

CURRICULUM VITAE

GUSTAVO TURQUETO DUARTE

Plant Adaptation to the Environment, Institut Jean-Pierre Bourgin (IJPB)

Personal Data

Born: April 3rd, 1982, Jundiaí, Brazil
Nationality: Brazilian/Italian
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Education

2017 – current *Postdoctoral Research Fellow*
UMR 1318 INRA-AgroParisTech-CNRS
Institut Jean-Pierre Bourgin (IJPB), Versailles, France

2016 - 2017 *Senior Researcher*
Laboratory of Radiobiology and Ecotoxicology of Plants
Russian Institute of Radiology and Agroecology, Obninsk, Russian Federation

2013 - 2016 *Postdoctoral Research Fellow*
Laboratory of Plant Genetics
State University of Campinas, Campinas, Brazil

2008 - 2012 *PhD in Genetics and Molecular Biology*
Laboratory of Plant Genetics
State University of Campinas, Campinas, Brazil

2005 - 2007 *Masters in Genetics and Molecular Biology*
Laboratory of Animal Genetics and Evolution
State University of Campinas, Campinas, Brazil

2001 - 2006 *Licentiate Degree in Biological Sciences*
State University of Campinas, Campinas, Brazil

2001 - 2005 *Bachelor Degree in Biological Sciences*
State University of Campinas, Campinas, Brazil

Research Experience

Postdoctoral Research Fellow, Institut Jean-Pierre Bourgin (2017 – current)

Project title: Regulation of plant bZIP transcription factors by the interconnected SnRK1 and TOR signalling pathways: role in the adaptive responses to energy status and in synthesis of RFOs (raffinose family oligosaccharides)

- Research funded by AgreeSkills+ (2nd round, 2016)

Senior Researcher, Laboratory of Radiobiology and Ecotoxicology of Plants (2016 – 2017)

Project title: Analysis of the mechanisms of adaptation of plant populations to technogenic exposure

- Experimental design and bioinformatics analyses of high-throughput transcriptomics, including genome-guided and *de novo* transcriptome profiling, and differential expression analysis of RNA-sequencing data of non-model organism;
- Soft skills: BinPacker, BLAST, Bowtie/Bowtie2, BUSCO, DESeq2, edgeR, EvidentialGene, FastQC, FastQ Screen, kallisto, Orthofinder, SOAPdenovo-Trans, Trimmomatic, Transdecoder, Trinity, Trinotate;
- Research funded by the Russian Scientific Foundation.

Postdoctoral Research Fellow, Laboratory of Plant Genetics (2013 – 2016)

Project title: Involvement of post-transcriptional regulatory pathways in ABA and glucose signaling: fast, adaptive mechanisms in response to stress conditions and developmental control

- Selection, crossing, and phenotypic characterization of Arabidopsis mutants (T-DNA lines);
- Phenotypic evaluation of the effects of auxin in Arabidopsis early seedling development;
- Gene expression analysis by real-time qRT-PCR in wild-type and mutant lines;
- Collaborative work with bioinformaticians;
- High-throughput (*e.g.* microarray; Genevestigator) gene expression analysis;
- Co-supervision of Masters student in Genetics and molecular methods;
- Research funded by Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP).

PhD in Genetics and Molecular Biology, Laboratory of Plant Genetics (2008 – 2012)

Thesis title: Evaluation of the importance of mRNA stability control in glucose and ABA-signaling and in the interaction of these signals in *Arabidopsis thaliana*

- Establishment of an experimental model for gene expression analysis under transcriptional inhibition conditions;
- Microarray (CATMA) generation and analysis – collaboration with Dr. Jean-Pierre Renou (INRA/URGV – France);
- Gene expression analysis by real-time qRT-PCR of potential transcripts under post-transcriptional control in response to glucose and ABA;
- Phenotypic evaluation of the involvement of microRNA-related regulatory pathways in glucose and ABA signaling during *Arabidopsis* early development – use of wild-type and mutant lines;
- Pri-miRNAs and miRNAs expression profiling – collaboration with Dr. Mark Stitt (Max-Planck Institute of Molecular Plant Physiology – Germany);
- Research funded by Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP).

MSc in Genetics and Molecular Biology, Laboratory of Animal Genetics and Evolution (2005 – 2007)

Dissertation title: Characterization of the control regions of the mitochondrial genome in species of the family Calliphoridae (Insecta: Diptera) and phylogenetic perspectives

- PCR amplification, cloning and sequencing of mitochondrial genomic regions;
- Proposal of new molecular markers for species diagnostics;
- Definition of hot spot regions for identification of potential mitochondrial rearrangement events;
- Laboratory teaching assistant for Biology Sciences students;
- Research funded by Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq).

