PERSONAL INFORMATION

Name: Raquel A. Oliveira

ORCID: 0000-0002-8293-8603

ResearchID: F-4405-2012

Date of birth: 12-01-1980 (40 years-old)

Children: 1 (1yo)

URL for web sites:

https://gulbenkian.pt/ciencia/research/research-groups/chromosome-dynamics/

www.chromosomedynamicslab.pt

RESEARCH INTERESTS

Cell division, Mitosis, Meiosis, Aneuploidy, Cancer, Chromosome Condensation, Sister Chromatid Cohesion, Cell Cycle Transitions, Regulation of gene expression, Cohesinopathies, Development, *Drosophila*

EDUCATION

2007 PhD in Biochemistry, Cellular Biology specialization, awarded with *"Distinction and Honors"* Faculty of Sciences and Technology, University of Coimbra, Portugal
Advisor: Claudio E. Sunkel, Instituto de Biologia Molecular e Celular, Universidade do Porto, Porto, Portugal

2002 Biochemistry Degree [*"licenciatura"*, equivalent to BSc (hons)] (Applied Biochemistry), Faculty of Sciences, University of Porto, Portugal

CURRENT/PREVIOUS POSITIONS

2012 – present	Principal Investigator of the Chromosome Dynamics Laboratory Instituto Gulbenkian de Ciência, Oeiras, Portugal
2007 – 2012	Post Doctoral Fellow, University of Oxford, Oxford, United Kingdom ***Advisor:*** Kim Nasmyth
2003 – 2007	PhD student at Instituto de Biologia Molecular e Celular, University of Porto, Portugal ***Advisor:*** Claudio Sunkel
2005 – 2006	Visiting PhD Student in Christian Lehner's lab at University of Bayreuth, Bayreuth, Germany
2002 – 2002	Erasmus Student (Trainee) in Albert de Boer's lab at Vrije Universiteit Amsterdam

FUNDING ID (ongoing/approved)

2021 – 2026	"Chromosome based mechanisms of mitotic transcriptional inactovation" ERC Consolidator grant (101002391 ChromoSilence) European Research Council (ERC) **1.999.875€**
2015 – 2021	"Chromosome Architecture and the Fidelity of Mitosis during Development" ERC Starting grant (638917 ChromoCellDev) European Research Council (ERC) **1.492.000 €**
2018 – 2024	Scientific Employment Stimulus (CEECIND_2017); competitive award covering the **salary** of the PI, Fundação para a Ciência e Tecnologia (FCT);

FUNDING ID (finished projects)

2014 – 2019	"The active chromosome: the role of chromosome structure in the fidelity of mitosis" EMBO Installation Grant (IG2778), European Molecular Biology Organization (EMBO) and Fundação para a Ciência e Tecnologia (FCT) **250.000 €**/5 years (extended an additional year due to maternity leave)
2013 – 2018	FCT investigator award (IF/00851/2012/CP0185/CT0004); competitive award covering the

salary of the PI, Fundação para a Ciência e Tecnologia (FCT)

2013 – 2018 Exploratory project integrated in the FCT investigator award (IF/00851/2012/CP0185/CT0004), Fundação para a Ciência e Tecnologia (FCT) **50.000 €**

2013 – 2016 "Chromosome Condensation and Cohesion" – Marie Curie Career Installation Grant (321883 CCC FP7-PEOPLE-2012-CIG), FP7, European Commission **100.000 €** /4 years

2013 – 2016 "Imaging the structure and dynamics of molecules and complexes in living organisms, Fundação para a Ciência e Tecnologia (FCT) **495.008 €** /3 years (member of team, 15%)

RESEARCH ARTICLES (as Principal Investigator)

