, PM Brakefield and V French (1997) The genetics and development of an eyespot pattern in the butterfly *Bicyclus anynana*: response to selection for eyespot shape. **Genetics** 146: 287-294
- (3) Brakefield PM, J Gates, D Keys, F Kesbeke, P Wijngaarden, **A Monteiro**, V French, and S Carroll (1996) Development, plasticity, and evolution of butterfly eyespot patterns. **Nature** 384: 236-242.
- (2) French V and **A Monteiro** (1994) Butterfly wings: Colour patterns and now gene expression patterns. **BioEssays** 16: 789-791
- (1) **Monteiro A**, PM Brakefield and V French (1994) The evolutionary genetics and developmental basis of wing pattern variation in the butterfly *Bicyclus anynana*. **Evolution** 48: 1147-1157

#### **Manuscripts (in review):**

- (1) Connahs, H, S Tlili, JV Creij, T Banerjee, T Saunders and **A Monteiro** (in review) *Distal-less* is involved in eyespot center differentiation via a reaction-diffusion mechanism. **Development**
- (2) Dion E, LX Pui, and **A Monteiro** (in revision) Early-exposure to new sex pheromone blend alters mate preference in female butterflies and in their offspring. **Nature Communications**
- (3) Huq, M, S Bhardwaj, and **A Monteiro** (in review) Male dry season *Bicyclus anynana* butterflies choose females based on their ventral forewing eyespot centers **Journal Insect Science**
- (4) Bhardwaj, S, SHJ Lim, MR Wenk, JC Oliver, HF Nijhout, and **A Monteiro** (in review) Origin of phenotypic plasticity in butterfly eyespots. **PNAS**
- (5) Prakash A and **A Monteiro**. The role of *doublesex* in regulating butterfly wing sexual traits. **Molecular Biology and Evolution**

#### **Manuscripts (in prep):**

- (1) Rivera-Colon A, E Westerman, **A Monteiro\***, and R Papa\*. The genetic basis of dorsal eyespot number variation in *Bicyclus anynana* butterflies. (\*co-corresponding authors)
- (2) Narayanan, S, JJJ Peh, AVH Hof, L Aslam, B Wasik, H Hoekstra and **A Monteiro**. The locus that regulates eyespot number variation in forewings of *Bicyclus anynana* butterflies.
- (3) Tan, B, E Tan and **A Monteiro**. The dorsal wing patterns of the Banded Swallowtail, *Papilio demolion*, function both in crypsis and in disruptive color Dion, E, **A Monteiro**, C Nieberding (in review) The Role of Learning on Insect and Spider Sexual Behaviors, Sexual Trait Evolution and Speciation. **Frontiers in Ecology and Evolution**
- (4) Tan E, A Bear, and **A Monteiro**. Brain genes that respond to natural and induced ecdysone pulses during pupal development in *Bicyclus anynana*.
- (5) Banerjee T, D Ramos, and **A Monteiro**. Different expression patterns for *engrailed* and *invected* family members in the wings of *Bicyclus anynana* butterflies.
- (6) Gowri V., Athamaja, E Dion and **A Monteiro**. Preferences for learned larval food odors are transmitted to the next generation in *Bicyclus anynana* butterflies

#### **Invited Keynote and Plenary presentations at conferences:**

- (5) Plenary speaker, 2<sup>nd</sup> International Conference of Insect Genomics, Chongqing, China, September 2015.
- (4) Plenary speaker, 7<sup>th</sup> International Conference on the Biology of Butterflies, Turku, Finland, August 11-14, 2014.
- (3) Plenary speaker, Ontario Ethology, Ecology, and Evolution Colloquium. Toronto, Canada, May 2011

- (2) Plenary speaker, 51<sup>st</sup> Annual Drosophila Research Conference, Washington DC, USA, April 2010.
- (1) Keynote address at 25<sup>th</sup> Symposium in Plant Biology: The Evolution of Plant Development. Riverside Convention Center, Riverside, California, USA, January 2009.