Additional Experience

2016 *OpUS Summer Camp 2016 – SmartAgro BRICS +* (course)
Skolkovo Innovation Center, Russian Federation

2014 *Frontiers and Techniques in Plant Science* (course)
Cold Spring Harbor Laboratory, CSHL, USA

- 2011** *miRNA profiling and metabolites analysis* (training)
Max Planck Institute of Molecular Plant Physiology, MPIMP, Germany
- 2009** *Transcriptomic analysis with microrarrays* (training)
Plant Genomics Research Unit, URGV, France
- 2009** *Gene Expression Analysis with Real-Time Quantitative PCR* (course)
Life Technologies, São Paulo, Brazil
- 2008** *Biotechnology in Food Production* (course)
Food Technology Institute, ITAL, Campinas, Brazil
- 2006** *Introduction to Statistical Analysis* (course)
State University of Campinas (UNICAMP), Campinas, Brazil
- 2005** *Evolution and Molecular Phylogeny* (course)
Brazilian Genetics Society (SBG), Ribeirão Preto, Brazil

Invited Course

- 2014** *Small RNAs and the control of gene expression. II SemeBio*, Federal University of São Carlos, Araras, Brazil

Teaching Experience

- 2009 – 2015** Biology Teacher – Prof. Chico Poço School (undergraduate course), Jundiaí, São Paulo, Brazil
- 2004 – 2006** Laboratory Teaching: Physiological and Molecular Genetics (BG380 – graduation course). State University of Campinas, Campinas, Brazil

Mentoring

- 2014 – current** João Guilherme Portugal Vieira. Masters student co-supervisor. Participation of mRNA stability control involving the ABA core signaling pathway. Research funded by Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP).

Academic Honors

- 2016** Deep knowledge in the area of research. 3rd International Scientific Conference “Ecological Safety of NPPs”. Kaliningrad, Russia.
- 2015** Honorable Mention for the work in the field of Genetics, Evolution and Plant Breeding, Brazilian Genetics Society. 61st Brazilian Genetics Conference.
- 2005** Honorable Mention for the work in the field of Genetics, Evolution and Animal Breeding – Scientific Initiation Award, Brazilian Genetics Society.
- 2005** Award of Best Work in Biology Field – XIII Internal Conference of Scientific Initiation of UNICAMP.

Publications

- Alves CS, Vicentini R, Duarte GT, Pinoti VF, Vincentz M, Nogueira FTS. 2017. Genome-wide identification and characterization of tRNA-derived RNA fragments in land plants. *Plant Molecular Biology* 93: 35-48.
- Duarte GT, Matioli CC, Pant BD, Schlereth A, Scheible WR, Stitt M, Vicentini R, Vincentz M. 2013. Involvement of microRNA-related regulatory pathways in the glucose-mediated control of *Arabidopsis* early seedling development. *Journal of Experimental Botany* 64: 4301-4312.
- Vitor SC, Duarte GT, Saviani EE, Vincentz M, Oliveira HC, Salgado I. 2013. Nitrate reductase is required for the transcriptional modulation and bactericidal activity of nitric oxide during the defense response of *Arabidopsis thaliana* against *Pseudomonas syringae*. *Planta* 238: 475-486.
- Matioli CC, Tomaz JP, Duarte GT, Prado FM, Del Bem LE, Silveira AB, Gauer L, Corrêa LG, Drumond RD, Viana AJ, Di Mascio P, Meyer C, Vincentz M. 2011. The *Arabidopsis* bZIP gene *AtbZIP63* is a sensitive integrator of transient abscisic acid and glucose signals. *Plant Physiology* 157: 692-705.
- Duarte GT, De Azeredo-Espin AM, Junqueira AC. 2008. The mitochondrial control region of blowflies (Diptera: Calliphoridae): a hot spot for mitochondrial genome rearrangements. *Journal of Medical Entomology* 45: 667-676.

Manuscripts submitted

Volkova P, Geras'kin S, Horemans N, Makarenko E, Saenen E, Nauts R, Bondarenko V, Duarte GT, Voorspoels S, Jacobs G. Chronic radiation exposure leads to genome hypermethylation and genetic differentiation in Scots pine populations.

Manuscripts in Preparation

Duarte GT, Vieira JGP, Canesin LEC, Pelletier S, Renou JP, Vicentini R, Vincentz M. Fine tuning of the ABA core signaling pathway by mRNA stability control.

Viana AJC, Matioli CC, Newman D, Duarte GT, Loudet O, Vincentz M. The bZIP transcription factor AtbZIP63 affects circadian clock and nighttime starch degradation in Arabidopsis.

Conference Oral Presentations

Duarte GT, Volkova PY, Geras'kin SA. Transcriptomics as a tool for biological monitoring of radiation exposure. Work presentation at the 3rd International Scientific Conference "Ecological Safety of NPPs" (2016).

