


# MARIANA BLANCO MASSANI, PHD

---

Marie Skłodowska-Curie Post-Doctoral Fellow  
University of Innsbruck Institute of Pharmacy  
/Dep. of Pharmaceutical Technology  
Center for Chemistry and Biomedicine, Innrain  
80/82 Room L.04.283.  
Email: mariana.blanco-massani@uibk.ac.at



 **ORCID** 0000-0002-5053-6378

**Web of Science Researcher ID** P-1593-2019

**Website:** [Researchgate.net/profile/Mariana\\_Blanco\\_Massani](https://www.researchgate.net/profile/Mariana_Blanco_Massani)

**Linkedin.com/in/mariana-blanco-massani**

## SUMMARY

I am a resolute research scientist experienced in molecular biology, microbiology, and material science. Curiosity and teamwork are my drivers.

I did research in an accredited R&D environment for developing antimicrobial and biodegradable delivery systems (INTI-Argentina, 2006-2018).

I worked in a multicultural research group for the molecular characterization of microorganisms and drug substance development (ETHZ-Switzerland, 2016-2018).

At the DDPT group, I am working on the NanoBioRS Project (Marie Skłodowska-Curie IF) which seeks to design smart antimicrobial delivery systems that avoid prophetic joint infections.

### Skills

#### Drug substance development

Antimicrobial constructs cloning and expression. Bacteriocins production by fermentation. SDS-PAGE, FPLC and His-tag purification. Lytic activity, synergy and time-kill analyses.

#### Active materials

Antimicrobial films and coatings formulation, characterization by FT-IR. Standard methods (ISO, ASTM) for testing mechanical properties, water permeability and uptake, mass transfer, antimicrobial activity. Effectiveness assessment in food.

#### Molecular biology

Genome assembly and analysis, gene knock out and complementation

### Expertise

Project management  
Intercultural groups management  
Grants application and administration  
Scientific Writing and Communication  
Bacteriocins and endolysins  
Foodborne pathogens  
Lactic acid bacteria  
Biodegradable antimicrobial materials for food and medical applications  
Molecular characterization of antimicrobial resistance  
Mammalian cell culture

## EDUCATION

2015, **Doctora en Ciencias Biológicas (Ph.D. in Biological Sciences)**, National University of Tucuman, Argentina. Maximum grade awarded (Outstanding).

2005, **Licenciada en Química (MSc Chemistry)**, National University of Tucuman, Argentina.

1999, **Técnica química (Chemical Technician)**, Arrieta Tech High School, Jujuy, Argentina.

## GRANTS & FELLOWSHIPS AWARDED IN COMPETITIVE, MERIT-BASED CALLS

2022-Present **Individual fellowship**. Marie Skłodowska-Curie IF, Nano bio-responsive systems designed to avoid staphylococcal colonization of implant interfaces. NanoBioRS-101025065, European Union's Horizon 2020 Research and Innovation Programme.

2016-2019, **Project Team Member**. R&D Project PICT Start-Up-2015-0027 Desarrollo de nanocompuestos a base de látex para su aplicación en tecnología médica. (**Latex based nano-composites for applications in medicine**). Financial entity: ANPyCT-AR, 2015. Participant groups: INTI-Plásticos, INTI-Caucho, CETMIC-CONICET-La Plata-AR.

2015-2019, R&D Project PICT-2014-0585. **Project Team Leader**. Categoría: Argentina Innovadora 2020. Nano-arcillas Argentinas como soporte de sustancias antimicrobianas para el control de microorganismos patógenos y contaminantes. (**Argentinean nano-clays as antimicrobial support to control pathogen and contaminant microorganisms**). Financial entity: ANPyCT-AR, 2014. Participant groups: INTI-Plásticos, CETMIC-CONICET-La Plata-AR, CERELA-CONICET-Tucuman-AR.

2014 -2016, R&D Project INTI-Nº 710/14. **Project Team Leader**. Desarrollo de Placas de Caseína a Escala Piloto para la Mejora de Trazabilidad en Quesos Argentinos (**Development of casein labels to improve traceability in Argentinean cheese industry**) Financial entity: INTI, 2014. Participant groups: INTI-Lácteos, INTI-Plásticos, Buenos Aires-AR.

