

Tiago R Magalhães *February 17, 1971*

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Summary

My name is Tiago Magalhães, and I am currently the Executive Director of CCMar, in Portugal, a research organization for Marine sciences with European and worldwide reach. Words that describe my daily work: fundraising, human resources supervision, innovation promotion, research policy, institutional representation, strategic planning, financial supervision. Before my current position, I was a genomics scientist and I worked in disease causal genes in autism, diabetes and bowel cancer, and ancestry analysis, studying human migrations and admixture. I know R and Python very well, and the genetics/genomics software. For over 5 years I was part of the Autism Genome Project (AGP), a big genomics consortium, that included over 20 labs and a budget of

over \$ 20 million. In AGP I experienced the peculiarities of international work, with stringent deadlines in an ultra-competitive environment. Another facet of my CV is entrepreneurship, technology transfer and innovation, as I believe that science only makes sense when applied to solve societal challenges. I was the founder and CEO of a personalized medicine start-up, and I currently advice a genomics start-up in Portugal. I am a member of the investment council a VC portuguese company and I am on the review board of another one. I am currently an expert reviewer for the H2020 European Union programs, I am a reviewer for genomics journals. I have worked/studied in Portugal, Germany, US, Canada, East-timor, Ireland and Brasil.

Jobs

CCMar Centre of Marine Sciences of the Algarve

FARO, PORTUGAL

Executive Director

September 15 – Present

CCMar, is a research organization within the University of Algarve, with the mission to promote research and education on marine environment, with emphasis on biological interactions and the sustainable use of resources. CCMAR is one of the foremost marine science research centres in Portugal and in Europe, in areas of marine biology and ecology, biotechnology, fisheries and aquaculture. CCMAR has an annual budget of over 3.5 million euro and hosts 100 scientists, 40 PhD students and 100 young scientists and technicians. My duties at CCMar include: Develop and implement CCMAR strategic plan; work with the Board of Directors to refine policies and practices in fundraising, marketing, public relations, accounting, information systems, and human resources; work with the account manager to maintain and refine accounting procedures for managing and tracking CCMAR's finances and funds; represent the organization to agencies, organizations, and the general public; and lead development of human resource programs and policies.

Academic Centre on Rare Diseases and National Children's Research Centre

DUBLIN, IRELAND

Leading bioinformatician – Senior Post-doc

March '13 – September '16

ACoRD, a centre from University College Dublin, is the most successful group in Ireland in identifying causal variants for genetic diseases. NCRC is the single largest paediatric research centre in Ireland. I have set up ACoRD's bioinformatic pipelines in whole genome sequencing and methylation for disease analysis (autism, diabetes, movement disorders and others). I coordinated ACoRD grant applications involving large budgets and several European partners to H2020 and Science Foundation Ireland.

Consultancy / Innovation

Currently

Senior bioinformatics adviser of Coimbra genomics, a personalized medicine start-up. Member of investment council of DC Ventures, VC, Portugal. Reviewer for Portugal Ventures, the largest portuguese VC. Member of CIRA, Innovation Regional Council, Algarve. Member of the board of the ACoRD and AMNCH Hospital Neurology Research Group Consortium.

McGill University, Szyf's Research Laboratory

MONTREAL, QC, CANADA

Visiting scholar

Out '14 – Dez '14

Head analyst of a clinical trial on obesity: Methylation changes following a dietary supplement intervention in obese teenagers. Responsible for the analysis of monozygotic twin study: Methylation changes on monozygotic twins with divergent birth weight.

Laboratório de Genômica Clínica, Fac Medicina, UFMG LGC/UFMG

BH, MG, BRASIL

Visiting scholar

Dez '11 – March '13

I was one of the first members of LGC/UFMG, directed by Sérgio Pena, and helped it to become one of the first research labs in Latin-America to apply genomics in the clinical setting. I actively collaborated in the Brazilian academic environment (talks, supervision, short courses, classes, Ph.D juries).

Sean Ennis Lab, University College Dublin UCD

DUBLIN, IRELAND

Bioinformatician

April '11 – Dez '11

Analysis of large genomic datasets in DNA sequence, methylation and expression microarrays from the Autism Genome Project, specifically about homozygous relevance in disease. Bioinformatic analysis of bowel cancer and diabetes data sets.

Centro Regional Inovação do Algarve CRIA – Univ Algarve UAlg

FARO, PORTUGAL

Technology transfer officer

June '10 – April '11

Technology transfer projects focusing on increasing the number of start-ups originated at the research labs at UAlg. Reach out to research staff and establish connections to the private sector of the region and the country. Director of CICAixa2010, a business ideas contest, which was very successful.

Instituto Nacional de Saúde INSA and Sean Ennis Lab, UCD LISBOA, PORTUGAL AND DUBLIN, IRELAND

Post-doc

Sept '07 – June '10

Member of the Autism Genome Project, a Genome Wide Association Study (GWAS) during which I collected samples, phenotyped patients, genotyped samples using Illumina, wrote documents and papers, interacted with clinicians and patients and was part of the bioinformatics analysis.

