

Rachid Charbel MAROUN

UMR-S INSERM U1024/Université d'Evry-Val d'Essonne
Structure-activité de biomolécules normales et pathologiques
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DEGREES

B.Sc. in Chemistry (Licenciatura de Quimica). National Autonomous University of Mexico (UNAM), Mexico, Mexico, May 1977. Thesis: «A theoretical study in quantum chemistry on the conformations of an inorganic addition complex» (in Spanish).

Ph.D. in Physical-chemistry/Physics. Louisiana State University, Baton Rouge, Louisiana, USA, May 1983. Thesis «Statistical mechanics of conformational transitions in biopolymers » in *Diss. Abst. Intl.* (in English).

H.D.R. in Structural Bioinformatics. Université de Paris VII Denis Diderot, January 2004. Thesis «Theoretical methods for the study of the structure, the function and the mechanisms of molecular recognition in biology» (in French).

PROFESSIONAL EXPERIENCE - LABORATORIES

GRADUATE STUDENT 1977 - 1983. Louisiana State University, Baton Rouge, Louisiana, USA. Chemistry Department.

POSTDOCTORAL FELLOW 1983 - 1986. Rutgers University, New Brunswick, New Jersey, USA. Chemistry Department.

ASSOCIATED RESEARCH FELLOW (CNRS) 1986 - 1987. Institut de Biologie Physico-chimique, Laboratoire de Biochimie Théorique, Paris, France.

RESEARCH FELLOW (INSERM, FRM, ARC) 1987 - 1991. Unité de Pharmacochimie Moléculaire, UER des Sciences Pharmaceutiques et Biologiques, Université de Paris V, Paris, France.

CHARGE DE RECHERCHE 1ère classe (INSERM) 1991 - 1993: Unité de Pharmacochimie Moléculaire, UER des Sciences Pharmaceutiques et Biologiques, Université de Paris V, Paris, France.

1993-1995: Unité d'Immunologie Structurale, Institut Pasteur,

1995-1998: Unité de Physico-chimie de Macromolécules Biologiques, Institut Pasteur. (Unit ceased to exist).

1995-2001: Unité des Venins, Institut Pasteur. (Unit ceased to exist).

2002-2005 : Unité de Bioinformatique Structurale, Institut Pasteur.

2006: Laboratoire d'Informatique (LIP6), Université de Paris VI. (Team ceased to exist).

2007-2010: Centre de Psychiatrie et de Neurosciences Broca-Ste. Anne, équipe Neurobiologie et Pharmacologie Moléculaire, INSERM U573, U894. (Unit ceased to exist).

2011-2012 : Centre Interdisciplinaire de Recherche en Biologie (CIRB; CNRS UMR 7241/INSERM U1050), Collège de France.

2012-present : Structure-activité des biomolécules normales et pathologiques (SABNP), UMR-S INSERM U1024/Université d'Evry-Val d'Essonne/Université Paris Saclay.

TEACHING EXPERIENCE

TEACHING ASSISTANT 1977 - 1981. Louisiana State University, Chemistry Department.

LECTURER 1984 - 1986. Rutgers University, Chemistry Department.

LECTURER 1990 - 1993. Université de Paris V, Faculté de Pharmacie. Master (DEA) of molecular pharmacochimistry, experimental pharmacology and metabolism.

LECTURER 1999-2004. Institut Pasteur. DEA de Structure, Fonction et Ingénierie des Protéines, U. De Paris VII.

INSTRUCTOR 2003-2009. Departamento de Biotecnología, Universidad Autonoma Metropolitana (UAM), Mexico, and Centro de Biotecnología, Universidad Autonoma del Estado de Morelos (UAEM), Cuernavaca, Mexico. « Molecular structural bioinformatics: Theoretical and computational methods for the study of biological macromolecules ».

LECTURER 2004. International School on Computational Sciences for Complex Systems in Biology (CSSB 2004). Rovereto, Italy. « Theoretical methods for the study of the 3D structure, the function and the recognition mechanisms of biological macromolecules ».

INSTRUCTOR 2004 EMBO course « Biomolecular Simulation », Institut Pasteur, Paris, France.

INSTRUCTOR 2004 UAM's 30th anniversary. Mexico City, Mexico. Course in Molecular Structural Bioinformatics “Theoretical and computational methods for the study of biological macromolecules”.

