

David DUNEAU, PhD

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Languages: French (native); English (fluent); Portuguese (basic); R (fluent)

Research interests

My research asks *why individuals vary in their responses to environmental challenges* with a focus on the challenges imposed by parasites. I test evolutionary and ecological concepts in model invertebrates by integrating experimental approaches such as functional genetics with statistical modelling, genomics (GWAS), and transcriptomics.

- Host-parasite interaction ■ co-evolution ■ sexual dimorphism ■ phenotypic plasticity
- genetic basis of quantitative traits ■ within-host dynamics
- bacteria ■ *Drosophila*

Research positions

- 2020 to date: **Independent researcher, Laboratoire International Associé programme**
Instituto Gulbenkian de Ciência, Portugal & University Toulouse 3, France.
- 2015 - 2019: **Senior post-doctoral research associate**
Lab. Evolution and Biological Diversity (EDB) University Toulouse 3.
- 2012 - 2015: **SNSF post-doctoral research associate**
Lazzaro Lab, Cornell University, USA.
- 2007 - 2011: **PhD student**
Ebert lab, Zoological Institute Basel, Switzerland.
- 2005 - 2006: **Master student**
Master 2: McCoy lab, Institute for Development Research (IRD), Montpellier.
Master 1: Thomas lab, Institute for Development Research (IRD), Montpellier.

Career break

- 2018 - 2019: Part-time parental leave (1 child now 5 years old)

Education

- 2007 - 2011: **PhD student in Evolutionary parasitology** Basel Univ. (CH) (September 23, 2011)
'Evolutionary and proximate mechanisms shaping host-parasite interactions: The case of Daphnia magna and its natural bacterial parasite Pasteuria ramosa.'
- 2005 - 2006: **Masters in Ecology and Evolutionary Biology**, Montpellier Univ. (FR)
- 2003 - 2004: **Bachelor of Science in Organismal Biology**, Montpellier Univ. (FR)

Funding

- Fellowships (278K€)
 - Fellowship from Gulbenkian Foundation in Lisbon (2020 & 2021; 30K€)
 - Post-doctoral '*Prestigious and Marie Curie Fellowship*' (2017; 51K€)

- Post-doctoral fellowship from LabEx TULIP (2015; 112K€)
- Post-doctoral fellowship from Swiss NSF (2011 & 2013; 76K€)
- Fellowship from the Emilia Guggenheim-Schnurr foundation in Basel (2009; 9K€)
- Grants
 - PI David Duneau and Lucie Zinger: Disentangling the factors shaping gut microbiota diversity across arthropod predators (EDB Toulouse Univ. funded by LabEx CEBA; 2016; 20K€)
 - PI Jean-Baptiste Ferdy (Duneau D. co-PI, 15%-time allocation): Pathogens adaptation to their host's microbiome (EDB Toulouse Univ., funded by "New frontiers" LabEx TULIP project; 2016; 82K€)
 - PI Patrícia Beldade (Duneau D. co-PI, 20%-time allocation): Adaptive Developmental Plasticity: genetic and environmental components of phenotypic variation (FCT Portugal; 2016; 192K€)
- 5 Travel grants to attend conferences.

Main scientific accomplishments

My research has contributed to:

- **Parasite manipulating host behaviour** can escape from the predators (frog) of their host (Ponton *et al.* Nature 2006).
- Determining the mechanism responsible for the **coevolution between a host and its parasite** (Duneau *et al.* BMC Biol. 2011).
- Describing **sexual dimorphism in responses to infections** in *Drosophila* (Belmonte *et al.* Front. Imm. 2020) and uncovering **mechanisms driving dimorphism** (Duneau *et al.* BMC Biol. 2017).
- Proposing (Duneau & Ebert PLoS Biol. 2012), and demonstrating (Duneau *et al.* BMC Biol. 2012), that **parasites can adapt specifically to the sex of the host** they encounter the most often.
- Understanding the link between **within-host dynamics and infection outcome** (Duneau *et al.* eLife 2017).
- Characterising the **genetic basis of insecticide resistance** (Duneau *et al.* G3 2018) and **phenotypic plasticity** (Lafuente *et al.* PLoS Gen. 2018).
- Showing that the distinct **steps of infection impose trade-offs to bacterial within-host evolution** (Faucher *et al.* mBio 2020).
- Showing that **cancer can increase the risk of being predated** (Duneau *et al.* BioRxiv 2020).

