

## Gustavo Monteiro Silva, PhD

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# Curriculum vitae

## A. EDUCATION AND EMPLOYMENT

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Duke University	– USA	Assistant Professor	Biology	2017 - present
New York University	– USA	Post-doctoral fellow	Proteomics	2011 - 2017
New York University	– USA	Facility Manager	Proteomics	2014 - 2017
University of São Paulo	– Brazil	Ph.D.	Genetics/Biochemistry	2005 - 2010
University of São Paulo	– Brazil	Lic.	Biology Licentiate	2003 - 2007
University of São Paulo	– Brazil	B.Sc.	Biology	2000 - 2004

## B. FELLOWSHIPS AND AWARDS

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2015 – National Institutes of Health **K99/R00 Award**  
2015 – Faculty of 1000 Research Prize – 1<sup>st</sup> NYU Points Symposium  
2014, 2017 – NYU Representative for Blavatnik Regional Award  
2014 – **Scholarship for Yeast Genetics Course** - Cold Spring Harbor Laboratory  
2012 – **Butantan Foundation Prize** – 2<sup>nd</sup> Best Paper of the Year (Silva et al., 2012)  
2011 – **Scholarship for Proteomics Course** - Cold Spring Harbor Laboratory  
2009 – **Travel Award for VI Meeting of Society for Free Radical Biology and Medicine** – South American Group. Santiago, Chile.  
2007 – **Travel Award for V Meeting of Society for Free Radical Biology and Medicine** – South American Group. Montevideo, Uruguay.  
2006 – **Young Investigator Award**, Butantan Institute Annual Meeting (2<sup>nd</sup> Place). São Paulo, Brazil.  
2005 – **SBBq Award**, Brazilian Association of Biochemistry and Mol. Biology. Águas de Lindóia, Brazil.  
2005 – **PhD fellowship** by the Sao Paulo Research Foundation (FAPESP).  
2001 – **Undergraduate fellowship** by the National Council for Scientific and Technological Development (CNPq).

## C. RESEARCH SUPPORT

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- **K99/R00** Pathway to Independence Award (PI), National Institutes of Health (NIEHS) - Defining the roles of ubiquitination during the environmental stress response, 2015-2020 (ES025835) (\$102,705 - \$250,000 /year for 5 years)
- Key personnel: Small Business Innovation Research (**SBIR**), National Institutes of Health (NIA) - Linkage-specific ubiquitylation patterns as highly sensitive markers for neurodegenerative diseases, 2016 (PI: Butt, Co-I: Vogel)

- Key personnel: National Science Foundation **EAGER** award F7467 – MCB-1355462 – Modeling Protein Degradation - Evaluation of Strategies and Targets, 2013 – 2015. (PI: Vogel, Co-I:Sasha)
- FAPESP Ph.D. Fellowship – Characterization of the S-glutathiolation of the yeast 20S Proteasome. 2005 – 2010 (~\$100,000)
- CNPq Undergraduate Fellowship – Study of 20S Proteasome redox regulation, 2001 – 2004 (~\$10,000)