Portugal-Vieira JG, Duarte GT, Vincentz MGA. Temporal dynamics regulation of transcripts of abscisic acid core signaling pathway. Work presentation at the 61st Brazilian Genetics Conference (2015).

Duarte GT, De Azeredo-Espin AM, Junqueira AC. Characterization of the control region of mitochondrial DNA and evaluation of its potential as molecular marker in miasis-causing flies (Diptera: Calliphoridae). Work presentation at the 51st Brazilian Genetics Conference (2005).

Conferences

2016 Duarte GT, Volkova PY, Geras'kin SA. Transcriptomics as a tool for biological monitoring of radiation exposure. 3rd International Scientific Conference "Ecological Safety of NPPs". Kaliningrad, Russia.

2015 Duarte GT, Vieira JGP, Canesin LEC, Pelletier S, Renou JP, Vicentini R, Vincentz M. Fine tuning of the ABA core signaling pathway by mRNA stability control. Plant Biology 2015 (ASPB). Minneapolis, Minnesota, USA.

2014 Vieira JGP, Duarte GT, Vincentz MGA. Core-regulatory network of ABA-promoted responses relies partially on post-transcriptional regulations. 60th Brazilian Congress on Genetics. Guarujá, São Paulo, Brazil.

Duarte GT, Vieira JGP, Vincentz M. Involvement of mRNA stability control in ABA-promoted responses. 25th International Conference on Arabidopsis Research (ICAR). Vancouver, British Columbia, Canada.

2013 Workshop on Epigenetics and small RNAs in Plants. State University of Campinas, Campinas, São Paulo, Brazil. (Participant).

2012 Vitor SC, Duarte GT, Vincentz MGA, Oliveira HC, Salgado I. Effect of Nitric Oxide Fumigation on Gene Expression in *Arabidopsis thaliana*. XLI Annual Meeting of the Brazilian Society for Biochemistry and Molecular Biology (SBBq). Foz do Iguaçu, Paraná, Brazil.

2011 Duarte GT, Matioli CC, Gey D, Pelletier S, Renou JP, Vicentini R, Vincentz M. Transcriptome profiling indicates the existence of post-transcriptional control in response to abscisic acid and glucose in *Arabidopsis thaliana*. 22nd International Conference on Arabidopsis Research (ICAR). Madison, Wisconsin, USA.

Duarte GT, Matioli CC, Vincentz M. Interaction of miRNAs with glucose and ABA signaling pathways during seed germination. 3rd Brazilian Symposium on Plant Molecular Genetics. Ilhéus, Bahia, Brazil.

Viana AJC, Matioli CC, Duarte GT, Vincentz M. The role of AtbZIP63 transcription factor in adaptation to energetic stress. 3rd Brazilian Symposium on Plant Molecular Genetics. Ilhéus, Bahia, Brazil.

2009 2nd Brazilian Symposium on Plant Molecular Genetics. Búzios, Rio de Janeiro, Brazil. (Participant).

2006 52nd Brazilian Congress on Genetics and 12th Congress of the Latin American Association for Genetics. Foz do Iguaçu, Paraná, Brazil. (Participant).

2005 Duarte GT, Junqueira ACM, Azeredo-Espin AML. Detection and characterization of the duplication of tRNA-Ile gene in the control region of myiasis-causing flies (Diptera: Calliphoridae). XIII Internal Conference of Scientific Initiation of UNICAMP. Campinas, São Paulo, Brazil.

Duarte GT, Junqueira ACM, Azeredo-Espin AML. Characterization of the control region of the

mitochondrial DNA and evaluation of its potential as molecular marker in myiasis-causing flies (Diptera: Calliphoridae). 2005 Annual Meeting of Entomological Society of America. Fort Lauderdale, Florida, USA.

Duarte GT, Junqueira ACM, Azeredo-Espin AML. The control region of the mitochondrial DNA as a potential marker for myiasis-causing flies. 51st Brazilian Congress on Genetics. Águas de Lindóia, São Paulo, Brazil. (Concurrent Session).

2004 Duarte GT, Junqueira ACM, Torres TT, Azeredo-Espin AML. Detection and characterization of the tRNA-Ile duplication in the control region of the mtDNA of myiasis-causing flies (Diptera: Calliphoridae). 50th Brazilian Congress on Genetics. Florianópolis, Santa Catarina, Brazil.

Duarte GT, Junqueira ACM, Torres TT, Azeredo-Espin AML. Detection and characterization of the tRNA Ile in the mtDNA control region of myiasis-causing flies (Diptera: Calliphoridae). 2004 Entomological Society of America Annual Meeting. Salt Lake City, Utah, USA.

2003 49th Brazilian Congress on Genetics. Águas de Lindóia, São Paulo, Brazil. (Participant).