Academic leadership

- **Reviewer for 18 Journals**
 - Animal Behaviour ■ Biology Letters ■ BMC ecology ■ BMC Evolutionary Biology ■ Coevolution ■ Ecology and Evolution ■ Evolution ■ Epidemiology and Infection ■ Heredity ■ Invertebrate Biology ■ Invertebrate Survival Journal ■ Nature Communications ■ Oecologia ■ Oikos ■ Phil. Transactions of the Royal Society ■ PLoS ONE ■ PNAS ■ Proceedings of the Royal Society B.
- **Reviewer for 4 funding agencies**
 - Sigma Xi awards research grants program ■ National Commission for Scientific and Technological Research of Chile ■ National Fund for Scientific Research of Belgium (NFWO) ■ European Research Council (ERC).
- **Thesis committee and jury**
 - Examiner for Pinaud S at Univ. Perpignan (France) supervised by Gourbal B (2018)
 - Thesis committee Hanson M at EPFL (Switzerland) supervised by Lemaitre B (2018)

- **Administrative & organisational roles**

- Part of the scientific committee of the French Network "Réseau Ecologie des Interactions Durables" (REID) (2020-current).
- Organisation of the National meeting of the French Network "Réseau Ecologie des Interactions Durables" (REID) (2017, Museum natural history of Toulouse).
- Organisation of departmental seminars (2015 to 2017, University of Toulouse 3)
- Organisation of seminars aiming to present experiments or analyses before they were performed. (From fall 2009 to spring 2011, Zoological Institute Basel)

Teaching

- **Active learning grounded in evidence-based techniques of teaching**

- Evaluation in "*Evolutionary biology and genetics*" (2017 & 2018) Level: 3rd year undergraduate, University of Toulouse 3. We used a role play method to evaluate their understanding of concepts in evolutionary biology (example of questions: "What is death in an evolutionary biology context?", "What is the cost of sex?").
- Teaching assistant, practical in *Ecological and Evolutionary Genetics* (2009 and 2010). Level: Masters student, University of Basel. I developed exercises based on real examples and employed a "think – pair – share" method, where students *think* for themselves, exchange with their neighbour (*pair*) and *share* with the class.
- Teaching of *Introduction to biology* (2009). Level: group of ~10 1st year undergraduates, University of Basel. I put the students at the centre of the teaching by asking them to respond to a set of concept inventory questions before the lecture (at home) and, after having established the students who knew the answer, I asked those students to participate in the teaching by explaining concepts to their classmate.

- **Conventional**

- Numerous and continual participation in mock panels and presentation critique for PhD students approaching their defence.
- Invited lecture on host-parasite coevolution (2017). Level: high school teachers.
- Summer school LabEx TULIP (2015) on Integrative Ecology and Biology "Biological interactions from genes to ecosystems". Level: from 4th year undergraduates to Postdoc.
- Departmental workshop on statistical analysis of experimental data. Level: Postgraduates (2014).
- Tutor in student scientific projects (2008 to 2010). Level: 3rd year undergraduate, University of Basel.
- Teaching assistant, *practical of Animal Biology (Embryology)* with Prof. Louis Du Pasquier (2009). Level: 3rd year undergraduates, University of Basel.
- Teaching assistant, *practical of Animal Biology (Entomology)* with Prof. Dieter Ebert (2008). Level: 3rd year undergraduates, University of Basel

Student supervision (1 thesis as co-supervisor, 3 Master 2, 12 undergrads)

- **PhD student**

- Yara Santos Rodrigues *Regulation and evolution of developmental plasticity in insect pigmentation: temperature and immunity interactions*. (Co-supervision with Beldade P from Lisbon Univ.; 2015 - Oct. 2020)

- **Master 2 students**

- Lafont P *A stochastic model for estimating immune parameters from the infection dynamics of a pathogen.* (co-supervision with Ferdy JB (EDB, Toulouse Univ.); 2019)
- Lemoine M *Ecological and evolutionary determinants of gut microbial communities in predatory insects.* (Co-supervision with Zinger L (ENS Paris); 2017)
- Mazana V *Role of phenotypic switching in the division of labor during infection.* (2017)