**Invited presentations at Conferences, Symposia, and Workshops:**

- (50) Workshop on Cis-regulatory Evolution in Development and Behavior (REDB), Carl R. Woese Institute for Genomic Biology, University of Illinois, Urbana-Champaign, 30 July 2018.
- (49) Genetics Society of AustralAsia Conference, Canberra, Australia, 1-4 July 2018
- (48) XI European Congress of Entomology, Napoli, Italy (July 2018). Declined.
- (47) "The developmental origin of novel complex traits" symposium at First AsianEvo Meeting, Shenzhen, China, April 2018.
- (46) "Patterning and Timing in Development and Evolution" meeting. Humbolt University of Berlin, Germany Feb 2018.
- (45) IBN-MOE Symposium on Science: Frontiers in Biology. Biopolis, Singapore, Nov 2017
- (44) "Molecular Biosystems" Conference. Puerto Varas, Chile, September 2017. Supported by Chilean Soc. Bioch. And Mol. Biol and Genetics Society of America.
- (43) Bios2017: Biological Symposium by the Mechanobiology Institute Women in Science Initiative, MBI, NUS, Singapore, Sep 15 2017.
- (42) PanAm Evo-Devo Meeting, Calgary, Canada, August 2017
- (41) Symposium on "Evolution" at the International Society for Developmental Biology (ISDB) meeting, Singapore, June 2017.
- (40) STEM Singapore Innovation Symposium. "A journey from student to teacher". Yale-NUS College. April 2017
- (39) International Symposium on Genetics of Adaptations, National Center of Biological Sciences, Bangalore, India, Nov 2016.
- (38) "Insect Genetic Technologies: State of the Art and Promise for the Future" symposium at the XXV International Congress of Entomology, Orlando, Florida, USA, Sep 2016 (had to decline due to scheduling conflict).
- (37) 2016 Boden Research Conference: "Animal, Vegetal, Mineral? Emergence and function of complex nanostructures in biological tissue and synthetic self-assembly. Yallingup, Australia. September 2016.
- (36) "Integrative Approach to Understanding the Diversity of Butterfly Wings" meeting, Chubu University, Kasugai (Nagoya), Japan. August 2016.
- (35) Symposium on "Communication and Interactive Networks in Biology". Temasek Life Science Laboratory, Singapore. March 2016.
- (34) CNRS Conference Jacques Monod on "Building, repairing and evolving biological tissues". Roscoff, France. Sept 2015.
- (33) "Colour in nature: Conceptual and methodological challenges and emerging solutions" symposium, Behavior 2015, Cairns, Australia, August 2015.
- (32) "Meet the experts" seminar series at Université Catholique de Louvain, Belgium (Graduate student choice). February 2015.
- (31) MBI-Japan joint symposium on Mechanobiology of Development and Multicellular Dynamics, Singapore December 2014.
- (30) 5<sup>th</sup> International Singapore Lipidomics Symposium, Singapore, March 2014.
- (29) International Symposium on RNAi and Genome Editing, Tokushima, Japan, March 2014
- (28) "Evolutionary Cell Biology" session part of the 7<sup>th</sup> Asia-Pacific Organization for Cell Biology, Singapore, 24-27 Feb. 2014.
- (27) Symposium on The Evolution of Gene Regulatory Networks, Evolution meetings, Snowbird, Utah, June 2013.

- (26) 54th annual Northeast Regional Society of Developmental Biologists, Woods Hole, MA, April 2013.
- (25) Invited course lecturer for a special graduate student course on “Genomic Frontiers in Biology” to introduce the field of Evo-Devo. University of Puerto Rico, March 2013. (Two graduate lectures + Departmental Seminar + lab demonstration of butterfly wing immunostainings)
- (24) “Towards a theory of Development” symposium, at the Euro Evo Devo Meetings. Lisbon, Portugal, July 2012.
- (23) “Future of Evo-Devo”, a symposium organized by the students of the NSF IGERT program in Evolution, Development and Genomics. Portland, Oregon February 2012.
- (22) Lepidopteran Biology Symposium, Cornell University, New York, October 2011.
- (21) Evo-Devo symposium at the Society for Molecular Biology and Evolution, Kyoto, Japan, July 2011.
- (20) Two-day “Future of Evolution” workshop, representing the field of Evo-Devo. Norman, Ok, June 2011
- (19) One-day symposium on Sexual Selection, Conflict and the Female Perspective. Columbia University, April 2011
- (18) Silkworm Genome Symposium, Tsukuba, Japan, November 2010.
- (17) Workshop on Bee Transgenics, part of the International Union for the Study of Social Insects, Copenhagen, Denmark, August 2010
- (16) Workshop on the Genetics and Evolution of Animal Coloration, Radcliffe Institute, Cambridge, MA, April 2010.
- (15) International Symposium on *Bombyx mori* functional Genomics, Chonging, China, October 2009.
- (14) Symposium on Evolutionary Innovations: where ecology, development and macroevolution intersect, AAAS Annual meeting, San Francisco State University, San Francisco, CA, August 2009.
- (13) Invited participant at the Eleventh annual Chinese-American Kavli Frontiers of Science symposium, Irvine, CA, September 2008.
- (12) Evolution and Development of Integrated Phenotypes, International Congress of Entomology, Durban, South Africa, July 2008.
- (11) “Bloodbath” annual minisymposium in Animal Ecology and Ethology, Stockholm, Sweden. November 2007.
- (10) Genetics and Genomics of Emerging Model Species, Exploratory seminar, Radcliffe Institute for Advanced Study, Harvard University, May 2007.
- (9) One-day New England Molecular Evolutionary Biologists (NEMEB) meeting, November 2006.
- (8) Speaker at the Fifth International Symposium on Molecular Insect Sciences, Arizona, May 2006.
- (7) Co-chair and speaker: Northeast Regional Developmental Biology Meeting, Woods Hole, April 2006.
- (6) Invited participant at the Gordon Conference on Molecular Evolution, Ventura, CA, Feb 2006.
- (5) Genetics and Development of Color Pattern Evolution Symposium at the SSE/SSB meetings, University of Alaska at Fairbanks, Alaska, June 2005.
- (4) Northeast Regional Developmental Biology Meeting, Woods Hole, April 2005.
- (3) Symposium honoring Dick Vane-Wright at the Entomological Soc. of America Ann. Meeting, Salt Lake City, Utah, Nov. 2004.
- (2) Science Decade symposium, Roswell Park, Buffalo, New York, 2003.
- (1) Mini-symposium about the micro-evolution of development at Indiana University, Bloomington, Indiana, 2002.

