

BETTENCOURT-DIAS, MÓNICA

Date of birth: 18/4/1973; Married; One Child (8 yrs); Portuguese

Lab URL: <http://sites.igc.gulbenkian.pt/ccr/>



EDUCATION AND TRAINING

- 2002-2004 **Diploma in Science Communication**, Birkbeck College London, UK
Action-research thesis on “Training scientists to communicate”.
- 1996-2001 **PhD in Biochemistry and Molecular Biology**, University College London, UK & Instituto Gulbenkian de Ciência (IGC), Portugal. Advisor: Jeremy Brockes

CURRENT AND PAST POSITIONS

- 2018- **Director of Instituto Gulbenkian de Ciência**, Oeiras, Portugal
- 2006-2018 **Principal Investigator (PI)** Instituto Gulbenkian de Ciência, Oeiras, Portugal
2014- Full Professor (Investigator FCT & Fundação Calouste Gulbenkian),
2012-2014-LA Associate Professor;
2008-2012 *Ciência* Assistant Professor;
2006-2008 FCT Fellowship
- 2002-2006 **Research Associate**, University of Cambridge, UK. Advisor: David Glover

PRIZES AND AWARDS AS PI (since started my research group)

<u>International</u>	<u>Portugal</u>
2015-EMBO membership	
2012-Keith Porter Fellowship (Philadelphia Foundation and American Society for Cell Biology)	2007 & 2012-Pfizer Award for Basic research
2009-EMBO Young Investigator Programme	2007-Seeds of Science Award- Science website
2007-Eppendorf European Young Investigator	2007-Prémio Metro - Elected by the lay public

RESEARCH FUNDING AS PI

<u>International</u>	<u>EUROS</u>
2017-2021 ERC Consolidator Grant - Centriole Birth and Death	2.000.000
2011-2016 ERC Starting Grant FP7-ERC - Control of Centriole Structure and Number	1.500.000
2009-2012 Schlumberger Grant (France) –Centriole Biogenesis	60.000
2007-2012 EMBO Installation Grant (EMBO) - Centriole Biogenesis	250.000
<u>National</u>	
2007 to 2018, 6 FCT (each 3yr) Grants as PI - To Study Cilia and Centriole Biogenesis	1.000.000
2018, 3 FCT (each 3yr) co-PI of my postdocs- To Study Cilia, Centrosomes and Cancer	700.000
2016, <u>Consortium Grant</u> : Cancel Stem- To Study Centrosomes and Cancer	100.000
2010-2013 <u>Consortium Grant (PI)</u> : Harvard Medical School-FCT- J Pereira-Leal (IGC), P Chaves (IPO) and D Pellman (HMS); Centrosome Changes in Tumorigenesis (I was coordinator)	150.000 (for my lab)
2007 Crioestaminal award & Doutor António Xavier Installation Grant	50.000

ORGANISATION OF INTERNATIONAL SCIENTIFIC MEETINGS (selected)

- 2017 CSHL Cilia and Centrosomes Meeting, CSHL China
- 2016 EMBO Young Investigator Forum, Fundação Calouste Gulbenkian (PT)
- 2014 EMBO Centrosome and Spindle Pole Bodies conference, Fundação Calouste Gulbenkian (PT)
- 2014 Bayer Workshop “Centrosome Function: Opportunities for Cancer Treatment”, Berlin, DE
- 2012 EMBO YIP Meeting, Instituto Gulbenkian de Ciência, PT
- 2010 EMBO YIP Polarity meeting, Instituto Gulbenkian de Ciência, PT

SELECTED INVITED PRESENTATIONS (more than 100 since 2006)

CYTOSKELETON AND CELL CYCLE: 2019 Seeing is Believing, 2018 Salk Institute Cell Cycle Meeting, 2018 EMBO Microtubule Conference, 2017 EMBO Centrosome and SPB conference, 2017 Cilia & Mucus Gordon Conference, 2016 EMBO workshop on Nuclear function and Cell Fate, 2008, 2011, 2014, 2017, 2020 EMBO centrosome and SPB conference/workshop;

EVOLUTIONARY-CELL BIOLOGY: 2019, Unity and diversity of ciliary systems in locomotion and transport, the Royal Society at Chicheley Hall, UK, 2015 Janelia Farm Meeting on Evolutionary Cell Biology (Keynote speaker)