- Milagre, I.; Pereira, C.; **OLIVEIRA, R.A.** and Jansen, L.E.T. (2020) Reprogramming of Human Cells to Pluripotency Induces CENP-A Chromatin Depletion ***bioRxiv*** 2020.02.21.960252;
- Mirkovic, M. *; Guilgur, L.G.*; Tavares, A.; Passagem-Santos, D and **OLIVEIRA, R.A.**; Induced aneuploidy in neural stem cells triggers a delayed stress response and impairs adult life span in flies **equal contribution* 2019 ***PLoS Biol*** 17(2): e3000016
- Silva, R.D.*, Mirkovic, M.*, Guilgur, L.G., Rathore, O.S., Martinho, R.G., and **OLIVEIRA, R.A.** (2018). Absence of the Spindle Assembly Checkpoint Restores Mitotic Fidelity upon Loss of Sister Chromatid Cohesion**.** *2018* ***Current Biology*** *28*, 2837-2844 e2833. ** equal contribution Press release: "Traffic wardens" of cells can be counterproductive*
- Carvalhal, S.; Tavares A.; Santos M.B.; Mirkovic, M. and **OLIVEIRA, R.A.** A quantitative analysis of cohesin decay in mitotic fidelity. 2018 ***The Journal of Cell Biology*** Jul 2018 *217*, 3343-3353. DOI: 10.1083/jcb.201801111
- Piskadlo, E., A. Tavares, and **OLIVEIRA, R.A.** Metaphase chromosome structure is dynamically maintained by Condensin I-directed DNA (de)catenation. 2017. ***Elife***. 6. Paper Video: *How to maintain mitotic chromosome architecture?*
- Mirkovic, M.; Hutter, L.H.; Novak, B.; **OLIVEIRA, R.A.** Premature sister chromatid separation is poorly detected by the Spindle Assembly Checkpoint due to system-level feedbacks 2015 ***Cell Reports*** *13 (3), 469-478 Press release: Cellular "blindness" to chromosome cohesion defects*
- **OLIVEIRA, R.A.**[#]; Kotadia, S; Tavares, A.; Mirkovic, M.; Bowlin, K.; Eichinger, C.S.; Nasmyth, K; Sullivan, W. Centromere-independent accumulation of cohesin at ectopic heterochromatin sites induces chromosome stretching during anaphase. ***Plos Biology*** 2014 Oct 07 DOI: 10.1371/journal.pbio.1001962 [#] *corresponding author Press release: Gluing chromosomes at the right place*
- **OLIVEIRA, R.A.**[#]; and Nasmyth, K; Cohesin cleavage is insufficient for centriole disengagement ***Current Biology*** 2013 Jul 22;23(14):R601 [#] *corresponding author*

REVIEWS/BOOK CHAPTERS (as Principal Investigator)

- Carmo, C.*; Araújo, M.* and and **OLIVEIRA, R.A.** Microinjection techniques in fly embryos to study the function and dynamics of SMC complexes. ***Springer Methods in Molecular Biology*** "SMC Complexes: Methods and Protocols" 2019;2004:251-268. *#invited book chapter# * equal contribution*
- Piskadlo, E. and **OLIVEIRA, R.A.** A Topology-Centric View on Mitotic Chromosome Architecture ***International Journal of Molecular Science*** 2017, 18(12), 2751; doi:10.3390/ijms18122751 #Review#
- Mirkovic, M., and **OLIVEIRA, R.A.** Centromeric Cohesin: Molecular Glue and Much More. 2017. ***Prog Mol Subcell Biol.*** 56:485-513. *#invited book chapter#*
- Piskadlo E and **OLIVEIRA, R.A.** Novel insights into mitotic chromosome condensation 2016 **F1000Research**, 5(F1000 Faculty Rev):1807 (doi: 10.12688/f1000research.8727.1)

RESEARCH ARTICLES (pre-independent position)

- Zhang, T.; **OLIVEIRA, R.A.**; Schmierer, B; Novak, B; Dynamical Scenarios for Chromosome Bi-orientation ***Biophysical Journal*** 2013 Jun 18;104(12):2595-606.