Genes & Algorithms g-Alg

FARO, PORTUGAL

CEO and founder

April '07 – June '09

Founder and CEO of g-Alg, a personalized medicine company whose vision was to bring genomics to the clinical daily work. I was not able to secure enough funding to proceed with gAlg.

Centro Regional Inovação do Algarve CRIA – Univ Algarve

FARO, PORTUGAL

Post-doc and staff member

Jan '06 – Sept '07

Technology transfer officer, liaison between academy and industry. Responsible for entrepreneurship programs. Planning of the Algarve Science and Technology Park, with an investment of 6.5 million Euro. Co-Coordinator Plano Regional de Inovação do Algarve, produced by UAlg for CCDR-Alg.

National University East Timor UNTL

DILI, TIMOR-LESTE

Professor

June '05 – Nov '05

Responsible for the class of numerical methods.

Goodman lab University California Berkeley

BERKELEY, CA, US

Staff research associate

Sept '04 – Jan '05

Axon guidance research using *Drosophila melanogaster* as a model.

Lawrence Berkeley Nat'l Laboratory LBL

BERKELEY, CA, US

Student assistant

Jan '03 – Aug '04

Microarray troubleshooting. Optimizing of several equipment. Data analysis, R pipelines.

Education

Univ of California at Berkeley and Univ Coimbra

BERKELEY, CA, US AND COIMBRA, PORTUGAL

Ph.D Cell Biology

1998 – 2007

"Genetic Analysis of Axon Guidance Mechanisms During Embryonic Development of *Drosophila melanogaster* Using DNA Microarrays", January 2007, Univ Coimbra, *summa cum laude*. Work performed at Corey Goodman's lab, University of California at Berkeley, from 1999 to 2006. Fellow of the advanced studies program PGDBM, IGC, Lisbon, Portugal; I attended the PGDBM classes during 1998.

Univ Coimbra and Ruhr-Universität Bochum

COIMBRA, PORTUGAL AND BOCHUM, DEUTSCHLAND

B.S Biochemistry

1991 – 1997

Final grade of 14, Univ Coimbra. Thesis in 1996/97 at Biologie Fakultät Ruhr-Universität Bochum, Erasmus fellowship. Title: Sekretion Extrazellulärer Lipase von *Serratia marcescens*: Isolierung und Charakterisierung von Mutanten der Gene *lipB* und *lipD* (grade 18).

Skills: biology, computational, natural languages

Software produced AncestryMapper, R package, available at CRAN. **Statistics** R S+ SAS **Bioinformatics** Vcftools GATK Plink eigensoft annovar vaast structure eigensoft PennCNV ExomeCNV **Languages** Python Perl awk sed **Operating systems** Linux OSX, Windows UNIX **Data bases** FileMaker Access MySql **Programs** L^AT_EX XEmacs Image Processing (FreeHand, Photoshop, Gimpshop)

Genomics: High-throughput genotyping (Illumina). Next-generation sequencing. Methylation, bi-sulfite treatment. Target preparation and microarray hybridization. Samples collection and DNA extraction. aCGH. **Animal model** Mutation screens. Pushing flies. Basic mice handling.

Standard molecular biology Standard biochemistry and molecular biology techniques.

Natural languages: Portuguese (*mother tongue*). English (*full professional proficiency*). Spanish (*full professional proficiency*). French (*full professional proficiency*). German (*limited working proficiency*). Russian (*beginner*).

Consultancy / Reviewer

Senior bioinformatics adviser of Coimbra genomics, personalized medicine start-up. Expert for H2020 European Union programs, 2014/15. Reviewer for *Genetics and Molecular Biology*. Member of investment council of DC Ventures, VC, Portugal. Reviewer for Portugal Ventures, the largest portuguese VC. Reviewer of international grants (European Union and Cyprus). Regional inovation planning consultant.

Teaching / Juries / Supervisor

Professor at Univ National Timor-leste. Supervisor of genomics class at UFMG, Brasil. Co-supervisor of undergrad work (Ireland and Brasil). Teacher at bioinformatics summer courses. Organizer of genomics workshops. Jury in Ph.D thesis, posters at academic meetings and business contest ideas.

Staff management / Grant applications

Supervision of staff While president of DG/AAC (1994), one of the largest student unions in Europe, I managed over 20 employees and a budget of over 1 million €. I supervised research assistants during my Ph.D, my post-doc, and while technology transfer officer. I coordinated two ACoRD personalized medicine applications (2014); both involved large groups of international researchers and were over 3 million €.

Other accomplishments

President of the Univ Coimbra student-body (one of the oldest and largest in Europe). Host, producer of CRIA FM, radio show about entrepreneurship, tech transfer, and science popularization. Host, producer, member of the administration board of the Rádio Universidade de Coimbra. Sporadic contributor to national and local newspapers and Radio (Público, Diário As Beiras, Rádio Renascença, Rádio Belo Horizonte). Competitive swimming, track and field and water polo, competitively (1980/97).

Publications

Publications on Nature, Plos One, Neuron, Hum Genet and others; as first author, part of a team, member of the AGP or as analysis collaborator. Autism, bowel cancer, brain development, science popularization and science policy. A selected brief description follows; a complete description at <http://bit.ly/1yjeNWQ>.