2007-2008, **Individual Fellowship**, National Research Council of Argentina (**CONICET-AR**)

2005-2007, **Individual Fellowship**, National Agency for Science and Technology Promotion (**ANPyCT-AR**)

## PEER-REVIEWED PUBLICATIONS

- **Technological properties of montmorillonite modified with lactocin 705, AL705 and nisin**. Blanco Massani\*, Fernández\*, Molina, Zelaya Soulé, Melian, Vignolo, Castellano, Torres Sánchez. *J Food Process Pres.* **44**, e14454. 2020 <https://doi.org/10.1111/jfpp.14454> (\* equal contribution).
- **Synergistic antimicrobial effect of lactocin AL705 and nisin combined with organic acid salts against *Listeria innocua* 7 in broth and a hard cheese**. Verdi, Melian, Castellano, Vignolo, Blanco Massani. *Int J Food Sci Tech.* **55**, 267-275, 2020. <https://doi.org/10.1111/ijfs.14302>
- **Anti-*E. coli* cellulose-based materials** Koltan, Corbalan, Molina, Elisei, de Titto, Eisenberg, Vincent, Pomares\*, Blanco Massani\*. *LWT-Food Sci Tech.* **107**, 325-330, 2019 (\* equal contribution). <https://doi.org/10.1016/j.lwt.2019.02.084>
- **Chromosomal Sil cluster contributes to silver resistance in *E. coli***. Blanco Massani, Klumpp, J., Widmer, M. et al. *Biometals.* **31**, 1101-1114, 2018. <https://doi.org/10.1007/s10534-018-0143-1> GenBank: CP022959.1. <https://www.ncbi.nlm.nih.gov/nuccore/CP022959.1/>
- **Correlating antimicrobial activity and structure in montmorillonite modified with hexadecyltrimethylammonium and silver**. Fernández Solarte\*, Blanco Massani\* et al. *Int J ChemTech Res.* Vol. **11**, No. 06, 2018. [http://www.sphinxsai.com/2018/ch\\_vol11\\_no6/2/\(209-223\)V11N06CT.pdf](http://www.sphinxsai.com/2018/ch_vol11_no6/2/(209-223)V11N06CT.pdf) (\* equal contribution)
- **Strategies for Pathogen Biocontrol Using Lactic Acid Bacteria and Their Metabolites: A Focus on Meat Ecosystems and Industrial Environments**. Castellano, Pérez Ibarreche, Blanco Massani,

Fontana, Vignolo. *Microorganisms*. 11; 5(3). pii: E38, 2017. <https://doi.org/10.3390/microorganisms5030038>

- **Improving ham shelf life with a Polyhydroxybutyrate/Polycaprolactone biodegradable film** activated with nisin. Correa, Molina, Eisenberg, **Blanco Massani**. *Food Packg Shelf Life*. **11**, 31–39, 2017. <https://doi.org/10.1016/j.fpsl.2016.11.004>
- **Active polymers containing *Lactobacillus curvatus* CRL705 bacteriocins: effectiveness assessment in Wieners**. **Blanco Massani et. al.** *Int J Food Microbiol*. **178**, 7–12, 2014. <https://doi.org/10.1016/j.ijfoodmicro.2014.02.013>
- Development of an **active wheat gluten film** with *L. curvatus* CRL705 bacteriocins and a study of its **antimicrobial performance during ageing**. **Blanco Massani et. al.** *Food Addit Contam*. **31**, 164-171, 2014. <https://doi.org/10.1080/19440049.2013.859398>
- **Adsorption of the bacteriocins produced by *Lactobacillus curvatus* CRL705 on a multilayer-LLDPE film for food-packaging applications**. **Blanco Massani et. al.** *LWT - Food Sci Technol*. **53**, 128-138, 2013. <https://doi.org/10.1016/j.lwt.2013.01.018>
- Characterization of a **multilayer film activated with *Lactobacillus curvatus* CRL705 bacteriocins**. **Blanco Massani et. al.** *J Sci Food and Agric*. **92**, 1318-1323, 2012. <https://doi.org/10.1002/jsfa.4703>
- Development and characterization of an **active polyethylene film containing *Lactobacillus curvatus* CRL705 bacteriocins**. **Blanco Massani et. al.** *Food Addit Contam*. **11**, 1424-1430, 2008. <https://doi.org/10.1080/02652030802227219>.

