

Vía la costa, Bosques de la Costa, Senderos 7, villa # 31, Guayaquil, Ecuador

Blood Type: A+

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Abstract

Dr Alfaro-Núñez has a wide experience in evolutionary genomics, population genetics and epidemiology with particular focus on co-evolution of infectious diseases and viruses. He got skills on research and in particular Next Generation Sequencing, personnel management, teaching, laboratory routines, reporting results periodically to senior staff, performing analytical measurements under time-constraints, implementing statistical quality control and transferring knowledge to the public.

Academic

1. – PhD degree, University of Copenhagen, 2014
2. – M.Sc. degree, University of Copenhagen, 2009
3. – B.A degree, University of Copenhagen, 2006

Work Experience

1. *June 2016-present*: Associate Professor, Laboratorio de BioMedicina, Facultad Ciencias de la Vida, Escuela Superior Politécnica del Litoral (ESPOL), Guayaquil, Ecuador.
2. *March 2016-present*: Honorary Associate Researcher at the Centre for GeoGenetics, Natural History Museum of Denmark, University of Copenhagen, Denmark.
3. *February-May 2016*: Associate Lecturer and Researcher, Facultad de Ciencias de la Salud, Universidad Técnica del Norte, Ibarra, Ecuador
4. *March-May 2015*: Internship in experimental and mathematical modelling of ecotoxicology and environmental data. Department of Plant and Environmental Sciences, University of Copenhagen, Denmark.
5. *January-February 2015*: Paternity leave after the birth of second child.
6. *August 2014-December 2014*: After completing his PhD, he decided to take a short break from academia in order to implement and apply the methods and techniques developed during his research, into conservation and environmental organizations from his network. And thus, he was invited as a research guest, speaker and advisor to Germany, Italy and Mexico, where different groups are currently using his validated method for viral detection in non-clinical wild populations of marine turtles.
7. *October 2010-July 2014*: PhD researcher in next generation sequencing (NGS) technologies using platforms such as Illumina, HiSeq and FLX Roche and regular PCR. During this period he developed and validated virology detection methods. Moreover, a large set of normal tissue and tumour samples were sequenced, resulting in a vast database of viral, nuclear and mitochondrial DNA; and this in order to investigate the co-evolutionary process between host-herpesviruses. Furthermore, collaboration through his former supervisor gave him the privilege to be part of the Avian Consortium where his functions apart from data analysis were mostly to do the genomic DNA extractions for all the birds used in this project.
8. *November 2009-October 2010*: Research assistant in FLX platform sequencing technology. Entire mitochondrial genomes of a group of birds and marine turtles were sequenced. This project resulted in two peer-review publications. Zoological Museum, University of Copenhagen
9. *May-October 2009*: Fieldwork research assistant in electromagnetic and imaging field measurements and collection of environmental soil samples. COWI A/S, Denmark
10. *April-October 2007*: Research scientist assistant and coordinator for the Caribbean Conservation Corporation (CCC) research project at Tortuguero National Park, Costa Rica. During the same period he did the fieldwork and recollection of tissue samples for his Master thesis project later on back in Copenhagen, Denmark.
11. *September 2005-February 2007*: Customer support services for I-series products and CATIE software (part time job during his undergrad scholarship education). IBM Denmark A/S.
12. *May-August 2005*: Summer intership, laboratory and field work on the effects of pesticides substances on marine organisms, under the supervision of Prof. Nina Cedergreen, Department of Plant and Environmental Sciences, University of Copenhagen. This intership eventually resulted in his Bachelor degree project.

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Relevant Grants

1. Travel grants to provide advice and implementation services by Instituto de Ciencias del Mar y Limnología, Universidad Nacional Autónoma de México; and Istituto Zooprofilattico Sperimentale del Mezzogiorno, Napoles (*July-December 2014*)
2. PhD project funded by the Lundbeck Foundation Grant R52-A5062 (*October 2010-July 2014*)
3. Two travel grants by the Kuwait Turtle Conservation Project, sponsored by TOTAL Foundation and TOTAL Kuwait (*June-August 2011*)
4. State Education Grant "SU" 101076-3033 by the Danish Ministry of Education (Uddannelses- og Forskningsministeriet) (*August 2006-July 2009*)
5. International Grant and Scholarship from the Costa Rican Ministry of Education and Science (*June 2004-May 2006*)

