

# Bernardo Almeida

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<https://github.com/bernardo-de-almeida>

## EDUCATION

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- Sept 15 – Dec 17 **MSc in Oncobiology** (*“Best MSc student” and 2<sup>nd</sup> “Best MSc Thesis” awards*)  
University of Algarve, Portugal [Classification: **19/20**]  
**Thesis:** “Discovery of novel mechanisms of centrosome amplification and their therapeutic value in cancer” [Classification: **20/20**]  
Supervisor: Dr Nuno Barbosa Morais
- Sept 12 – July 15 **BSc in Biomedical Sciences**  
University of Algarve, Portugal [Classification: **17/20**]  
**Final Project:** “Identification of new genetic risk markers for breast cancer”  
Supervisor: Professor Ana Teresa Maia [Classification: **20/20**]
- Sept 09 – June 12 **High School in Science and Technologies area** (*awarded best student*)  
Escola Secundária da Cidadela, Cascais, Portugal [Classification: **18/20**]

## CURRENT RESEARCH POSITION

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- Sept 18 – Present **PhD student**  
Research Institute of Molecular Pathology (IMP), Vienna, Austria  
Project: **“Understanding the sequence-rules of transcriptional enhancer activity”**  
Supervisor: Dr Alexander Stark

## RESEARCH EXPERIENCE

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- Sept 16 – Aug 18 **Master’s thesis + Researcher**  
Instituto de Medicina Molecular, Lisboa, Portugal  
Project: **“Discovery of novel mechanisms of centrosome amplification and their therapeutic value in cancer”**  
Supervisor: Dr Nuno Barbosa Morais  
(Collaboration with Dr Mónica Bettencourt Dias, IGC, Portugal)
- June 16 – July 16 **Visiting Worker**  
Gaffney Group, **Wellcome Trust Sanger Institute, Cambridge, UK**  
Project: “Map of histone Quantitative Trait Loci (QTLs) in induced Pluripotent Stem Cells (iPSCs)” with data from HipSci project  
Supervisor: Dr Ângela Gonçalves
- Jan 16 – June 16 **Research fellow**  
Centre for Biomedical Research, University of Algarve, Portugal  
Project: “Cis-regulation of somatic mutations in breast and ovarian cancers”  
Supervisor: Professor Ana Teresa Maia
- Mar 15 – Dec 15 **BSc’s final project + Laboratory traineeship**  
Centre for Biomedical Research, University of Algarve, Portugal  
Project: “Identification of new genetic risk markers for breast cancer”  
Supervisor: Professor Ana Teresa Maia

## PUBLICATIONS

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9. L. Correia, J.M. Xavier, R. Magno, **B.P. de Almeida**, F. Esteves, I. Duarte, M. Eldridge, C. Sun, A. Bosma, L. Mittempergher, A. Marreiros, R. Bernardes, C. Caldas, S.F. Chin<sup>s</sup> and A.T. Maia<sup>s</sup>. “Allelic expression imbalance of PIK3CA mutations is frequent in breast cancer and prognostically significant”. **bioRxiv** (doi: 10.1101/2021.03.05.434137)
8. J. Conde\*, R.A. Pumroy\*, C. Baker\*, T. Rodrigues\*, A. Guerreiro, B.B. Sousa, M.C. Marques, **B.P. de Almeida**, ... , V.Y. Moiseenkova-Bell<sup>s</sup>, G.J.L. Bernardes<sup>s</sup>. “Allosteric Antagonist Modulation of TRPV2 by Piperlongumine Impairs Glioblastoma Progression”. **ACS Central Science** 2021 (doi: 10.1021/acscentsci.1c00070)
7. I. Gomes, **B.P. de Almeida**, S. Dâmaso, A. Mansinho, I. Correia, S. Henriques, R. Cruz-Duarte, G. Vilhais, P. Félix, P. Alves, P. Corredeira, N.L. Barbosa-Morais, L. Costa, S. Casimiro. “Expression of receptor activator of NFkB (RANK) drives stemness and resistance to therapy in ER+HER2- breast cancer”. **Oncotarget** 2020; 11(19):1714-1728 (doi: 10.18632/oncotarget.27576)
6. T. Rodrigues, **B.P. de Almeida**, N.L. Barbosa-Morais, G.J.L. Bernardes. “Dissecting celastrol with machine learning to unveil dark pharmacology”. **Chemical Communications** 2019; 55:6369-6372
5. **B.P. de Almeida**, A.F. Vieira, J. Paredes, M. Bettencourt-Dias, N.L. Barbosa-Morais. “Pan-cancer association of a centrosome amplification gene expression signature with genomic alterations and clinical outcome”. **PLoS Computational Biology** 2019; 15(3):e1006832 (doi: 10.1371/journal.pcbi.1006832)
4. **B.P. de Almeida**\*, J.D. Apolonio\*, A. Binnie, P. Castelo-Branco. “Roadmap of DNA methylation in breast cancer identifies novel prognostic biomarkers”. **BMC Cancer** 2019; 19:219 (doi: 10.1186/s12885-019-5403-0)
3. C. Baker, T. Rodrigues, **B.P. de Almeida**, N.L. Barbosa-Morais, G.J.L. Bernardes. “Natural product-drug conjugates for modulation of TRPV1-expressing tumors”. **Bioorganic & Medicinal Chemistry** 2019; 27(12):2531-2536 (doi: 10.1016/j.bmc.2019.03.025)
2. S. Braun, M. Enculescu, S.T. Setty, M. Cortés-López, **B.P. de Almeida**, F.X.R. Sutandy, L. Schulz, A. Busch, M. Seiler, S. Ebersberger, N.L. Barbosa-Morais, S. Legewie, J. König, K. Zarnack. “Decoding a cancer-relevant splicing decision in the RON proto-oncogene using high-throughput mutagenesis”. **Nature Communications** 2018; 9(1):3315 (doi: 10.1038/s41467-018-05748-7)
1. G. Marteil, A. Guerrero, A.F. Vieira, **B.P. de Almeida**, P. Machado, S. Mendonça, M. Mesquita, B. Villarreal, I. Fonseca, M.E. Francia, K. Dores, N.P. Martins, S.S. Jana, E. Tranfield, N.L. Barbosa-Morais, J. Paredes, D. Pellman, S.A. Godinho, M. Bettencourt-Dias. “Overelongation of centrioles in cancer promotes centriole amplification and chromosome missegregation”. **Nature Communications** 2018; 9(1):1258 (doi: 10.1038/s41467-018-03641-x)