**Invited departmental seminars and other invited presentations:**

- (72) Seminar at the Department of Biology, Lund University, Sweden, Oct 2018
- (71) Seminar at Singapore University of Technology and Design, Singapore, Oct 2018
- (70) Seminar at Monash University, Victoria, Australia, May 2018
- (69) Seminar at the Department of Zoology, Oxford University, UK, Feb 2018
- (68) Seminar at the Department of Zoology, Stockholm University, Sweden, Nov 2017
- (67) Seminar at the Department of Zoology, Cambridge University, UK. Feb 2017.
- (66) Seminar at Singapore Centre on Environmental Life Sciences Engineering (SCELSE), Nanyang Technological University, Singapore, May 2015.
- (65) Seminar at the Singapore Developmental Biology Club, Biopolis, Singapore, Sep. 2013.
- (64) Seminar at the University of Chicago, in the Development, Regeneration and Stem Cell Biology - Graduate student run seminar, Feb 2013.
- (63) Seminar at Connecticut College, CT, Nov 2012
- (62) Seminar at the Dept. Biological Sciences, University of Pittsburgh, Oct 2012
- (61) Seminar at the Dept. Entomology, University of Illinois, Urbana-Champaign, April 2012.
- (60) Seminar at the Dept. of Biology, University of Florida, Gainesville, FL, March 2012.
- (59) Seminar at the Dept. Ecology and Evolutionary Biology, Cornell, Feb. 2012
- (58) Seminar at the Dept. of Biology at the University of Maryland, Jan 2012
- (57) Seminar at the Dept. Biology, University of Washington, Seattle, Jan 2012
- (56) Seminar at the Dept. Ecology and Evolutionary Biology, University of Toronto, Scarborough, Toronto, CA. January 2012
- (55) Seminar at the Dept. Biological Sciences, National University of Singapore, November 2011.
- (54) Seminar at the Dept. of Biology, CUNY, New York, New York. September 2011
- (53) Seminar at the Dept. Entomology, University of Illinois, Urbana-Champaign. August 2011.
- (52) Seminar for the Biology Research Colloquium series, Rhode Island College, Providence, RI, Fall 2011 (Sent postdoctoral fellow, Kathleen Prudic, as replacement)
- (51) Graduate student pick for Departmental seminar, North Carolina State University, NC. (postponed due to a scheduling conflict)
- (50) Seminar at Department of Biology, NYU, New York, April 2010
- (49) Student pick for IGERT-Seminar on Genomics, Evolution and Development, University of Indiana at Bloomington, March 2010.
- (48) Seminar at Department of Biological Sciences, University of Rhode Island, March 2010.
- (47) Seminar at Dept. of Molecular Biology, University of Wyoming, December 2009.
- (46) Seminar in Celebration of Darwin's birthday at the American Museum of Natural History, New York, November 2009.
- (45) Seminar at Dept. Organismal Biology, Harvard University, November 2009.
- (44) Seminar at Department of Biology, Tufts University, November 2009.
- (43) Seminar at the Physics Institute, University of Zurich, Switzerland, October 2009.
- (42) Seminar at McGuire Centre for Butterfly Conservation, Florida, January 2009.
- (41) Seminar at the Dept. of Ecology, Evolution, and Organismal Biology, Iowa State University, December 2008.
- (40) Seminar at Dept. of Ecology and Evolutionary Biology, University of California at Irvine, September 2008.
- (39) Graduate student pick for departmental seminar at the American Museum of Natural History, New York City, Fall 2008.
- (38) Departmental Seminar, Yangzee University, China, May 2008.
- (37) Departmental Seminar, Chongqing Normal University, China, May 2008.
- (36) CT Butterfly Association, Peabody Museum, New Haven, April 2008.
- (35) The Connecticut Agricultural Field Station, December 2007.
- (34) Seminar at Dept. of Biology and Biochemistry, University of Houston. November 2007.
- (33) The Connecticut Entomological Society, Hamden CT, October 2007.
- (32) The Yale Brown Beer, Anthropology Seminar Series at Yale University, October 2007.

- (31) Wayne State University, Departmental Seminar, February 2007.
- (30) University of Maryland's Behavior, Ecology, Evolution and Systematics seminar series, March 2007.
- (29) Yale University, YIBS seminar series, October 2006.
- (28) Seminar at Dept. Ecology and Evolutionary Biology, University of Connecticut, Storrs, October 2006.
- (27) Seminar at the Department of Biology, Buffalo State College, Buffalo, NY, April 2006.
- (26) Seminar at the Department of Ecology and Evolutionary Biology, University of Michigan, Ann Harbor, Michigan, March 2006.
- (25) Seminar at the Department of Biology, University of California at Riverside, CA, March 2006.
- (24) McMaster University, Hamilton, Ontario, Jan 2006.
- (23) Cornell University, Ithaca, New York, February 2005.
- (22) University of Illinois at Urbana-Champaign, Illinois, 2004.
- (21) Brock University, Ontario, Canada, 2004.
- (20) Seminar at the Department of Ecology and Evolutionary Biology, University of Toronto, Ontario, Canada, 2004.
- (19) Seminar at the Biology Department, University of Windsor, Canada, 2003.
- (18) Seminar at the Biology Department, Canisius College, New York, 2003.
- (17) Seminar at the Dept. Ecology and Evolutionary Biology, University at Stony Brook, New York, 2003.
- (16) Seminar at the Department of Biology, Hamilton College, New York, 2003.
- (15) Seminar at the Department of Biology, Colgate College, New York, 2003.
- (14) Seminar at the Department of Biological Sciences, University of Buffalo, Buffalo, New York, 2003.
- (13) Seminar at the Dept. of Cell and Molecular Biology, Roswell Park, Buffalo, New York, 2003.
- (12) Seminar at the Biology Department, SUNY Geneseo, New York, 2002.
- (11) Seminar at the Biology Department, University of Rochester, Rochester, New York, 2002.
- (10) Seminar at the Dept. of Biology, Indiana University, Bloomington, Indiana, 2002.
- (9) Seminar at the Department of Biology, University of North Carolina at Chapel Hill, North Carolina, 2001.
- (8) Seminar at the Department of Biological Sciences, University at Buffalo, Buffalo, New York, 2001,
- (7) Seminar at the European Molecular Biology Laboratory (EMBL), Heidelberg, Germany, 2000.
- (6) Seminar at the Dept. of Ecology and Evolutionary Biology, Yale University, New Haven, Connecticut, 1998.
- (5) Seminar at the Gulbenkian Institute of Science, Lisbon, Portugal 1998.
- (4) Seminar at the Department of Biology, University of Kentucky, Lexington, Kentucky 1997.
- (3) Seminar at the Dept. of Organismic and Evolutionary Biology, Harvard University, Cambridge, Massachusetts 1997.
- (2) Seminar at the Institute of Molecular Biology, University of Zurich, Switzerland, 1996.
- (1) Seminar at the Department of Biology, University of Lisbon, Portugal, 1995.