Research Expeditions and Invited presentations

1. Invited research guest, and external advisor to three different research groups which are currently using my validated method for viral detection in non-clinical wild populations of marine turtles in Germany, Italy and Mexico (*July-December 2014*)
2. Invited Speaker at the 34th Annual Symposium on Sea Turtle Biology and Conservation in New Orleans, USA. Research oral presentation topic: Co-evolution of marine turtles and the fibropapillomatosis-associated herpesvirus (*April 2014*)
3. Field expedition and invited researcher for multiple meetings and sample collection in Qaru Island, Kuwait; and Masirah Island, Oman (*June-August 2011*)
4. Invited speaker at the 2011 Annual Meeting of the Wider Caribbean Sea Turtle Conservation Network (WIDECAS) in San Diego, California (*April 2011*)
5. Research scientist and field expedition in the conservation and monitoring project at Tortuguero National Park, Costa Rica (*March-October 2007*)
6. Multiple poster presentations at the 26th, 27th, 32nd and 34th International Sea Turtles Symposium
7. More than 10 years experience in field expeditions, research assistant and volunteer work at Baulas Marine National Park and Gandoca Research Field station in Costa Rica (*1992-2004*)

Supervising, mentoring activities

1. Nathalie Mauroo, PhD candidate, Department of Pathology, University of Hong Kong (*ongoing*)
2. Jurjan van der Zee, PhD candidate, Groningen Institute for Evolutionary Life Sciences, University of Groningen, The Netherlands (*ongoing*)
3. Joana Hancock, PhD Candidate, Centre for Ecology, Evolution and Environmental Changes, Lisbon, Portugal (*ongoing*)
4. Rocío Álvarez, PhD Candidate, Departamento de Ecosistemas y Medio Ambiente Facultad de Agronomía e Ingeniería Forestal, Pontificia Universidad Católica de Chile (*ongoing*)
5. Isabel Højgaard Rasmussen, MSc, University of Copenhagen. Experienced researcher designed and supervised Miss Rasmussen master thesis (*2012*)

Language skills

- Danish Fluent spoken/Intermediate written, Level 5 Studeskolen Kbh K
- English Fluent, second native language
- Spanish Native language
- Portuguese & Italian Intermediate

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Contact References

- Kyle S. Van Houtan, Senior Researcher, NOAA Federal Fisheries, Hawaii, USA. Tel: (+1) 808 725 5707 kyle.vanhoutan@noaa.gov
- Thomas M. P. Gilbert, Professor, Natural History Museum of Denmark. Tel: (+45) 353-22222 mtpgilbert@gmail.com
- Ellen Ariel, Senior Lecturer, James Cook University, Australia. Tel: (+61) 747 81 4123 Ellen.Ariel@jcu.edu.au
- Lawrence H. Herbst, Professor at Albert Einstein College of Medicine, NY, USA. Tel: (+1) 718 839 7135 lawrence.herbst@einstein.yu.edu

