

CURRICULUM VITAE

A. Personal Experience

Personal Background



Name: Rana El Hajj
Title: Assistant Professor of Molecular Microbiology
Institution: Beirut Arab University
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Short Biography

Dr. Rana El Hajj is currently an Assistant Professor of Microbiology in the Department of Biological Sciences at Beirut Arab University. Her research interests comprise the fields of Microbiology and Oncology. Dr. El Hajj published 21 manuscripts in leading journals (H-index 8; i10-index 7 on Google Scholar database).

Work Experience

February 2021- present **Assistant Professor of Molecular Microbiology**
Faculty of Sciences, Beirut Arab University.

Training and Fellowship

May 2020- January 2021 **Post-doctoral fellow at the American University of Beirut**
Department of Experimental Pathology; working on
"the biological and diagnostic markers predicting the outcome of
Sebaceous neoplasms"
PI: Dr. Ibrahim Khalifeh

January 2020-May 2020 **Post-doctoral fellow at the American University of Beirut**
Department of Internal Medicine; working on "targeted therapies
For Acute Myeloid Leukemia"
PI: Dr. Ali Bazarbachi

June 2018- December 2020 **Post-doctoral fellow at the American University of Beirut**
Department of Experimental Pathology and Laboratory Medicine
working on "methods for the diagnosis of skin cancer and drug
repurposing and new therapeutic modalities against toxoplasmosis"
Dr Hiba El Hajj and Dr Ibrahim Khalifeh'Labs.

Activities having an impact on the development of scientific research in the country

My research interests span Microbiology and Oncology. My Microbiology axis tackles pertinent questions in Bacteriology and Parasitology. My interest in Bacteriology started since I joined BAU, by focusing on "effective antibacterial treatment strategies using herbal extracts ". In Parasitology, I tackle two major parasitic infections. As a continuum of my PhD and first post-doctoral fellow, we are currently revisiting the current treatment modalities for Cutaneous Leishmaniasis and Toxoplasmosis. In Oncology, I explored novel therapeutic strategies for Acute Myeloid Leukemia, Adult T-cell Leukemia, and deciphering sebaceous neoplasm's pathogenesis.

Educational Background

- 2015-2018** **Ph.D. in Microbiology**, Faculty of Pharmacy, Montpellier University*, France, with distinction.
*The Experimental part of the PhD and Master II was performed at the American University of Beirut.
- 2013-2015** **Master Degree in Genomics and Health**, Biology, Lebanese University, Hadath, Lebanon, with distinction.
- 2010-2013** **BS in Biology**, Faculty of Sciences, Lebanese University, Hadath, Lebanon, with distinction.

B. Research Experience

Publications

- 1. Immunity against COVID-19: What Do We Know So Far? A Comprehensive Review on the Immunity Against COVID-19.** Mourneh Mohamad Bahij, Ghassan Dbaibo, Darine Daher, Tarek Bou Dargham, Christine Atallah, **Rana El Hajj**, Lina Reslan, Zeina Bayram, and Abdul Rahman Bizri. *Journal of Clinical Respiratory: Open Access* (2022): 1-16.
- 2. Characterization of the risk factors associated with Urinary Tract Infection (UTI) in Lebanon, and evaluation of the antibacterial activity of Hawthorn extract against UTI-causing bacteria.** Ramadan Jamila, **Rana El Hajj**, and Mahmoud Khalil. *Bacterial Empire*. Vol. 5 No. 3 (2022).
- 3. Actinomycetes, Promising Therapeutic Agents: Characteristics and Active Metabolites.** Zahr, Rayan, Sarah Zahr, **Rana El Hajj**, and Mahmoud Khalil. " *Journal of Biology and Today's World*. Vol.11, Issue 6, 1-8 (2022).
- 4. EAPB0503, an imidazoquinoxaline derivative modulates SENP3/ARF mediated SUMOylation, and induces NPM1c degradation in NPM1 mutant AML.** Skayneh, Hala, Batoul Jishi, Rita Hleihel, Maguy Hamie, **Rana El Hajj**, Carine Deleuze-Masquefa, Pierre-Antoine Bonnet, Marwan El Sabban, and Hiba El Hajj. *International Journal of Molecular Sciences* 23, no. 7 (2022): 3421.
- 5. Microsatellite Instability in Near East Sebaceous Neoplasms: Toward Improved Prediction.** **Rana El Hajj**, Maelle Saliba, Muhammad Shaheen, Fatmeh I. Abbas, Shaarif Bashir, Umer N. Sheikh, Asif Loya, and Ibrahim Khalifeh. *Applied Immunohistochemistry & Molecular Morphology* 30, no. 3 (2022): 204-208.
- 6. HAS 1: A natural product from soil-isolated Streptomyces species with potent activity against cutaneous leishmaniasis caused by Leishmania tropica.** Awada Bassel, Maguy Hamie, **Rana El Hajj**, Ghada Derbaj, Rania Najm, Perla Makhoul, Dima Hajj Ali, Antoine G. Abou Fayad, and Hiba El Hajj. *Frontiers in Pharmacology* 13 (2022).