## SOFTWARES

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**B.P. de Almeida**\*, N. Saraiva-Agostinho\*, N.L. Barbosa-Morais. “cTRAP: Identification of candidate causal perturbations from differential gene expression data”. **R package**, <https://bioconductor.org/packages/release/bioc/html/cTRAP.html>

## PATENTS

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“Methods of cancer treatment”. Intellectual Patent Office UK, Provisional Patent Application GB 1820975.9. Authors: N.L. Barbosa-Morais, **B.P. de Almeida**, M. Bettencourt-Dias, J. Paredes, A. Vieira (2018).

## ABSTRACTS AND CONFERENCE PROCEEDINGS

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3. **B.P. de Almeida**, G. Marteil, M. Bettencourt-Dias, N.L. Barbosa-Morais. "Discovery of novel mechanisms of centrosome amplification and their therapeutic value in cancer". **Porto Biomedical Journal** 2017; 2(5):182 (doi: 10.1016/j.pbj.2017.07.019)
2. J. Xavier, **B. Almeida**, C. Sun, J. Silva, A. Marreiros, M. Eldridge, R. Bernards, C. Caldas, S.F. Chin, A.T. Maia. "PIK3CA mutant allele differential expression (MADE) associates with breast cancer clinical features". [abstract]. In: Proceedings of the 24<sup>th</sup> Biennial EACR Congress; **European Journal of Cancer** 2016; 14(2\_Suppl): Abstract nr 884 (doi: 10.1016/S0959-8049(16)61723-9)
1. J. Xavier, R. Russell, **B.P. Almeida**, N. Rosli, C. Rocha, S. Samarajiwa, S.F. Chin, C. Caldas, B.A.J. Ponder, A.T. Maia. "Integrative differential allelic expression analysis efficiently reveals the biology underlying risk to breast cancer". [abstract]. In: Proceedings of the AACR Special Conference on Advances in Breast Cancer Research; **Molecular Cancer Research** 2016; 14(2\_Suppl): Abstract nr A31 (doi: 10.1158/1557-3125.ADVBC15-A31)

## AWARDS

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- 2018 **Best Master Student of Sciences and Technologies field**  
University of Algarve, Portugal  
Prize: 1,000 €
- 2017 **2nd place at iMed Innovate Competition**  
iMed Conference® 9.0, Lisbon, Portugal
- 2017 **2nd prize of the "Best Master Thesis" awards**  
Instituto de Medicina Molecular, Lisbon, Portugal  
Prize: Scholarship to spend 1 week at The Francis Crick Institute, London, UK
- 2012 **Award of Excellence for best student**  
Escola Secundária da Cidadela, Cascais, Portugal; Prize: driving license
- 2012 **2nd place on the Portuguese national contest "MAP - Medically Assisted Procreation"**  
Initiative of Ciência Viva and the Portuguese National Council for Medically Assisted Procreation