- **Other undergraduate students**

■ Lafont P (2018) ■ Kardacz M (2017) ■ Mazana V (2016) ■ Kondolf H (2014, 2015) ■ Ortiz G (2013 - 2015) ■ Fox M (2012 - 2015) ■ Chow C (2013) ■ Edraki A (2013) ■ Ruder L (2010) ■ Eichin D (2009) ■ Gygli S (2009) ■ Hofer L (2009, 2010)

Summary of publications [ORCID ID: 0000-0002-8323-1511]

Total: 28 publications of which 11 first author, 2 last and 11 *corresponding*
 + 4 in BioRxiv
 + 4 as thesis chapter or exist as draft

Google scholar profile: <https://scholar.google.fr/citations?user=VhsB4z0AAAAJ&hl=en>

- H-index: 17
- Total citations: 837
- 71% cited more than 10 times
- Median journal impact factor when I am corresponding author (n=11): 6.7

Publications († corresponding author; * equal contribution)

2020 to date:

1. Faucher C, Mazana V, Kardacz M, Parthuisot N, Ferdy J-B, **Duneau† D** (2021) *Step-specific adaptation and trade-off over the course of an infection by GASP-mutation small colony variants.* **mBio** doi.org/10.1128/mBio.01399-20

Within-host bacterial adaptations are generally focused on antibiotic resistance, rarely on the adaptation to the environment given by the host, and the potential trade-off hindering adaptations to each step of the infection are rarely considered. Using *Drosophila melanogaster* as host and the bacteria *Xenorhabdus nematophila*, we studied those trade-offs that are key to understand intra-host evolution, and thus the dynamics of the infection.

2. Belmonte RL, Corbally M-K, **Duneau D*†**, Regan JC*† (2020) *Sexual dimorphisms in innate immunity and responses to infection in Drosophila melanogaster.* **Frontiers in Immunology** doi.org/10.3389/fimmu.2019.03075

We reviewed the sexual dimorphism of *Drosophila* when facing infections.

3. Bento G, Fields P, **Duneau D**, Ebert D (2020) *An alternative route of bacterial infection is associated with a polymorphism at an alternative resistance locus.* **Heredity** doi.org/10.1038/s41437020-0332-x

Contribution: I discovered the alternative route of infection.

4. Pineaux M, Merkling T, Danchin E, Hatch S, **Duneau D**, Blanchard P, Leclaire S (2020) *Sex and hatching order modulate the association between MHC-diversity and fitness in early-life stages of a wild seabird.* **Molecular Ecology** doi.org/10.1111/mec.15551

Contribution: Helped in the analyses and writing as an evolutionary parasitologist knowing the immune system and the sexual dimorphism in diseases.

2019 and before:

5. Corse E, Tougaard C, Archambaud G, Agnès J-F, Messu Mandeng FD, Bilong Bilong CF, **Duneau D**, Zinger L, Chappaz R, Xu CCY, Mègelecz E, Dubut V (2019) *One-locus-several-primers: a strategy to improve the taxonomic and haplotypic coverage in diet metabarcoding studies.* **Ecology & Evolution** doi.org/10.1002/ece3.5063

Contribution: Sampled spider webs in the tropical rainforest of French Guyana to show that we used them as DNA traps to describe biodiversity with metabarcoding.

6. **Duneau D[†]**, Sun H^{*}, Revah J, San Miguel K, Künnerth HD, Caldas IV, Messer PW, Scott JG, Buchon N (2018) *Genome wide analysis of resistance to an organophosphate and a pyrethroid insecticide.* **G3: Genes|Genomes|Genetics** doi.org/10.1534/g3.118.200537


Using GWAS with the Drosophila Reference Genetic Panel (DGRP) found the genetic basis of the resistance to Parathion and Deltamethrin, two commonly used insecticides.

7. Lafuente E, **Duneau D**, Beldade P (2018) *Genetic basis of thermal plasticity variation in Drosophila melanogaster body size.* **PLoS Genetics** doi.org/10.1371/journal.pgen.1007686

Using GWAS in *Drosophila*, we determined the genetic basis of thermal plasticity of thorax and abdomen size. Contribution: I supervised the genomic analysis and the validation of allele candidates with functional genetics.

