

Serge Nader

STRUCTURAL BIOLOGIST · 26 YEARS OLD

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“As a biochemist with a specialization in structural biology, my intention is to integrate new research projects where I will be able to apply my expertise to ongoing research on the origins of life or evolution”

Education

Ph.D. in Structural Biology

Université Grenoble Alpes, Chemistry and Biology of Metals laboratory (LCBM)

Grenoble, France

2015 - 2018

M.Sc. in Structures and Interactions of Macromolecules and Functional Genomics

Université Saint-Joseph de Beyrouth (USJ), Faculty of Sciences

Lebanon

2013 - 2015

B.Sc. in Life and Earth Sciences - Biochemistry

Université Saint-Joseph de Beyrouth (USJ), Faculty of Sciences

Lebanon

2010 - 2013

Research Experience

Ph.D. in Structural Biology

French Atomic Energy Commission & French National Centre for Scientific Research & LCBM

Grenoble, France

Oct. 2015 - Nov. 2018

- Purified and carried out structural studies (MALLS, XAFS, SAXS) and crystallization of Fur proteins.
- Used molecular dynamics simulations and developed in house scripts in order to identify key protein residues.
- Proposed mechanistic models based on a coupled theoretical and experimental approach.

End of study M. Sc. thesis

Laboratory of Pharmacological and Toxicological Biochemistry, Université Paris Descartes

Paris, France

Feb. 2015 - Jun. 2015

- Analysed the behaviour of a polarizable force field (SIBFA) for interaction studies between a zinc metallo- β -lactamase and an inhibitor.

First year M. Sc. thesis

Laboratory of Structures and Interactions of Macromolecules, USJ - Faculty of Sciences

Lebanon

Feb. 2014 - May 2014

- Identified recognition sites of monoclonal antibodies on the HIV-1 integrase using circular dichroism and fluorescence anisotropy.

Quality control technician in a food production plant

Quality Control Laboratory, Al Wadi Al Akhdar s.a.l

Lebanon

Jul. 2013

- Inspected and controlled raw materials, final products, industrial processes and labelling.
- Carried out microbiological tests.

Internship in molecular biology

Laboratory of Molecular Biology, USJ - Faculty of Sciences

Lebanon

Sep. 2012 - Dec. 2012

- Studied *Bacillus thuringiensis* strains from Lebanese soil for bio-pesticide production.
- Identified a new industrially exploitable strain possessing genes not yet characterized in *B. thuringiensis*.

Internship in food science

Center for Analysis and Research, USJ - Faculty of Sciences

Lebanon

Aug. 2012 - Sep. 2012

- Studied phenolic compounds in grapes from Château KSARA to optimize harvesting calendars.

Skills

Scientific techniques Protein expression, purification and crystallization; MALLS, XAFS, SAXS ; Molecular Dynamics & Docking

Programming Shell, LaTeX, Python, Visual basic, Linux/Unix environment

Social Media Social media coordinator for the Chemistry and Biology of Metals Laboratory (2016 - present)

Languages Arabic (native), French (fluent), English (fluent), Italian (novice)

Organizational Ph.D. students and post-doctoral fellows representative at the LCBM laboratory board (2015-2018)

Representative of the Science and Technology Campus at the USJ board (2013-2015)

Additional training and certificates

- 2018 **European first aid certificate**, French Red Cross. Grenoble, France
- 2017 **Emergence of life**, University of Illinois Urbana-Champaign, achieved by correspondence in 9 weeks. Coursera
- 2017 **Doctoriales**[®], Université Grenoble Alpes. Worked in teams and proposed an innovation project. Did market studies and financial predictions. Autrans, France
- 2017 **Team Work and Management**, Université Grenoble Alpes, Grenoble. Learned motivation, communication and conflict management techniques. Grenoble, France
- 2016 **FAME+ 2016**, French National Centre for Scientific Research. X-ray absorption training for the control and management of an experiment using synchrotron beam-lines. Grenoble, France
- 2016 **Python Programming**, University of Texas at Arlington, achieved by correspondence in 9 weeks. edX
- 2015 **Super-Earths and Life**, Harvard University, achieved by correspondence in 9 weeks. edX

Teachings

Academic years 2016-2017 & 2017-2018

Grenoble, France

Faculty of Pharmacy of Grenoble.

128 hours

Taught practicals for first year M. Sc. students of “Drug Sciences and Health Engineering” at the Faculty of Pharmacy of Grenoble. Practical consisted of production of mutant and wild-type DNA sequences, bacterial transformation, protein production and purification and protein activity assays. I also contributed to the writing of exams, their correction, the evaluation of laboratory notebooks and oral presentations.

Publications

Nader, S., Pérard, J., Carpentier, P., Arnaud, L., Crouzy, S., Michaud-Soret, I., **Biometals**, 2019, “New insights into the tetrameric family of the Fur metalloregulators”. <https://doi.org/10.1007/s10534-019-00201-8> 2019

Nader, S., **Université Grenoble Alpes**, “Structural studies on inhibition mechanisms, oligomerization and DNA binding of the transcription regulator Fur : from *in silico* simulations to *in vitro* biological assays”. 2018
<https://tel.archives-ouvertes.fr/tel-02050234>

Pérard, J., **Nader, S.**, Levert, M., Arnaud, L., Carpentier, P., Siebert, C., Blanquet, F., Cavazza, C., Renesto, P., Schneider, D., Maurin, M., Coves, J., Crouzy, S., Michaud-Soret, I., **Communications Biology**, 2018, “Structural and functional studies of the metalloregulator Fur identify a promoter-binding mechanism and role in *Francisella tularensis* virulence”. <https://doi.org/10.1038/s42003-018-0095-6> 2018

Kwapien, K., Damergi, M., **Nader, S.**, El Khoury, L., Hobaika, Z., Maroun, R., Piquemal, J.P., Gavara, L., Berthomieu, D., Hernandez, J.F., Gresh, N., **The journal of physical chemistry. B**, 2017, “Calibration of 1,2,4-Triazole-3-Thione, an Original Zn-Binding Group of Metallo- β -Lactamase Inhibitors. Validation of a Polarizable MM/MD Potential by Quantum Chemistry”. <https://doi.org/10.1021/acs.jpcc.7b01053> 2017

Scientific Communications

- Mar. 2018 11th scientific meeting of the Institute of Metals in Biology of Grenoble Autrans, France
- Sep. 2017 Scientific meeting of the “Academic Research Community 1 Santé” Isle d’Abeau, France
- Jul. 2017 Annual meeting of Ph.D. students from the CSV doctoral school Grenoble, France
- Jul. 2018 43rd FEBS Congress (Poster) Prague, Czech Republic
- May 2017 XXth Congres of the “Groupe de Graphisme & Modélisation Moléculaire” (Poster) Reims, France
- May 2016 10th scientific meeting of the Institute of Metals in Biology of Grenoble (Poster) Autrans, France
- Sep. 2018 Scientific meeting of the “Academic Research Community 1 Santé” (Poster) Isle d’Abeau, France

Interests

Exobiology & Astronomy • Squash • Mountaineering • Trekking • Bouldering • Time-lapse photography