



Matilde Rossi

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● ABOUT ME

During my studies, I gained a strong foundation in the principles of chemistry and developed a particular interest in the study of biomolecules. I had the opportunity to work on several research projects throughout my academic career which brought me closer to the field of medicinal chemistry. I am now strongly motivated to be involved in chemical biology projects related to organic and peptides synthesis and I am eager to further enhance my knowledge and practical experience in this area.

● EDUCATION AND TRAINING

29/10/2020 – CURRENT Florence, Italy

MSC IN CHEMICAL SCIENCES - CURRICULUM CHEMISTRY OF BIOMOLECULES University of Florence

Master's Thesis

Tutor Prof. Annamaria Papini, Cotutor: Prof. Kristian Strømgaard, Department for Drug Design and Pharmacology, University of Copenhagen

The project focused on the investigation and development of a peptide-based modulator to modulate the interaction between some of the most abundant proteins in the postsynaptic density region in neurons (PSD). To achieve this objective, high-throughput screening was carried out using SPOT technology, followed by epitope mapping to identify the most promising binding peptides. Solid phase peptide synthesis (SPPS) was used to generate a library of peptides with high binding potential. These peptides were then tested using binding assays to evaluate their efficacy. By employing these techniques, we aimed to identify a peptidic modulator that could effectively modulate the interaction between the target PSD proteins. This could have important therapeutic implications for various neurodegenerative diseases.

Skills covered:

- Solid phase peptide synthesis techniques (manual and automated)
- Peptide compounds purification techniques (HPLC)
- Analysis methodologies (LCMS, UPLC)
- Peptide array display methods (SPOT) related to quality control and binding epitope mapping
- Fluorescence polarization saturation assays
- Pull down assays

Address Piazza di San Marco, 4, 50121, Florence, Italy | **Website** <https://www.unifi.it> |

Thesis Development of peptide-based modulators of the CaMKII/Shank3 and Homer3/Shank3 interaction

29/10/2014 – 23/09/2020 Florence, Italy

BSC IN CHEMISTRY - CURRICULUM CHEMICAL SCIENCES University of Florence

Bachelor's Thesis

Tutor: Prof. Francesca Cardona, Department of Chemistry "Ugo Schiff" University of Florence

The project aimed to investigate the synthetic pathways and organic synthesis of an azasugar with a polyhydroxylated piperidine structure, which could have been served as a glucosylceramide mimic and as potential pharmacological chaperone of the GCse enzyme. The successful synthesis of a glucosylceramide mimic may offer significant insights into the development of pharmacological chaperones for GCse enzyme deficiencies, which are known to be associated with a variety of debilitating disorders such as Parkinson's disease and Gaucher's disease.

Skills covered:

- Critical analysis of the activity-related structure of biomolecules
- Development of organic synthetic methodologies
- Synthesis and purification of organic compounds
- Characterization of organic compounds by analytical techniques such as two-dimensional ¹H-NMR (gCOSY and gHSQC), ¹³C-NMR, mass spectroscopy, optical rotatory power, and IR

Address Piazza San Marco, 4, 50121, Florence, Italy | **Website** <https://www.unifi.it> | **Final grade** 109/110 |

Thesis Synthesis of a glucosylceramide mimic potential pharmacological chaperone of the GCase enzyme

05/09/2022 – 18/03/2023 København, Denmark

ERASMUS TRAINEESHIP University of Copenhagen

In my Erasmus traineeship mobility I had the opportunity to work in the Kristian Strømgaard Lab at the Department of Drug Design and Pharmacology of the University of Copenhagen for my Master's thesis. During this experience, I deepened my understanding of medicinal chemistry, particularly in relation to the role of peptide chemistry in pharmacology; I had the opportunity to learn the fundamentals of drug design in this field combining tools from chemistry and biology.

Address Nørregade 10, 1165, København, Denmark | **Website** <https://www.ku.dk>

● LANGUAGE SKILLS

Mother tongue(s): **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	B2	B2	B2	B2	B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

● DIGITAL SKILLS

Ability to use the most important biological databases | Basic knowledge of PyMOL, ChemDraw, Graphpad Prism, CARS and TopSpin | Good user of the Microsoft Office package