8. **Duneau[†] D**, Lazzaro B (2018) *Persistence of an extracellular systemic infection across metamorphosis in a holometabolous insect.* **Biology Letters** doi.org/10.1098/rsbl.2017.0771

We showed that systemic infection with an extracellular bacterium can transverse life stages.

9. **Duneau[†] D**, Ferdy JB, Revah J, Kondolf HC, Ortiz GA, Lazzaro BP, Buchon N (2017) *Stochastic variation in the initial phase of bacterial infection predicts the probability of survival in D. melanogaster.* **eLife** doi.org/10.7554/eLife.28298 (Score 8 in )

A central problem with biomedicine is to understand why two individuals exposed to seemingly identical infections may have radically different clinical outcomes. Using the *Drosophila melanogaster* model, we analyse in depth, both through functional genetics and mathematical modelling, the main determinants that underlie the stochastic outcome of infection. (“Highlight” by Graham and Tate eLife 2017 6:e32783)

10. **Duneau[†] D**, Kondolf HC, Im JH, Ortiz GA, Chow C, Fox MA, Eugénio AT, Buchon N, Lazzaro BP (2017) *The Toll pathway underlies host sexual dimorphism in resistance to both Gram-negative and positive-bacteria in Drosophila.* **BMC Biology** doi.org/10.1186/s12915-017-0466-3

We elucidated the mechanisms underlying the difference between sexes in infection outcome in *Drosophila*.

11. Ebert D, **Duneau D**, Hall M, Luijckx P, Andras J, Du Pasquier L, Ben-Ami F (2016) *A population biology perspective on the stepwise infection process of the bacterial pathogen Pasteuria ramosa in Daphnia.* **Advances in parasitology** doi.org/10.1016/bs.apar.2015.10.001

We demonstrate that a population biology approach taking into consideration the natural genetic and environmental variation at each step of the infection can greatly aid our understanding of the evolutionary processes shaping disease traits. Contribution: This manuscript is largely based on my PhD thesis.

12. **Duneau[†] D**, Ebert D, Du Pasquier L (2016) *Infections by Pasteuria do not protect its natural host Daphnia magna from subsequent infections.* **Developmental & Comparative Immunology** doi.org/10.1016/j.dci.2015.12.004


We tested and concluded that *Daphnia* do not have immunological memory upon bacterial infections.

13. Avila F, Cohen A, Ameerudeen F, **Duneau D**, Suresh S, Mattei A, Wolfner M (2015) *The Drosophila mating plug protein, PEBme, is required to maintain the ejaculate within the female reproductive tract at the termination of copulation.* **Genetics** doi.org/10.1534/genetics.115.176669

Contribution: Showed with macrophotography that the inability of females to subsequently retain the ejaculate in their reproductive tracts after mating was frequent.

14. Luijckx P, **Duneau D**, Andras J, Ebert D (2014) *Cross-species infection trials reveal cryptic parasite varieties and a putative polymorphism shared among host species.* **Evolution** doi.org/10.1111/evo.12289

Contribution: Designed and did most experiments together with the first author.

15. Luijckx P, Fienberg H, **Duneau D**, Ebert D (2013) *A matching-allele model explains host resistance to parasites.* **Current Biology** doi.org/10.1016/j.cub.2013.04.064 (Score 2 in )

First times the genetic model of coevolution, the matching-allele model, was shown. Contribution: Performed all the attachment tests of this study (see article 20).

16. **Duneau[†] D**, Ebert D (2012) *Host sexual dimorphism and parasite adaptation.* **PLoS Biology** doi.org/10.1371/journal.pbio.1001271

In this "essay" we propose for the first time the idea that the sexual dimorphism of diseases may be the result of the specific adaptation of parasites to the sex of their host. Similarly, as organisms adapt to the environment to which they are most frequently exposed, parasites can adapt to the sex they encounter most frequently (e.g., either because males and females are exposed differently, or because one sex is more easily infected than another due to immune differences). As a result, parasites behave differently depending on the sex they infect.