#### **Outreach invited seminars and public lectures**

- (12) Public Talk for Singapore Science Festival, DBS, NUS, Singapore, "Season changes in sexual ornaments and sexual behaviors in butterflies". Aug 2018.
- (11) Public talk IBN-MOE Symposium on Science: Frontiers in Biology. "How and why butterflies evolve colors and patterns on their wings". Nov 2017.
- (10) Public talk on "sexual selection in butterflies" organized by Biodiversity Connections at Monochrome Coffee, Singapore, March 2016
- (9) Research seminar at Raffles Girls' School, Singapore, October 2015

- (8) Seminars on STEM women in Science. "Why are Singaporean women not applying for Science jobs in Singapore?". August 2015, University Hall, NUS, Singapore and November 2015, SUTD, Singapore.
- (7) Masterclasses on Life Sciences for High School students, University Town, NUS, Singapore June 2015 & July 2015.
- (6) Enrichment talk on Biodiversity and Evolution, Science Center Singapore, Public May 2015
- (5) OC Marsh Seminar at the Yale Peabody Museum, March 2010
- (4) Lecture at Science Saturday, a public outreach lecture series for 7<sup>th</sup> graders and older audiences, Yale University, October 2008.
- (3) The New Haven Library Summer Lecture Series, New Haven, CT. August 2008.
- (2) Participant in the "Cutting-Edge Lecture Series", a Saturday morning lecture series aimed at high-school students. University of Buffalo. 2005.
- (1) Participant in "UBThis Summer", a summer lecture series aimed at the general public. 2003 and 2004.

#### **Courses taught at NUS and Yale-NUS:**

- Developmental Biology (Yale-NUS)** - Undergraduate course (Spring 2018)
- Evolutionary Biology (NUS)** – Freshman undergraduate course co-taught with Ryan Chisholm, >200 students (Fall 2016, Fall 2017)
- The origins of genome architecture (NUS)** – Graduate Course (Spring 2015)
- Foundations of Science (Yale-NUS)** – Undergraduate Course focusing on Novel Traits (Fall 2014, Fall 2015)
- Evolutionary Developmental Biology (NUS)** – Graduate and Undergraduate Course (Spring 2014, Spring 2016, Spring 2017, Fall 2018)
- Graduate Seminar in Biological Sciences (NUS)** – (Spring 2014, Spring 2015)

#### **Courses taught at Yale:**

- Evolution of Phenotypic Plasticity** – Graduate Course (Fall 2012)
- Human Evo-Evo** - Graduate course (taught in Spring 2012)
- Evolutionary Developmental Biology** – Undergraduate/Graduate course (taught in the Spring 2007; Fall 2010; Fall 2011; Spring 2013).
- Evolutionary Biology** - Undergraduate course co-taught with Paul Turner in Spring 2009; and with Jeff Powel in Spring 2011
- Epigenetics and Evolution** - Graduate seminar (taught in the Fall 2008)
- Insect Development and Evolution-** Undergraduate/Graduate course taught in the Spring semester 2008
- Insect Development and Evolution Lab** - Undergraduate/Graduate course taught with the help of a TA in the Spring semester 2008
- Evolutionary Functional Genomics** – Graduate Seminar co-taught with Jeffrey Townsend and Gunter Wagner in the Fall semester 2007
- Mechanisms of Development** - Graduate Seminar co-taught with members of MCDB and Genetics Dept: taught two lectures each in the Spring semesters of 2007 and 2008

#### **Courses taught at other institutions:**

- Evolutionary Developmental Biology** (Buffalo) Undergraduate course taught in the Fall semester in alternate years to Evolutionary Genetics.
- Evolutionary Genetics** (Buffalo). Co-taught with William Piel in the Fall semester in alternative years to Evolutionary Developmental Biology.
- Developmental Biology** (Buffalo). Taught section of course (6 lectures, 14% contribution) in the Spring semester.



**Morphometrics** (Amsterdam). Taught in two consecutive years (2000/01) in this one-week course organized by the University of Amsterdam, The Netherlands.

