

MARÍA NATALIA CALIENNI

Date of birth: 10 June 1991
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Current positions

CONICET (National Council of Scientific and Technical Research) Assistant Researcher. Bio-Nanotechnology Laboratory, Universidad Nacional de Quilmes, Argentina. Expertise: Pharmaceutical Nanotechnology.

Full-time researcher-professor, Laboratory of Nanosystems for Biotechnological Application, Universidad Nacional de Hurlingham, Argentina.

Adjunct Professor of General Chemistry, Universidad Nacional de Hurlingham, Argentina.

Adjunct Professor of Food and Drug Biotechnology, Universidad Nacional de Hurlingham, Argentina.

Instructor Professor of Biochemistry II, Universidad Nacional de Quilmes, Argentina.

Education

2016-2020 Specialist in University Teaching, Universidad Nacional de Quilmes, Argentina. Final Integrative Project (approved on 07/13/2020): "The University Life Workshop of the National University of Quilmes from the perspective of the students".

2015-2019 PhD in Science & Technology, Universidad Nacional de Quilmes, Argentina. Thesis Title: "Liposomal formulations of anti-tumoral drugs for topical application: Design and Characterization". Laboratory of Bio-Nanotechnology, Universidad Nacional de Quilmes.

2009-2014 MSc in Biotechnology, Universidad Nacional de Quilmes, Argentina. Dissertation: "Study of the toxicity of nanocompounds and pharmaceutical drugs *in vivo* in zebrafish", Laboratory of Biomembranes, Universidad Nacional de Quilmes.

Other studies

2020 Postgraduate Diploma in Strategic Design of Technologies for Sustainable and Inclusive Development (Distance Learning), Universidad Nacional de Quilmes, Argentina.

2018-Current Master of Science, Technology & Society (Distance Learning Master Degree), Universidad Nacional de Quilmes, Argentina (Degree of Progress: 70%).

2016-Current Postgraduate Degree in Biophysics, Latin American Biophysics Program (POSLATAM) from the International Union for Pure and Applied Biophysics (IUPAB).

Twenty-two national & international postgraduate courses. Among them:

-IUBMB-IUPAB Advanced School/Workshop on Protein-Protein and Protein-Membrane Interaction: Experimental and Theoretical Approaches (POSLATAM Course). Varadero, Cuba, 22-26 October 2018, 40 h.

-ICGEB-LAZEN 2018 "V Latin American Zebrafish Network Course and Symposium". Instituto de Biotecnología – UNAM, Cuernavaca, Mexico, 4-10th May 2018, 80 h.

-IX POSLATAM Course: Quantitative imaging in Biophysics - LATIN AMERICAN POSTGRADUATE PROGRAM (POSLATAM) - International Union for Pure and Applied Biophysics (IUPAB). San Miguel de Tucumán, Argentina, 21-25 November 2016, 40 h.

-Theoretical and practical course: Nanotechnology for innovation in the production of biopharmaceuticals – CABBIO. Universidade de São Paulo – Ribeirão Preto, São Paulo, Brazil, 16-27 November 2015, 80 h.

Languages

Spanish: Mother tongue.

English: FCE (B2) from the University of Cambridge (2019).

Italian: Spoken, read and written (fluently). Diploma di Formazione in Lingua e Cultura Italiana (2011). Dante Alighieri of Quilmes, Argentina.

Eighteen articles published between 2015 and 2020. Among them:

1. *BSA-capped gold nanoclusters as potential theragnostic for skin diseases: photoactivation, skin penetration, in vitro, and in vivo toxicity.* CR Lillo, **MN Calienni**, B Rivas Aiello, MJ Prieto, D Rodriguez Sartori, J Tuninetti, P Toledo, SdelV Alonso, S Moya, MC Gonzalez, J Montanari, GJAA Soler-Illia. **Mater. Sci. Eng. C (2020)**. DOI: 10.1016/j.msec.2020.110891.

