

CURRICULUM VITAE

Miguel Gama

Porto, February 2017



*Francisco Miguel Portela da Gama, Lamego, Portugal 11/04/1963
Civil status: married, two daughters*

Contact Information

*Minho University / Center of Biological Engineering – Institute for Biotechnology and Bioengineering
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Education

*Biochemistry – Porto University 1986
MSc Biochemical Engineering – Lisbon Technical University 1991
PhD Biological Engineering, Minho University 1996
Habilitation, Biocompatibility, Minho University 2012*

Professional positions

*Associate Professor with Habilitation, Minho University, 2012- present
Visiting Professor, Tehran University of Medical Sciences, 2017-present
Associate Professor, Minho University, 2003
Assistant Professor, Minho University, 1996-2003
Researcher at the Department of Wood Science, University of British Columbia, Canada, under the supervision of Jack Saddler, July-December 1995
Teaching assistant, Minho University, 1992-1996*

Current research interests

Bacterial nanocellulose: production, characterization, applications in food technology and in the biomedical field. Development of self-assembled nanogels made of polysaccharides. The production and characterization of the biomaterials, the development of drug delivery systems for antimicrobial peptides and low molecular weight hydrophobic drugs, a comprehensive characterization of biocompatibility, including cytotoxicity, intracellular trafficking, biodistribution, are among the ongoing projects in this field.

Management of scientific and pedagogic bodies

*Vice-Director of the Centre of Biological Engineering (<http://www.ceb.uminho.pt/>) (2016-ongoing)
Director of the Biomedical Engineering Integrated Master of Minho University (MIEBIOM) (2006-2008; 2012-2014);*

Coordinator of the Clinical Engineering branch of the MIEBIOM (2006-2012)

Other international activities

Associate Editor of BiolImpacts, <http://bi.tbzmed.ac.ir/>

Invited scientist, Programa CAPES Ciência sem Fronteiras, UFRN, Brasil, 2013-2015 (one month yearly)

National delegate on the COST actions: Cost E20 Wood Fibre Cell Wall Structure; Cost E23 Biotechnology in the Pulp and Paper Industry; COST FP0602, Biotechnology for lignocellulose biorefineries, BIOBIO; TD 1003, Bio-inspired nanotechnologies: from concepts to applications

Regular reviewer (currently around 20 papers yearly) of International Journal of Biological Macromolecules; Biotechnology Progress; Enzyme and Microbial Technology, Biomacromolecules, Journal of Biological Chemistry, Acta Biomaterialia, Carbohydrate Polymers, etc

Organizer of scientific events

Main organizer of the 1st Symposium on Bacterial Nanocellulose, American Chemical Society Meeting, New Orleans, April, 2013 (with Paul Gatenholm);

Main organizer of the 2nd Symposium on Bacterial Nanocellulose, Gdansk, September, 2015 (with Stan Bielecki)

Teaching, main courses

Integrated Master on Biological Engineering at the Minho University: Enzyme Engineering; Physical-Chemistry

Integrated Master on Biomedical Engineering at the Minho University: Biocompatibility; Drug Delivery Systems

Projects, completed and ongoing

Coordinator of 12 projects corresponding to around 2M€, including EuroNanoMed, FP6 and FPT projects.

Experience as advisor

PhD – 15 completed, main supervisor (5 ongoing; 3 more as co-supervisor)

Patents and entrepreneurship skills

Molinos, M. and Gama, M. "Dextrin hydrogel for biomedical applications", PCT WO2011070529, granted in Portugal and Europe, pending in USA

Founder of two companies: SATISFIBRE and BCTechnologies (Minho University spinoff), operating from August 2013, dedicated to the development of bacterial cellulose based technologies

Publication and impact

- h factor 33 (around 3300 citations – Google academic: <http://scholar.google.pt/citations?hl=pt-PT&user=hewKdYoAAAAJ&cstart=0&pagesize=20>)

Book edition

Gama, F.M., Aires-Barros, M.R., Cabral, J. (Eds), Engenharia Enzimática, Lidel Edições Técnicas, Lisboa, 2003 (in Portuguese)