- 7. Toxoplasmosis: Current and emerging parasite druggable targets.** Rana El Hajj, Lina Tawk, Shaymaa Itani, Maguy Hamie, Jana Ezzeddine, Marwan El Sabban, and Hiba El Hajj. *Microorganisms* 9, no. 12 (2021): 2531.
- 8. Comprehensive overview of Toxoplasma gondii-induced and associated diseases.** Daher Darine, Ahmad Shaghlil, Eyad Sobh, Maguy Hamie, Malika Elhage Hassan, Mohamad Bahij Moumneh, Shaymaa Itani, **Rana El Hajj**, Lina Tawk, Marwan El Sabban, and Hiba El Hajj. *Pathogens* 10, no. 11 (2021): 1351.
- 9. PD-L1 expression in sebaceous carcinomas.** Saliba Maelle, Muhammad Shaheen, **Rana El Hajj**, Fatmeh Abbas, Shaarif Bashir, Umer Nisar Sheikh, Rami Mahfouz, Asif Loya, and Ibrahim Khalifeh. *Cancer Immunology, Immunotherapy* 70 (2021): 1907-1915.
- 10. P18 (SRS35/TgSAG4) Plays a Role in the Invasion and Virulence of Toxoplasma gondii.** Hamie, Maguy, Nadim Tawil, **Rana El Hajj**, Rania Najm, Sara Moodad, Rita Hleihel, Martin Karam et al. *Frontiers in Immunology* (2021): 2517.
- 11. Sebaceous neoplasms: prevalence of HPV infection and relation to immunohistochemical surrogate markers.** Saliba Maelle, Muhammad Shaheen, **Rana El Hajj**, Fatmeh Ibrahim Abbas, Shaarif Bashir, Umer Nisar Nisar Sheikh, Rami Mahfouz, Asif Loya, and Ibrahim Khalifeh. *European Journal of Dermatology* 31 (2021): 170-175.
- 12. Toxoplasmosis: Current and Emerging Parasite Druggable Targets.** Rana El Hajj, Lina Tawk, Shaymaa Itani, Maguy Hamie, Jana Ezzeddine, Marwan El Sabban, and Hiba El Hajj. *Microorganisms* 2021, 9, 2531." (2021).
- 13. Sebaceous Neoplasms: The Epidemiologic, Histopathologic and Immunohistochemical Features of 215 Near-Eastern Cases.** Saliba Maelle, Muhammad Shaheen, Rana El Hajj, Fatmeh Abbas, Shaarif Bashir, Umer Nisar Sheikh, Asif Loya, and Ibrahim Khalifeh. *European Journal of Dermatology*, doi:10.1684/ejd.2021.4097, (2021).
- 14. P18 surface antigen mediates reactivation of cerebral toxoplasmosis in murine models displaying an interferon-gamma immune response.** Hamie Maguy, Nadim Tawil, Lea Maalouf, **Rana El Hajj**, Rania Najm, Rita Hleihel, Martin Karam et al. *Journal of Infection and Public Health* 13, no. 12 (2020): 2116-2117.
- 15. Expanded genome-wide comparisons give novel insights into population structure and genetic heterogeneity of Leishmania tropica complex.** Salloum Tamara, Rim Moussa, Ryan Rahy, Jospin Al Deek, Ibrahim Khalifeh, **Rana El Hajj**, Neil Hall, Robert P. Hirt, and Sima Tokajian. *PLoS neglected tropical diseases* 14, no. 9 (2020): e0008684.
- 16. Lenalidomide in combination with arsenic trioxide: an effective therapy for primary effusion lymphoma.** Moodad, Sara, **Rana El Hajj***, Rita Hleihel, Layal Hajjar, Nadim Tawil, Martin Karam, Maguy Hamie, Raghida Abou Merhi, Marwan El Sabban, and Hiba El Hajj. *Cancers* 12, no. 9 (2020): 2483.
* co-first author

