

ISSA ABU-DAYYEH, PhD

Research-Focused CV

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Research Profile

Research leader and immunologist who founded Biolab's Research and Development Department and developed a portfolio spanning translational diagnostics, genomic surveillance, and real-world-data epidemiology. Experienced in research-question development, study design, data governance, multidisciplinary coordination, grant leadership, manuscript preparation, and peer-review response. International research training at McGill University and the University of Oxford.

Research Leadership & Programs

- Founded and leads Biolab's network-wide Research and Development Department, guiding an internal team and an international collaborative network.
- Secured and managed a USD 150,000 CREID/WARN-ID award as Principal Investigator to build sustainable in-country NGS, bioinformatics, and pathogen-surveillance capacity.
- Established end-to-end SARS-CoV-2 genomic surveillance at Biolab and reported variants of concern to Jordan's Ministry of Health and national crisis cell.
- Leads a real-world-data epidemiology program with Weill Cornell Medicine-Qatar that has produced studies of HCV, HBV, syphilis, and gonorrhea in Jordan.
- Conceives research questions and study approaches; oversees data extraction, cleaning, and quality assurance; coordinates analytic collaborators; and leads manuscripts from drafting through acceptance.
- Translated national food-sensitization data into the design of the commercialized EAST-Middle East food-allergen panel.

Research Funding

Principal Investigator — CREID/WARN-ID Pilot Research Award | Development of a Real-Time Pathogen Surveillance System in Jordan 2021-2022

- USD 150,000 supporting reagent procurement, specialist personnel, NGS, bioinformatics training, and sustainable in-country surveillance capacity.
- Conceived and led with Professor Kristian Andersen and the Andersen Lab at Scripps Research.

Research & Academic Appointments

Founder and Head, Research and Development Department | Biolab Diagnostic Laboratories
approximately 2016-present

Head, Diagnostic Immunology Department | Biolab Diagnostic Laboratories *2014-present*

Chair, Institutional Review Board | Biolab Diagnostic Laboratories *2026-present*

GBD Collaborator | Global Burden of Disease Study, IHME, University of Washington *2026-present*

Visiting Researcher | Cell Therapy Center, University of Jordan *2018-2022*

Lecturer in Immunology | University of Jordan Faculty of Medicine *2016-2018*

Postdoctoral Scientist, Molecular and Cytogenetic Diagnostics | Treviso General Hospital, Italy *2012-2013*

Postdoctoral Scientist, Tumor Immunology | University of Oxford *2009-2012*

Teaching Assistant, Parasitology | McGill University *2005-2009*

Research Governance

- Established Biolab's five-member IRB with internal and external members and designated substitutes; developed its charter, policies, SOPs, review procedures, application documentation, membership structure, and conflict-of-interest safeguards.
- Formally appointed Chair by the CEO; conflicted members do not vote on their own projects.

Education

- PhD, Microbiology and Immunology, McGill University, 2009. Dissertation: Alteration of Macrophage Signalling and Functions by Leishmania. GPA 4.0/4.0.
- Graduate Study in Microbiology and Immunology, AUB, 2002-2003.
- BSc Biology with distinction, AUB, 2002; Dean's Honor List, 1999-2002.

Manuscripts Under Review

- Abu-Dayyeh I.**, et al. Chlamydia trachomatis Infection in Jordan: Prevalence, Incidence, and Clearance from Routine Laboratory Data, 2014–2026. *Journal of Epidemiology and Global Health*; under minor revision.

Publications & Scholarly Works

- Abu-Kwaik J.*, Rawashdeh A.*, Saddedin B., Ghunaim M., Hasan T., Abdelnour A., **Abu-Dayyeh I.**† Trends in Aeroallergen IgE Sensitization in Jordan: A Decade-Long Observational Study (2026). *Immun Inflamm Dis*. 14:e70533. <https://doi.org/10.1002/iid3.70533>. (* denotes equal contribution; † corresponding author)
- Alkhnabashi O.S., Ali H., Al-Maawali A., Almontashiri N.A.M., Özbek U., Zaki M.S., Ajlouny M.A., **Abu-Dayyeh I.**, Mahfouz R.A.-R., Baghfir A.M., Gargary K.H., Batarfi A.M., Alahmad B., Alibrahim A., Marafi D., Alsharhan H., Al Sabah S., Kaplan O.I., Al Jasmi F., Alfadhel M., Reversade B., Lashuel H.A., Fakhro K., Alkuraya F.S., Al-Mulla F., Alsheikh-Ali A., Abou Tayoun A. A Middle East collaborative for undiagnosed diseases (2026). *Nat Rev Genet*. <https://doi.org/10.1038/s41576-026-01018-1>.
- Abu-Dayyeh I.**, Al Tibi A., Ghunaim M., Hasan T., Abdelnour A., Abu-Raddad LJ, Chemaitelly H. Epidemiology of Neisseria gonorrhoeae in Jordan: prevalence, incidence, and clearance from a national laboratory dataset, 2014-2025 (2026). *BMC Public Health*. doi: 10.1186/s12889-026-28197-0