## REFEREED CONGRESS ARTICLES

**2006-2018** Twenty-one (21) INTERNATIONAL CONGRESSES and twenty-one (21) NATIONAL CONGRESSES

### *Invited speaker*

Envase activo: Tecnología para la conservación de productos cárnicos. (**Active packaging: Technology for meat products preservation**) Tecno Fidta 2014-EXPOSICIÓN INTERNACIONAL DE TECNOLOGÍA ALIMENTARIA, ADITIVOS E INGREDIENTES. Buenos Aires-AR, 16-19 Sept 2014.

### *Relevant congress articles*

- Nano-arcillas Argentinas como soporte para bacteriocinas (**Argentine nano-clays as bacteriocins carriers**). Molina, Verdi, Fernandez, Eisenberg, Melian, Vignolo, Castellano, Torres Sanchez, **Blanco Massani**. SAM-CONAMET 2018. San Carlos de Bariloche– AR, 1-5 Oct 2018. ISBN: 978-987-1323-62-3
- Obtención y evaluación de desempeño de etiquetas comestibles de caseína para la mejora en la trazabilidad (**Casein labels to improve traceability: development and performance evaluation**). Torres, Castells, Cañameras, Lorenzo, Verdi, **Blanco Massani**, Eisenberg and González. **Awarded work**. Jornadas de Innovación, Desarrollo y Transferencia Tecnológica, TechnoINTI. Buenos Aires– AR, 21-22 Nov 2017. DOI:10.13140/RG.2.2.14806.86085
- Mezclas antimicrobianas sinérgicas para inhibir el crecimiento de *Listeria* en queso sardo (**Synergistic blends for *Listeria* inhibition in cheese**). Verdi, Eisenberg, **Blanco Massani**. **Oral presentation**. XV Congreso Cytal. Congreso Argentino de Ciencia y Tecnología de Alimentos. Mar del Plata-AR, 18-20 Sept 2017. ISBN 978-987-22165-8-0
- Nano-arcillas Argentinas como soporte para nisina bacteriocinas (**Argentinean nano-clays as nisin carriers**). Molina, Fernandez, Eisenberg, **Blanco Massani**, Torres. XV Congreso Cytal. Congreso Argentino de Ciencia y Tecnología de Alimentos. Mar del Plata-AR, 18-20 Sept 2017. ISBN 978-987-22165-8-0
- **Synergistic effect of lactocin AL705 combined with nisin, potassium sorbate, calcium propionate and sodium lactate against *Listeria***. Verdi, Castellano, Vignolo, Eisenberg, **Blanco Massani** SIBAL