Gama, F.M., Klemm, D. and Gatenholm, P. (Eds) Bacterial NanoCellulose: a sophisticated multifunctional material, CRC/Taylor and Francis, 2012 (ISBN 9781439869918)

Gama, F.M. Nader, H, and Rocha, H. (Eds) *Sulfated polysaccharides*, Nova Science Publishers, 2015 / ISBN: 978-1-63483-002-7)

Gama, F.M., Dourado, F. and Bielecki, S. (Eds) *Bacterial NanoCellulose: from biotechnology to bioeconomy*, Elsevier, in press

Publications in international journals with revision:

For a complete list please consult:

[Orcid.org/0000-0002-5655-0015](https://orcid.org/0000-0002-5655-0015)

[ResearcherID: I-3140-2015](https://pubs.scopopus.com/authid/detail/authid?urn=I-3140-2015)

[Scopus Author ID: 6603903471](https://scopus.com/authid/detail/authid?urn=6603903471)

Publications in the last 5 years

- 1 Vasconcelos, Niédja Fittipaldi; Feitosa, Judith Pessoa Andrade; Gama, F. Miguel; Morais, João Paulo Saraiva; Andrade, Fábila Karine; Filho, Men de Sá Moreira de Souza; Rosa, Morsyleide de Freitas Bacterial cellulose nanocrystals produced under different hydrolysis conditions: properties and morphological features *Carbohydrate Polymers*, 155, 425-431, 2017
- 2 Costa, V.L.D.; Costa, A.P.; Amaral, M.E.; Oliveira, Carla; Gama, F. Miguel; Dourado, Fernando; Simões, R.M. Effect of hot calendering on physical properties and water vapor transfer resistance of bacterial cellulose films *Journal of Materials Science*, 51(21), 9562-9572, 2016
- 3 Silva, João Pedro; Appelberg, Rui; Gama, F. Miguel Antimicrobial peptides as novel anti-tuberculosis therapeutics *Biotechnology Advances*, 34(5), 924-940, 2016
- 4 Gomes, Daniel G.; Domingues, Lucília; Gama, F. Miguel Valorizing recycled paper sludge by a bioethanol production process with cellulase recycling *Bioresource Technology*, 216, 637-644, 2016
- 5 Correia, D.M.; Sencadas, V.; Ribeiro, Clarisse; Martins, Pedro M.; Martins, P.; Gama, Miguel; Botelho, G.; Lanceros-Méndez, S. Processing and size range separation of pristine and magnetic poly(L-lactic acid) based microspheres for biomedical applications *Journal of Colloid and Interface Science*, 476, 79-86, 2016
- 6 Silva, João Pedro; Gonçalves, Carine; Costa, César; Sousa, Jeremy; Silva-Gomes, Rita; Castro, António G.; Pedrosa, Jorge; Appelberg, Rui; Gama, F. Miguel Delivery of LLKKK18 loaded into self-assembling hyaluronic acid nanogel for tuberculosis treatment *Journal of Controlled Release*, 235, 112-124, 2016
- 7 Gama, F. Miguel; Dourado, Fernando; Bielecki, Stanislaw *Bacterial Nanocellulose: From Biotechnology to Bio-Economy* Elsevier, 2016. ISBN: 9780444634580
- 8 Gomes, Daniel G.; Domingues, Lucília; Gama, F. Miguel Implementation of a cellulase recycling system to the hydrolysis of recycled paper sludge *BIOIBEROAMÉRICA 2016 - Book of Abstracts*. Salamanca, Spain, June 5-8, 79-79, 2016
- 9 Ribeiro, Clarisse; Correia, V.; Martins, Pedro; Gama, Miguel; Lanceros-Mendez, S. Proving the suitability of magnetoelectric stimuli for tissue engineering applications *Colloids and Surfaces B: Biointerfaces*, 140, 430-436, 2016
- 10 Pereira, Paula; Correia, Alexandra; Gama, Miguel In vivo imaging of glycol chitosan-based nanogel biodistribution *Macromolecular Bioscience*, 16(3), 432-440, 2016
- 11 Gonçalves, Sara; Rodrigues, I.P.; Padrão, Jorge; Silva, João Pedro; Sencadas, V.; Lanceros-Mendez, S.; Girão, H.; Gama, Miguel; Dourado, Fernando; Rodrigues, Lígia R. Acetylated bacterial cellulose coated with urinary bladder matrix as a substrate for retinal pigment epithelium *Colloids and Surfaces B: Biointerfaces*, 139, 1-9, 2016
- 12 Panadero, J.A.; Sencadas, V.; Silva, Sónia C.; Ribeiro, C.; Correia, V.; Gama, Miguel; Ribelles, J.M.G.; Lanceros-Mendez, Senentxu Mechanical fatigue performance of PCL-chondroprogenitor constructs after cell culture under bioreactor mechanical stimulus *Journal of Biomedical Materials*