Research; main author or major contributor:

- Magalhães, TR et al (2012). HGDP and HapMap analysis by Ancestry Mapper reveals local and global population relationships. PLoS One 7, e49438.
- Casey, JP et al. (2012). A novel approach of homozygous haplotype sharing identifies candidate genes in autism spectrum disorder. Hum Genet 131, 565.
- Magalhães, TR et al (2007). Transcriptional control in embryonic Drosophila midline guidance assessed through a whole genome approach. BMC Neurosci 8, 59.
- Aberle, H, et al (2002). wishful thinking encodes a BMP type II receptor that regulates synaptic growth in Drosophila. Neuron 33, 545.

Autism Genome Project consortium:

- AGP (2014). Convergence of genes and cellular pathways dysregulated in autism spectrum disorders. Am J Hum Genet 94, 677.
- AGP (2012). Individual common variants exert weak effects on the risk for autism spectrum disorders. Hum Mol Genet 21, 4781.
- AGP (2011). Gene-ontology enrichment analysis in two independent family-based samples highlights biologically plausible processes for autism spectrum disorders. Eur J Hum Genet 19, 1082.
- AGP (2011). Novel method for combined linkage and genome-wide association analysis finds evidence of distinct genetic architecture for two subtypes of autism. J Neurodev Disord 3, 113.
- AGP (2010). A genome-wide scan for common alleles affecting risk for autism. Hum Mol Genet 19, 4072.
- AGP (2010). Functional impact of global rare copy number variation in autism spectrum disorders. Nature 466, 368.

Science popularization & science policy:

Magalhães, TR (2007). (')A Volta dos Neurónios. Rua Larga, Universidade de Coimbra Magazine.
Graca, L, ..., T Magalhaes (2000). Weak euro hits PhDs too. Nature 408, 513.

Talks

Over 35 public presentations on genomics, microarrays, causal genes on disease, autism, human migrations, ancestry, genetic structure of populations, business development, entrepreneurship, and innovation. In Mexico, US, Portugal, Ireland, Spain and East-timor. Complete and detailed description at <http://bit.ly/1uEOxBp>.

2016 UAlg/CCMar, Portugal. One liners to count, substitute, select columns in big files; cheap tricks with sed, awk and unix tools. One liners to manipulate images: reduce size of image, change image formats using imagemagick

2016 UAlg/CCMar, Portugal. Analysis of the ancestry of populations using Ancestry Mapper; a Brazilian example. Using methylation to analyze human development

2015 UPMC, Paris, France. Technology transfer models in the sea economy in the context of a regional economy

McGill University, Montreal QC, Canada. Can methylation indicate the success of a clinical intervention on teenager obese kids?

2014 Trinity College, Ireland. Analysis of methylation patterns on a co-hort of ASD patients

2014 UCD, Ireland. Differential Methylation of DNA: distinguish severity in autism cases?

2013 NCRC, Ireland. Characterization of recessive mutations in homozygous haplotypes in Autism.

2013 USP, RP, SP, Brasil. GWAS in Autism: exploring gene-centric, population-based approaches

2013 IPATIMUP, Portugal. Use of several populations as references in ancestry analysis by whole genome and high density SNP arrays

2012 Congresso Sociedade Brasileira de Genética, Foz Iguacu, Brasil. The next generation of ancestry investigation: analysis of Brazilian individuals using microarrays and exomes with over 190,000 SNPs

2012 USP, São Paulo, Brasil. Exploration of ancestry influence in an Autism GWAS

2012 UFMG, BH, Brasil. Ancestry Mapper – a Genomic Map to understand human diversity

2010 Smurfit Institute of Genetics, TCD, Dublin, Ireland. Genome-wide Analysis Study of Autism, Using a Gene-centric Approach, Population Based Approach

2010 PAC meeting, Philadelphia, PA, US. Uncovering Potentially Hidden Signals at the Population Level, in GWAS, Using a Gene-centric Approach

2009 INMEGEN, Mexico DF, Mexico. Genome-wide Association Analysis of Susceptibility Genes in Autism Using a Gene-centric Approach

2009 UCD, Dublin, Ireland. Ireland Gene-centric Instead of SNP-centric Approaches in GWAS Data

2008 INSA, Lisbon, Portugal. GWAS in Autism, Challenges in the Post-genomic Era

2007 UAlg, Faro, Portugal. Microarray Technology in Axon Guidance Studies

2006 Univ Aveiro, Aveiro, Portugal. Microarrays: Application to the Study of Biological Problems

2005 Univ Nacional Timor-Leste, Dili, Timor-leste. Biology, Genome and Medicine – challenges and opportunities for East Timor

2005 Columbia Univ, NYC, NY, US. Microarray Data Analysis, from Expression to Clustering

2002 IBILI, Coimbra, Portugal. A Functional Genomics Approach to Axon Guidance in Drosophila

2000 Univ Madrid, Madrid, Spain. Microarrays Applied in Axon Guidance Studies In Drosophila