## COMPUTER SKILLS

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### Machine learning and deep learning

#### Software:

RStudio & Jupyter Notebook  
IGV - Integrative Genomics Viewer  
HaploView  
MACH 1.0  
GSEA - Gene Set Enrichment Analysis  
Adobe Illustrator and Inkscape

### Computer languages:

R  
Unix shell (bash/zsh)  
Python  
HTML & CSS

### Operating systems:

macOS, Windows  
Linux (Ubuntu)

## SUPERVISION

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. Luís Bento, 6-month internship (Master's student in Biological Engineering)  
Instituto de Medicina Molecular, Lisbon, Portugal

Mar - Sept 2017

## INVITED TALKS

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Decoding transcriptional regulation using massively parallel reporter assays and Twist Oligo Pools ([https://www.youtube.com/watch?v=qUaR34X2a3I&ab\\_channel=TwistBioscience](https://www.youtube.com/watch?v=qUaR34X2a3I&ab_channel=TwistBioscience))  
Twist Bioscience Webinar, Virtual 14 Apr 2021

Lecture on "How to do a monograph?"  
University of Algarve, Portugal 7 Mar 2016

## PARTICIPATION IN MEETINGS

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### Oral presentations:

Discovery of novel mechanisms of centrosome amplification and their therapeutic value in cancer

**B.P. de Almeida**, G. Marteil, M. Bettencourt-Dias, N.L. Barbosa-Morais  
. iMed Conference® 9.0, Lisbon, Portugal (*2<sup>nd</sup> place at Innovate Competition*) 25-29 Oct 2017  
. 12<sup>th</sup> Young European Scientists meeting, Porto, Portugal 14-17 Sept 2017

### Poster Presenter:

Understanding the contribution of inter-motif spacer sequences to enhancer activity

**B.P. de Almeida**, F. Reiter, A. Stark  
. 11<sup>th</sup> Visualizing Biological Data meeting (VIZBI), Virtual 24-26 Mar 2021

Understanding the contribution of inter-motif spacer sequences to enhancer activity

**B.P. de Almeida**, F. Reiter, A. Stark  
. 14<sup>th</sup> EMBL Conference: Transcription and Chromatin, Virtual 27-29 Aug 2020

Pan-cancer analysis of Centrosome Amplification uncovers its association with copy number alterations and poor clinical outcome (*highlighted poster*)

**B.P. de Almeida**, N.L. Barbosa-Morais  
. 3<sup>rd</sup> ASPIC International Congress, Lisbon, Portugal 10-11 May 2018

Discovery of novel mechanisms of centrosome amplification and their therapeutic value in cancer

**B.P. de Almeida**, G. Marteil, A. Guerrero, M. Bettencourt-Dias, N.L. Barbosa-Morais  
. 3<sup>rd</sup> EACR Conference in Cancer Genomics, Cambridge, UK 25-28 June 2017

PIK3CA mutant allele differential expression (MADE) association analysis with breast cancer

**B.P. de Almeida**, J.M. Xavier, C. Sun, I.A. Silva, J.J. Silva, A. Marreiros, M. Eldridge, R. Bernards, C. Caldas, S.F. Chin, A.T. Maia  
. 2<sup>nd</sup> ASPIC International Congress, Porto, Portugal 28-29 Apr 2016

### Poster Abstract (presenter's name underlined):

cTRAP: identification of candidate causal perturbations from differential expression data

N. Saraiva-Agostinho, **B.P. de Almeida**, N.L. Barbosa-Morais  
. 11<sup>th</sup> Visualizing Biological Data meeting (VIZBI), Virtual 24-26 Mar 2021

Characterization of enhancer-bound proteomes

F. Reiter, **B.P. de Almeida**, R. Imre, K. Mechtler, A. Stark  
. 14<sup>th</sup> EMBL Conference: Transcription and Chromatin, Virtual 27-29 Aug 2020

Biological features of estrogen receptor-positive breast cancer with elevated RANK (TNFRSF11A) expression

S. Casimiro, I. Gomes, **B.P. de Almeida**, P. Alves, P. Félix, G. Vilhais, A. Mansinho, M.R. Dionísio, N.L. Barbosa-Morais, L. Costa  
. 2019 ASCO Annual Meeting, Chicago, USA 31 May – 04 June 2019

Integrative genomic approach elucidates the risk mechanism for breast cancer associated 5q14.1 locus (*highlighted poster*)

J.M. Xavier, R. Magno, **B.P. de Almeida**, M. Dunning, A. Jacinta-Fernandes, R. Russell, S. Samarajiwa, M. O'Reilly, N. Rosli, C. Nobrega, N.L. Barbosa-Morais, C. Caldas, B.A. Ponder, A.T. Maia  
. 3<sup>rd</sup> ASPIC International Congress, Lisbon, Portugal 10-11 May 2018