**Evolutionary Biology** (Leiden). Taught 3 lectures/year (1999/00) on Molecular systematics and Evo-devo for this 2<sup>nd</sup> year course at, Leiden University, The Netherlands.

**Animal Behavior** (Harvard). Taught a lab discussion section as a Teaching Fellow in 1997

**Tropical Biology** (Uganda). Taught about butterfly diversity during a one-month course in Uganda (1997) organized by the Tropical Biology Association, UK.

**General Zoology** (Edinburgh). Taught a lab section for one semester in this undergraduate course at Edinburgh University in 1993.

#### **Research supervision and mentoring:**

##### **Junior faculty mentor:**

2018-present: Assist. Prof. Eunice Tan (Yale-NUS College, Science Division)  
2016-present: Assist. Prof. Angel Hsu (Yale-NUS College, Social Sciences Division)  
2015-present: Assist. Prof. John Ascher (DBS, NUS)  
2015-present: Assist. Prof. Ajay Mathuru (Yale-NUS College, Science Division)

##### **Postdoctoral Fellows (15):**

2016-2018 Dr. Eunice Tan (PhD from University of Melbourne, Australia; Now Assistant Professor at Yale-NUS College, Singapore)  
2016-present: Dr. Yuji Matsuoka (PhD from Tokushima University, Japan)  
2016: Dr. Arjen van' T Hof (PhD from Leiden University, The Netherlands)  
2015-present: Dr. Heidi Connahs (PhD from University of North Dakota)  
2014-present: Dr. Emilie Dion (PhD from INRA-Agrocampus Rennes, France)  
2014-2015: Dr. Muhammad Luqman Aslam (PhD from Wageningen University, The Netherlands, now Research Scientist at Nofima, Norway)  
2014-2015: Dr. Mainak Dasgupta (PhD from Indian Institute of Science, Bangalore, India, now Postdoctoral Fellow at Max Plank Institute, Germany)  
2011-2014: Dr. Bethany Wasik (PhD from University of Indiana at Bloomington, now Assistant Editor at Cornell University Press)  
2010-2012: Dr. Xialong Tong (PhD from Southwest University, now Full Professor at Southwest University, Chongqing, P.R. China)  
2007-2012: Dr. Jeffrey Oliver (PhD from University of Arizona at Tucson, now )  
2007-2012: Dr. Katy Prudic (PhD from University of Arizona at Tucson, now Research Assistant Professor at the University of Arizona)  
2007-2009: Dr. Ondrej Podlaha (PhD from the University of Michigan)  
2006-2010: Dr. Andrew Stoehr (PhD from the University of California at Riverside, currently an Assistant Professor at Butler University, US)  
2003-2007: Dr. Bin Chen (PhD from Chongqing Normal University, Chongqing, P.R. China, currently Professor at the Institute of Entomology and Molecular Biology, Chongqing Normal University).  
2002-2003: Dr. Jeffrey Marcus (PhD from Duke University, currently an Associate professor at the University of Manitoba)

##### **PhD students (12 students, 2 co-supervised):**

2017-present: Juan Olvido (Aug)  
2017-present: Suriya Narayanan (Aug)  
2017-present: Jocelyn Wee (Jan)  
2016-present: Tirtha Das Banerjee (Aug)  
2014-present: Anupama Prakash  
2013-2018 Dr. Shivam Bhardwaj  
2013-2017: Dr. Nesibe Ozsü (now postdoctoral fellow at University of Toulouse, France)

2009-2014: Dr. April Dinwiddie (co-advised with Richard Prum, now postdoctoral fellow at Max Planck Institute for Developmental Biology).  
2008-2013: Dr. Ashley Bear (now working at the National Science Foundation in Washington DC, USA)  
2009-2012: Dr. Erica Westerman (now Assistant Professor at the University of Arkansas)  
2007-2012: Dr. Joanna Wolfe – Paleontology student - co-advised with Derek Briggs (now postdoctoral fellow at the American Museum of Natural History).  
2002-2007: Dr. Diane Ramos (now Associate Professor at Daemen College, Buffalo, NY).

#### **MS and MA students:**

2017-2018: Zohara Rafi (MA student at National University of Singapore)  
2017-20018: Li Xian Pui (MA student at National University of Singapore, now a secondary school teacher in Singapore)  
2016: Jelle van Creij (visiting MS student from Wageningen, The Netherlands, now a graduate student at Wageningen University)  
2012: Karin van der Burg (visiting MS Student from Leiden University, The Netherlands, now a graduate student at Cornell University)  
2011: Carole Bastianelli (Visiting MS Student from Lyon University, France)  
2004-2006: Firdous Kamal (IGERT training fellow from the Department of Electrical Engineering co-supervised with Dr. Alexander Cartwright)  
2004-2005 Amanda Anderson (MS in Biology and in Education)  
2003-2005 Gary Glaser (MS)  
2002-2005 Kendra Robertson (MS)  
2004-2005 Kyle Golden (MA)  
2003-2004 Sarah Kemmerer (MA in Biology and in Education)

#### **Visiting Scientists in the lab:**

2012 (summer): Dr. Diane Ramos, visiting scientist from Daemen College, spend a summer sabbatical doing research in the lab.  
2012 (summer) – Dr. Elizabeth Rayhel, visiting scientist from Fontbonne University, spend two weeks learning immunohistochemistry with butterfly wing discs in the lab.  
2010: Dr. Miao Yungen, visiting scientist from Zhejiang University, P.R. China (Jan-March 2010).