#### D. PUBLICATIONS (reverse chronological order)

\*corresponding author, #equally contributing author

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1. Wiechecki, K., Manohar, S. **Silva, G.M.**, Tchourine, K. Jacob, S. Valleriani, A and., Vogel, C. Integrative meta-analysis reveals that most yeast proteins are very stable. **Cell Reports** (*Under review*) – *pre-print at bioRxiv* doi:10.1101/165290
  2. **Silva, G.M.\*.**, Kastritis, P.#, Back, S., Burbaum, L., Mosalaganti, S., Pfeffer, S., Hagen, W., Forster, F., Beck, M and Vogel, C. K63 ubiquitin pauses elongating ribosomes in response to the oxidative stress **eLife** (under review)
  3. **Silva, G.M.**, and Vogel, C. [Quantifying gene expression: the importance of being subtle.](#) **Molecular Systems Biology** (2016) doi: 10.15252/msb.20167325.
  4. Da Costa, J., Vitorino, R.; **Silva, G.M.**, Vogel, C., Duarte, A.C., Rocha-Santos, T. [A synopsis on Aging – theory, mechanisms and future prospects](#) **Ageing Research Reviews** 2016, **29**:90-112, doi: 10.1016/j.arr.2016.06.005,
  5. Toledo, R.A, Qin, Y., Cheng, Z.M., Gao, Q., Iwata, S., **Silva, G.M.**, Prasad, M.L., Ocal, T., Rao, S., Aronin, N., Barontini, M., Bruder, J, Reddick, R. Chen, Y., Aguiar, R.C.T. and Dahia, P.L.M. [Recurrent mutations of chromatin remodeling genes and kinase receptors in pheochromocytomas and paragangliomas](#) **Clinical Cancer Research** 2016, **22**:2301-2310 doi: 10.1158/1078-0432
  6. **Silva, G.M.\***, Wei, W., Manohar, S. and Vogel, C. [Identification and quantification of K63-ubiquitinated proteins in neuronal cells by high-resolution mass spectrometry.](#) **NeuroMethods** (2015) Humana Press – Springer Science, NY, doi: 10.1007/7657\_2015\_95
  7. **Silva, G.M.\*** and Vogel, C. [Mass spectrometry analysis of K63-ubiquitinated targets in response to oxidative stress.](#) **Data in Brief** 2015, **4**:130-134. doi: 10.1016/j.dib.2015.05.002
  8. **Silva, G.M.\***, Finley, D. and Vogel, C. [K63 ubiquitination is a new modulator of the oxidative stress response.](#) **Nature Structural & Molecular Biology** 2015, **22**:116-123. doi:10.1038/nsmb.2955  
*Recognition:*
    - 1) [NYU Research News](#),
    - 2) [Agencia FAPESP press release – Brazil](#)
    - 3) [Redoxoma Newsletter](#)
    - 4) [ScienceDaily](#)
    - 5) [Phys.org](#)

9. Tchourine, K., Poultney, C., Wang, L., **Silva, G.M.**, Manohar, S., Mueller, C.L. Bonneau, R. and Vogel, C. [One third of dynamic gene expression profiles can be predicted by simple rate equations.](#) *Mol BioSys* 2014 **10**(11):2850-2862. PubMed PMID: 25111754 10.1039/c4mb00358f.
10. Demasi, M., Netto L.E., **Silva, G.M.**, Hand, A., de Oliveira, C.L., Bicev, R.N., Gozzo, F. Barros, M.H., Leme, J.M., Ohara, E. [Redox regulation of the proteasome via S-glutathionylation.](#) *Redox Biol.* 2013 **2**:44-51. PubMed PMID: 24396728 doi: 10.1016/j.redox.2013.12.003
11. Malvezzi, A., Higa, P.M., Amaral, A.T., **Silva, G.M.**, Gozzo, F.C., Ferro, E.S., Castro, L.M., de Rezende, L., Monteiro, G., and Demasi, M. [The Cysteine-Rich Protein Thimet Oligopeptidase as a Model of the Structural Requirements for S-glutathiolation and Oxidative Oligomerization.](#) *PLoS One* 2012 **7**(6):e39408. PubMed PMID: 22761783 doi: 10.1371/journal.pone.0039408
12. **Silva, G.M.**, Netto, L.E., Simoes, V., Santos, L.F., Gozzo, F.C., Demasi, M.A., Oliveira, C.L., Bicev, R.N., Klitzke, C.F., Sogayar, M.C. and Demasi, M. [Redox Control of 20S Proteasome Gating.](#) *Antioxid Redox Signal* 2012 **16** (11):1183-1194. PubMed PMID: 22229461 10.1089/ars.2011.4210  
*Recognition:*
  - 1) [Journal issue cover page](#),
  - 2) [Agencia FAPESP press release](#)
  - 3) [INCT Redoxoma News \(Brazil\)](#)
13. Vogel, C., **Silva, G.M.**, and Marcotte, E.M. [Protein expression regulation under oxidative stress.](#) *Mol Cell Proteomics* 2011 **10**(12):M111.009217. PubMed PMID: 21933953 doi: 10.1074/mcp.M111.009217
14. **Silva, G.M.**, Netto, L.E., Discola, K.F., Piassa-Filho, G.M., Pimenta, D.C., Barcena, J.A., and Demasi, M. [Role of glutaredoxin 2 and cytosolic thioredoxins in cysteinyl-based redox modification of the 20S proteasome.](#) *FEBS J* 2008 **275**: 2942-2955. PubMed PMID: 18435761 doi:10.1111/j.1742-4658.2008.06441.x
15. Netto, L.E., de Oliveira, M.A., Monteiro, G., Demasi, A.P., Cussioli, J.R., Discola, K.F., Demasi, M., **Silva, G.M.**, Alves, S.V., Faria, V.G., *et al.* [Reactive cysteine in proteins: protein folding, antioxidant defense, redox signaling and more.](#) *Comp Biochem Physiol C Toxicol Pharmacol* 2007 **146**:180-193. PubMed PMID:17045551 doi:10.1016/j.cbpc.2006.07.014
16. Discola, K.F., Oliveira, M.A., **Silva, G.M.**, Barcena, J.A., Porras, P., Padilla, A., Netto, L.E., and Guimaraes, B.G. [Crystallization and preliminary X-ray crystallographic studies of glutaredoxin 2 from \*Saccharomyces cerevisiae\* in different oxidation states.](#) *Acta Crystallogr Sect F Struct Biol Cryst Commun* 2005 **61**:445-447. PubMed PMID: 16511065
17. Demasi, M., **Silva, G.M.**, and Netto, L.E. [20 S proteasome from \*Saccharomyces cerevisiae\* is responsive to redox modifications and is S-glutathionylated.](#) *J Biol Chem* 2003 **278**:679-685. PubMed PMID:12409293 doi:10.1074/jbc.M209282200

