António Miguel **de Jesus Domingues**

[Genomics] Data Analyst · Multi-omics

Schubertstrasse 31, 01307 Dresden, Germany

☐ (+49) 01575-1976556 | ✉ amjdomingues@gmail.com | ⌂ http://adomingues.github.io/ | ⬡ adomingues | ⬛ antonio-domingues

Summary

Bioinformatician with vast experience in the analysis and integration of NGS datasets and a background in experimental biology, which gives me a unique perspective when communicating data analysis and results to collaborators. My research focus has been RNA biogenesis and processing but I am always keen on learning something new. I enjoy experimenting with data visualization to communicate results effectively.

Skills

Core competencies	Genomic data analysis, RNA-seq, small RNA-seq, ATAC-seq, Exosome sequencing, NGS
Programming	R/Bioconductor, bash, Python, bpipe (workflow manager), git, Cluster computing (LSF / SLURM), Markdown, LaTeX, statistics
Operative systems	Linux Ubuntu, MacOS
Laboratory	Cell culture, RNA extraction, DNA cloning, qPCR, animal tissue extraction, single-cell calcium imaging, FACS
Languages	Portuguese (Native speaker), English (Fluent), German (Conversational), French

Education

University of Leicester   *Leicester, United Kingdom*

PhD in Cell Physiology and Pharmacology   *2006 - 2009*

- Thesis title: Cloning and characterization of novel NMDA receptors splice variants in Glia

University of Aveiro   *Aveiro, Portugal*

MSc in Molecular Microbiology   *2002 - 2005*

- Thesis title: The role of N-methyl-D-aspartate receptor subunits in Aß induced toxicity
- Host institution: Center for Neuroscience and Cell Biology (CNC), Coimbra, Portugal

University of Aveiro   *Aveiro, Portugal*

BSc in Biology   *1997 - 2001*

- Semester project 1: Phytochelatin synthesis in Pisum sativum L. induced by zinc.
- Semester project 2: Identification of proteins that interact with protein phosphatase type 1 gamma subunit using the yeast two-hybrid approach.

Work Experience

Scientific Computing Facility (Scionics GmbH), MPI-CBG   *Dresden, Germany*

Bioinformatics Data Analyst   *June 2019 - Present*

- Custom analysis of genomic data.
- Integration of Ribo-Seq and RNA-seq datasets.
- Analysis and pipeline implementation of a long read (PacBio) pipeline to detect genomic insertions.
- Analysis of mass-spectrometry data.
- Differential gene expression (RNA-seq data).

Institute of Molecular Biology   *Mainz, Germany*

Postdoctoral researcher / Bioinformatician   *Dec. 2014 - May 2019*

- Developed and implemented pipelines for small RNA analysis (piRNA, miRNA).
- Integrated and analyzed of multiple -omics datasets (smRNA-seq, mRNA-seq, total RNA-seq, ATAC-seq).
- Developed scripts and tools for custom sequencing data analysis.
- Designed and advised on the design of figures and best visualization practices.
- Tested the suitability of new library preparation kits / methods.
- Coordinated the installation of a Zebrafish Facility Management database. I ensured good communication between the IT support, the fish facility manager and the database developer.
- Internal group teaching of UNIX command-line usage and bash.

Biotechnology Center TUD (Biotec)
Dresden, Germany

Postdoctoral researcher / Bioinformatician
Oct. 2013 - Nov. 2014

- Built a pipeline for variant calling from exome sequencing data.
- Troubleshooting of sequencing issues.
- Advised users on NGS experimental design.
- Liaised with clinical staff and organized the collection and processing of clinical samples.
- Analysis of chromatin associated proteins (DamID-seq and ChIP-seq)
- Differential gene expression (RNA-seq data).
- T-cell receptor profiling.

Max Planck Institute of Molecular Cell Biology and Genetics (MPI-CBG)
Dresden, Germany

Marie Curie Postdoctoral Fellow
Oct. 2009 - Aug. 2013

- Created new stable cell lines with tagged RNA-binding proteins.
- Prepared RNA samples for splice-junction arrays, RNA-seq and ChIP-seq.
- Analyzed the data of all experiments of my project.
- Collaborated with students and Postdoctoral researchers in conceiving and analyzing experiments.
- Trained doctoral students.

Center for Neuroscience and Cell Biology
Coimbra, Portugal

Cell culture technician
May 2005 - Jan. 2006

- Maintained mammalian cell lines and plated them for experiments according the requests of users.
- Ordering and budgeting of cell culture reagents
- Preparation of cell culture media.
- Teaching aseptic cell culture techniques and best practices to students.

Teaching and mentoring

Max Planck Institute of Molecular Cell Biology and Genetics
Dresden, Germany

Alternative splicing
2011

- Pre-doc practical course.
- Taught chromatin imunnoprecipitation and 3'RACE.
- Supervised the students as they carried out the experiments.