#### **Undergraduate students:**

\*\* students with lead authorship in publications  
\* students with shared authorship in publications  
75) Sharran s/o Rajendran (Honors student in 2018)  
74) Ling Sheng Loh (Honors student in 2018)  
73) Yi Ting Ter (UROPS student 2017, Honors student in 2018)  
72) Athmaja (Internship student from SRM University, Tamil Nadu, India)  
71) Gowri V. (Internship student from Mepco Schlenk Engineering College, Sivakasi, TamilNadu, India)  
70) Ashutosh Gupta (Visiting student from Indian Institute of Technology Guwahati, India)  
69) Mayank Kumar (Vising student from Indian Institute of Technology Banaras Hindu University (IIT BHU), Varanasi, India)  
68) \*\*Yue Qian Tan (Honors student 2016-2017)  
67) Brent Tan (Honors student 2016-2017)  
66) \*Li Xian Pui (Honors student 2016-2017)  
65) Sarah Monroe (Undergraduate student 2016)  
64) \*\*Xiang Hui Low (Honors student 2016-2017)

- 63) \*\*Manizah Huq (Honors student 2016-2017)
- 62) Khai Ann Hiew (Honors student 2016-2017)
- 61) Nikhil Dev N (visiting student from Indian Institute of Science Education and Research Thriuvananthapuram (IISER TVM, summer 2016)
- 60) Jeremy Kah Sheng Pang (UROPS student 2016)
- 59) Ling Sheng Loh (UROPS student 2016)
- 58) \*Tricia Loo Yi Jun (UROPS student 2016)
- 57) Shearel Sim Hui Ming (Honors student 2015-2016)
- 56) \*\*Swit Yee Ng (Honors student 2015-present)
- 55) Kenneth Neo Cheng Wee (Honors student 2015-2016)
- 54) \*\*Jocelyn Wee Liang Qi (Honors student 2015-2016)
- 53) \*Qianyi Chan (Honors student 2015-present)
- 52) \*\*Soo Yee Ng (UROPS Spring and Fall 2015)
- 51) \*\*Yue Qian Tan (UROPS Spring and Fall 2015)
- 50) Nicholas Cho Ryi Wen (Summer student 2015)
- 49) \*Sam Chan (visiting student from Malaysia, Oct-Dec 2014)
- 48) \*\*Zhe Ching Ngan (Honors student 2014-2015)
- 47) \*\*Sabastian Ho (Honors student 2014-2015)
- 46) Tirtha Das Banerjee (Summer student 2014)
- 45) Melissa Teo Hui Jing (Honors student 2014-2015)
- 44) Jonathan Peh Jun Jie (UROPS Spring + Fall 2014-)
- 43) Stacey Yuen (Spring 2014)
- 42) \*\*Sandra Schachat (Spring 2013-Summer 2014)
- 41) Gwen Antell (summer 2013)
- 40) Serra Orrey (visiting undergraduate from Turkey, summer 2012)
- 39) \*\*Christopher Tokita (summer 2012-present)
- 38) \*\*Andrew Everett (spring 2010-2012)
- 37) \*Caroline Druker (spring 2010)
- 36) Paul Shamble (fall 2008-summer 2009)
- 35) \*\*Anna Lindemann (spring 2007-2009)
- 34) Robert Tunney (summer 2008)
- 33) \*Ariel Simons (summer 2008)
- 32) Jessica Decker (summer 2007)
- 31) Lee Driftmier (spring-summer 2007)
- 30) Mark Fisher (spring 2007)
- 29) Constance Woodman (summer 2006)
- 28) Mayank Lahoti (fall 2005-spring 2006)
- 27) Aminah Hussain (spring 2006)
- 26) Emily Coren (summer and fall 2005)
- 25) Lisa Elkaabi (fall 2005)
- 24) \*\*Andrew Goldman (spring 2005)
- 23) Taid Rahimi (spring 2005)
- 22) Fekri Abdulla (spring 2005)
- 21) Ogechukwu Etudo (summer 2004 – fall2004)
- 20) Veena Raju (fall 2004)
- 19) Lindsey Vedder (summer 2004 – summer 2005)
- 18) Laura Blodgett (summer 2004, visiting student from U. Rochester)
- 17) Wendy Park (Honors student, fall 2002 – spring 2003)
- 16)\* Lauren Scott (Honors student, fall 2002 – summer 2004)
- 15) Laura Falkowski (spring 2004 – summer 2004)
- 14) Sashti Balasundaram (fall 2003 – summer 2004)

- 13)\*\* Jarod Masci (fall 2003 – summer 2004)
- 12) Nathan Markwarth (Honors student, fall 2003 - summer 2004)
- 11)\* Suzanna Saenko (visiting undergraduate from Leiden University – summer 2003)
- 10)\* Steven Stockslager (fall 2003-summer 2004)
- 9)\*\* Sam Arbesman (summer 2002)
- 8) Mara Sommer (spring 2002)
- 7)\*\* Jeroen Janssen (“Stage” student, Leiden University, 2000)
- 6) Joan van Ness (“Stage” student, Leiden University, 2000)
- 5)\* Leo Enthoven (“Stage” student, Leiden University, 1999)
- 4) Mayako Michino (Radcliff fellow at Harvard University, 1999)
- 3) Cara Forster (Radcliff fellow at Harvard University, 1999)
- 2) Laela Sturdy (Radcliff fellow at Harvard University, 1998)
- 1) Jennifer Fines (Radcliff fellow at Harvard University, 1998)