17. **Cutaneous leishmaniasis: an evolving disease with ancient roots.** Saliba Maelle, Awss Shalhoub, Suad Taraif, Asif Loya, Mohammad A. Hureih, **Rana El Hajj**, and Ibrahim Khalifeh. *International Journal of Dermatology* 58, no. 7 (2019): 834-843.
18. **EAPB0503: An Imiquimod analog with potent in vitro activity against cutaneous leishmaniasis caused by Leishmania major and Leishmania tropica.** **Rana El Hajj**, Hanady Bou Youness, Laurence Lachaud, Patrick Bastien, Carine Masquefa, Pierre-Antoine Bonnet, Hiba El Hajj, and Ibrahim Khalifeh. *PLoS neglected tropical diseases* 12, no. 11 (2018): e0006854.
19. **Fatal visceral leishmaniasis caused by Leishmania infantum, Lebanon.** **Rana El Hajj**, Hiba El Hajj, and Ibrahim Khalifeh. *Emerging infectious diseases* 24, no. 5 (2018): 906.
20. **Acute disseminated encephalomyelitis and reactivation of cerebral toxoplasmosis in a child: case report.** Bannoura, Sami, **Rana El Hajj**, Ibrahim Khalifeh, and Hiba El Hajj. *IDCases* 13 (2018): e00434.
21. **Toxoplasma gondii autophagy-related protein ATG9 is crucial for the survival of parasites in their host.** Nguyen Hoa Mai, Hiba El Hajj, **Rana El Hajj**, Nadim Tawil, Laurence Berry, Maryse Lebrun, Yann Bordat, and Sébastien Besteiro. *Cellular Microbiology* 19, no. 6 (2017): e12712.

Oral presentations; Conferences; Workshops

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|----------------------|--|
| April 2023 | Targeted therapy for Acute Myeloid Leukemia: Investigating the potency of Arsenic trioxide, All Trans Retinoic Acid and Everolimus combination
Biomedical Research Day, American University of Beirut, Lebanon.
Poster Presentation |
| October 2022 | Design Thinking Workshop, in partnership with Florida State University
Antonine University, Lebanon. |
| February 2019 | EAPB0503: an Imiquimod analog with potent in vitro activity against Cutaneous Leishmaniasis caused by Leishmania tropica
Annual Congress of the Lebanese Society of Infectious diseases and Clinical Microbiology LSIDCM, Le Royal Dbayeh, Lebanon.
Oral Presentation |
| October 2018 | EAPB0503: an Imiquimod analog with potent in vitro activity against Cutaneous Leishmaniasis caused by Leishmania tropica
IAP congress, Jordan.
Poster Presentation |

March 2018 **EAPB0503: an immunomodulatory drug analog as promising treatment for Cutaneous Leishmaniasis**
Biomedical Research Day, AUB, Beirut, Lebanon.
Poster presentation

May 2017 **EAPB0503: an immunomodulatory drug analog as promising treatment for Cutaneous Leishmaniasis**
Vancouver, Canada.
Oral presentation

C. Teaching Experience

Teaching activities

Spring 2022-2023

- **Ecology**
Faculty of Sciences, Beirut Arab University
- **Food Microbiology**
Faculty of Sciences, Beirut Arab University
- **General Biology**
Faculty of Sciences, Beirut Arab University
- **Introduction to Biology**
Faculty of Sciences, Beirut Arab University
- **Environmental Issues of Lebanon**
Faculty of Sciences, Beirut Arab University
- **Global Warming**
Faculty of Sciences, Beirut Arab University
- **Individual studies**
Faculty of Sciences, Beirut Arab University
- **Advanced Topics in Molecular Biology**
Faculty of Sciences, Beirut Arab University
- **Plant Biology**
Faculty of Sciences, Beirut Arab University