- Research - Part B: Applied Biomaterials, 104(2), 330-338, 2016
- Leitão, Alexandre; Faria, Miguel A.; Faustino, Augusto M. R.; Moreira, Ricardo; Mela, Petra;
13 Loureiro, Luís; Silva, Ivone; Gama, Miguel A novel small-caliber bacterial cellulose vascular
prosthesis: production, characterization, and preliminary in vivo testing *Macromolecular
Bioscience*, 16(16), 139-150, 2016
- Gonçalves, Catarina; Moreira, Susana M.; Carvalho, Vera; Silva, Dina M.; Gama, Miguel
14 Dextrin In Munmaya Mishra. *Encyclopedia of Biomedical Polymers and Polymeric Biomaterials*,
New York: Taylor & Francis, 2016. ISBN: 1439898553, 2634-2649
- Leitão, Alexandre F.; Silva, Ivone; Faria, Miguel; Gama, Miguel Vascular grafts: Polymeric
15 materials In Munmaya Mishra. *Encyclopedia of Biomedical Polymers and Polymeric Biomaterials*,
New York: Taylor & Francis, 2016. ISBN: 1439898553, 8144-8164
- Gomes, Daniel G.; Domingues, Lucília; Gama, Miguel Valorisation of recycled paper sludge from
16 a biorefinery perspective ECO-BIO 2016. Rotterdam, The Netherlands, 6-9 March, 2016
- Dourado, Fernando; Fontão, Ana; Leal, Marta; Rodrigues, Ana Cristina; Gama, F. Miguel Chapter
12 - Process Modeling and Techno-Economic Evaluation of an Industrial Bacterial NanoCellulose
17 Fermentation Process In Miguel Gama, Fernando Dourado, Stanislaw Bielecki. *Bacterial
Nanocellulose: From Biotechnology to Bio-Economy*, Elsevier, 2016. ISBN: 978-0-444-63458-0,
199-214
- Dourado, Fernando; Leal, Marta; Martins, Daniela; Fontão, Ana; Rodrigues, Ana Cristina; Gama,
18 F. Miguel Chapter 7 - Celluloses as Food Ingredients/Additives: Is There a Room for BNC? In
Miguel Gama, Fernando Dourado, Stanislaw Bielecki. *Bacterial Nanocellulose: From
Biotechnology to Bio-Economy*, Elsevier, 2016. ISBN: 978-0-444-63458-0, 123-133
- Pedrosa, Sílvia S.; Pereira, Paula; Correia, Alexandre; Moreira, Susana; Rocha, Hugo; Gama,
19 Francisco Miguel Biocompatibility of a self-assembled crosslinkable hyaluronic acid nanogel
Macromolecular Bioscience, (In Press), 2016
- Dourado, Fernando; Gama, Miguel A spin-offs journey into achieving marketable products from
20 bacterial cellulose *MicroBiotec'15 - Congress of Microbiology and Biotechnology 2015*. Évora,
Portugal, Dec 10-12, 79-79, 2015
- Gama, Miguel; Silva, João Pedro; Martins-Green, Manuela; Castro, Gil; Pedrosa, Jorge; Appelberg,
21 Rui Biomedical applications of human cathelicidin *MicroBiotec'15 - Congress of Microbiology and
Biotechnology 2015*. Évora, Portugal, Dec 10-12, 63-63, 2015
- Haven, Mai Østergaard; Lindedam, Jane; Jeppesen, Martin Dan; Elleskov, Michael; Rodrigues,
