PERSONAL INFORMATION

Valentina Sepe

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Sex Female | Date of birth 06/03/1978 | Nationality Italian

WORK EXPERIENCE

Since April 2021

Associate Professor (CHEM-05/A Chimica Organica ex CHIM06)

Department of Pharmacy, University of Naples “Federico II”

▪ Titular of the following courses:

- Fundamentals of Organic Chemistry for Bachelor’s Degree in Quality Control (6 CFU)

- Laboratory of Organic Chemistry (U3057) for Bachelor’s Degree in Biotechnologies for Health (7 CFU)

R&D Activities:

- Development of new drugs able to act as GPBAR1/CysLT1R dual or selective modulators

- Identification of new steroidal compounds acting as ACE2 activators

- Identification of natural and synthetic steroidal compounds able to block Spike/ACE2 interaction

- Development of new potential SARS-CoV-2 internalisation blockers

▪ **Responsibilities:**

- Member of the Didactic Commission within the Board of Professors of PhD course in Pharmaceutical Sciences (XXXVI, XXXVII, XXXVIII, XXXIX, XL cycles)

- IRIS referent with super-user functions (http://www.farmacia.unina.it/il-dipartimento/organigramma)

- Member of the ISSNP (International Summer School on Natural Products) Organizing Committee, from the first edition in July 2015

- Member of Società Chimica Italiana – Organic Chemistry division since 2002

December 2010- March 2021

Researcher (SSD CHIM06)

Dept. of Pharmacy – University of Naples “Federico II”

▪ **R&D Activities:**

- Development and synthesis of small molecules pharmacologically relevant in metabolic and hepatic diseases such as fibrosis, NASH e cirrhosis

- Identification of 3,4,5-trisubstituted isoxazoles as FXR agonists patented in July 2017 with the name “ISOSSAZOLI COME AGONISTI DEL RECETTORE FXR” (nr. IT201800007265A1, 17/07/2018), extended on September 18th, 2019 - nr. PCT/IB2019/056114

- identification of small molecules deriving from bile acids capable of modulating FXR and GPBAR1

receptors in a dual or selective way, patented on May 29th, 2014, with the name "CHOLANE DERIVATIVES FOR USE IN THE TREATMENT AND/OR PREVENTION OF FXR AND TGR5/GPBAR1 MEDIATED DISEASES", nr. FI2014A000130, further extended on May 28th, 2015 - nr. PCT/EP2015/061802

- HTS of marine organisms and target-oriented discovery aimed to the identification of natural marine products as ligands of nuclear receptors

- Isolation, biochemical characterization, design of derivatives accompanied by total synthesis of marine origin compounds

- Isolation of pharmacologically active secondary metabolites from porifers – stereochemical and synthetic studies

Education and training

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From November 2001 to December 2004

PhD in Pharmaceutical Sciences

XVII cycle Dept. of Pharmacy – University of Naples "Federico II"
Thesis dissertation with the title "Structural and synthetic studies on sfinxolids, potent cytotoxins of marine origin with antimicrofilament activity" – tutor: Prof. Maria Valeria D'Auria

From October 1996 to October 2001

Master's degree in Pharmaceutical Chemistry and Technology (5 years programme)

110/110 cum laude Dept. of Pharmacy – University of Naples "Federico II"
▪ Thesis title "Isolation and structural determination of a new opanoid from the Caribbean sponge Plakortis simplex" – Supervisor: Prof. Ernesto Fattorusso

Ricercatore esterno

Department of Drug Design and Pharmacology", Faculty of Health and Medical Science, University of Copenhagen

PERSONAL SKILLS

Mother tongue: Italian

Other language: English (advanced)

Job-related skills: Research Project management; Coordination of National Research Groups; Organization of National and International Seminars; National Projects management; Management of experimental research activities for PhD and Degree Thesis/Dissertations

Digital skills: Advanced level skills in Microsoft Office software pack. Programs for data processing (Graph Pad), graphic and image analysis (Adobe Photoshop, Image J), molecular drawing (Chem Draw). Good level skills in: Molecular docking software (Autodock4.2) and Molecular graphics software (VMD, PyMOL)

Other skills:

- Attitude for Teamwork and International Cooperation
- International relations
- Ability to share and disseminate scientific and technical experiences
- Very good communication and didactic skills, public speaking ability, ability to think critically and solve problems

WORKS ACTIVITIES

Editorial activity: Referee per J. Med. Chem, Steroids, Marine Drugs, Org Lett, Bioorg. Med. Chem., Scientific Reports, Nature Communication, PLos One, Tetrahedron, J. Org. Chem., Journal of Immunology

Grants:

- ✓ Project manager of the agreement stipulated between the Department of Pharmacy and the Department of Public Health entitled "Ricerca di metaboliti urinari dei principali inquinanti ambientali" (PG/2020/0051797 of 25/06/2020; end 30/06/2021; 40000 €)
- ✓ Project manager of a research group focused on "Combattere la resistenza tumorale:

piattaforma integrata multidisciplinare per un approccio tecnologico innovativo alle oncoterapie - Campania Oncoterapie" -POR Campania FESR 2014/2020 (project N. B61G18000470007; 01/012018 – 31/12/2020, 50000 €).