CANCER/CILIA DISEASE: 2019, EMBO Workshop: Chromosome segregation and aneuploidy (PT), 2016 Cancer Models (SP), 2016 Cilia, Cytoskeleton and Cancer, UK, 2013 Boehringer Aneuploidy Mtg (DM);

MENTORING AND TRAINING

As a postdoc I supervised 7 graduate technicians, three of which came to work in my laboratory. **As a PI I supervised: 11 PhDs -4** currently in the lab; 7 finished and are: PostDocs (6), work in pharma (1) or teaching (1). 5 of those students are co-supervised with other laboratories to promote multidisciplinary.

13 PostDocs- 7 in lab, 6 left (1 started lab in Mexico, other started lab in Uruguay, 1 in Pharma, 1 in Consultancy, 2 with positions in France). Most self-funded (FCT, EMBO, M Curie, HFSP). **16 MSc or assistants-** most continued for MSc/PhD in PT and abroad (IMM, Curie, EMBL, NIMR, ETH).

I served on several national and European thesis committees

8 MSc and 10 PhD defenses (FCUL, FMUP, FCT, IST, Portugal and ETH, EMBL, U. of Cambridge, IFOM).

TEACHING EXPERIENCE (selected activities)

COURSE CO-ORGANIZATION	FACULTY IN INTERNATIONAL SUMMER COURSES	LECTURES IN COURSES
2008-2019 Annual Cell Biology Week @ Gulbenkian PhD & MD PhD Programs 2010-11 EMBO YIP PhD Student Course at EMBL	2015 -Course of Cellular Evolution @ Santa Barbara Advanced School of Quantitative Biology, USA (1 month) 2013 & 2019 -Physiology: Modern Cell Biology @ MBL, USA (2 weeks) 2013 -FEBS Signalling and Cancer, Spetzes, GR (1 week)	PhD courses: GABBA-Porto (PT), ITQB-Lisbon (PT), HBIGS Summer School (GR), Chromosome Segregation course (CGDB, NL), ETH (CH), EMBO - Current Methods in Cell Biology, EMBL.

PROMOTING SCIENCE IN SOCIETY (selected activities)

I strongly believe in a knowledge-based society; I am very committed to promoting science across audiences and in developing countries. I was an organizer of two associations: Comunicar Ciência & Science4development and I now promote a large initiative with the city council (Oeiras) & MERCK family foundation to disseminate *Science from all for all*.

Outreach activities (examples)

2018- Promoting strong connections between science & society: citizen science & science in schools
 2018-COGITO SHOW (300 lay people)
 2014-CREATIVITY SHOW (800 school students)
 2014-Tedex TALK
 2009-GENE MACHINE THEATRE PLAY
 2010-2011-SPEED-DATING @ music festivals

Developing Countries

2018- A. Coutinho Fellowships
 2017- Lab in a BOX & Lab in a Suitcase
 2014/2017-Cell Biology Week PhD-programme in Cape Verde (CV)
 2013-EMBO summer fellowships for CV students
 2012-EMBO Course On Life Sciences in CV
 2001,2002-Course On Life Sciences in Mozambique,

Training scientists in communication skills (Organizer)

2006-BOOKLET-How to communicate;
 2003-2008; 5 WORKSHOPS to train scientists (Portugal; Spain; Belgium)

COMMISSIONS OF TRUST & INSTITUTIONAL RESPONSIBILITIES (since 2006)

BOARDS:

2014- Part of Maratona da Saude Scientific Council
2012- Editorial Board Journal of Cell Biology;
2010-15 Journal of the American Society for Cell Biology (MBoC);
2009-2016: F1000

POLICY:

2011- Co-head a movement to rethink science in Portugal, called Movimento Ciência Portugal, signed by more than 5000 researchers initially and that has been discussed by the Government and President and led to changes in policy at different times
2015/6-Part of group selected by Minister of Higher Education, Science & Technology to rethink the Portuguese Foundation for Science & Technology
2012- 2015 National Council for Science and Technology headed by the Prime Minister of PT

JURIES:

2017- Chair of Evaluation (HCERES) of CNRS Unit; 2015/2016-2017/2018 European Research Council Panel Member
2013-2016- Prémio Gulbenkian; 2013- 2015- Laço Grant (Cancer)

PUBLICATIONS (24 Selected from 45)

1. Ito D, Zitouni S, Jana SC, Duarte P, Surkont J, Carvalho-Santos Z, Pereira-Leal JB, Ferreira MG, Bettencourt-Dias M. Pericentrin-mediated SAS-6 recruitment promotes centriole assembly. **Elife**. 2019 Jun 11;8.
2. Gouveia SM, Zitouni S, Kong D, Duarte P, Gomes BF, Sousa AL, Tranfield EM, Hyman A, Loncarek J, Bettencourt-Dias M. PLK4 is a microtubule-associated protein that self assembles promoting de novo MTOC formation. **J Cell Sci**. 2018 Nov 9;132(4)
3. Jana SW, Mendonça S, Machado P, Werner S, Rocha J, Pereira A, Maiato H, Bettencourt-Dias M Differential Regulation of Transition Zone and Centriole Proteins Contributes to Ciliary Base Diversity, **Nature Cell Biology**, 2018 Aug;20(8):928-941.
4. Lopes, C.A.M., M. Mesquita, A.I. Cunha, J. Cardoso, S. Carapeta, C. Laranjeira, A.E. Pinto, J.B. Pereira-Leal, A. Dias-Pereira, M. Bettencourt-Dias, and P. Chaves, Centrosome amplification arises before neoplasia and increases upon p53 loss in tumorigenesis. **J Cell Biol**, 2018 Jul 2;217(7):2353-2363.
5. Nabais, C., S.G. Pereira, and M. Bettencourt-Dias, Noncanonical Biogenesis of Centrioles and Basal Bodies. **Cold Spring Harb Symp Quant Biol**, 2017;82:123-135.
6. Marteil, G., A. Guerrero, A.F. Vieira, B.P. de Almeida, P. Machado, S. Mendonca, M. Mesquita, B. Villarreal, I. Fonseca, M.E. Francia, K. Dores, N.P. Martins, S.C. Jana, E.M. Tranfield, N.L. Barbosa-Morais, J. Paredes, D. Pellman, S.A. Godinho, and M. Bettencourt-Dias, Over-elongation of centrioles in cancer promotes centriole amplification and chromosome missegregation. **Nat Commun**, 2018. 9(1): p. 1258.
7. Pimenta-Marques, A., I. Bento, C.A. Lopes, P. Duarte, S.C. Jana, and M. Bettencourt-Dias, A mechanism for the elimination of the female gamete centrosome in *Drosophila melanogaster*. **Science**, 2016. 353(6294): p. aaf4866.
8. Zitouni, S., M.E. Francia, F. Leal, S. Montenegro Gouveia, C. Nabais, P. Duarte, S. Gilberto, D. Brito, T. Moyer, S. Kandels-Lewis, M. Ohta, D. Kitagawa, A.J. Holland, E. Karsenti, T. Lorca, M. Lince-Faria, and M. Bettencourt-Dias, CDK1 Prevents Unscheduled PLK4-STIL Complex Assembly in Centriole Biogenesis. **Curr Biol**, 2016. 26(9): p. 1127-37.
9. Lopes, C.A., S.C. Jana, I. Cunha-Ferreira, S. Zitouni, I. Bento, P. Duarte, S. Gilberto, F. Freixo, A. Guerrero, M. Francia, M. Lince-Faria, J. Carneiro, and M. Bettencourt-Dias, PLK4 trans-Autoactivation Controls Centriole Biogenesis in Space. **Dev Cell**, 2015. 35(2): p. 222-35.
10. Zitouni, S., C. Nabais, S.C. Jana, A. Guerrero, and M. Bettencourt-Dias, Polo-like kinases: structural variations lead to multiple functions. **Nat Rev Mol Cell Biol**, 2014. 15(7): p. 433- 52.
11. Jana, S.C., G. Marteil, and M. Bettencourt-Dias, Mapping molecules to structure: unveiling secrets of centriole and cilia assembly with near-atomic resolution. **Curr Opin Cell Biol**, 2014. 26: p. 96-106.
12. Cunha-Ferreira, I., I. Bento, A. Pimenta-Marques, S.C. Jana, M. Lince-Faria, P. Duarte, J. Borrego-Pinto, S. Gilberto, T. Amado, D. Brito, A. Rodrigues-Martins, J. Debski, N. Dzhindzhev, and M. Bettencourt-Dias, Regulation of autophosphorylation controls PLK4 selfdestruction and centriole number. **Curr Biol**, 2013. 23(22): p. 2245-54.
13. Carvalho-Santos, Z., P. Machado, I. Alvarez-Martins, S.M. Gouveia, S.C. Jana, P. Duarte, T. Amado, P. Branco, M.C. Freitas, S.T. Silva, C. Antony, T.M. Bandeiras, and M. Bettencourt-Dias, BLD10/CEP135 is a microtubule-associated protein that controls the formation of the flagellum central microtubule pair. **Dev Cell**, 2012. 23(2): p. 412-24.
14. Jana, S.C., P. Machado, and M. Bettencourt-Dias, A structural road map to unveil basal body composition and assembly. **EMBO J**, 2012. 31(3): p. 519-21.
15. Carvalho-Santos, Z., J. Azimzadeh, J.B. Pereira-Leal, and M. Bettencourt-Dias, Evolution: Tracing the origins of centrioles, cilia, and flagella. **J Cell Biol**, 2011. 194(2): p. 165-75.