#### IN PREPARATION

1. **Silva, G.M.**, Manohar, S., Jacob, S., Tchourine, K., Koh, H.W.L., Choi, H. and Vogel, C. *K48 ubiquitin selectively targets oxidized proteins for degradation in vivo.*

## E. TEACHING EXPERIENCE

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- 2012-2016 Guest Lecturer for Systems Biology Graduate Course at NYU (BIOL-GA 1128)
- 2010 Guest Lecturer for Molecular Bases of the Cellular Function at USP (BIO0511)
- 2004-2007 Teaching Internship at Public Schools in Brazil (EE Capita0 Pedro M. do Amaral and EMEF Queiros Filho). 300 h total.

## F. CLIMATE IMPROVEMENT

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- 2017 The Black Think Tank – Grant funded by the Provost Office for Faculty Advancement at Duke University. Develop an institutional platform to connect faculty of color through mentoring and multidisciplinary research projects. *Role*: Founder and PI.

## G. MENTORING

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- 2016, 2017 Assistant Coordinator and lecturer for NYU Biology Summer Undergraduate Research Program (SURP) for diversity in science
- 2014, 2015 Mentor/host for NYU Poly ARISE High School Program (Applied Research Innovations in Science and Engineering) – for talented high-school students from underrepresented groups
- 2014, 2015 Co-host for Open Day of the Center for Talented Youth (CTY-NYU) program of John Hopkins University
- 2013 Mentor/host for undergraduate exchange program for Research Internships in Science and Engineering (RISE) of the German Academic Exchange Organization (DAAD) – Ms. Gesa Wiel
- 2012 Mentor/host for Brazilian undergraduate student – Ms. Vanessa Simoes

2011-present Mentoring at NYU:

High School Students: Ms Sophia Zhang (, Ms. Gabi Rutherford (Macalester college)

Undergraduate Students: Ms Sandhya Manohar (PhD student at Harvard), Ms. Aditi Vyas, Mr. Joseph Chin (VA Northern California Health Care System).

Master's students: Mr Samson Jacob (Data scientist at NYU Medical School), Ms. Ana Galesic (PhD student at USC), Ms. Tayebah Bahmani (at Bristol-Myers Squibb).

Lab Technicians: Ms Wei Wei (PhD student at NYU Medical School), Ms Songhee Back (PhD student at Mount Sinai).