- Eichinger, C.S., Kurze, A., **OLIVEIRA, R.A.**, Nasmyth, K., Disengaging the Smc3/kleisin interface releases cohesin from *Drosophila* chromosomes during interphase and mitosis, ***EMBO J*** 2013 Mar 6;32(5):656-65.
- He, E.; Kapuy, O.; **OLIVEIRA, R.A.**; Uhlmann, F; Novák, B. Systems-level feedbacks make anaphase switch irreversible ***Proc Natl Acad Sci*** U S A. 2011 Jun 14;108(24):10016-21.
- **OLIVEIRA, R.A.**; Hamilton, R.; Pauli, A.; Davis, I. and Nasmyth, K. Cleavage of cohesin and Cdk inhibition trigger formation of daughter nuclei; ***Nature Cell Biology*** 2010 Feb; 12: 185 – 192
- Pauli, A.; van Bemmel, J.; **OLIVEIRA, R.A.;** Itoh, T.; Shirahige, K.; van Steensel, B. and Nasmyth, K. A direct role for cohesin in genome-wide gene expression and Ecdysone-response in *Drosophila* salivary glands. ***Current Biology.*** 2010 Oct 26;20(20):1787-98.
- Hamilton, R.S.; Parton, R. M **OLIVEIRA, R.A.**; Ball, G.; Vendra, G.; Nasmyth, K.; Davis, I. ParticleStats: open source software for the analysis of intracellular particle motility. ***Nucleic Acid Research*** 2010, Jul 1;38 Suppl:W641-6.
- Pauli A., Althoff F.*, **OLIVEIRA, R.A.***, Heidmann S., Schuldiner O., Lehner C.F., Dickson B.J., Nasmyth K. Cell-Type-Specific TEV Protease Cleavage Reveals Cohesin Functions in *Drosophila* Neurons. ***Developmental Cell.*** 2008 Feb; 14(2):239-51. (*equal contribution)
- **OLIVEIRA, R.A.**; Heidmann, S. and Sunkel, C.E. (2007) "Condensin I binds chromatin early in prophase and displays a highly dynamic association with *Drosophila* mitotic chromosomes." ***Chromosoma*** 2007 Jun;116(3):259-74.
- **OLIVEIRA, R.A.**; Coelho, P.A. and Sunkel, C.E. (2005) "The condensin I subunit Barren/CAP-H is essential for the structural integrity of centromeric heterochromatin during mitosis." ***Molecular and Cellular Biology.*** 2005 Oct; 25(20):8971-84 .

REVIEWS/BOOK CHAPTERS (pre-independent position)

- **OLIVEIRA, R.A.** and Valente, L.P. Cromatina e cromossomas (Capítulo 8) in Biologia Molecular e Celular, (2012) 5th edition, Lidel-Edições Técnicas #Book Chapter (in Portuguese)#
- Nasmyth, K. and **OLIVEIRA, R.A.** Splitting the nucleus: what's wrong with the tripartite ring model? ***Cold Spring Harb Symp Quant Biol.*** 2010;75:375-88. Epub 2011 Jan 5. #Review#
- **OLIVEIRA, R.A.** and Nasmyth, K. Getting through anaphase: splitting the sisters and beyond. ***Biochemical Society Transactions***; 2010 Dec;38(6):1639-44 . #Review#

HONOURS AND AWARDS (as an independent researcher)

2016 Selected as one of the ten national talents by "VIP magazine" (link)
2016 Awarded the "Prémio Dona Antónia Adelaide Ferreira" ("Revelation Award") attributed yearly to a Portuguese women of outstanding professional achievements (Press release)
2016 Featured in a book about Portuguese women in science (http://www.cienciaviva.pt/mulheresnaciencia/)
2014 ERC starting Grant, European Research Council
2013 EMBO Installation Grant, EMBO and FCT (National Research Council), Portugal
2013 Marie Curie Career Integration Grant, FP7, European Commission
2013 FCT Investigator contract, FCT (National Research Council), Portugal

INVITED SPEAKER AT INTERNATIONAL CONFERENCES (as an independent researcher)