Max Planck Institute of Molecular Cell Biology and Genetics
Dresden, Germany

Chromatin IP and RNA localization
2011

- Pre-doc practical course.
- Taught primer design and qPCR.
- supervised the students whilst they carried out the experiments.

University of Leicester
Leicester, United Kingdom

Laboratory supervision and mentoring of a medical BSc student
2006 - 2007

- Taught molecular biology techniques.
- Designed experiments and supervised daily work.
- For his project the student received a BSc Honours Degree.

University of Leicester
Leicester, United Kingdom

Key skills in scientific writing and presentation (MB1002)
2006 - 2007

- Pre-doc practical course.
- Advising 1st year BSc students on scientific communication.
- Marking essays/presentations.

University of Coimbra
Coimbra, Portugal

Basic research skills to medical students
2003

- Semester long research project.
- Introduced Medical students to cell biology techniques.
- Supervised benchwork.

Grants, Honors & Awards

International

2011 - 2013 **Marie Curie Intra-European fellowship for career development**, FP7, U.E.
Desdren, Germany

2002 **Training program in molecular neuroscience scholarship**, Prodep III, U.E.
Coimbra Portugal

Advanced courses & workshops

2018	**CSAMA 2018: Statistical Data Analysis for Genome Scale Biology**, practical course	*Brixen, Italy.*
2016	**Project management workshop**, Two day workshop	*Mainz, Germany.*
2013	**Programming for Evolutionary Biology**, Two weeks, intensive Practical course	*Leipzig, Germany.*
2013	**"Software Carpentry"** , practical course	*Freising, Germany.*
2012	**Introduction to Biopython**, practical course	*Leuven, Belgium.*
2012	**Advanced RNA-Seq and ChiP-Seq Data Analysis**, practical course	*Hinxton, United Kingdom.*
2012	**Principles of Light Microscopy**, practical course	*Desdren Germany.*
2012	**Pieces & parts: a primer on brain dissection from discrete regions to micronuclei**, practical course	*Aveiro, Portugal.*

Publications & presentations

Asterisk (*) denotes equal contribution of the first two authors.

Peer-reviewed Papers

* Maternal and zygotic gene regulatory effects of endogenous RNAi pathways
Almeida, M. V., **A. M. d. J. Domingues**, and R. F. Ketting
PLOS Genetics 15.2 e1007784. 2019

* RppH can faithfully replace TAP to allow cloning of 5'-triphosphate carrying small RNAs
Almeida, M. V., **A. M.** de **Jesus Domingues**, H. Lukas, M. Mendez-Lago, and R. F. Ketting
MethodsX. 2019

PETISCO is a novel protein complex required for 21U RNA biogenesis and embryonic viability
Rodrigues, R. J. C., **A. M. d. J. Domingues**, S. Hellmann, S. Dietz, B. F. M. d. Albuquerque, C. Renz, H. D. Ulrich, P. Sarkies, F. Butter, and R. F. Ketting
Genes & Development 33.13-14 pp. 857–870. 2019

Tdrd6a Regulates the Aggregation of Buc into Functional Subcellular Compartments that Drive Germ Cell Specification
Roovers, E. F., L. J. T. Kaaij, S. Redl, A. W. Bronkhorst, K. Wiebrands, **A. M.** de **Jesus Domingues**, H.-Y. Huang, C.-T. Han, S. Riemer, R. Dosch, W. Salvenmoser, D. Grün, F. Butter, A. van Oudenaarden, and R. F. Ketting
Developmental Cell 46.3 285–301.e9. 2018

Characterization of genetic loss-of-function of Fus in zebrafish
Lebedeva, S., **A. M.** de **Jesus Domingues**, F. Butter, and R. F. Ketting
RNA Biology 14.1 pp. 29–35. 2017

Enhancers reside in a unique epigenetic environment during early zebrafish development
Kaaij, L. J. T., M. Mokry, M. Zhou, M. Musheev, G. Geeven, A. S. J. Melquiond, **A. M.** de **Jesus Domingues**, W. de Laat, C. Niehrs, A. D. Smith, and R. F. Ketting
Genome Biology 17 p. 146. 2016

Abundant cytomegalovirus (CMV) reactive clonotypes in the CD8+ T cell receptor alpha repertoire following allogeneic transplantation
Link, C. S., A. Eugster, F. Heidenreich, E. Rücker-Braun, M. Schmiedgen, U. Oelschlägel, D. Kühn, S. Dietz, Y. Fuchs, A. Dahl, **A. M.** de **Jesus Domingues**, C. Klesse, M. Schmitz, G. Ehninger, M. Bornhäuser, J. Schetelig, and E. Bonifacio
Clinical & Experimental Immunology 184.3 pp. 389–402. 2016