Peer Review Publications

- **Alfaro-Núñez A**, Bojesen AM, Frost MB, Balazs GH, and Gilbert MTP (2016). HIGH LEVELS OF CHELONID HERPESVIRUS 5 (CHHV5) DNA DETECTED IN CLINICALLY HEALTHY MARINE TURTLES *PeerJ* (IF: 2.18) 4:e2274 <https://doi.org/10.7717/peerj.2274>
- **Alfaro-Núñez A**, Jensen MP and Abreu-Grobois FP (2015). DOES POLYANDRY REALLY PAY OFF?: THE EFFECTS OF MULTIPLE MATING AND NUMBER OF FATHERS ON MORPHOLOGICAL TRAITS AND SURVIVAL OF NESTING GREEN TURTLES AT TORTUGUERO <https://peerj.com/articles/880.pdf> *PeerJ* (IF: 2.18) 3:e880; DOI 10.7717/peerj.880
- Jarvis, ED; Mirarab, S; Aberer, A; Houde, P; Li, C; Ho, S; Faircloth, BC; Nabholz, B; Howard, JT; Suh, A; Weber, CC; Fonseca, RR; **Alfaro-Núñez, A**; Narula, N; Liu, L; Burt, D; Ellegren, H; Edwards, SV; Stamatakis, A; Mindell, DP; Cracraft, J; Braun, EL; Warnow, T; Jun, W; Gilbert, MTP; Zhang, G (2015). PHYLOGENOMIC ANALYSES DATA OF THE AVIAN PHYLOGENOMICS PROJECT <http://gigadb.org/dataset/101041>. *GigaScience* (IF: 3.37) 12, 4
- Jarvis ED, Mirarab S, Aberer AJ, Li B, Houde P, Li C, Ho SYW, Faircloth BC, Nabholz B, Howard JT, Suh A, Weber CC, da Fonseca RR, Li J, Zhang F, Li H, Zhou L, Narula N, Liu L, Ganapathy G, Boussau B, Bayzid MS, Zavidovych V, Subramanian S, Gabaldón T, Capella-Gutiérrez S, Huerta-Cepas J, Rekepalli B, Munch K, Schierup M, Lindow B, Warren WC, Ray D, Green RE, Bruford M, Zhan X, Dixon A, Li S, Li N, Huang Y, Derryberry EP, Bertelsen MF, Sheldon F, Brumfield RT, Mello C, Lovell PV, Wirthlin M, Samaniego JA, Vargas Velazquez AM, **Alfaro-Núñez A**, Campos PF, Petersen B, Sicheritz-Ponten T, Pas A, Bailey T, Scofield P, Bunce M, Lambert D, Zhou Q, Perelman P, Driskell AC, Shapiro B, Xiong Z, Zeng Y, Liu S, Li Z, Liu B, Wu K, Xiao J, Yinqi X, Zheng Q, Zhang Y, Yang H, Wang J, Smeds L, Rheindt FE, Braun M, Fjeldsa J, Orlando L, Barker K, Jönsson KA, Johnson W, Koepfli K-P, O'Brien S, Haussler D, Ryder OA, Rahbek C, Willerslev E, Graves GR, Glenn TC, McCormack J, Burt D, Ellegren J, Alström P, Edwards SV, Stamatakis A, Mindell DP, Cracraft J, Braun EL, Warnow T, Jun W, Gilbert MTP, Zhang G (2014). WHOLE GENOME ANALYSES RESOLVE THE EARLY BRANCHES IN THE TREE OF LIFE OF MODERN BIRDS. *Science* (IF: 34.4) 12, 1320-1331
- Zhang G, Li C, Li Q, Li B, Larkin DM, Lee C, Storz JF, Antunes A, Greenwold MJ, Meredith RW, Ödeen A, Cui J, Zhou Q, Xu L, Pan H, Wang Z, Jin L, Zhang P, Hu H, Yang W, Hu J, Xiao J, Yang Z, Liu Y, Xie Q, Yu H, Lian J, Wen P, Zhang F, Li H, Zeng Y, Xiong Z, Liu S, Zhou L, Huang Z, An N, Wang J, Zheng Q, Xiong Y, Wang G, Wang B, Wang J, Fan Y, da Fonseca RR, **Alfaro-Núñez A**, Schubert M, Orlando L, Mourier T, Howard JT, Ganapathy G, Pfenning A, Whitney O, Rivas MV, Hara E, Smith J, Farré M, Narayan J, Slavov G, Romanov MN, Borges R, Machado JP, Khan I, Springer MS, Gatesy J, Hoffmann FG, Opazo JC, Håstad O, Sawyer RH, Kim H, Kim K-W, Kim HJ, Cho S, Li N, Huang Y, Bruford MW, Zhan X, Dixon A, Bertelsen MF, Derryberry E, Warren W, Wilson RK, Li S, Ray DA, Green RE, O'Brien SJ, Griffin D, Johnson WE, Haussler D, Ryder OA, Willerslev E, Graves GR, Alström P, Fjeldsá J, Mindell DP, Edwards SV, Braun EL, Rahbek C, Burt DW, Houde P, Zhang Y, Yang H, Wang J, Jarvis ED, Gilbert MTP, Wang J & Avian Genome Consortium (2014). COMPARATIVE GENOMICS ACROSS MODERN BIRD SPECIES REVEAL INSIGHTS INTO AVIAN GENOME EVOLUTION AND ADAPTATION. *Science* (IF: 34.4) 12, 1311-1320.