- 2016 - V Simposio Internacional de Bacterias Lácticas. Tucuman-AR,19-21 Oct 2017. DOI: 10.13140/RG.2.2.28228.63366
- Correlación entre los sitios superficiales ocupados por cloruro de cetilpiridinio en una montmorillonita y su capacidad inhibitoria frente a *S. aureus* 25923 y *E. coli* 25922 (**Correlation between MMT sites occluded with cetylpyridinium chloride and the inhibitory activity against *S. aureus* 25923 and *E. coli* 25922**). Yarza, Molina, **Blanco**, Eisenberg, Torres Sánchez. III Workshop de Nanoarcillas y sus Aplicaciones (III WONAP). Bahía Blanca-AR, 17-18 de Nov 2016
  - Desarrollo de etiquetas comestibles de caseína para la mejora en la trazabilidad de quesos argentinos (**Development of edible casein labels to improve cheese traceability**). **Blanco Massani**, Castells, Cañameras, Lorenzo, Verdi, Torres, Eisenberg, Gonzalez. VI Congreso Internacional de Ciencia y Tecnología de Alimentos. CICYTAC 2016. Cordoba-AR, 2-4 Nov 2016. DOI: 10.13140/RG.2.2.14806.86085
  - Películas biodegradables activas como estrategia para extender la vida útil de alimentos (**Active biodegradable films as a strategy to extend food shelf life**). Molina, Correa, Eisenberg, Sanchez, Verdi, **Blanco Massani**. XXIII Congreso Latinoamericano de Microbiología y XIV Congreso Argentino de Microbiología ALAM-CAM 2016. Santa Fe-AR, 26-30 Sept 2016. DOI: 10.13140/RG.2.2.34626.22722
  - **Key points for peptides antimicrobial packaging design**. **Blanco Massani**, Verdi, Molina, Sanchez, Eisenberg. 18th IUFOST World Congress of Food Science and Technology, Dublin– IE, 21-25 Aug 2016. DOI:10.13140/RG.2.2.26970.34249
  - Tripa de fibrosa activa contra *Escherichia coli* O157:H7 para embutidos fermentados.(**Cellulose casing for fermented sausages active against *Escherichia coli* O157:H7**)Koltan, Eisenberg, Sanchez, Quiroga, Corbalan, Pomares, Vincent, **Blanco Massani**.**Oral presentation**. XV CONGRESO CYTAL 2015 Buenos Aires-AR. 3-5 Nov 2015. ISBN 978-987-22165-7-3
  - **Development of micro fibrillated cellulose films with antimicrobial activity for food industry applications**. Molina, **Blanco Massani**, de Titto, Corbalán, Vincent, Pomares, Eisenberg. **Oral presentation**. VIII CIADICYP. The VIII Ibero-American Congress of Pulp and Paper Research, Medellin– CO, 26-28 Nov 2014. DOI: 10.13140/RG.2.2.18687.87209
  - **Whey protein film containing MicrocinJ25(G12Y) active against *E. coli* O157:7 and *Salmonella*** **Blanco Massani**, Pomares, Corbalán, Vincent, Eisenberg. **Awarded work, oral presentation**. 17th IUFOST World Congress of Food Science and Technology, Montreal– CA, 17-21 Aug 2014. DOI: 10.13140/RG.2.2.33787.36649
  - Efectividad antimicrobiana de una película de gluten activada con bacteriocinas producidas por *L. curvatus* CRL705 (**Antimicrobial effectiveness of a gluten film activated with *L. curvatus* CRL705 bacteriocins**) **Blanco Massani**, Molina, Sanchez, Renaud, Eisenberg and Vignolo. **Awarded work**. XIV CONGRESO CYTAL 2013® Congreso Argentino de Ciencia y Tecnología de Alimentos, Rosario– AR, 23-25 Oct 2013. DOI: 10.13140/RG.2.2.18234.03528
  - Películas nanocompuestas biodegradables activadas con nisina (**Nanocomposite films activated with nisin**) Correa, Molina, Eisenberg, **Blanco Massani**. **Awarded work**. XIV CONGRESO CYTAL 2013® Congreso Argentino de Ciencia y Tecnología de Alimentos, Rosario– AR, 23-25 Oct 2013. DOI: 10.13140/RG.2.2.21537.04969
  - **Active packaging incorporated with *L. curvatus* CRL705 bacteriocins: effectiveness assessment in wieners**. **Blanco Massani**, Molina, Sanchez, Renaud, Eisenberg and Vignolo. **Oral presentation**. IUFOST 2012. 16<sup>th</sup> World Congress of Food Science and Technology. XVII Latin American Seminar of Food Science and Technology- ALACCTA, Foz de Iguazú-BR, 5-9 de Aug 2012. DOI:10.13140/RG.2.2.30764.51848
  - Estudios de migración específica de una película de polietileno activada con lactocina 705 y lactocina AL705 (**Specific migration of lactocin 705 and AL705 from a polyethylene film**). **Blanco Massani**,

Eisenberg and Vignolo. **Oral presentation.** XII Simposio Latinoamericano de Polímeros, X Congreso Iberoamericano de Polímeros. San José-CR, 13-16 Jul 2010. DOI: 10.13140/RG.2.2.20278.75843

- **Antimicrobial stability and specific migration study of a gluten film activated with lactocin 705 and lactocin AL705.** Blanco Massani, Lorenzo, de Titto, Eisenberg and Vignolo. **Oral presentation.** III SIMPOSIO INTERNACIONAL DE BACTERIAS LÁCTICAS. Segundo encuentro Red BAL Argentina (CERELA-CONICET). Tucumán- AR, 15-17 Sept 2009. DOI: 10.13140/RG.2.2.31388.74886

