

## “Grupo de Evolución Molecular”

En nuestro laboratorio estamos interesados en el estudio de mecanismos **eventos contingentes** sobre la historia evolutiva de familias génicas. Para ello abordamos el estudio evolutivo de genes no esenciales, en los cuales los mecanismos clásicos de selección tienen un rol menor o marginal. Esto permite estudiar procesos como deriva génica, duplicación y pérdida de genes parálogos, transferencia horizontal de genes, reclutamiento de nuevos dominios, entre otros.

Para ello extraemos información disponible en bases de datos genómicas y transcriptómicas. Las mismas son analizadas empleando estrategias *in silico* (inferencias filogenéticas, reconstrucción de secuencias ancestrales), en combinación con diferentes estrategias experimentales (PCR convencional y de tiempo real, RT-PCR, clonado, expresión, purificación y caracterización de proteínas recombinantes, entre otras).

### Integrantes:

[Maximiliano Juri Ayub](#) (Director)

[Walter J Lapadula](#)

[María Laura Mascotti](#)

[Jimena Manzur](#)

María Belén Jerez

### Publicaciones recientes (desde 2010):

#### 2018

JEREZ MB, JURI AYUB M.

Activity on non-methylated DNA limits the use of endonuclease MspJI for epigenetic analyses

*The All Results Journal: Biology*

<http://arjournals.com/index.php/Biol/article/view/156>

#### 2017

LAPADULA WJ, MARCET PL, MASCOTTI ML, SANCHEZ-PUERTA MV, JURI AYUB M.

Metazoan Ribosome Inactivating Protein encoding genes acquired by Horizontal Gene Transfer *Scientific Reports*

<https://www.nature.com/articles/s41598-017-01859-1>

LAPADULA WJ, JURI AYUB M.

Ribosome inactivating proteins from an evolutionary perspective

*Toxicon*

<https://www.sciencedirect.com/science/article/pii/S0041010117301927?via%3Dihub>

MAGALLANES NOGUERA C, CECATI FM, MASCOTTI ML, RETA GF, AGOSTINI E, ORDEN AA, KURINA-SANZ M.

Plant tissue cultures as sources of new ene- and ketoreductase activities

*Journal of Biotechnology*

<https://www.sciencedirect.com/science/article/pii/S0168165617301281?via%3Dihub>

SARAULLO V, DI SIERVI N, JEREZ B, DAVIO C, ZURITA A.

Synthesis and degradation of cAMP in *Giardia lamblia*: possible role and characterization of a nucleotidylcyclase with a single cyclase-homology-domain

*Biochemical Journal*

<http://www.biochemj.org/content/474/23/4001.long>

#### 2016

MASCOTTI ML, JURI AYUB M; FURNHAM N, THORNTON JM, LASKOWSKI RA.

Chopping and changing: the evolution of the flavin-dependent monooxygenases

*Journal of Molecular Biology*

<https://www.sciencedirect.com/science/article/pii/S0022283616302480?via%3Dihub>

MASCOTTI ML, PALAZZOLO MA, BISOGNO FR, KURINA-SANZ MB.

Biotransformation of dehydro-epi-androsterone by *Aspergillus parasiticus*: metabolic evidences of BVMO activity  
*Steroids*

<https://www.sciencedirect.com/science/article/pii/S0039128X16300022>

JOFRÉ DM, ALVAREZ M, PEREZ E, MOHAMED F, JEREZ MB, JURI AYUB M, ENRIZ RD, GIANNINI FA.  
Studies of Acute and Chronic Toxicity of Commercial Herbicides with Glyphosate against *Daniorerio*  
*Journal of Environmental & Analytical Toxicology*

<https://www.omicsonline.org/open-access/studies-of-acute-and-chronic-toxicity-of-commercial-herbicides-with-glyphosate-against-danio-rerio-2161-0525-1000340.php?aid=67212>

DAVE M, SILVA J, ELIÇABE J, JEREZ MB, FILIPPA V, GORLINO C, AUTENRIETH S, AUTENRIETH I, DI GENARO S

*Yersinia enterocolitica* YopH-deficient Strain Activates Neutrophil Recruitment to Peyer's patches Promoting Clearance of the Virulent Strain

*Infection and Immunity*

<http://iai.asm.org/content/84/11/3172.long>

## 2015

SALINAS AG, LUCERO ESTRADA C, CHIALVA C, ZARATE JM, JURI AYUB M, ESCUDERO ME.