2019 EMBO Workshop on DNA Topoisomerases, DNA topology and Human Health, Les Diablerets, Switzerland
2017 EMBO Workshop on DNA Topoisomerases, DNA topology and Human Health, Les Diablerets, Switzerland
2016 Causes and consequences of aneuploidy, Les Treilles, France
2016 Chromosome Segregation and Aneuploidy - Chromo2016, Galway, Ireland
2015 EMBO Workshop on DNA Topoisomerases, DNA topology and Human Health, Les Diablerets, Switzerland

2015 EMBO workshop: Dynamic kinetochore, Copenhagen, Denmark
2015 EMBO Workshop: SMC proteins - Chromosomal organizers from bacteria to human, Vienna, Austria.
2014 Mechanisms and regulatory circuits mediating chromosome segregation in meiosis and mitosis, Les Treilles, France (participation cancelled to attend ERC interview)

INVITED SPEAKER AT NATIONAL CONFERENCES/MEETINGS (as an independent researcher)

2018 Annual Meeting of the Portuguese Society of Genetics
2016 Jornadas Tecnológicas da Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa (JorTec2016)
2015 iMed Conference 7.0 (chairman of the EMBO Keynote Lecture with Sir Tim Hunt)
2014 VIII ENEBIOQ – Round table about Scientific Research in Portugal

SELECTED PARTICIPATIONS AT OTHER INTERNATIONAL CONFERENCES

Selected Oral Presentations: EMBO Workshop: SMC proteins - Chromosomal organizers from bacteria to human, Vienna, Austria (**2019**); EMBO Workshop: Molecular and developmental biology of drosophila Greece (**2018**); *Gordon Research Conference* Chromosome Dynamics: The Cellular, Molecular and Physical Biology of Chromosomes Lucca, Italy (**2017**); Champalimaud Research Symposium, Physiology: from development to disease. Portugal **(2017**); EMBO *Drosophila* Cell Cycle Workshop, Exeter UK (**2013**); Dynamic Kinetochore Workshop 3, Porto, Portugal (**2013**); EMBO Workshop on Chromosome Segregation and Aneuploidy, Edinburgh, UK; 19th European *Drosophila* Research Conference, Eger, Hungary (**2005**);

Poster Presentations: American Society for Cell Biology, San Diego, USA (2015); Jacques Monod Conference: bridging scales in cell division", Roscoff, France (2014), American Society for Cell Biology, New Orleans, USA (2013); Jacques Monod Conference: Cell division: from single molecule mechanics to multicellular organisms, Roscoff, France (2012); 21th European *Drosophila* Research Conference, Lisbon, Portugal (2011); Jacques Monod Conference: Cell division: Time and space, Roscoff, France (2010)

DEGREES AWARDED TO STUDENTS

Doctoral degree:

2019 Mário Soares (IBB 2015)
"Transcription factor-dependent regulation of neural stem cell identity throughout mitosis", Doutoramento em Biologia Molecular, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa (Co-supervisor; main supervisor: Dr. Diogo Castro, IGC)

2019 Cintia Horta Ramos (PGCD 2014)
"Non-canonical roles of condensin complexes", Doutoramento em Biologia Molecular, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa

2018 Mihailo Mirkovic | PhD (IBB 2014)
"Cohesion failure and Mitosis: From Molecular Mechanisms to Organismal Consequences", Doutoramento em Biologia Molecular, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa

2017 Ewa Renata Piskadlo | PhD (PIBS2013)
"Maintenance of metaphase chromosome architecture by condensin I", Doutoramento em Biologia Molecular, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa

Ongoing Catarina Carmo (IBB2017) Title: "Deciphering the minimal histone landscape required for mitotic chromosome arquitecture"

Ongoing Margarida Araújo (IBB2017) Title: "Spindle-independent forces acting on mitotic chromosomes

Master degree:

2014 Mariana Batista Santos | Master Degree
"Cohesion decay: quantitative analysis of partial sister chromatid cohesion", Mestrado em Genética Molecular e Biomedicina, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa

2013 Pedro Manuel Bento Carvalho Almada| Master Degree
"Super-Resolution Imaging of the Structural Maintenance of Chromosome (SMC) complexes Cohesin and Condensin", Mestrado em Biologia Celular e Biotecnologia, Faculdade de CIências, Universidade de Lisboa

TEACHING IN GRADUATE PROGRAMS

2019	EMBO Cell Biology Course, Heidelberg, Germany
2012-2019	Masters programme in "Developmental and Evolutionary Biology", Faculdade de Ciências, Universidade de Lisboa, Faculdade de Ciências, Lisbon, Portugal
2018-2019	Masters programme in "Molecular Genetics and Biomedicine", ITQB, Universidade Nova de Lisboa, Faculdade de Ciências, Lisbon, Portugal
2017	EMBO YIP PhD Course, Heidelberg, Germany
2012-2019	Gulbenkian PhD programme, Oeiras, Portugal (co-organizer of "Inside the Cell" module)
2014-2016	Graduate Program Science for Development (PGDC), Praia, Cape Verde
2012	GABBA Graduate Programme, IBMC, Porto, Portugal

ORGANISATION OF SCIENTIFIC MEETINGS / WORKSHOPS

2019	Co-organizer of EMBO workshop on Chromosome Segregation and Aneuploidy (http://meetings.embo.org/event/19-chromosome-segregation)
2017	Co-organizer of EMBO workshop on DNA topoisomerases and Topology (http://meetings.embo.org/event/17-topoisomerase)
2016&2017	Co-organizer of JEDI meeting (http://jedi2016.hu/ and https://jedi2017.azuleon.org)
2016	Organizer of EMBO Young Scientists Forum (http://events.embo.org/16-eysf/)
2012 & 2015	Organizer of DrosTuga, an annual meeting of Portuguese Researcher using *Drosophila Melanogaster* as model system, Lisbon, Portugal (~60 participants)

HONORARY ACTIVITIES IN ACADEMICS AND SOCIETY

2012-present	External Reviewer for several National and International Grant Agencies: (Vienna Science and Technology Fund (WWTF); Life Sciences Programme (Austria), Vienna International Postdoctoral Program (VIP2) (Austria); BBSRC (UK); KWF Kankerbestrijding (Dutch Cancer Society), (The Netherlands); Graduate Women in Science Fellowships (USA); Fundo iMM-Laço (Portugal).
2013&2014	Panel Member for evaluation of individual PhD/Postdoctoral Fellowships awarded by the Portuguese Research Council (Fundação para a Ciência e Tecnologia), Portugal
2012-present	Reviewer for various journals in the field, including: Nature Cell Biology, Cell Reports, Science Advances, PNAS, EMBO Journal, eLife, Plos Genetics, Molecular Biology of the Cell, Journal of Cell Science and Open Biology
2012-present	Jury of various academic degrees panels (main examiner in 5 PhD (3 national, 2 international) and 2 MSc thesis (national) committees)
2017&2018	Jury in the "Fame-Lab" semi-finals, a science communication national competition
2017	Webinar EU-LIFE/eLife on Research Evaluation (video: https://goo.gl/EZYHHL)
2012-2017	Faculty member at Faculty of 1000 Biology, Cell Growth & Division section (http://f1000biology.com/about/biography/8160652672451987)
2009-2011	President of the General Assembly of the Portuguese Association of Researchers and Students in the United Kingdom (PARSUK) (www.parsuk.pt)
2008-2009	President of the Portuguese Association of Researchers and Students in the United Kingdom (PARSUK) (www.parsuk.pt)
2008	Co-founder of the Portuguese Association of Researchers and Students in the United Kingdom (PARSUK) (www.parsuk.pt) PhD thesis committee for several in-house and external students.
2012-present	Significant media coverage (see summary http://chr.igc.gulbenkian.pt/in-the-news.html)
2012-present	Participation in several Science Communication activities (IGC Open Day, "Café Ciência", "Amigos dos Castelos and Portugueses na Ciência", "Lab escolas").