22 Ana Cristina; Gama, Miguel; Jørgensen, Henning; Felby, Claus Continuous recycling of enzymes
during production of lignocellulosic bioethanol in demonstration scale *Applied Energy*, 159, 188-
195, 2015
- Gama, Miguel; Silva, João Pedro Improved burn wound healing using a bioactive peptide BEC2015
23- 7th International Bioengineering Congress. Izmir, Turkey, Nov. 19-21, 36-36, 2015. ISBN: 978-
605-66028-0-1
- Rodrigues, Ana Cristina; Haven, Mai Østergaard; Lindedam, Jane; Felby, Claus; Gama, F. Miguel
24 *Celluclast and Cellic® CTec2: Saccharification / fermentation of wheat straw, solid-liquid partition
and potential of enzyme recycling by alkaline washing* *Enzyme and Microbial Technology*, 79-80,
70-77, 2015
- Silva, J.P.; Dhall, S.; Garcia, M; Costa, César; Chan, A.; Gama, Miguel; Martins-Green, M.
25 Improved burn wound healing by the antimicrobial peptide LLKKK18 released from conjugates
with dextrin embedded in a Carbopol gel *Acta Biomaterialia*, 26, 249-262, 2015
- Oliveira, Carla; Sepúlveda, Goreti; Aguiar, Tatiana Q.; Gama, F. Miguel; Domingues, L.
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thermocellum* CipA scaffolding protein produced in *Pichia pastoris*: elucidation of the glycosylation
effect *Cellulose*, 22(4), 2755-2765, 2015
- Ribeiro, Clarisse; Sencadas, Vitor; Areias, Anabela C.; Gama, F.M.; Lanceros-Méndez, Senentxu
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- electrospun membranes *Journal of Biomedical Materials Research - Part A*, 103(7), 2260-2268, 2015
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28 Patterson, D.A.; Lanceros-Méndez, S. Poly(vinylidene fluoride) and copolymers as porous
membranes for tissue engineering applications *Polymer Testing*, 44, 234-241, 2015
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29 generation bioethanol production from waste paper residues *Copenhagen Biosciences Conferences -
7th Conference: Cell Factories and Biosustainability - Abstract Book*. Copenhagen, Denmark, May
5-8, 5-5, 2015
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30 biorefineries—is it possible? *Applied Microbiology and Biotechnology*, 99(10), 4131-4143, 2015
- Oliveira, Carla; Carvalho, Vera; Domingues, L.; Gama, F.M. Recombinant CBM-fusion technology
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- Oliveira, Carla; Sepúlveda, Goreti; Aguiar, Tatiana Q.; Gama, F.M.; Domingues, L. Elucidating the
32 impact of N-glycosylation on the ability of recombinant CBM3 from *Clostridium thermocellum* to
modify pulp and paper properties CBM11 - 11th Carbohydrate Bioengineering Meeting. No. P2,
