

LUCAS PEREIRA LOPES DE SOUZA

223 Skyline, 164 Granville Street, B1 1JY, Birmingham - UK

Phone: +44 07704651327 Email: souzal@aston.ac.uk

ORCID: <https://orcid.org/0000-0002-0188-5168>



Long term objective: To become a professor at Aston University merging teaching with research on the development of novel biomaterials to treat bone disorders

EXTENDED CURRICULUM VITAE

Proactive and creative researcher

Experienced in working independently

Ability to meet deadlines and accurate recording and analysis

Teaching experience with students in the fields of Human Anatomy and English Language

Experienced in oral presentations of academic works in international conferences

Ability to communicate and cooperate with other members of either research or teaching groups

Experienced in writing scientific papers

EDUCATION

2020 – 2021 Aston University, Birmingham – United Kingdom

Postgraduate Certificate in Learning & Teaching in Higher Education (PGCert)

A 60-credits, level 7 award delivered by the Centre for Learning Innovation and Professional Practice (CLIPP). PGCert provides an opportunity for university teaching staff to engage with the United Kingdom Professional Standards Framework (UKPSF). The UKPSF is a comprehensive, nationally recognised, set of professional standards and guidelines for those involved in higher education (HE).

2019 – 2020 Aston University, Birmingham – United Kingdom

Introduction to Learning and Teaching Practice in Higher Education (ILTP)

A level 6 20-credit work-based learning programme on how to use the UKPSF to develop and evidence authentic teaching practice (**Associate Fellow of the HEA**)

2014 – 2018 University of Campinas, Campinas – SP, Brazil

PhD in Cellular and Structural Biology in the field of Human Anatomy

Project Title: *Therapeutic potential of niobium- or gallium-doped bioactive glasses for treatment of bone disorders: an in vitro and in vivo experimental study*

The São Paulo Research Foundation (FAPESP) has funded this project paying **145,907.70 BRL** for consumables, equipment, training and dissemination.

Coordination for the Improvement of Higher Education Personnel (CAPES) and National Council for Scientific and Technological Development (CNPq) also funded it paying **92,880.00 BRL** corresponding to 36 months of scholarship.

Coordination for the Improvement of Higher Education Personnel (CAPES) has funded my placement at Aston University, Birmingham- UK in 2015 paying **18,000.00 GBP** in scholarship.

Supervisor: Dr. José Angelo Camilli (Full Doctorate) and Richard Martin (International Placement at Aston University)

2012 – 2014 University of Campinas, Campinas – SP, Brazil

MSc in Cellular and Structural Biology in the field of Human Anatomy

Dissertation Title: *Bioactivity of Niobium-doped glasses: experimental in vivo study*

Brazilian Coordination for the Improvement of Higher Education Personnel (CAPES) has funded it paying **36,000.00 BRL** corresponding to 24 months of scholarship

The São Paulo Research Foundation (FAPESP) has funded this project paying **37,847. 57 BRL** for consumables, equipment, training and dissemination.

Supervisor: Dr. José Angelo Camilli

2007 – 2011

University of Pernambuco

Bachelor degree in Physical Therapy

Graduation Thesis Title: *Influence of high-heeled shoes on the quadriceps electromyographic activity in women with and without patellofemoral pain syndrome*

Supervisor: Dr. Rodrigo Cappato de Araújo

PROFESSIONAL EXPERIENCE

2019 – 2021 Marie Sklodowska Curie Fellow in the school of Engineering and Applied Science (EAS) at Aston University in Birmingham – UK. Full time employment working on the project entitled: Developing multifunctional photo thermal Biomaterials for bone cancer tumour therapy.

TEACHING EXPERIENCE

- Over 460 hours of certified teaching on Human Anatomy for Physical Education and Medicine students in the position of assistant lecturer (placement during the six years of masters and PhD)
- My experience is consisted of:
 - assisting the lecturer in planning and preparing classes;
 - giving lectures on musculoskeletal, systemic, neurological, and topographic anatomy;
 - elaborating and correcting assignments and exams;
 - giving teaching support to manage large groups of students (more than 100 students per class) during practical lessons and exams;
 - organizing and supervising practical lessons and exams in the laboratory of human anatomy;
 - dissecting cadaveric specimens for practical lessons;
 - group study assistance answering questions and guiding the students throughout the learning process

