

## Maité SYLLA

(born IYARRETA VEITÍA, 24 January 1971 in Santa Clara, Cuba)

Associated professor at National Conservatory of Arts and Crafts

Doctor of Pharmacy (Pharm.D.)

PhD in Medicinal Chemistry, HDR

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## Profile skills

Currently, my research interests are focused on two main axes: medicinal chemistry / drug discovery and green chemistry / sustainable development. In medicinal chemistry, I am interested in developing new therapeutic molecules from known drugs: design, synthesis and biological evaluation of new anti-inflammatory agents, including TNF $\alpha$  and COX-2 inhibitors and the development of new antimicrobials. In the field of green chemistry, my interest is focused on the implementation of various mild activation methods for the synthesis of molecules with high added value (biotransformation, organocatalysis, microwaves).

## Education

**2017** : Habilitation à diriger des recherches, Paris-Saclay University, France

*Drug repositioning: towards new therapeutic molecules*

**2002** : PhD in Medicinal Chemistry, São Paulo University, Brazil

*Conception, synthesis and biological evaluation of novel mefloquine derivatives. Supervisor: Pr. Maria A. Barata da Silveira, Pharmacy Department*

**1996** : Specialization in Therapeutic Chemistry and Natural Products (Maestria), University of Havana, Cuba.

*Pharmacognosy, phytochemistry and biological evaluation of Portulaca oleracea L Supervisor: Pr. Armando Cuellar, Pharmacy Department*

**1993** : PharmaD, Chemistry and Pharmacy Faculty, Martha Abreu de Las Villas University, Santa Clara, Cuba.

*Standardization of a method of inclusion of the active product 1- (5-bromofur-2-yl) -2-bromo-2- nitroethylene (G1) in the Drosophila melanogaster culture.*

*Supervisor: Pr. Antonio Pérez Donato, CBQ Center*

## Research Experience

**Sept. 2006-present** Associated Professor: Laboratory of Molecular Chemistry, Engineering of Chemical and Energy Processes, National Conservatory of Arts and Crafts (Cnam), Paris, France

Development of new therapeutic molecules from known drugs using the greener methods, repositioning and SOSA approaches/Synthesis of chiral azapyridinomacrocycles of pyridine type *N*-oxide and their applications as organocatalysis/ Synthesis of chiral  $\beta^3$ -amino acids via *N*-carbamate aziridines involving a bioconversion step.

Responsible of collaboration with the Latin American Universities (Cuba and Chili) and Sfax University, Tunisia (PHC Utique 2017, N°17G 1215)

**Sept. 2003-Mars. 2006** (2 years) Postdoctoral Researcher, Paris-Sud University, BioCIS- CNRS Laboratory.

Synthesis and crystallographic study of metal complexes of copper (II), magnesium (II) and zinc (II) with anticonvulsive activity/ Synthesis and biological evaluation of novel non-peptide ligands for the NOP (ORL1 receptor). Project GenHomme, National Fund for Science (FNS).

**Sept. 2002-2003 (1 year), 1994-1997 (3 years)**: Associated Professor in Medicinal Chemistry, Pharmacy Department, Martha Abreu de Las Villas University, Santa Clara, Cuba.

Validation of the virtual screening algorithm "TOMOCOMD-CARDD" for molecules with an antimalarial activity/ Pharmacognostic studies of Portulaca oleracea *L.* and biological activity of its extracts. CITMA project (Ministry of Science, Technology and Environment).

*Head of Pharmacy Department (3 months)*

**Sept. 1993- Aug. 1994 (1 an)**: Assistant researcher, Formulation and stability Team, Bioactive Chemicals Research Center (CBQ) at Martha Abreu de Las Villas University, Santa Clara, Cuba.

Formulation and stability study of pharmaceutical forms of furan compounds.