Espoo, Finland, May 10-13, 78, 2015
- Oliveira, Carla; Sepúlveda, Goreti; Gama, F.M.; Domingues, L. Improving paper properties using
33 *Clostridium thermocellum* CBM3 glycosylated by *Pichia pastoris* RPP8 – 8th Conference on
Recombinant Protein Production. Palma, Mallorca, Spain, April 22-24, 172-172, 2015
- Pereira, Paula; Pedrosa, S.S.; Correia, Alexandra; Lima, Cristovão F.; Olmedo, Mercedes P.;
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35 Carvalho; Seckler, Marcelo Martins; Gama, F.M.; Pessoa, Adalberto, Jr. Bacterial cellulose
production by *Gluconacetobacter xylinus* by employing alternative culture media *Applied
Microbiology and Biotechnology*, 99(3), 1181-1190, 2015
- Gonçalves, Catarina; Silva, J.P.; Antunes, I.F.; Ferreira, M.F.M.; Martins, J.A.; Geraldes, C.F.G.C.;
36 Lalatonne, Y.; Motte, L.; Vries, E. De; Gama, F.M. Dextrin-Based Nanomagnetogel: In Vivo
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- Pereira, Paula; Pedrosa, S.S.; Wymant, Jennifer; Sayers, Edward; Correia, Alexandra; Vilanova,
37 M.; Jones, Arwin; Gama, F.M. siRNA inhibition of endocytic pathways to characterize the cellular
uptake mechanisms of folate functionalized glycol chitosan nanogels *Molecular Pharmaceutics*,
12(6), 1970-1979, 2015
- Gama, Miguel; Nader, Helena Bonciani; Rocha, Hugo Alexandre de Oliveira Sulfated
38 Polysaccharides Nova Publishers, 2015. ISBN: 978-1-63483-002-7
- Carvalho, Vera; Gama, Miguel Sulfated polysaccharides and nanotechnology In Miguel Gama,
39 Helena Bonciani Nader, Hugo Alexandre de Oliveira Rocha (eds.). Sulfated Polysaccharides, Nova
Publishers, 2015. ISBN: 978-1-63483-002-7, 265-308
- Silva, Dina M.; Gama, Miguel Potential of injectable dextrin-based hydrogel for biomedical
40 Applications IPFB2014 - 8th International Conference on Polymer and Fiber Biotechnology. Braga,
Portugal, May 25-27, 2014
- Gama, F.M. Biomass saccharification: development of strategies for enzyme recycling IPFB2014 -
41 8th International Conference on Polymer and Fiber Biotechnology. Braga, Portugal, May 25-27,
2014
- Ribeiro, Clarisse; Sencadas, Vítor; Areias, Anabela; Gama, F.M.; Lanceros-Mendez, Senentxu Cell
42 adhesion and proliferation of skeletal muscle cells on piezoelectric poly(vinylidene fluoride)
membranes IPFB2014 - 8th International Conference on Polymer and Fiber Biotechnology. Braga,
Portugal, May 25-27, 2014
- Silva, Dina M.; Morgado, Daniella L.; Delair, T.; David, L.; Rouif, S.; López-Lacomba, J.L.;
43 Maurício, A.C.; Santos, J.D.; Gama, F. Miguel Development and characterization of an injectable