RESEARCH INTERESTS

During my graduation, I worked for 3 years together with Prof. Rodrigo Cappato de Araújo in projects that aimed to comprehend the biomechanical disturbances present in musculoskeletal disorders such as Delayed Onset Muscle Soreness, Femoropatellar disfunction, and Shoulder Impingement. In all this projects, we worked with patients and carried out many different kinds of assessments from questionnaires to surface electromyography. I finished my bachelor in physiotherapy in December 2011 and started my masters in July 2012. During the 2 years of my masters and 4 years of my Ph.D I studied the effects of different compositions of bioactive glasses on bone regeneration and bone cancer together with Prof. José Angelo Camilli and Prof. Richard Alan Martin (during my placement in Aston University). During the development of this work I have learnt how to develop and characterize glasses and conduct *in vivo* experiments that required expertise in experimental surgery, behavioural analysis, toxicological analysis, computed microtomography (uCT), histomorphometry, immunohistochemistry, ELISA, Flow Cytometry, Fluorescence microscopy among others. In addition, as we studied the effects of bioactive glasses on osteoblasts, osteosarcoma cells, and pluripotent cells such as Human Embryonic Stem Cells and Bone-marrow-derived mesenchymal stem cells I have learnt how to cultivate cells, and how to analyse cellular parameters that can be influenced by bioactive glasses such as cell proliferation rate, cell viability, osteogenic differentiation, and matrix production/mineralization by means of a variety of techniques. Therefore, the study of all biological implications of biomaterials over bone tissue is the research area that I have most interest in.

SKILLS IT

- Confident in use of various softwares related to scientific research and teaching: Microsoft Word, Excel, PowerPoint, GraphPad Prism, SPSS, Image J, Photoshop, Mendeley Desktop, Endnote, Zotero, ctVol, ctVox, Data Viewer, FlowJo, LAS X.

Communications

- Worked closely with research colleagues, department staff and external contacts
- Experienced in working with graduate students
- Gave lectures to both academic and non-academic audiences

CONFERENCES ATTENDED

- 2019 Annual bioProcessUK Conference. Liverpool, United Kingdom **(I participated in the poster competition)**
- 2019 Materials science and smart materials conference (MSSM). Aston University, Birmingham, United Kingdom. **(20 minutes oral presentation and chairman of one session)**
- 2018 Glass and the meeting of minds. Murray Edwards College Cambridge, Cambridge, United Kingdom. **(20 minutes oral presentation and chairman of session 3)**
- 2016 Centenary Conference of the Society of Glass Technology (SGT), Sheffield, United Kingdom. **(20 minutes oral presentation)**
- 2014 XXVI Brazilian Conference of Anatomy, Curitiba-PA, Brazil. **(Poster)**
- 2010 5th International Conference of Physiotherapy, Fortaleza-CE, Brazil. **(Poster)**
- 2009 XVIII National Conference of Physiotherapy, Rio de Janeiro-RJ, Brazil. **(Poster)**
- 2008 1st Scientific-Academic journey of Physiotherapy, Petrolina-PE, Brazil **(Poster)**

FUNDINGS –

2019 – **72,522 GBP** in salary and funds for the project: *Developing multifunctional photo thermal Biomaterials for bone cancer tumour therapy* from Marie Sklodowska Curie through the Multiply programme.

2016 – **145,907.70 BRL** for the project: *Tissue response in critical size calvarial defect treated with Nb2O5-doped bioactive glass: In vitro and In vivo study* from São Paulo Research Foundation – FAPESP.

2015-2016 – **18,000.00 GBP** in scholarship for my placement at Aston University, Birmingham-UK from Coordination for the Improvement of Higher Education Personnel (CAPES)

2014 - **92,880.00 BRL** in scholarship for my doctorate from Coordination for the Improvement of Higher Education Personnel (CAPES) and National Council for Scientific and Technological Development (CNPq).

2014 – **37,847. 57 BRL** for the project: *Bioactivity of Niobium-doped glasses: experimental in vivo*

2012 – 2014 – **36,000.00 BRL** in scholarship for my master's degree from Coordination for the Improvement of Higher Education Personnel (CAPES).

LIST OF PATENTS AND SCIENTIFIC PAPERS

Papers published in International Journals and Patent produced during post-graduation:

2019 – **Scientific Article:** *In vitro and in vivo osteogenic potential of niobium-doped 45S5 bioactive glass: A comparative study.* Journal: **Journal of Biomedical Material Research – Part B**. Authors: João H. Lopes, **Lucas P. Souza**, Juliana A. Domingues, Filipe V. Ferreira, Moema de Alencar Hausen, Richard A. Martin, José A. Camilli, Eliana A. Duek, Italo O. Mazali, Celso A. Bertran.

[DOI: 10.1002/jbm.b.34486](https://doi.org/10.1002/jbm.b.34486)

2019 – **Scientific Article:** *Evaluation of effectiveness of 45S5 bioglass doped with niobium for repairing critical-sized bone defect in in vitro and in vivo models.* Journal: **Journal of Biomedical Material Research – Part A**. Authors: **Lucas P. Souza**, João H. Lopes, Filipe V. Ferreira, Richard A. Martin, Celso A. Bertran, José A. Camilli.