#### **Highschool students:**

- Florence Piel (summer 2017)
- Christopher Chew (summer 2017)
- James Regan-Mochrie (summer 2012)
- Silas Dasgupta (summer 2012)
- Santo Chen (summer 2011)
- Aldie Berezowskyj (summer 2008)
- Lisa Fazzino (summer 2007)

#### **PhD student committees and external examiner duties:**

- 2018:** PhD thesis “Opponent” of Beatriz Willink, Lund University, Sweden Oct. 2018
- 2018-present:** Randolph Quek (Danwei Huang)
- 2017-present:** Cai Yichao, DBS, NUS PhD student (Greg Tucker-Kellog)
- 2017-present:** Kwi Shan Seah, DBS, NUS PhD student (Vinod Saranathan)
- 2017:** PhD thesis “Opponent” of Alyssa Woronik, University of Stokholm, Sweden Nov. 2017
- 2017:** Main oral examiner of PhD thesis of Maria Adelina Jerónimo. Institute Gulbenkian of Science, Lisbon, Portugal, Feb. 2017.
- 2016-2018:** Deepti, DBS, NUS PhD student of Ryan Chisholm
- 2015-2018:** Tayfun Tumkaya, NUS Medical School PhD student (Adam Claridge-Chang’s lab)
- 2015-2018:** Zhang Manping, DBS, NUS PhD student of Theo Evans
- 2015-present:** Gowri Rajaratnam, DBS, NUS PhD student of Rudolf Meier
- 2015-2018:** Catharina Gallagher, DBS, NUS PhD student of Ryan Chisholm
- 2014-2016:** Angel Rivera-Colón, Univ. Puerto-Rico Master’s student of Riccardo Papa
- 2014-2015:** Shruti Shankar, Temasek Life Sciences Laboratory, PhD student of Joanne Yew
- 2008-2012** Koryu Kin, Yale PhD student of Gunter Wagner
- 2007-2013** Andrea Hodgins-Davis, Yale PhD student of Jeffrey Townsend
- 2007-2012** Jura Pinta, Yale PhD student of Gunter Wagner
- 2007-2012** Sandra Schnakenberg, NYU PhD student of Mark Siegal at NYU - outside committee member
- 2006-2011** Vinodkumar Saranathan, Yale PhD student of Gunter Wagner
- 2006-2008** Vincent Lynch, Yale PhD student of Gunter Wagner
- 2003-2006** Narasimha Rao Marella, Buffalo PhD student of Ron Berezney

#### **Departmental service:**

- 2017-present:** Member of Ethical Conduct Committee at DBS, NUS
- 2017-present:** Co-chair of Biology Colloquium Committee at DBS, NUS
- 2016-2017:** Chair of Biology Colloquium Committee at DBS, NUS

**2015-2017:** Assistant Head of Department for Graduate Affairs, DBS, NUS.  
**2015-** Chaperone for Graduate Congress in Chulalongkorn University, Bangkok, Thailand, 9-10 Dec 2015 (NUS)  
**2015 -** Member of Biology Colloquium Committee at DBS, NUS  
**2014-2017:** Member of Graduate Admissions Committee at DBS, NUS  
**2014 –** Chaperone for Graduate Congress at University of Malaya, Kuala Lumpur, Malaysia, Jan 2014 (NUS)  
**2011 –** Member of the Simpson Prize jury committee (Yale)  
**2010-2013:** Member of the cryo facility committee at the Peabody Museum, Yale University (Yale)  
**2010 – 2011:** Organizer of departmental seminar series (Yale)  
**2009 -** Member of the Simpson Prize jury committee (Yale)  
**2008 – 2009:** Organizer of departmental seminar series (Yale)  
**2004-2006:** Member of the Undergraduate Affairs Committee (Buffalo)  
**2003-2006:** Co-organizer of departmental seminars (Buffalo)  
**2003:** Member of Physiology search committee (Buffalo)  
**2002-2006:** Member of the Greenhouse Committee (Buffalo)  
**2002-2004** Member of the Executive Committee (Buffalo)

#### **University wide service:**

**2018-present:** Member of Diversity and Inclusion Committee, Yale-NUS College  
**2017-present:** Member of Research Committee at Yale-NUS College.  
**2014-2017:** Chair of Research Committee at Yale-NUS-College. Committee was charged with making policy regarding the use of research funds and the development of appropriate research infrastructure across all divisions of the College.  
**2013-2015:** Faculty advisory member of CIPE (Center for International and Professional Experiences) at Yale-NUS.  
**2010-2012:** Yale freshman advisor  
**2010-2012:** Member of the Course of Study Committee, which evaluates content and suitability of all new Yale undergraduate courses.  
**2002- 2004:** University at Buffalo Faculty Senator.