## Teaching Experience

- Jan. 2006–present:** Associated Professor: National Conservatory of Arts and Crafts (192 hours/year) Lectures, tutorials and practical works. E-learning
- Organic and bioorganic chemistry
  - Medicinal Chemistry
- 1998-2002:** Academic Monitor/ Project "Aperfeiçoamento do Ensino" (PAE) for Pharmacy students, Pharmacy Faculty, São Paulo University, Brazil (53 hours/year)  
Lectures, tutorials and practical courses; Medicinal Chemistry
- 2002-2003 and 1994-1998:** Martha Abreu de Las Villas University, Santa Clara, Cuba. More than 500 h Lectures, tutorials and practical courses.
- Medicinal Chemistry
  - Pharmacology and Chemistry of drugs from CNS
  - Organic Chemistry
- 1990-1993:** Academic Monitor, Martha Abreu de Las Villas University, Santa Clara, Cuba.  
Tutorials of Pharmacology, physiology and Chemistry and synthesis of drugs

## Scientific responsibilities

### *Project leader and scientific responsibility:*

- 2017-2019:** Development of new antibacterial molecules: repositioning, pharmacomodulation, synthesis and biological studies. Grant from Hubert Curien program (PHC) UTIQUE 2017. Project in collaboration with the Biotechnology Center of Sfax, University of Sfax, Tunisia. Project for 3 years from January 2017. (Grant of 10950 € per year).
- 2017:** Natural products of the coumarin type and terpenoids extracted from Cuban plants: Isolation, analytical characterization, synthesis and anti-inflammatory activity. Grant of 4000 € from the French Embassy in Cuba for research mobility. Project in collaboration with Martha Abreu de Las Villas University, Cuba.
- 2016:** Natural products extracted from Cuban plants: isolation, characterization and study of antioxidant activity. Grant of 4000 € from the French Embassy in Cuba for the research mobility. Project in collaboration with Martha Abreu de Las Villas University, Cuba.
- 2015:** Natural products of the coumarin and terpenoid type extracted from Cuban plants: Isolation, analytical characterization, synthesis and anti-inflammatory activity. Grant of 4000 € from the French Embassy in Cuba for research mobility. Project in collaboration with Martha Abreu de Las Villas University, Cuba.
- 2012-2013:** Pharmaceutical innovation: Conception, synthesis and biological evaluation of new anti-inflammatory molecules. Grant of 30 000 € from Cnam. Collaboration with the Genomic and Bioinformatics team of Cnam,
- 2015:** Education project " Unité d'enseignement mutualisée ", Practical training on organic synthesis and polymers, Grant from Cnam, of 65 780 €.

### *Projects with scientific co-responsibility:*

- 2018-2020:** THERANALPHA, ANR Projet- Theranostic small molecule TNF inhibitors. Grant of 698 483,97 € for 4 years. Role: Establishment of synthesis strategies, supervision of doctoral students and postdoctoral internships, management of the chemical library.
- 2015-2016:** Synthesis of hybrid small molecules inhibiting TNF $\alpha$ . Collaboration with the biotechnology company PEPTINOV, Grant of 12,500 during 2015 and 2016. Role: Implementation of synthesis strategies, monitoring the progress of the project, management of the chemo library and supervision of Master students.
- 2014:** Synthesis of dipeptides, Grant of 3900 €. from the industrial company ISOCHEM. Role: Development of synthesis pathways, financial management, follow-up and discussion with the manufactures, supervision of the chemical synthesis and report of activities.

## Awards and Fellowships

- 2018:** Laureate of the *Scientific excellence* reward (PEDR)
- 2005:** Prize for the most cited article in the period 2003-2006 in *J. Bioorg. Med. Chem.*, 13, 2005, 1293-1304
- 1998:** Postgraduate Scholarship CAPES-MES (Cuban Ministry of High Education)
- 1997:** Prize for the best Young Assistant Professor of the Faculty of Chemistry and Pharmacy
- 1996:** Prize for the best methodological work of the Faculty of Chemistry and Pharmacy
- 1993:** Gold Medal, (PharmaD) Talent Student (accelerated cursus with a year of research) (1991-1993).
- 1993:** Annual Prize of Scientific Merit. (PharmaD)

### Memberships and editorial activities

**2018:** Chairman of the 1<sup>st</sup> On line International Franco-Tunisian workshop on Medicinal Chemistry, Biotechnology, and Physical Chemistry, Cnam, Paris, France, 2018, BIOCHEMPHYS-01, MOL2NET 2018

**2016-present** Member of the scientific committee of the International Conference on Multidisciplinary Sciences. MOL2NET.