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- **Alfaro-Núñez A**, Frost MB, Bojesen AM, Rasmussen I, Zepeda-Mendoza L, Olsen MT and Gilbert MTP (2014). GLOBAL DISTRIBUTION OF CHELONID FIBROPAPILLOMA-ASSOCIATED HERPESVIRUS AMONG CLINICALLY HEALTHY SEA TURTLES. *BMC Evolutionary Biology* (IF: 3.41) 14:206
- **Alfaro-Núñez A** and Gilbert MTP (2014). VALIDATION OF A SENSITIVE PCR ASSAY FOR THE DETECTION OF CHELONID FIBROPAPILLOMA-ASSOCIATED HERPESVIRUS (CFPHV) IN LATENT TURTLE INFECTIONS. *Journal of Virological Methods* (IF: 2.14) 206, 38-41
- Duchene S, Frey A, **Alfaro-Núñez A**, Dutton PH, Gilbert MTP, and Morin PA (2012). MARINE TURTLE MITOGENOME PHYLOGENETICS AND EVOLUTION. *Molecular Phylogenetics and Evolution* (IF: 4.02) 65, 1:241-250
- White NE, Phillips MJ, Gilbert T, **Alfaro-Núñez A**, Willerslev E, Mawson PR, Spencer PBS and Bunce M (2011). THE EVOLUTIONARY HISTORY OF COCKATOOS (PSITTACIFORMES: CACATUIDAE). *Molecular Phylogenetics and Evolution* (IF: 4.02) 59, 615-622

Work in progress

- **Alfaro-Núñez A**, Nguyen N, Catanach TA, Hansen TA, Alquezar-Planas DE, Peñaloza F, Møllerup S, Herbst LH, Gilbert MTP and Hansen AJ. FULL GENOME-SCALE RAxML PHYLOGENETIC TREE ANALYSIS OF HERPESVIRUSES: THE SILENCE AND SUCCESSFUL EVOLUTION IN HIDING. (In preparation with expected submission last trimester 2016: *Current Biology* (IP: 9.57))
- Van Houtan K S, **Alfaro-Núñez A**, Page-Karjian A, and Smith C M. ARGININE AMINO ACID PROFILES CORRELATION WITH VIRAL LOADS IN THE FORMATION OF TUMOURS IN MARINE TURTLES. (In preparation with expected submission last trimester 2016: *Plos Pathogens* (IF: 8.05))
- Cárdenas D, Cucalón R, Medina L, Jones K, Alemán R, **Alfaro-Núñez A** and Cárdenas W. FIBROPAPILLOMATOSIS IN THE SOUTH-EAST PACIFIC REGION: FIRST CASE REPORT IN ECUADOR, AND ITS INCLUSION IN A GLOBAL PHYLOGEOGRAPHIC ANALYSIS OF HERPESVIRUSES. (In preparation with expected submission last trimester 2016: *Journal of Herpetology*)
- Bedoya-Pilozo C, Medina-Magües LG, Espinosa-García M, Sánchez M, Parrales-Valdiviezo JV, Molina D, Ibarra MA, Quimis-Ponce M, España K, Párraga-Macias KA, Cajas-Flores NV, Orlando SA, Robalino-Peñaherrera JA, Chedraui P, Escobar GS, Loja-Chango RD, Ramírez-Moran C, Espinoza-Caicedo J, Limia CM, Alemán Y, Soto Y, Kouri V, Culasso ACA, **Alfaro-Núñez A** and Badano I. MOLECULAR EPIDEMIOLOGY OF HUMAN PAPILLOMAVIRUS INFECTION IN WOMEN WITH CERVICAL LESIONS AND CANCER FROM THE COASTAL REGION OF ECUADOR. (In preparation with expected submission last trimester 2016: *Papillomavirus research*)
- **Alfaro-Núñez A**, Duchene S and Gilbert MTP. NEW INSIGHTS ON MITOGENOME MOLECULAR CLOCKS OF MARINE TURTLES. (In preparation with expected submission first trimester 2017: *Molecular Biology and Evolution* (IF: 9.11))
- **Alfaro-Núñez A**. “NEGLECTING A THREAT IN THE MARINE TURTLES SURVIVAL: DORMANCY OF A VIRAL INFECTIOUS DISEASE AND ITS ASSOCIATION WITH ENVIRONMENTAL POLLUTION”. Book Chapter in *Sea turtles: Ecology, Behaviour and Conservation*. (In preparation with expected publication on December 2018) *Nova Science Publishers, Inc.*