2. *Nanoformulation for potential topical delivery of Vismodegib in skin cancer treatment.* **MN Calienni**, C Febres-Molina, RE Llovera, C Zevallos-Delgado, ME Tuttolomondo, D Paolino, M Fresta, HL Barazorda-Ccahuana, B Gómez, SdelV Alonso, J Montanari. **Int. J. Pharm. (2019)**. DOI: 10.1016/j.ijpharm.2019.05.002.

3. *Comparative toxicity of PEG and folate-derived blue-emitting silicon nanoparticles: in vitro and in vivo studies.* **MN Calienni***, CR Lillo*, MJ Prieto, RM Gorojod, SV Alonso, ML Kotler, MC Gonzalez, J Montanari. *Shared authorship. **Nanomedicine (2019)**. DOI: 10.2217/nnm-2018-0251.

4. *Zebrafish (Danio rerio) model as an early stage screening tool to study the biodistribution and toxicity profile of doxorubicin-loaded mixed micelles.* **MN Calienni***, CM Cagel*, MJ Prieto, MA Moretton, J Montanari, DA Chiappetta, SV Alonso. *Shared authorship. **Toxicol. Appl. Pharmacol. (2018)**. DOI: 10.1016/j.taap.2018.07.019.

5. *Towards biomedical application of amino-functionalized silicon nanoparticles.* CR Lillo*, **MN Calienni***, RM Gorojod, MB Rivas Aiello, MJ Prieto, S Alonso, ML Kotler, MC Gonzalez, J Montanari. *Shared authorship. **Nanomedicine (2018)**. DOI: 10.2217/nnm-2018-0010.

6. *Nano-formulation for topical treatment of precancerous lesions: skin penetration, in vitro and in vivo toxicological evaluation.* **MN Calienni**, CF Temprana, MJ Prieto, D Paolino, M Fresta, AB Tekinay, SV Alonso, J Montanari. **Drug Deliv. Transl. Res. (2017)**. DOI: 10.1007/s13346-017-0469-1.

7. *Nanotoxicological and teratogenic effects: A linkage with dendrimer surface charge and zebrafish developmental stages.* **MN Calienni**, DA Feas, D Igartúa, N Chiaramoni, SdelV Alonso, MJ Prieto. **Toxicol. Appl. Pharm. (2017)**. DOI: 10.1016/j.taap.2017.10.003.

Thirty-five participation in scientific meetings. Among them:

1. 7th Argentine Congress of Cosmetic Chemistry and 46th Annual Meeting of Argentine Cosmetic Chemists. “Nanosystems for cosmetic actives incorporated into vehicles comparative skin penetration”. MC Izquierdo, P Bucci, GE Gómez, L. Martínez, SdV Alonso, **MN Calienni**, J Montanari. Cariló, Argentina, 31 October – 2nd November 2019. **Award for the best scientific work.**

2. IUBMB-IUPAB Advanced School/Workshop on Protein-Protein and Protein-Membrane Interaction: Experimental and Theoretical Approaches (POSLATAM). “Biophysical characterization of Vismodegib-loaded ultradeformable liposomes: drug-membrane interaction”. **MN Calienni**, R Llovera, S Alonso, J Montanari. Varadero, Cuba, 22-26 October 2018. *Poster presentation.*

3. International Workshop on Self-Assembly and Hierarchical Materials in Biomedicine. “Evaluation of photosensitizer properties of folic acid conjugated Au@BSA nanoclusters in B16 cell line”. C Lillo, T Laporte, **N Calienni**, J Prieto, J Montanari, M Simian, G Soler-Illia. San Sebastián, Spain, 8-10 October 2018.