Mapping of cis-regulatory variants helps dissecting the risk mechanism for breast cancer associated 5q14.1 locus

J.M. Xavier, R. Magno, **B.P. de Almeida**, M. Dunning, A. Jacinta-Fernandes, R. Russell, S. Samarajiwa, M. O'Reilly, N. Rosli, C. Nobrega, N.L. Barbosa-Morais, C. Caldas, B.A.J. Ponder, A.T. Maia  
. 21<sup>a</sup> Reunião da Sociedade Portuguesa de Genética Humana, Portugal 16-18 Nov 2017

Roadmap of DNA methylation in breast cancer identifies 15 novel potential biomarkers

**B.P. de Almeida**, J.D. Apolonio, A. Binnie, P. Castelo-Branco  
. 2<sup>nd</sup> CBMR/ProRegem Annual Meeting, University of Algarve, Portugal 8-9 Sept 2017

Analysis of potential cis-regulatory variants at locus 17q22

F. Esteves, J. Xavier, R. Magno, **B.P. de Almeida**, A. Fernandes, C. Rocha, A.T. Maia  
. 2<sup>nd</sup> CBMR/ProRegem Annual Meeting, University of Algarve, Portugal 8-9 Sept 2017

PIK3CA mutant allele differential expression (MADE) associates with breast cancer clinical features

J.M. Xavier, **B.P. de Almeida**, C. Sun, J. Silva, A. Marreiros, M. Eldridge, R. Bernards, C. Carlos, S.F. Chin, A.T. Maia  
. 24<sup>th</sup> Biennial EACR Congress, Manchester, UK 9-12 July 2016

Integrative differential allelic expression analysis efficiently reveals the biology underlying risk to breast cancer

J.M. Xavier, R. Russell, **B.P. de Almeida**, N. Rosli, C. Rocha, S. Samarajiwa, S.F. Chin, C. Caldas, B.A.J. Ponder, AT Maia  
. 2<sup>nd</sup> ASPIC International Congress, Porto, Portugal 28-29 April 2016  
. AACR Conference on Advances in Breast Cancer Research, Washington, USA 17-20 Oct 2015

## ORGANISATION OF SCIENTIFIC MEETINGS

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11-14 Mar 2015      **Co-organizer of VI National Journeys of Biomedical Sciences**  
NECBiom, University of Algarve, Portugal  
A 4-day meeting that brought together ~200 biomedical students from all around Portugal and included presentations on diverse biomedical topics by renowned scientists

## COURSES & WORKSHOPS

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2020- 2021      **Deep Learning Specialization (online)**  
Coursera, DeepLearning.AI, by Andrew Ng

29-31 May 2019      **Adobe Illustrator workshop**  
Research Institute of Molecular Pathology (IMP), Vienna, Austria

19-27 Feb 2018      **Introduction to Linear Mixed Effects Models, GLMM with R**  
Highland Statistics Ltd. & CCIAM, Faculty of Sciences, University of Lisbon, Portugal

29-31 May 2017	<b>ReTuBi Summer School – From cancer biology to therapy</b> Instituto de Medicina Molecular, Lisbon, Portugal
22-24 Feb 2017	<b>Career Development and soft skills for young scientists</b> Instituto de Medicina Molecular, Lisbon, Portugal
23–24 Sept 2015	<b>Workshop: R language for Absolute Beginners</b> University of Algarve, Portugal.

#### **OTHER PROFESSIONAL ACTIVITIES**

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Jan 15 – Jan 16	<b>Vice-President of the University of Algarve Academic Association</b> (AAUAlg), Portugal
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#### **COMMUNITY SERVICE**

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Sept 16 - Present	Volunteer in <i>Centro de Apoio ao Sem Abrigo</i> (Cascais, Portugal)
Sept 14 - Dec 14	Observational volunteer in Faro's Hospital – Internal Medicine's area (Faro, Portugal)
July 12 - Sept 12	Volunteer in Cascais's Hospital with <i>Liga dos Amigos do Hospital de Cascais</i> , <i>Dr. José de Almeida</i> (Cascais, Portugal)
25 – 30 June 2012	Volunteer in Ibercup Estoril 2012 (Estoril, Portugal)
3 May 2012	Volunteer in AJU Association (Cascais, Portugal)
16-20 Apr of 2012	Participation on <i>III Semana do Voluntariado Jovem</i> (Cascais, Portugal)

#### **LANGUAGES**

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Portuguese (native), English (fluent), Spanish (fluent), German (basics), French (basics)