#### **Symposia and Conferences organized:**

**2018** Organizer of an Evo-devo symposium in honor of Fred Nijhout at the Biology of Butterflies Meeting at NCBS, Bangalore, India, June 11-14 2018.  
**2017** Organizer of an Evo-devo symposia on the Origin and evolution of novel traits and also member of the Scientific Organizing Committee for the First Asian Evolutionary Biology Meeting to be held at China National Genebank, Schenzhen, China 18-20 April 2018.  
**2016** Member of the local organizing committee for the Internatinal Society for Developmental Biology, held in Singapore in June 2017.  
**2016** Co-organized a symposium with Heidi Connahs on the “Evolution of gene regulatory networks” for the “Euro Evo Devo” conference in Uppsala, Sweeden, July 2016.  
**2015** Co-organized a symposium with Lerwen Liu on “Opportunities and barriers for Women in STEM”, University Hall, NUS. August 20, 2015  
**2014** Organized the First Annual Symposium on Insect-Spider Biology at DBS, NUS. July 2014.  
**2013** Co-organized a symposium with Suzy Renn on “Understanding First Order Phenotypes: Transcriptomics for Emerging Models”. SICB, San Francisco, Jan 2013.  
**2012** Co-organized a symposium with P. Beldade on “The evo-devo of arthropod appendages and patterning: the genes that matter” held at the European Society for Evolutionary Developmental Biology (ESEDDB) in Lisbon, July 2012.

- 2010** Organized a symposium on the Evo-Devo of Butterfly Color Patterns for the 6<sup>th</sup> International Meeting on the Biology of Butterflies, Edmonton, Canada.
- 2007** Co-organized a symposium with Patricia Beldade (Leiden University) on the Evolution and Development of Color Patterns for the International Meeting on the Biology of Butterflies, Rome, 2007.
- 2006** Co-organized, with William Piel and Derek Taylor, the Eastern Great Lakes Molecular Evolution meeting, held at the Center for the Arts, University at Buffalo, Buffalo, NY, May 2006
- 2006** Co-chaired the session on Evo-Devo for the North Eastern Society for Developmental Biology, Woods Hole, April 2006.
- 2004** Co-organized an international meeting with Owen McMillan (Univ. Puerto Rico) on "The evolution and development of butterflies", University of Puerto Rico - Rio Piedras, Puerto Rico.
- 2001** Co-organized with P. Beldade (Leiden University) the symposium, "Evolution and Development of Colour Patterns" at the European Society of Evolutionary Biology Meeting, Aarhus, Denmark.

#### **Community Service:**

- 2017 – Guest Editor for** Special Issue "CRISPR/Cas9-Mediated Gene Manipulations in Non-Model Organisms", to be published in *Methods and Protocols*.
- 2016-present:** Recommender for the journal *PCI Evol Biol*.
- 2016 & 2013: Invited to contribute nominations for the Kyoto Prize**, an international award to honor those who have contributed significantly to the scientific, cultural, and spiritual betterment of mankind. Inamori Foundation, Japan
- 2016:** Judge in the A\*STAR Talent Search for high school students from Singapore
- 2014:** Judge in the A\*STAR Talent Search for high school students from Singapore
- 2012: Reviewer for Blavatnik Award for Young Scientists awarded by The New York Academy of Sciences**
- 2010-2013: Associate Editor** for the Journal "Evolution"
- 2006-2009 Associate Editor** for the Journal "Evolutionary Ecology"
- Outside grant reviewer for:** NSF, MRC (UK), NERC (UK), NWO (NL), FWF(AU), Padova University, The Leverhulme Trust, Swiss National Science Foundation.
- Reviewer for:** Cell, Nature, Science, PNAS, Nature Communications, PLoS Genetics, Development, BioEssays, Proceedings of the Royal Society of London, B, Evolution & Development, Molecular Phylogenetics and Evolution, Integrative and Comparative Biology, Animal Behavior, Journal of Experimental Zoology, Heredity, Journal of Theoretical Biology, Zoological Society, New Zealand Entomologist, Entomologica Fennica, Encyclopedia of Life Sciences, Journal of Visualized Experiments, Entomological Science, Insect Physiology, Behavioral Ecology, Biosystems, Journal of Ethology, Insect Science, PLoS One, Scientific Reports.
- NSF reviewer and panel participant for Animal Physiological and Structural Systems** (March 2012)
- NSF reviewer and panel participant for Physics of Living Systems** (Oct. 2010)

#### **Outreach (TV, Radio, Museum Exhibits):**

- 2015 & 2017:** Our work on butterfly evolution was featured on the Science section of the Sunday Times (Singapore).
- 2014:** Our work on the evolution of butterfly structural colors was featured on National Public Radio, USA. Mantid predation work was also featured on CBC radio podcast (Quirks and Quarks), The Times (UK), and Salon magazine.

**2011:** Collaborated with artist John Arabolos, who used high-resolution digital images of nymphalid butterflies obtained for an on-going NSF funded research project to create the exhibit "Ecological Symmetries". Peabody Museum of Natural History. Fall 2011.

**2008:** National Public Radio (NPR) reporter Flora Lichtman, working for Ira Flatow's **Science Friday**, produced a nice video summary of some of our work with the transgenic butterflies.

**2007:** Our work with transgenic butterflies was the focus of a module on the "molecular biology of butterflies", part of a larger exhibit held at the **Natural History Museum in Lisbon**. The exhibit, which centered on the study and conservation of Iberian butterflies was in Lisbon until December 2007 and subsequently travelled to other countries in Europe.

**2006:** Work in the lab was also featured in the **Discovery Channel** and in the Portuguese television series "Geração Cientista" (Generation Scientist), where 26 young Portuguese scientists working throughout the world were interviewed about their work. The aim of the series (13 episodes) was to introduce the "lives of scientists" to the younger generations, to demystify the scientific profession, and to encourage young people to follow a career in science.

**2006:** Our work on the role of eyespots in female choice was recreated in the first episode of a **PBS Nature** two-part television series "What females want" and "What males are willing to give".