## RELEVANT AWARDS

- Nov 2017, **Special mention** to the work: "Obtencion y evaluacion de desempeño de etiquetas comestibles de caseina para la mejora en la trazabilidad" (**Casein labels to improve traceability: development and performance evaluation**) 13th Jornadas Abiertas de DESARROLLO, INNOVACIÓN Y TRANSFERENCIA TECNOLÓGICA **Tecno-INTI2017.** <http://www.inti.gob.ar/eventos/tecnointi/>. Buenos Aires- AR
- Nov 2015, **Special mention** to the work: "Efectividad antimicrobiana de una película de gluten activada con bacteriocinas producidas por *L. curvatus* CRL705". (**Antimicrobial effectiveness of a wheat gluten film activated with *L. curvatus* CRL705 bacteriocins**) National Institute of Industrial Technology, 12th Jornadas Abiertas de DESARROLLO, INNOVACIÓN Y TRANSFERENCIA TECNOLÓGICA **Tecno-INTI2015.** <http://www.inti.gob.ar/sabercomo/sc114/inti12.php>. Buenos Aires- AR
- Aug 2014, **Developing Country Sponsorship Award** to the work "**Whey protein film containing Microcin J25(G12Y) active against *E. coli* O157:7 and *Salmonella***" Granted by **17th IUFOST** World Congress of Food Science and Technology and sponsored by World Congress of Food Science and Technology, IFT, CIFST, ACCE, CIFST, Naturex and individual contributors. Montreal- CA
- Oct 2013, **IPCVA 2013 AWARD** to best work for meat applications. "Efectividad antimicrobiana de una película de gluten activada con bacteriocinas producidas por *L. curvatus* CRL705". AATA. (**Antimicrobial effectiveness of a wheat gluten film activated with *L. curvatus* CRL705 bacteriocins**) **XIV Congreso Cytal 2013.** Santa Fe- AR
- Oct 2013, **AATA 2013 AWARD "Dr Guillermo Oliver" AWARD** for the best original work. "Películas nanocompuestas biodegradables activadas con nisina" (**Nanocomposite films activated with nisina**). AATA. **XIV Congreso Cytal 2013.** Santa Fe- AR

## TRAINING/TEACHING ACTIVITIES

**Supervisor INTI-Plásticos, Buenos Aires-AR** **2008-2019**

2014-2019. **Co-supervision of Ph.D.** student (CONICET fellow)

2014-2018. **Supervision** of a BSc

2008-2019. **Supervision** of a laboratory Technician

**Teacher assistant and tutor National University of Tucuman. –Tucumán, AR** **2002-2005**

2004-2005. Teacher of **Organic Chemistry**

2003-2004 **Tutor for students** during their first year of career

2002-2004. Teacher of **Physics**

## COMMISSIONS OF TRUST

- Reviewer board member for **Bentham Science Publishers**, 2019
- Reviewer for **Meat Science**. Editorial Elsevier. ISSN 03091740, 2016
- Reviewer for **Canadian Journal of Microbiology**. NRC Research Press. Online ISSN: 1480-3275, 2015

- Reviewer for the National Agency for Science and Technology Promotion. **R&D** Project FONCyT PICT-2013-2282 PICT –B, **ANPyCT-AR**, 2013
- Reviewer for **Critical Reviews in Biotechnology**. *Informa Healthcare*. ISSN 0738-8551, 2013
- Reviewer for Book chapter, **Probiotics and Antimicrobial Proteins**. *Springer*. ISSN 1867-1306, 2013

## MEDIA COMMUNICATION

- **Científicos argentinos desarrollan un plástico que extiende la vida útil de alimentos envasados**  
Molina V, Correa JP, Eisenberg P, Sanchez M, Verdi MC, **Blanco Massani M**.

<https://www.infobae.com/salud/ciencia/2018/05/12/cientificos-argentinos-desarrollan-un-plastico-que-extiende-la-vida-util-de-alimentos-ensados/>

- **Desarrollan etiquetas para quesos a partir de una proteína de la leche**. Castells ML, **Blanco Massani M**, Cañameras CA, Lorenzo MC, Verdi MC, Torres MR, Eisenberg P, Gonzalez MA.  
<http://www.elotromate.com/ciencia/desarrollan-etiquetas-para-quesos-a-partir-de-una-proteina-de-la-leche/>
- **Desarrollan un envase activo antimicrobiano para productos cárnicos**. **Blanco Massani M**.  
<https://www.inti.gob.ar/noticiero/2013/noticiero361.htm>