- ✓ Project manager of Research Unit for PRIN2017 Progetto 2017FJZZRC - Bile acids activated receptors and liver metabolism: discovery and development of novel therapeutic targets in the treatment of steato-hepatitis (NASH) (36 months).
- ✓ Project manager for the project "Discovery of new Molecules for the treatment of Gastrointestinal Disorders", Acronimo MoDiGa" (PG/2021/0034345 del 06/04/2021)

- ✓ **International research projects participations**:
  1. FP7-KBBE-2009-3-245137 MAREX: Exploring Marine Resources for Bioactive Compounds: From Discovery to Sustainable Production and Industrial Applications 2010-2014 (48 mesi).
  2. COST Action: CM1207 named "Computational modelling and binding mode prediction of new small molecules, as selective 5-HT2A receptor". Reference: ECOST-STSM-CM1207-010414-043411. STSM dates: from 01-04-2014 to 16-05-2014. Location: Department of Drug Design and Pharmacology, University of Copenhagen, Copenhagen, Denmark. Host: Pr David Gloriam, Department of Drug Design and Pharmacology, University of Copenhagen from 01-04-2014 to 16-05-2014 (2000 €).

  National research projects participations:
  1. "PROGEMA - Processi Green per l'estrazione di principi attivi e la depurazione di matrici di scarto e non" (ARS01_00432 area di specializzazione Green Chemistry), presented by University of Napoli "Federico II". The candidate's research activity is related to the "ricollocazione degli estratti ed ottimizzazione farmaceutica" (project N. B26G1800700005 24 months).
  2. Progetto di Ateneo 2017-2018: Discovery of new ligands, specifically targeting bile acid receptors, for the treatment of liver and metabolic disorders (BARLIG, DR/2017/409 del 07/02/2017) (24 months).
- ✓ 3. Research agreement of BAR PHARMACEUTICALS with Department of Pharmacy (protocollo N° 2016/003153 del 14/01/2016). Title "Sviluppo molecole attive su recettori nucleari metabolici". Project manager: Prof.ssa Angela Zampella.

ADDITIONAL INFORMATION

Publications	Author and co-author of 72 scientific products From Scopus: Hindex: 27; total citations: 2012; Articles from 2014-2025: 46. She is a Leader of a research group, working on the design and the synthesis of new leads as promising therapeutic strategy in metabolic syndrome. A first research line regards the design and synthesis of steroidal bile acid derivatives as selective and/or dual modulators of bile acid receptors, FXR and GPBAR1. The research has also shifted towards the synthesis of aromatic compounds with the aim of obtaining multi-target derivatives, such as for example dual modulators of GPBAR1 and CysLT1R receptors, useful in the treatment of colitis and other inflammatory processes. Selected relevant publications: • Rapacciuolo P. et al. Design, Synthesis, and Pharmacological Evaluation of Dual FXR-LIFR Modulators for the Treatment of Liver Fibrosis. J Med Chem, 2025, 67, 18334-18355. • Di Giorgio C, et al. Bile acids serve as endogenous antagonists of the Leukemia inhibitory factor (LIF) receptor in oncogenesis. Biochem Pharmacol. 2024, 223, 116134. • Sepe V. et al. Development of bile acid activated receptors hybrid molecules for the treatment of inflammatory and metabolic disorders. Biochem Pharmacol., 2023, 216, 115776. • Sepe V et al. Combinatorial targeting of G-protein-coupled bile acid receptor 1 and cysteinyl leukotriene receptor 1 reveals a mechanistic role for bile acids and leukotrienes in drug-induced liver injury. Hepatology. 2023, 78, pp 26-44. • Sepe V. et al. Structural Basis for Developing Multitarget Compounds Acting on Cysteinyl Leukotriene Receptor 1 and G-Protein-Coupled Bile Acid Receptor 1. J Med. Chem, 2021, 64(22), pp 16512-16529 • Sepe V. et al. Identification of cysteinyl-leukotriene-receptor 1 antagonists as ligands for the bile acid receptor GPBAR1. Biochemical Pharmacology, 2020, 177, 113987

	• Sepe V. et al. Exploitation of cholane scaffold for the discovery of potent and selective farnesoid X receptor (FXR) and G-protein coupled bile acid receptor 1 (GPBAR1) ligands. J Med Chem. 2014, 57(20), pp 8477-95. • Sepe V. et al. Design, synthesis, and biological evaluation of potent dual agonists of nuclear and membrane bile acid receptors. J Med Chem. 2014, 57(3), pp 937-54.