Design of an internal amplification control for a duplex PCR used in the detection of Shiga toxin producing *Escherichia coli* in pediatric feces

*Molecular and Cellular Probes*

<https://www.sciencedirect.com/science/article/pii/S0890850815300396?via%3Dihub>

MASCOTTI ML, LAPADULA WJ, JURI AYUB M.

The origin and evolution of Baeyer Villigermonooxygenases (BVMOs): an ancestral family of flavinmonooxygenases  
*PLoS ONE*

<http://journals.plos.org/plosone/article/related?id=10.1371%2Fjournal.pone.0132689>

PALAZZOLO MA, MASCOTTI ML, LEWKOWICZ E, KURINA-SANZ MB

Self-sufficient redox biotransformation of lignin-related benzoic

*Journal of Industrial Microbiology & Biotechnology*

<https://link.springer.com/article/10.1007%2Fs10295-015-1696-4>

## 2014

MASCOTTI ML, KURINA SANZ M, JURI AYUB M, FRAAIJE M.

Insights in the kinetic mechanism of the eukaryotic Baeyer-Villigermonooxygenase BVMOAf1 from *Aspergillus fumigatus* Af293.

*Biochimie*

<https://www.sciencedirect.com/science/article/pii/S0300908414002545>

GARRO H, MANZUR MJ, CIUFFO MG, TONN C, PUNGITORE C.

Inhibition of reverse transcriptase and Taq DNA polymerase by compounds possessing the coumarin framework

*Bioorganic & Medicinal Chemistry Letters*

<https://www.sciencedirect.com/science/article/pii/S0960894X13014881?via%3Dihub>

## 2013

MASCOTTI ML, JURI AYUB M, DUDEK H, KURINA SANZ M, FRAAIJE M.

Cloning, overexpression and biocatalytic exploration of a novel Baeyer-Villigermonooxygenase from *Aspergillus fumigatus* AF293

*AMB Express*

<https://amb-express.springeropen.com/articles/10.1186/2191-0855-3-33>

LAPADULA WJ, SANCHEZ-PUERTA MV, JURI AYUB M.

Revising the Taxonomic Distribution, Origin and Evolution of Ribosome Inactivating Protein Genes  
*PLoS ONE*

<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0072825>

MASCOTTI ML, PALAZZOLO MA, LEWKOWICZ E, KURINA-SANZ MB.

Expanding the toolbox for enantioselective sulfide oxidations: *Streptomyces* strains as biocatalysts

*Biocatalysis and Agricultural Biotechnology*

<https://www.sciencedirect.com/science/article/pii/S1878818113000959>

## 2012

LAPADULA WJ, SANCHEZ-PUERTA MV, JURI AYUB M.

Convergent evolution led ribosome inactivating proteins to interact with ribosomal stalk

*Toxicon*

<https://www.sciencedirect.com/science/article/pii/S0041010112000025?via%3Dihub>

JURI AYUB M, NYAMBEGA B, SIMONETTI L, DUFFY T, LONGHI S, GÓMEZ K, HOEBEKE J, LEVIN M, SMULSKI C.

Selective blockade of trypanosomatid protein synthesis by a recombinant antibody anti-*Trypanosomacruzi* P2B protein

*PLoS ONE*

<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0036233>

MASCOTTI ML, ORDEN AA, BISOGNO FR, DE GONZALO G, KURINA SANZ, M.

*Aspergillus* genus as a source of new catalysts for sulfide oxidation

*Journal of Molecular Catalysis B-Enzymatic*

<https://www.sciencedirect.com/science/article/pii/S1381117712001257>

GUTIERREZ LJ, MASCOTTI ML, KURINA SANZ M, PUNGITORE CR, ENRIZ RD, GIANNINI FA.

Cinnamic Acid Derivatives Acting Against *Aspergillus* Fungi. Taq Polymerase I a Potential Molecular Target

*Natural Product Communications*

## 2010

SMULSKI CR, LONGHI SA, JURI AYUB MJ, EDREIRA MM, SIMONETTI L, GÓMEZ KA, BASILE JN, CHALOIN O, HOEBEKE J, LEVIN MJ.

Interaction map of the *Trypanosomacruzi* ribosomal P protein complex (stalk) and the Elongation Factor 2

*Journal of Molecular Recognition*

<https://onlinelibrary.wiley.com/doi/abs/10.1002/jmr.1089>

GARRO HA, JURI AYUB M, NIETO M, LUCERO ESTRADA C, PUNGITORE CR, TONN CE.

The trypanocidal activity of the alkaloid oliverine involves inhibition of DNA synthesis

*Cellular and Molecular Biology*

<https://www.cellmolbiol.org/index.php/CMB/article/view/978>