[DOI: 10.1002/jbm.a.36826](https://doi.org/10.1002/jbm.a.36826)

2019 – **Scientific Article:** *Nanocellulose/bioactive glass cryogels as scaffolds for bone regeneration.* Journal: **Nanoscale**. Authors: Filipe V. Ferreira, **Lucas P. Souza**, Thais M. M. Martins, João H. Lopes, Bruno D. Mattos, Marcos Mariano, Ivanei F. Pinheiro, Thalita M. Valverde, Sébastien Livi, José A. Camilli, Alfredo M. Goes, Rubia F. Gouveia, Liliane M. F. Lona, Orlando J. Rojas.

[DOI: 10.1039/c9nr05383b](https://doi.org/10.1039/c9nr05383b)

2018 – **Scientific Article:** *Comprehensive in vitro and in vivo studies of novel melt-derived Nb-substituted 45S5 bioglass reveal enhanced bioactive properties for bone healing.* Journal: **Scientific Reports**. Authors: **Lucas Souza**, João Henrique Lopes, Davi Encarnação, Italo Odone Mazali, Richard Alan Martin, José Angelo Camilli and Celso Aparecido Bertran.

[DOI: 10.1038/s41598-018-31114-0](https://doi.org/10.1038/s41598-018-31114-0)

2017 – **Scientific Article:** *The development and characterisation of gallium doped bioactive glasses for potential bone cancer applications.* Journal: **ACS Biomaterials Science & Engineering**. Authors: Rana, Karan; **Souza, Lucas**; Isaacs, Mark; Martin, Richard.

[DOI: 10.1021/acsbiomaterials.7b00283](https://doi.org/10.1021/acsbiomaterials.7b00283)

Deposited Patents:

2019 – *The process of obtention of bioactive glass and nanocellulose composite, the composition of the obtained composite, and its use.* Registration institution: National Institute of Industrial Property – INPI. Process number: BR 10 2019 025637 0. Inventors: Filipe V. Ferreira, **Lucas P.L Souza**, J A. Camilli, Marco Mariano, Liliane M. Lona.

2015 - *Bioactive Nb-doped glasses with high stimulative activity on bone formation and over gene expression and cell cycle of osteoblasts*. Registration institution: National Institute of Industrial Property – INPI. Inventors: J H Lopes, C A Bertran, **L P L de Souza**, J A Camilli, I O Mazali.

Papers published in minor scientific journals during my graduation in physiotherapy:

2013 – **Published Paper:** *Influence of high-heeled shoes on the quadriceps electromyographic activity in women with and without patellofemoral pain syndrome during the sit-to-stand task*. Journal: **Fisioterapia e Pesquisa**. Authors: L S P Batista, V M A Oliveira, **L P L de Souza**, A C R Pitangui, R C Araújo.

(Link to access full text: <http://dx.doi.org/10.1590/S1809-29502013000100002>).

2013 – **Published Paper:** *Influence of different shoes on electromyographic activity of asymptomatic and symptomatic women's quadriceps muscles during up and down stairs*. Journal: **Fisioterapia em movimento**. Authors: V M A Oliveira, L S P Batista, **L P L de Souza**, A C R Pitangui, R C Araújo.

(Link to access full text: <http://dx.doi.org/10.1590/S0103-51502013000300014>)

2010 – **Published Paper:** *Effect of different shoes at the onset electromyographic activity of patellar stabilizer muscles*. Journal: **ConScientiae Saúde**. Authors: **L P L de Souza**, V M A Oliveira, L S P Batista, A C R Pitangui, R C Araújo, M Pinotti.

(Link to access full text: <http://www4.uninove.br/ojs/index.php/saude/article/view/2447/1840>).

2010 – **Published Paper:** *Effects of cryotherapy and cryostretching over delayed onset muscle soreness*. Journal: **Terapia Manual**. Authors: **L P L de Souza**, C S Vieira, J C Silva, R C Araújo.

2010 – **Published Paper:** *Efeito da massoterapia nos sintomas da dor muscular tardia*. Journal: **Journal of Physical Education**. Authors: J C Silva, C S Vieira, **L P L de Souza**, R C Araújo.

2010 – **Published Paper:** *Delayed onset muscle soreness: a review*. Authors: J C Silva, **L P L de Souza**, C S Vieira, R C Araújo.

REFERENCES

Professor Dr. J A Camilli

University of Campinas

Institute of Biology

Department of Structural and Functional
Biology

Campinas-SP, Brazil

13083-862

Email: jcamilli@unicamp.br

Phone: +55 14 99793-9839

Professor Dr. R C Araújo

University of Pernambuco

Campus Petrolina

Department of Physiotherapy

Petrolina-PE, Brazil

56328903

Email: rodrigo.cappato@upe.br

Phone: +55 87 38666493

Professor Dr. R A Martin

School of Engineering

Aston University

Birmingham, United Kingdom

B4 7ET

Email: r.a.Martin@Aston.ac.uk

Tel: +44 0121 2045111