## H. RELEVANT COURSES

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- 2018 – Faculty Success Program (National Center for Faculty Development and Diversity)
- 2015 – NYU Communication, Leadership and Conflict Resolution

2015 – ASBMB Grant Writing and Mentoring Workshop, Washington DC, USA  
 2015 – NYU High Throughput Sequencing – Bioinformatics Workshop  
 2014 – Yeast Genetics/ Genomics Intensive Course, Cold Spring Harbor Laboratory, Long Island, USA  
 2011 – Proteomics Intensive Course, Cold Spring Harbor Laboratory, Long Island, USA  
 2009 – Free Radical School at SFRBM Meeting, Santiago, Chile  
 2007 – Free Radical School at SFRBM Meeting, Montevideo, Uruguay

## I. ACADEMIC SERVICE

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- Member of Minority Affairs Committee at American Society for Biochemistry and Molecular Biology (ASBMB). 2018-2021
- Recruiter and Poster Judge at ABCMS (Annual Biomedical Conference for Minority Students). NYU 2016, Duke 2017.
- Grant reviewer for NIH-EXITO program
- Grant reviewer for Polish National Science Center
- Interviewer for PhD student recruitment at New York University (2015)
- Reviewer for Nature Biotech, Nature Structure & Molecular Biology, Nucleic Acid Research, Cell Reports, and Trends in Biotechnology

## J. CONFERENCE PRESENTATIONS (SELECTED)

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2017 **The Ubiquitin Family**, Cold Spring Harbor, NY, USA, Oral presentation

2015 **EMBO Ubiquitin and Ubiquitin-like modifiers**, Cavtat, Croatia

1<sup>st</sup> **NYU PoInts** Postdoctoral Interdisciplinary Symposium. New York, NY, USA *Prize Awardee*

2012 **The 4<sup>th</sup> International Forum of Proteomics (IFP) and the Conference of Proteomics of protein degradation and ubiquitin pathways (PPDUP)**, San Diego, CA, USA

2009 **16<sup>th</sup> Society for Free Radical Biology and Medicine Annual Meeting (SFRBM)**, San Francisco, CA, USA.

**VI Meeting of SFRBM** - South American Group, Santiago, Chile. *Travel Scholarship Awardee*

**XXXVII SBBq** Annual Meeting (Biochemistry and Molecular Biology Brazilian Society), Águas de Lindóia, SP, Brazil.

2008 **33rd FEBS Congress and 11th IUBMB** Conference, Athens, Greece.

2007 **V Meeting of SFRBM** - South American Group, Montevideo, Uruguay. *Travel Scholarship Awardee*

**XXXVI SBBq** Annual Meeting, Salvador, BA, Brazil.

2006 **XXXV SBBq** Annual Meeting, Águas de Lindóia, SP, Brazil.

**VIII Butantan Institute Scientific Meeting**, São Paulo, SP, Brazil. **Oral Presentation. Young Investigator Prize Awardee**

2005 **XXXIV SBBq** Annual Meeting, Águas de Lindóia, SP, Brazil. **SBBq Prize Awardee**

## **J. ACTIVE COLLABORATIONS**

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- **Daniel Finley, PhD** (Harvard Medical School): K63 ubiquitination of ribosomes
- **Martin Beck, PhD** (EMBL at Heidelberg): cryo-EM 3D Structure of ribosome
- **Joel McManus, PhD** (Carnegie Mellon University): RiboSeq of cells under stress
- **Rajiv Ratan, MD, PhD** (Burke Research Institute/Weil Cornell): Proteomics of neuronal cells
- **Patricia Dahia, MD, PhD** (UT San Antonio): Structural Analysis of histones in cancer
- **Beatrix Ueberheide, PhD** (NYU Medical Center): Targeted proteomics analysis
- **Patrick Eichenberger, PhD** (New York University): Proteomics of bacterial sporulation
- **David Gresham, PhD** (New York University): Proteomics of yeast subjected to nitrogen stress
- **Taussef Butt, PhD** (LifeSensors, Inc): Ubiquitination as neurodegeneration marker