4. **Abu-Dayyeh I.**, Chemaitelly H., Al Tibi A., Ghunaim M., Hasan T., Abdelnour A., Abu-Raddad LJ. Syphilis epidemiology in Jordan: prevalence, incidence, and seroreversion from 15 years of laboratory-based data (2026). *Sci Rep.* <https://doi.org/10.1038/s41598-026-56491-9>.
5. **Abu-Dayyeh I.**, Chemaitelly H., Al Tibi A., Ghunaim M., Hasan T., Abdelnour A., Abu-Raddad LJ. Hepatitis B virus in Jordan: Prevalence, incidence, and clearance from cross-sectional and cohort studies (2025). *J Viral Hepat.* 32(10):e70075. doi: 10.1111/jvh.70075
6. **Abu-Dayyeh I.**, Chemaitelly H., Ghunaim M., Hasan T., Abdelnour A., Abu-Raddad LJ. Patterns and trends of hepatitis C virus infection in Jordan: an observational study (2023). *Front Public Health.* 11:1280427. doi: 10.3389/fpubh.2023.1280427
7. **Abu-Dayyeh I.**, Naber Z., Meredith LW., Alsawalha L., Nassar, D., Sumrain L., Ghunaim M., Hasan T., and Abdelnour A. A model for public-private partnership during the COVID-19 pandemic: Lessons from Biolab and public laboratories working in the Hashemite Kingdom of Jordan (2023). *Influenza Other Respir Viruses.* 17(10):e13209. <https://doi.org/10.1111/irv.13209>
8. Fuentes A.*, **Abu-Dayyeh I.***, De Salazar A., Khasharmeh R., Al-Shabatat F., Jebrin S., Chueca N., Hamdan FM., Albtoush Y., Abu Al-Shaer O., Rashid MM., AlMohsen O., Al-Jbour M., Abdelnour A., and Garcia, F. Molecular characterization of patients with chronic hepatitis C virus infection in Jordan: Implications on response to Direct Acting Antiviral therapy (2023). *Int J Infect Dis.* 135:63-66. doi: 10.1016/j.ijid.2023.08.004 (* denotes equal first authorship)
9. Parker E., Anderson C., Zeller M., Tibi A., Havens JL., Laroche G., Benlarbi M., Ariana A., Robles-Sikisaka, R., Abdel Latif A., Watts A., Awidi A., Jaradat SA., Gangavarapu K., Ramesh K., Kurzban E., Matteson NL., Han AX., Hughes LD., McGraw M., Spencer E., Nicholson L., Khan K., Suchard MA., Wetheim JO., Wohl S., Cote, M., Abdelnour A., Andersen KG.& **Abu-Dayyeh I.** Regional connectivity drove bidirectional transmission of SARS-CoV2 in the Middle East during travel restrictions (2022). *Nat. Commun* 13(1): 4784. <https://doi.org/10.1038/s41467-022-32536-1>
10. **Abu-Dayyeh I.**, Abu-Kwaik J., Weimann A., and Abdelnour A. Prevalence of IgE-mediated sensitization in patients with suspected food allergic reactions in Jordan (2020). *Immun. Inflamm. Dis.* 8(3): 384-392. <https://doi.org/10.1002/iid3.320>
11. **Abu-Dayyeh I.** Selected Immunological Diseases, Diagnosis and Treatment (Book in Arabic). Middle East Press, 1st edition (2018).
12. Burghel GJ*, **Abu-Dayyeh I.***, Babouq N., Wallace A., and Abdelnour A. Mutational Screen of a Panel of Tumor Genes in a Case Report of Mucoepidermoid Carcinoma of the Breast from Jordan (2018). *Breast J.* 24(6): 1102-1104. (* denotes equal first authorship) <https://doi.org/10.1111/tbj.13142>
13. **Abu-Dayyeh I.**, Al-Mousily N., and Abdelnour A. Evolving Role of Jordanian Private Sector Laboratories in Cancer Diagnostics (2014). *Oncology News.* 9(5): 158-160.
14. Mussai F., De Santo C., **Abu-Dayyeh I.**, Booth S., Mc-Ewen-Smith RM, Quereshi A, Dazzi F, Vyas P, Cerundolo V. Acute Myeloid Leukaemia creates an arginase-dependent immunosuppressive microenvironment (2013). *Blood.* 122(5):749-758. <https://doi.org/10.1182/blood-2013-01-480129>
15. Shio, M.T., Hassani, K., Isnard, A., Ralph, B., Contreras, I., Gomez, M.A., **Abu-Dayyeh, I.**, and Olivier, M. Host Cell Signalling and Leishmania Mechanisms of Evasion (2012). *J Trop. Med.* 2012:819512. <https://doi.org/10.1155/2012/819512>
16. **Abu-Dayyeh I.** and Olivier M. Subversion of host cell signaling by Leishmania: Role of protein tyrosine phosphatases (2010). *Immune Response to Parasitic Infections.* (p.137-164). (Book chapter).
17. **Abu-Dayyeh I.**, Hassani K., Westra E.R., Mottram J.C., and Olivier M. Comparative study of the ability of Leishmania mexicana promastigotes and amastigotes to alter macrophage signaling and functions (2010). *Infect. Immun.* 78(6): 2438-2445. <https://doi.org/10.1128/IAI.00812-09>
18. **Abu-Dayyeh I.**, Ralph B., Grayfer L., Belosevic M., Cousineau B., and Olivier M. Identification of key cytosolic kinases containing evolutionarily conserved kinase tyrosine-based inhibitory motifs (KTIMs) (2010). *Dev. Comp. Immunol.* 34(5): 481-484. <https://doi.org/10.1016/j.dci.2009.12.012>
19. **Abu-Dayyeh I.** Alteration of macrophage signalling and functions by Leishmania. LAP Lambert Academic Publishing, First Edition, (December 30th, 2009).
20. Blanchette J.*, **Abu-Dayyeh I.***, Hassani K., Whitcombe L., and Olivier M. Regulation of macrophage nitric oxide production by the protein tyrosine phosphatase Src Homology 2 domain phosphotyrosine phosphatase 1