16. Dzhinzhev, N.S., Q.D. Yu, K. Weiskopf, G. Tzolovsky, I. Cunha-Ferreira, M. Riparbelli, A. Rodrigues-Martins, M. Bettencourt-Dias, G. Callaini, and D.M. Glover, Asterless is a scaffold for the onset of centriole assembly. **Nature**, 2010. 467(7316): p. 714-8.
17. Carvalho-Santos, Z., P. Machado, P. Branco, F. Tavares-Cadete, A. Rodrigues-Martins, J.B. Pereira-Leal, and M. Bettencourt-Dias, Stepwise evolution of the centriole-assembly pathway. **J Cell Sci**, 2010. 123(Pt 9): p. 1414-26.
18. Cunha-Ferreira, I., A. Rodrigues-Martins, I. Bento, M. Riparbelli, W. Zhang, E. Laue, G. Callaini, D.M. Glover, and M. Bettencourt-Dias, The SCF/Slimb ubiquitin ligase limits centrosome amplification through degradation of SAK/PLK4. **Curr Biol**, 2009. 19(1): p. 43-9.
19. Rodrigues-Martins, A., M. Bettencourt-Dias, M. Riparbelli, C. Ferreira, I. Ferreira, G. Callaini, and D.M. Glover, DSAS-6 organizes a tube-like centriole precursor, and its absence suggests modularity in centriole assembly. **Curr Biol**, 2007. 17(17): p. 1465-72.
20. Bettencourt-Dias, M. and D.M. Glover, Centrosome biogenesis and function: centrosomics brings new understanding. **Nat Rev Mol Cell Biol**, 2007. 8(6): p. 451-63.
21. Rodrigues-Martins, A., M. Riparbelli, G. Callaini, D.M. Glover, and M. Bettencourt-Dias, Revisiting the role of the mother centriole in centriole biogenesis. **Science**, 2007. 316(5827): p. 1046-50.
22. Bettencourt-Dias, M., A. Rodrigues-Martins, L. Carpenter, M. Riparbelli, L. Lehmann, M.K. Gatt, N. Carmo, F. Balloux, G. Callaini, and D.M. Glover, SAK/PLK4 is required for centriole duplication and flagella development. **Curr Biol**, 2005. 15(24): p. 2199-207.
23. Bettencourt-Dias, M., R. Giet, R. Sinka, A. Mazumdar, W.G. Lock, F. Balloux, P.J. Zafiroopoulos, S. Yamaguchi, S. Winter, R.W. Carthew, M. Cooper, D. Jones, L. Frenz, and D.M. Glover, Genome-wide survey of protein kinases required for cell cycle progression. **Nature**, 2004. 432(7020): p. 980-7.
24. Bettencourt-Dias, M., S. Mitnacht, and J.P. Brookes, Heterogeneous proliferative potential in regenerative adult newt cardiomyocytes. **J Cell Sci**, 2003. 116(Pt 19): p. 4001-9