**2016:** Co-editor of a special issue of the *Journal Current topics in medicinal chemistry*

**Since 2008:** Member of SCT, Société de chimie thérapeutique

**Since 2007:** Member of SCF, Société chimique de France

**Reviewer for:** *Bioorganic and Medicinal Chemistry, International Journal of Molecular Sciences, Letters in Drug Design and Discovery, ACS Sustainable Chemistry & Engineering, European Journal of Medicinal Chemistry*

**Scientific Tutorial:** France: 5 PhD theses, 4 post-doc, 10 Master II, 8 License, 4 BTS. Cuba: 12 PharmaD students

### Scientific production, bibliometric indicators:

**35** publications, including **17** publications in international peer-reviewed journals, and **3** publications in refereed national journals, **9** articles in refereed international conferences, **6** articles in refereed national conferences. Co-inventor of 1 patent on ternary complexes containing valproic acid, **6** invited conferences (5 international), **11** oral communications, **49** poster communications.

### Majors publications: (\*= corresponding author) (Impact factor)

- A Rayar, N. Lagarde, F. Martin, F. Blanchard, B. Liagre, C. Ferroud, J-F Zagury, M. Montes, M. Sylla-Iyarreta Veitia\*. New selective cyclooxygenase-2 inhibitors from cyclocoumarol: synthesis, characterization, biological evaluation and molecular modeling. *European Journal of Medicinal Chemistry*, **2018**, 146, 577-587, (IF 4,52).
- Sylla-Iyarreta Veitia\*, D. Siverio-Mota, V. Lerari, M. Marín, R. M. Giner, F. Dumas, C. Ferroud, L. Vicet-Muro, Y. Rivero-Guerra, P. A. M. de Witte, A. D. Crawford, V. J. Arán and Y. Marrero-Ponce. Fishing anti-Inflammatories from known drugs: in silico repurposing, design, synthesis and biological evaluation of bisacodyl analogues as potential anti-inflammatory agents. *Current Topics in Medicinal Chemistry*, **2017**, 17(25), 2866-2887, (IF 3,37).
- A. Rayar, N. Lagarde, C. Ferroud, J-F Zagury, M. Montes, M. Sylla-Iyarreta Veitia\*. Update on COX-2 selective inhibitors: chemical classification, side effects and their use in cancers and neuronal diseases. *Current Topics in Medicinal Chemistry*, **2017**, 17(26), 2935-2956, (IF 3,37).
- E. Goya Jorge, A. Maria Rayar, S. Jones Barigye, M. Elisa Jorge Rodríguez, M. Sylla-Iyarreta Veitia\*. Development of an *in silico* model of DPPH• free radical scavenging capacity: prediction of antioxidant activity of a coumarin type compounds. *International Journal of Molecular Sciences* **2016**, 17(6), 881, (IF 3,69).
- M. Görmen, M. Sylla-Iyarreta Veitia\*, F. Trigui, M. El Arbi, C. Ferroud. Ferrocenyl derivatives of bisacodyl: synthesis and antimicrobial activity. *Journal of Organometallic Chemistry* **2015**, 794, 274-281, (IF 2,34).
- M. Sylla-Iyarreta Veitia\* and C. Ferroud. New activation methods used in green chemistry for the synthesis of high added value molecules. *International Journal of Energy and Environmental Engineering* **2015**, 6(1), 37-46, (IF 1,5).
- G. Bort, M. Sylla-Iyarreta Veitia\*, C. Ferroud, Straightforward synthesis of PET tracer precursors used for the early diagnosis of Alzheimer's disease through Suzuki-Miyaura cross-coupling reactions. *Tetrahedron*, **2013**, 69(35), 7345-7353, (IF 2,37).
- Fidaly, C. Ceballos, A. Falguières, M. Sylla-Iyarreta Veitia A. Guy, C. Ferroud\*. Visible light photoredox organocatalysis: a fully metal-free direct asymmetric alkylation of aldehydes. *Green Chemistry*, **2012**, 14, 1293–1297, (IF 8,58).