4. ICGEB-LAZEN 2018 “V Latin American Zebrafish Network Course and Symposium”. “Toxicity evaluation of doxorubicin-loaded mixed micelles on larvae of zebrafish”. **MN Calienni**, CM Cagel, MJ Prieto, MA Moretton, S del V Alonso, DA Chiappetta, J Montanari. Cuernavaca, Mexico, 11-12 May 2018. *Oral Presentation.*

5. 10th European and Global Conference and Exhibition for Clinical Nanomedicine & Targeted Medicine. European Foundation for Clinical Nanomedicine CLINAM. “Nano-formulation of a drug for skin cancer penetrates the *stratum corneum* and induces high rate apoptosis in tumoral cell line and alterations in *in vivo*

zebrafish model". **N Calienni**, F Temprana, J Prieto, S Alonso, J Montanari. Basel, Switzerland, 7-10 May 2017. *Poster Presentation*.

6. III Latin American Federation of Biophysical Societies (LAFeBS) – IX IberoAmerican Congress of Biophysics – XLV Reunión Anual Sociedad Argentina de Biofísica (SAB). "Design and biophysical characterization of 5-fluorouracil-loaded nanosystem for topical skin cancer therapy: *in vitro*, *ex vivo* and *in vivo* studies". **N Calienni**, J Prieto, S Alonso, J Montanari. San Miguel de Tucumán, Argentina, 23-25 November 2016. **Second "Carl Zeiss Award" for the poster presentation.**

7. NanoTR11 – Nanoscience and Nanotechnology Conference. "Characterization and skin penetration of 5-fluorouracil-loaded ultradeformable liposomes for topical delivery". **MN Calienni**, AE Topal, M Ürel, SV Alonso, J Montanari. ODTU - Middle East Technical University, Ankara, Turkey, 22-25 June 2015.

Fifteen national & international scholarships and awards. Among them:

01/2018-12/2018 Grant for training researchers (SAI 2017) from Universidad Nacional de Quilmes.

03/2017-05/2017 Fellowship for a short stay of research at the Università degli Studi Magna Graecia di Catanzaro, Laboratory of Advanced Drug Delivery Systems – Italy, from the Italian Government (MAECI).

01/2017-12/2017 Travel grant for training researchers (VIEF-2016) from Universidad Nacional de Quilmes.

01/2016-12/2016 Grant for training researchers (SAI 2015) from Universidad Nacional de Quilmes.

04/2015-03/2020 PhD fellowship from CONICET Argentina (National Council of Scientific and Technical Research).

Eight oral dissertations. Among them:

1. Oral Presentation at the ICGEB-LAZEN 2018 "V Latin American Zebrafish Network Course and Symposium". "Toxicity evaluation of doxorubicin-loaded mixed micelles on larvae of zebrafish". Instituto de Biotecnología, Universidad Nacional Autónoma de México, Cuernavaca, Mexico, 12nd May 2018.

2. Invited speaker at the Session: Innovative approaches for medical applications at the NanoInnovation 2017. "Nano-formulation for topical therapy of skin precancerous lesions: *in vitro*, *ex vivo* and *in vivo* evaluation". Sapienza Università di Roma, Rome, Italy, 26-29 September 2017.

3. Oral Presentation at the session Small Speeches at the 10th European and Global Conference and Exhibition for Clinical Nanomedicine & Targeted Medicine. European Foundation for Clinical Nanomedicine CLINAM. "*In vitro*, *ex vivo* and *in vivo* evaluation of a nano drug delivery system for skin cancer therapy". Basel, Switzerland, 8 May 2017.

Advising and mentoring of undergraduate students

-**Mentor** of David Ybarra, undergraduate assistant of Biochemistry Subjects of the Degree in Biotechnology - Universidad Nacional de Quilmes (2019).

-**Co-advisor** of M. Cecilia Izquierdo. Undergraduate fellowship EVC-CIN 2018 from the National Interuniversity Council of Argentina (05/2019-04/2020). "Topical nanosystems: comparative penetration in cosmetic vehicles".

-**Co-advisor** of Gisela Gómez. Undergraduate fellowship from the Universidad Nacional de Quilmes, Argentina (05/2018-04/2019). "Evaluation of the topical penetration of nanosystems by RAMAN spectroscopy".

Adherent member of the Argentinian Society of Biophysics (2016-Current)