(SHP-1) (2009). *Immunology* 127(1): 123-133. (* denotes equal first authorship) <https://doi.org/10.1111/j.1365-2567.2008.02929.x>

21. **Abu-Dayyeh I.**, Shio M.T., Sato S., Akira S., Cousineau B., and Olivier M. Leishmania-induced IRAK-1 inactivation is mediated by SHP-1 interacting with an evolutionarily conserved KTIM motif (2008). *PLoS Negl. Trop. Dis.* 2(12): e305. <https://doi.org/10.1371/journal.pntd.0000305>

Selected Invited & Oral Presentations

- **Abu-Dayyeh, I.**, Meredith LW., and Abdelnour A. Public-Private Partnership (PPP) in Jordan during the COVID-19 pandemic. 4th Jordanian Women Physicians Conference, Amman, Jordan, 23rd-25th August, 2025.
- **Abu-Dayyeh I.** Invited speaker, “Molecular Characterization of patients with chronic HCV infection in Jordan”, Snibe Scientific Day, Shenzhen, China, June, 2024.
- **Abu-Dayyeh I.**, Fuentes A., Abdelnour A., and Garcia, F. Chronic HCV infection in Jordan: Molecular characteristics and response to treatment. 3rd Jordanian Women Physicians Conference, Amman, Jordan, 26th-27th October, 2023.
- **Abu-Dayyeh I.**, Parker E., Andersen K., and Abdelnour A. Regional Connectivity drove bidirectional transmission of SARS-CoV2 in Jordan. 8th International Jordanian Congress of Allergy and Immunology, Amman, Jordan 2nd-3rd June, 2023.
- **Abu-Dayyeh I.**, Invited speaker, “Prevalence of IgE-mediated sensitization in patients with suspected food allergy in Jordan”, Snibe Scientific Day, Dubai, UAE, March, 2023.
- **Abu-Dayyeh I.**, Abdelnour A., Parker E., and Andersen K. Development of a real-time pathogen surveillance system in Jordan. The Centers for Research in Emerging Infectious Diseases (CREID) Annual Meeting, Baltimore, USA, 21st-23rd September, 2022.
- **Abu-Dayyeh I.**, Abu-Kwaik, J., and Abdelnour A. The design of a new customized food allergy panel for Jordan: Insights from a local retrospective study. 7th International Jordanian Congress of Allergy and Immunology, Amman, Jordan, 21st-23rd August, 2019.
- **Abu-Dayyeh I.**, Burghel GJ., and Abdelnour A. Mutational screen of a panel of tumor genes in a case report of mucoepidermoid carcinoma of the breast from Jordan. Women Oncology Conference, Amman, Jordan, October 5th-7th, 2017.
- **Abu-Dayyeh I.**, and Abdelnour A. Non-invasive transcutaneous bilirubin testing in neonates. 6th Jordan International Scientific Conference, Amman, Jordan, March, 2016.
- **Abu-Dayyeh I.**, and Zanatta L. Automatization of classical cytogenetic diagnostic techniques: Present and future. 3rd Jordan International Scientific Conference, Amman, Jordan. March 23rd-25th, 2013.

Selected Honors, Training & Service

- Introduction to GBD Online Course — IHME, University of Washington, October 2026; completed the prerequisite course and assessment in GBD data and methods.
- Daniel Turnberg UK/Middle East Travel Fellowship, Academy of Medical Sciences, 2019/2020.
- Best Science Book of the Year Award, Philadelphia University, 2019; World Allergy Organization poster award, 2019.
- Fundamentals of Vaccinology, AUB, 2026; ISO 15189 and accreditation assessment, 2022; WARN-ID Genomic Epidemiology Training, 2022; NIH Principles and Practice of Clinical Research, 2016.
- Research Grant Reviewer, Sandoq Watan Fund, 2018-2023; approximately two to four proposals annually.

Technical Expertise

Diagnostic immunology and allergy • Assay validation • Flow cytometry/TBANK immunophenotyping • Real-time PCR • NGS and sequence analysis • Genomic and real-world-data epidemiology • ELISA • Cytogenetics,

karyotyping, and FISH • Foundational cellular, molecular, biochemical, and immunological research methods