Fall 2022-2023

- **General Biology**
Faculty of Sciences, Beirut Arab University
- **Microbiology**
Faculty of Sciences, Beirut Arab University
- **Seminar in Biology**
Faculty of Sciences, Beirut Arab University
- **Introduction to Biology**
Faculty of Sciences, Beirut Arab University
- **Biochemical Principles of Nutrition**
Faculty of Sciences, Beirut Arab University
- **Biodiversity and Pollution**
Faculty of Sciences, Beirut Arab University
- **Advanced Microbiology**
Faculty of Sciences, Beirut Arab University
- **Research Techniques**
Faculty of Sciences, Beirut Arab University
- **Plant Biology**
Faculty of Sciences, Beirut Arab University

Spring 2021-2022

- **Ecology**
Faculty of Sciences, Beirut Arab University
- **Virology**

- Faculty of Sciences, Beirut Arab University
- **General Biology**
Faculty of Sciences, Beirut Arab University
- **Introduction to Biology**
Faculty of Sciences, Beirut Arab University
- **Individual studies**
Faculty of Sciences, Beirut Arab University
- **Advanced Topics in Molecular Biology**
Faculty of Sciences, Beirut Arab University
- **Plant Biology**
Faculty of Sciences, Beirut Arab University
- **Special Topics in Microbiology**
Faculty of Sciences, Beirut Arab University

Fall 2021-2022

- **Molecular Biology, Immunology, and Microbiology**
Faculty of Dentistry, Beirut Arab University
- **General Biology**
Faculty of Sciences, Beirut Arab University
- **Microbiology**
Faculty of Sciences, Beirut Arab University
- **Seminar in Biology**
Faculty of Sciences, Beirut Arab University
- **Introduction to Biology**
Faculty of Sciences, Beirut Arab University
- **Biochemical Principles of Nutrition**
Faculty of Sciences, Beirut Arab University
- **Biodiversity and Pollution**
Faculty of Sciences, Beirut Arab University
- **Advanced Microbiology**
Faculty of Sciences, Beirut Arab University
- **Research Techniques**
Faculty of Sciences, Beirut Arab University
- **Plant Biology**
Faculty of Sciences, Beirut Arab University

Spring 2020-2021

- **Ecology**
Faculty of Sciences, Beirut Arab University
- **Food Microbiology**
Faculty of Sciences, Beirut Arab University
- **General Biology**
Faculty of Sciences, Beirut Arab University
- **Introduction to Biology**
Faculty of Sciences, Beirut Arab University
- **Individual studies**
Faculty of Sciences, Beirut Arab University
- **Advanced Topics in Molecular Biology**
Faculty of Sciences, Beirut Arab University
- **Plant Biology**
Faculty of Sciences, Beirut Arab University
- **Special Topics in Microbiology**
Faculty of Sciences, Beirut Arab University

Fall 2020-2021

- **General Biology**
Faculty of Sciences, Beirut Arab University
- **Biodiversity and Pollution**
Faculty of Sciences, Beirut Arab University
- **Advanced Microbiology**
Faculty of Sciences, Beirut Arab University

Awards

April 2016

Prix Cèdre
Travel Grant

Languages

Arabic, French and English- written and spoken fluently

References

- **Professor Pierre Antoine Bonnet, Pharmacien Univ. Montpellier**

Docteur es Sciences Univ Paris VI, Directeur Scientifique AFSSAPS ANSM 1997-2012

Directeur-Adjoint UFR Sciences Pharmaceutique, Coordonnateur Master Sciences Médicament Univ Montpellier, e-mail: pierre-antoine.bonnet@umontpellier.fr.

- **Dr. Ibrahim Khalifeh, MD, Pathology consultant, Greater Cincinnati Pathologists, The Christ Hospital, 2139 Auburn Avenue, Cincinnati, Ohio 45219, Office: 513-585-1266, Fax: 513-585-4897 e-mail: Ibrahim.khalifeh@thechristhospital.com.**

- **Dr. Hiba El Hajj, tenured Associate Professor, Department of Experimental Pathology, Immunology and Microbiology, Faculty of Medicine, American University of Beirut, P.O. Box 11-0236 / Riad El-Solh / Beirut 1107 2020, Tel: +961-1-350000 ext: 4897, Fax: +961-1-351706 ext: 4913, e-mail: he21@aub.edu.lb.**

*** Additional references are available upon request**