INSTRUCTOR 2005-2014. UAM, Dept. of Biotechnology; Universidad Autonoma del Estado de Morelos, Centro de Biotecnologia; Escuela Superior de Medicina y Homéopatia, Instituto Politécnico Nacional, “Molecular Structural Bioinformatics: Theoretical and computational methods for the study of biological macromolecules”.

INSTRUCTOR July 2015, July 2016. Université d'Evry-Val d'Essone/Université Paris Saclay, Ecole d'été France excellence (EEFE), “Computational methods for the study of biological macromolecules and their effectors.”

INSTRUCTOR 2016 course « Structural Bioinformatics » to the Chinese delegation of Huazhong University of Science and Technology, Wuhan, China.

INSTRUCTOR October 2017. Université d'Evry-Val d'Essone/Université Paris Saclay, La fête de la science, “The specialty fields and methods of the SABNP laboratory”.

CONTINUING EDUCATION

Trainings in biomolecular simulations, drug discovery, computer science and programming (Python), therapeutic innovation and personal development.

TUTORING

More than 14 individuals (BSc, Master's, PhD, postdoc, invited professors).

SPECIALITY DOMAINS

Molecular Structural Bioinformatics - Computational Biology - Molecular Modeling and Simulation – Neurosciences, G-protein coupled/7TM receptors – Molecular Pharmacology – Drug design

SCIENTIFIC MEMBERSHIPS

Société Française de Bioinformatique.

International Society of Computational Biology

ORGANIZATION OF SCIENTIFIC EVENTS

Four in Molecular Modeling and Structural Biology

JOURNAL REFEREEING

Biophysical Journal

BMC Structural Biology
 International Biotechnology Color Journal
 Journal of Molecular Graphics and Modeling
 PLOS One
 Theoretical Biology and Medical Modelling
 Toxicon
 Editor: Cogent Biology

SCIENTIFIC PUBLICATIONS

Oral and written communications in national and international conferences:

More than thirty.

Reviews and journal articles:

- Thirty four peer-reviewed in indexed journals.
- ~630 citations, h-index 14. Average citations per article: 19. Source: Web of science.
- Major publications:
- R.C. Maroun*, S. Hadj-Rabia*, G. Brideau*, Y. Al-Sarraj*, M.-L. Figueres, S. Leclerc-Mercier, E. Olinger, S. Baron, C. Chaussain, D. Nochy, R.Z. Taha, B. Knebelmann, V. Joshi, P. A. Curmi, M. Kambouris, R. Vargas-Poussou, C. Bodemer, O. Devuyst, P. Houillier, H. El-Shanti (2017), "Multiplex epithelium dysfunction due to CLAUDIN-10 mutation: the HELIX syndrome". *Genet. Med.* Aug 3. doi: 10.1038/gim.2017.71. [Epub ahead of print]
- M. Kambouris, R.C. Maroun, T.Ben-Omran, Y. Al-Sarraj, K. Errafi, i R. Ali, H. Boulos, P.A. Curmi & H. El-Shanti (2014). "Mutations in Zinc Finger 407 [ZNF407] Cause a Novel Autosomal Recessive Cognitive Impairment Syndrome", *Orphanet Journal of Rare Diseases* 9, 80.PMID: 24907849. Highly accessed.
- G.Faure, V.T.Gowda & R.C.Maroun (2007). «Characterization of a human coagulation factor Xa-binding site on Viperidae snake venom phospholipases A2 by affinity binding studies and molecular bioinformatics». *BMC Struct Biol* 7, 82. PMID: 18062812. Highly accessed.
- S.M.T.Serrano, R.C.Maroun (2005). «Snake venom serine peptidases: sequence homology vs. substrate specificity, a paradox to be solved». *Toxicon*, 45, 8, 1115-32. Review paper by invitation. PMID: 15922778.
- R.C.Maroun, C.Demangel, S.Rouyre, C.Bon, J.C.Mazié & V.Choumet (2000). «Combining Phage Display and Molecular Modeling to Map the Epitope of a Neutralizing Anti-Toxin Antibody», *European J. Biochem.* 267, 2345-2353. PMID: 10759860.

- R.C.Maroun & W.K.Olson(1988). «Base Sequence Effects in Double-Helical DNA. III. Average Properties of Curved DNA», *Biopolymers* 27, 585-603. PMID: 3370295.