



João Vitor Dutra Molino, PhD

Summary

I am an interdisciplinary researcher, with experience in upstream and downstream bioprocess techniques. My early focus was in purification techniques, specially in liquid-liquid system, for biomolecules. Lately, I change my focus to upstream process, from recombinant strain development to media optimization. I have also engage in the development of lab equipment, particullary open hardware.

Interests: biotechnology, bioprocess, algae technology, recombinant technology, synthetic biology, open hardware, systems integration

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Education

- 2013-2017 **Ph.D in Sciences**, USP, São Paulo, Brazil, Heterologous protein production in microalgae
- 2014-2015 **Visiting scholar** at UCSD, San Diego, USA
- 2010-2012 **Master in Sciences**, USP, São Paulo, Brazil, Extraction of adenovirus in aqueous two-phase system
- 2005-2009 **Bachelor in Pharmacy**, Unicamp, Campinas, Brazil

Research

- 2017-2018 Interference RNA technology for crop protecion. LOTAN Agrosiences. <https://www.lotan.com.br> - Role: Product Development Scientist
- 2013-2017 Heterologous protein production in microalgae. PhD. Thesis - Role: Develop a microalgae expression vector; new functional signal peptides for microalgae; a lab-scale tubular photobioreactor. Express human hyaluronidase Hyal1 and PH20 in *Chlamydomonas reinhardtii*
- 2016 AlgAranha: heterologous expression of spider silk protein in microalgae. iGEM Competition Project - Role: Instructor
- 2013 Detechtol: a biosensor to methanol. iGEM Competition Project - Role: Student
- 2013 Design and Synthesis of chemotherapeutic agents potentially active in Chagas' disease. Trust in Science, GlaxoSmithKline. Role: Production of molecular target, cruzain
- 2010-2012 Extraction of adenovirus in aqueous two-phase system. Master Dissertation - Role: Evaluate an aqueous two-phase micellar system as a method to extract adenovirus particles from direct lysate

Skills

Molecular Biology	Cloning, seamless cloning, vector development, qPCR
Protein techniques	Protein purification (FPLC), western blot and gel electrophoresis
Expression systems	<i>Chlamydomonas reinhardtii</i> , <i>Escherichia coli</i> and <i>Pichia pastoris</i>
Design of Experiments	Full factorial design, composite central design.
Hardware development	Tubular photobioreactor, microcentrifuge and cell counter

Publications

- ARTICLES** **Molino JVD**, de Carvalho JCM, Mayfield S. Evaluation of secretion reporters to microalgae biotechnology: blue to red fluorescent proteins. *Algal Res.* 2018;31: 252–261. doi:10.1016/j.algal.2018.02.018
- Molino JVD** et al. Comparison of secretory signal peptides for heterologous protein expression in microalgae: Expanding the secretion portfolio for *Chlamydomonas reinhardtii*. *PLoS ONE.* 2018. 13(2): e0192433. <https://doi.org/10.1371/>
- Molino JVD**, et al. Aqueous two-phase micellar system extraction applied to improve extraction of adenoviral particles from cell lysate. *Biotechnol. Appl. Biochem.* 2017. DOI 10.1002/bab.1627
- Santos JHPM, Costa IM, **Molino JVD**, et al. Heterologous expression and purification of active L-asparaginase I of *Saccharomyces cerevisiae* in *Escherichia coli* host. *Biotechnol Prog.* 2016. DOI 10.1002/btpr.2410
- Molino JVD**, et al. Chimeric spider silk production in microalgae: a modular bionanomaterial. *Res Ideas Outcomes.* 2016. DOI 10.3897/rio.2.e9342
- Duarte AWF, Lopes AM, **Molino JVD**, et al. Liquid–liquid extraction of lipase produced by psychrotrophic yeast *Leucosporidium scottii* L117 using aqueous two-phase systems. *Sep Purif Technol.* 2015. DOI 10.1016/j.seppur.2015.10.001.
- Molino JVD**, et al. Biomolecules and bioparticles purification processes : An overview. *Rev Mex Ing Química.* 2014.
- Blau L, Menegon RF, Trossini GHG, **Molino JVD**, et al. Design, synthesis and biological evaluation of new aryl thiosemicarbazone as antichagasic candidates. *Eur. J. Med. Chem.* DOI 10.1016/j.ejmech.2013.04.022
- Molino JVD**, et al. Different types of aqueous two-phase systems for biomolecule and bioparticle extraction and purification. *Biotechnol Prog.* 2013. DOI 10.1002/btpr.1792
- Lopes AM, Santos-Ebinuma VDC, Novaes LCDL, **Molino JVD**, et al. LPS-protein aggregation influences protein partitioning in aqueous two-phase micellar systems. *Appl Microbiol Biotechnol.* 2013. DOI 10.1007/s00253-013-4922-x
- PATENT** Diaz CA, Feitosa VA, **Molino JVD**, et al. Production method of antibody fragments in genetic modified *Pichia pastoris* and simplified media. 2014, Brazil. BR1020140041060.
- BOOK CHAPTER** Marques DAV, **Molino JVD**, et al. Aqueous Two-Phase Systems (ATPSs) for Extraction and Purification of Biomolecules and Bioparticles. In: Michael C. Flickinger. (Org.). *Encyclopedia of Industrial Biotechnology: Bioprocess, Bioseparation, and Cell Technology.* 1ed. New Jersey: John Wiley & Sons, Ltd, 2013, v. 1, p. 1-7.