17. **Duneau[†] D**, Luijckx P, Ruder L, Ebert D (2012) *Sex-specific effects of a parasite evolving in a female-biased host population.* **BMC Biology** doi.org/10.1186/1741-7007-10-104

We have shown here that a parasite can be better adapted to the sex it encounters most frequently, empirically supporting the hypothesis proposed Duneau & Ebert PLoS Biology 2012.

18. **Duneau[†] D**, Ebert D (2012) *The role of molting in parasite defense.* **Proceedings of the Royal Society of London B** doi.org/10.1098/rspb.2012.0407

We show that moulting is not only a weakness but can be beneficial to prevent infection by shedding bacteria. (Covered by: Le Figaro (<https://bit.ly/2tbIPUK>) & Live Science (<https://bit.ly/37aT6Po>))

19. Luijckx P, Fienberg H, **Duneau D**, Ebert D (2011) *Resistance to a bacterial parasite in the crustacean Daphnia magna shows Mendelian segregation with dominance.* **Heredity** doi.org/10.1038/hdy.2011.122

Contribution: Performed all the attachment tests of this study (see article 20).

20. **Duneau[†] D**, Luijckx P, Ben-Ami F, Laforsch C, Ebert D (2011) *Resolving the infection process reveals striking differences in the contribution of environment, genetics and phylogeny to host-parasite interactions.* **BMC Biology** doi.org/10.1186/1741-7007-9-11

Investigate the mechanism of infection underlying coevolution between a host (*Daphnia magna*) and his parasite (*Pasteuria ramosa*). We found that the specificity depends on the capacity of the parasite to attach or not to the host oesophagus. We published here the "attachment test" method which is used to quickly determine the ability of the bacteria of a given genotype to infect a given host genotype.

21. Ponton F, Otalora-Luna F, Lefevre T, Guerin PM, Lebarbenchon C, **Duneau D**, Biron DG, Thomas F (2011) *Water-seeking behavior in worm-infected crickets and reversibility of parasitic manipulation.* **Behavioral Ecology** doi.org/10.1093/beheco/arq215

Contribution: Participated in sampling and performed several experiments of the study.

22. Gómez-Díaz E, Doherty P Jr, **Duneau D**, McCoy KD (2010) *Cryptic vector divergence masks vector-specific patterns of infection: an example from the marine cycle of Lyme borreliosis.* **Evolutionary Applications** doi.org/10.1111/j.1752-4571.2010.00127.x

Contribution: Performed everything based on Sanger PCR.

23. Ponton* F, **Duneau* D**, Sanchez M, Courtiol A, Terekhin A, Budilova EV, Renaud F, Thomas F (2009) *Effect of parasite-induced behavioral alterations on juvenile development.* **Behavioral Ecology** doi.org/10.1093/beheco/arp092

Contribution: This publication arose from my first honour dissertation.

24. **Duneau D**, Boulinier T, Gomez-Diaz E, Petersen A, Tveraa T, Barrett RT, McCoy KD (2008) *Prevalence and diversity of Lyme borreliosis bacteria in marine birds*. **Infection, Genetics and Evolution** doi.org/10.1016/j.meegid.2008.02.006

We studied the diversity of *Borrelia* spp. circulating in seabirds. Our findings indicate that seabirds may be an important component in the global epidemiology and evolution of Lyme disease.

25. McCoy KD, **Duneau D**, Boulinier T (2008) *Spécialisation de la tique des oiseaux marins et diversité des bactéries du complexe Borrelia burgdorferi sensu lato, agents de la maladie de Lyme : effets en cascade dans les systèmes à vecteur*. **Les actes du BRG 277-291** (french publication with reviewing committee)

Summary of the work in Duneau et al IGE 2008 for the colloquium BRG.

26. Ponton F, Lebarbenchon C, Lefèvre T, Biron DG, **Duneau D**, Hughes DP, Thomas F (2006) *How parasitic Gordian worms cut the Gordian knot: a novel solution to predation upon the host*. **Nature** doi.org/10.1038/440756a

As prisoners in their living habitat, parasites should be vulnerable to the predators of their hosts. We show that the parasitic hairworm can escape from the predators of its hosts. Contribution: Performed the experiments with frogs.