- dextrin-based hydrogel for bone regeneration NanoPortugal 2014 - Nanoscience and Nanotechnology International Conference. Porto, Portugal, 12-14 February, 2014
- Gonçalves, C.; Antunes, I.F.; Lalatonne, Y.; Ferreira, M.F.M.; Geraldès, C.F.G.C.; Motte, L.; Martins, J.A.; de Vries, E.F.J.; Gama, F. Miguel New dextrin nanomagnetogels: production, 44characterization and in vivo performance as dual modality imaging bioprobe NanoPortugal 2014 - Nanoscience and Nanotechnology International Conference. Porto, Portugal, 12-14 February, 41-42, 2014
- Silva, Dina M.; Morgado, Daniella L.; Delair, Thierry; David, Laurent; Rouif, Sophie; López-Lacomba, José Luis; Santos, Marta; Maurício, Ana Colette; Gama, Miguel; Santos, José Domingos 45Development of a dextrin-based hydrogel for bone regeneration EuroNanoMed 2. Düsseldorf, Germany, Jan 28-31, 29-29, 2014
- Silva, J.P.; Costa, César; Sousa, Jeremy; Castro, A.G.; Pedrosa, J.; Appelberg, R.; Gama, F.M. 46Delivery of antimicrobial peptides for the treatment of mycobacteriosis New Frontiers for Sustainable Prosperity - 4th MIT Portugal Program Conference. Coimbra, Portugal, June 27, 2014
- Santos, J.C.; Silva-Gomes, S.; Silva, J.P.; Gama, F.M.; Rosa, G.; Gallo, R.L.; Appelberg, R. 47Endogenous cathelicidin production limits inflammation and protective immunity to Mycobacterium avium in mice Immunity, Inflammation and Disease, 2(1), 1-12, 2014
- Rodrigues, Ana Cristina; Felby, Claus; Gama, F.M. Cellulase stability, adsorption/desorption 48profiles and recycling during successive cycles of hydrolysis and fermentation of wheat straw Bioresource Technology, 156, 163-169, 2014
- Silva, Dina M.; Nunes, Cláudia; Pereira, Isabel; Moreira, Ana S.P.; Domingues, Maria Rosário M.; Coimbra, Manuel A.; Gama, F.M. Structural analysis of dextrans and characterization of dextrin-based biomedical hydrogels Carbohydrate Polymers, 114, 458-466, 2014
- Pedrosa, S.S.; Gonçalves, Catarina; David, Laurent; Gama, F.M. A novel crosslinked hyaluronic acid nanogel for drug delivery Macromolecular Bioscience, 14(11), 1556-1568, 2014 50
- Oliveira, C.M.; Sepúlveda, Goreti; Costa, S.J.; Gama, F.M.; Domingues, L. Cloning and expression 51of Clostridium thermocellum CBM3 in Pichia pastoris MICROBIOTEC '13 - Portuguese Congress of Microbiology and Biotechnology. No. P254, Aveiro, Portugal, 6-8 Dec., 328-328, 2013
- Leitão, A.; Gupta, S.; Silva, J.P.; Reviakine, I.; Gama, F.M. Hemocompatibility study of a bacterial 52cellulose/polyvinyl alcohol nanocomposite Colloids and Surfaces B: Biointerfaces, 111, 493-502, 2013
- Silva, Ivone; Loureiro, Luís; Araújo, Anabela; Leitão, Alexandre; Faria, Miguel; Gama, Miguel 53Biocelulose grafts: the future in artificial vascular grafts? preliminar results ESVS Spring Meeting Vascular Biology, Materials and Engineering. Frankfurt, Germany, May 24-25, 2013
- Dourado, F.; Gama, F.M. Nata organisms: An overview on the fermentative microbial ecosystem 54Abstracts of Papers of the American Chemical Society. Vol. 245(11-CELL), 2013
- Pinto, Artur Moreira; Moreira, S.M.G.; Gonçalves, Inês; Gama, F.M.; Mendes, Adélio M.; 55Magalhães, Fernão D. Biocompatibility of poly(lactic acid) with incorporated graphene-based materials Colloids and Surfaces B: Biointerfaces, 10, 229-238, 2013
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Gama, F.M.; Gatenholm, Paul; Klemm, Dieter *Bacterial NanoCellulose: A Sophisticated
67 Multifunctional Material* Boca Raton: CRC Press, 2012. ISBN: 978-1-4398-6991-8

Lopes, J.L.; Machado, J.M.; Castanheira, L.; Granja, P.L.; Gama, F.M.; Dourado, F.; Gomes, J.R.
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Molinos, Maria; Carvalho, Vera; Silva, Dina; Gama, F.M. Development of a hybrid dextrin
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Rodrigues, Ana; Leitão, A.; Moreira, Susana; Felby, Claus; Gama, F.M. Recycling of cellulases in
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- 82 Dantas-Santos, Nednaldo; Almeida-Lima, Jailma; Vidal, Arthur; Oliveira, Ruth; Pedrosa, Sílvia; Pereira, Paula; Gama, F.M.; Rocha, Hugo Antiproliferative activity of fucan nanogel *Marine Drugs*, 10(9), 2002-2022, 2012
- 83 Ribeiro, Clarisse; Moreira, S.; Correia, V.; Sencadas, V.; Rocha, J.G.; Gama, F.M.; Gómez Ribelles, J.L.; Lanceros-Méndez, S. Enhanced proliferation of pre-osteoblastic cells by dynamic piezoelectric stimulation *RSC Advances*, 2(30), 11504-11509, 2012