SR proteins are NXF1 adaptors that link alternative RNA processing to mRNA export
Müller-McNicoll, M., V. Botti, **A. M.** de **Jesus Domingues**, H. Brandl, O. D. Schwich, M. C. Steiner, T. Curk, I. Poser, K. Zarnack, and K. M. Neugebauer
Genes & Development 30.5 pp. 553–566. 2016

Identification of four functional NR3B isoforms in developing white matter reveals unexpected diversity among glutamate receptors.
Domingues, A. M. d. J., K. M. Neugebauer, and R. Fern
Journal of neurochemistry 117.3 pp. 449–60. 2011

Toxicity of beta-amyloid in HEK293 cells expressing NR1/NR2A or NR1/NR2B N-methyl-D-aspartate receptor subunits.
Domingues, A., S. Almeida, E. F. da Cruz e Silva, C. R. Oliveira, and A. C. Rego
Neurochemistry international 50.6 pp. 872–80. 2007

FK506 prevents mitochondrial-dependent apoptotic cell death induced by 3-nitropropionic acid in rat primary cortical cultures.
Almeida, S., **A. M.** de **Jesus Domingues**, L. Rodrigues, C. R. Oliveira, and A. C. Rego
Neurobiology of disease 17.3 pp. 435–44. 2004

Preprints & others

The IDR-containing protein PID-2 affects Z granules and is required for piRNA-induced silencing in the embryo
Placentino, M., **A. M. d. J. Domingues**, J. Schreier, S. Dietz, S. Hellmann, B. d. Albuquerque, F. Butter, and R. F. Ketting
bioRxiv p. 2020.04.14.040584. 2020

Extensive nuclear gyration and pervasive non-genic transcription during primordial germ cell development in zebrafish
Redl, S., **A. M.** de **Jesus Domingues**, S. Möckel, W. Salvenmoser, M. Mendez-Lago, and R. F. Ketting
bioRxiv p. 2020.01.10.901306. 2020

Identification of Tox chromatin binding properties and downstream targets by DamID-Seq
Jesus Domingues, A. M. de, B. Artegiani, A. Dahl, and F. Calegari
Genomics Data 7 pp. 264–268. 2016

Reviews

* White matter synapses: form, function, and dysfunction.
Alix, J. J. P. and **A. M.** de **Jesus Domingues**
Neurology 76.4 pp. 397–404. 2011

Glia as transmitter sources and sensors in health and disease.
Domingues, A. M. d. J., M. Taylor, and R. Fern
Neurochemistry international 57.4 pp. 359–66. 2010

Conference Proceedings

Expression of NR1/NR2B N-methyl-D-aspartate receptors enhances heroin toxicity in HEK293 cells.
  Domingues, A., T. Cunha Oliveira, M. L. N. Laço, T. R. A. Macedo, C. R. Oliveira, and A. C. Rego
  Annals of the New York Academy of Sciences 1074 pp. 458–65. 2006

Oral Presentations

A family portrait: global effects of SR protein depletion on alternative splicing
  Jesus Domingues, **A. M.** de, M. Müller-McNicoll, M.-L. Ankö, and K. M. Neugebauer
  8th Special Interest Group meeting on Alternative Splicing, 2011, Viena, Austria

NMDA Receptor Subunit composition Influences AßToxicity
  Domingues, A., E. F. da Cruz e Silva, C. R. Oliveira, and A. C. Rego
  34th Meeting of the Portuguese Pharmacology Society, 2003, Coimbra, Portugal

Selected Poster Presentations

* Activation of the genome in germ cells in relation to transposon silencing and the piRNA pathway
  Jesus Domingues, **A. M.** de, S. Redl, E. Caspani, H. Dill, and R. F. Ketting
  Mobile Genetic Elements and Genome Plasticity, 2018, Santa Fé, NM, USA

Regulation of gene expression by SR proteins: a comprehensive study
  Jesus Domingues, **A. M.** de, M. Müller-McNicoll, and K. M. Neugebauer
  Special Interest Group meeting on Integrative RNA Biology (AS-SIG), 2013, Berlin, Germany

Characterization of novel NMDA receptor subtypes
  Jesus Domingues, **A. M.** de, M. G. Salter, and R. Fern
  Society for Neuroscience, 2008, Washington, USA

References

Rene Ketting, PhD   Scientific Director, IMB, Mainz (JGU). +49 6131 39 21470 / r.ketting@imb-mainz.de

Karla M. Neugebauer, PhD   Professor of Molecular Biophysics and Biochemistry and of Cell Biology, Yale University. + 1 203 785 3322 / karla.neugebauer@yale.edu

Andreas Dahl, PhD   NGS facility leader, Biotechnology Center of the TU Dresden. + 49 351 458 82351 / andreas.dahl@biotec.tu-dresden.de