27. Ponton F, Lebarbenchon C, Lefèvre T, Thomas F, **Duneau D**, Marché L, Renault L, Hughes DP, Biron DG (2006) *Hairworm anti-predator strategy: a study of causes and consequences*. **Parasitology** doi.org/10.1017/S0031182006000904

Contribution: I designed the whole nursery for the hairworms and monitored all the mating to measure the fitness.

28. Ponton F, Biron DG, Joly C, **Duneau D**, Thomas F (2005) *Ecology of populations parasitically modified: a case study from a gammarid (Gammarus insensibilis)-trematode (Microphallus papillorobustus) system*. **Marine Ecology-Progress Series** doi.org/ 10.3354/meps299205

We studied the consequence of behavioural manipulation by parasites on the ecology of host populations.

Publications in BioRxiv

29. Rodrigues YK, van Bergen E, Alves F, **Duneau D***, Beldade P*. *Complex effects of day and night temperature fluctuations on thermally plastic traits in an experimental model of adaptive seasonal plasticity*. doi.org/10.1101/207258

We tested the effects of circadian temperature fluctuations on a series of thermal plasticity traits in a model of adaptive seasonal plasticity, the *Bicyclus anynana* butterfly.

30. **Duneau[†] D**, Altermatt F, Ferdy J-B, Ben-Ami F, Ebert D. *Estimation of the propensity for sexual selection in a cyclical parthenogen*. doi.org/10.1101/2020.02.05.935148

Our data from the field show that sexual selection is present in *Daphnia*, although it is mainly parthenogenetic, and that this selection probably manifests itself through a combination of female choice and male competition.

31. **Duneau[†] D**, Möst M, Ebert D. *Evolution of sperm morphology in Daphnia species*. doi.org/10.1101/2020.01.31.929414

Based on a recent phylogeny, we studied the evolution of sperm length in *Daphnia*.

32. **Duneau[†] D**, Buchon N. *Gut cancer increases the risk for Drosophila to be preyed upon by hunting spiders*. doi.org/10.1101/2020.07.01.182824

We genetically induced colon cancer in *Drosophila* and found that cancerous flies are more preyed by spiders than healthy ones.

Thesis chapters or exist as draft

1. Lafuente E, **Duneau D**, Beldade P. *Genetic architecture of plasticity for pigmentation components in Drosophila melanogaster*.

Using GWAS in *Drosophila*, we determined the genetic basis of thermal plasticity of body pigmentation. Contribution: I supervised the student for the genomic analysis and for the validation of allele candidate with functional genetics.

2. Rodrigues YK, **Duneau D**^{†*}, Beldade P^{†*}. *Seasonal and sexual dimorphism in immunity in a thermal plasticity model*.

Using methods developed in Duneau et al. eLife 2017 with *Drosophila*, we studied the thermal phenotypic plasticity of the immune system of the butterfly *Bicyclus anynana*.

3. Bonfini A, Dobson AJ, **Duneau D**, Revah J, Liu X, Houtz P, Buchon N. *Diet composition plastically resizes the Drosophila midgut by affecting cell gain and loss, stem cell-niche coupling and enterocyte size*. (under review in eLife)

We studied the phenotypic plasticity of *Drosophila* gut in response to glucose level in diet. Contribution: Performed the GWAS and was the evolutionary biologist in the study.

4. Lafont P, Lauzeral P, **Duneau D**^{†*}, Ferdy JB^{†*}. *A within-host infection model to explore tolerance and resistance*. (shared with colleagues for comments before submission)

In this purely theoretical paper, we study within-host dynamics and provide an experimental way to decipher disease tolerance from resistance while aiming to explain individual differences in susceptibility to infection.

Scientific communications

• Invited talks (18)

2020:

- Seminar at the Institute of Biology - Zoology, Freie Universität Berlin, 11/2020 (online talk; invited by Olivia Judson, Jens Rolf and Sophie Armitage)
- Seminar New voices in Infection Biology, Max Planck Institute for Infection Biology, Berlin, 10/2020 (online talk; invited by Igor Iatsenko) **Recording at:** <https://youtu.be/e0N7eg-U0hI>
- Seminar at Department DGIMI, Montpellier University, 10/2020 (online talk; invited by Alain Givaudan)

2019 and before:

- Innsbruck University, Innsbruck, Austria- 11/2019 (talk; invited by Markus Möst)
- Edinburgh University, Edinburgh, UK - 06/2018 (talk; invited by Sarah Reece)
- EPFL, Lausanne, Switzerland -04/2018 (talk; invited by Bruno Lemaitre)
- University of Burgundy, Dijon, FR - 12/2017(talk; invited by Thierry Rigaud)
- University of Montpellier (SEEM), Montpellier, FR - 12/2017(talk; invited by Karen McCoy)
- Insect Biology Research Institute, Tours, FR - 10/2017 (talk; invited by Joel Meunier)
- CNRS, Gif-sur-Yvette, FR - 04/2016 (talk; invited by Frédéric Mery)
- Centre Biologie du Développement, Toulouse, FR - 04/2016 (talk; invited by Alain Vincent)
- Conference LabEx TULIP, Toulouse, FR - 03/2016 (talk; invited by Etienne Danchin)
- Institute for advanced study, Toulouse, FR - 06/2015 (talk; invited by Arnaud Togneti)
- Seminar at the Center for infectious disease dynamics, PennState University, University Park, PA, USA - 04/2014 (talk; invited by David Hughes)

- Seminar at the department of Evolution, Ecology and Genetics, Australian National University, Canberra, Australia - 02/2014 (talk; invited by Hanna Kokko).
- Seminar at the department of Ecology and Evolutionary Biology, Rochester University, Rochester, USA - 11/2013 (talk; invited by John Jaenike).
- Department of Evolutionary Biology of Cornell University, Ithaca, USA - 2012 (talk)
- Institute for Development Research (IRD), Montpellier, FR - 2010 (talk; invited by Karen McCoy)
- **Conferences (15)**
 - Conference ESEB (2nd joint congress), Montpellier, FR - 08/2018 (Poster)
 - Conference Jacques Monod "Open questions in ecology and evolution in infectious diseases: from fundamental research to evolutionary medicine" - Roscoff Biological Station, FR - 10/2017 (Poster)
 - Conference Immuniv2017, Lyon, FR - 06/2017 (Contributed talk)
 - REID Annual Conference, Poitiers, FR - 03/2016 (Contributed talk)
 - Conference 15th ESEB, Lausanne, Switzerland - 08/2015 (Contributed talk)
 - Conference Jacques Monod, "Infectious diseases as drivers of evolution: the challenges ahead" - Roscoff Biological Station, FR - 09/2014 (contributed talk)
 - Drosophila research conference, San Diego, USA - 03/2014 (poster)
 - Conference 14th ESEB, Lisbon, Portugal - 08/2013 (poster)
 - Drosophila research conference, Washington DC, USA - 03/2013 (poster)
 - Conference ESEB (joint congress), Ottawa, Canada - 08/2012 (contributed talk)
 - Conference 13th ESEB, Tübingen, Germany - 08/2011 (contributed talk)
 - Conference Swiss-Russian Seminar, Freiburg, Switzerland - 2010 (contributed talk)
 - Conference 16th EMPSEB, Wierzba, Poland - 2010 (contributed talk)
 - Conference 12 ESEB, Turin, Italy - 2009 (contributed talk)
 - Conference 15th EMPSEB, Shoorl, Netherlands - 2009 (contributed talk)

Scientific outreach

- What is COVID? (2020) Talk for primary school kids and their parents, online USA & online Italy
- De Dinechin D, Deguine JP, **Duneau D** (2006) *L'Homme de Florès. La découverte d'une nouvelle espèce humaine*. Annales de la Société d'Horticulture et d'Histoire Naturelle de l'Hérault 146 : 38-45
- **Duneau D**, Deguine JP, De Dinechin M, Blondel J (2006) *L'homme de Flores. Nanisme et gigantisme insulaire*. Annales de la Société d'Horticulture et d'Histoire Naturelle de l'Hérault 146 : 57-66
- Deguine JP, De Dinechin M, **Duneau D** (2006) *L'Homme de Florès. L'évolution de l'Homme et Homo floresiensis*. Annales de la Société d'Horticulture et d'Histoire Naturelle de l'Hérault 146 : 87-94
- **Epidemiology Fact [Sheets](#)** *Mosquito Biology for the Homeowner*
- **Scientific documentary** (52min) « *Toto le nemato.* », Price Buffon 2008 « Festival Paris science »