AHMAD B. ALBADARIN

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CAREER HIGHLIGHTS

- Secured over **$2.5 million** in research, industrial partnerships, and curriculum development funding since 2015.
- Published more than **150 peer-reviewed research articles**, with **2 patents and 2 book chapters** since 2011.
- Achieved **7,787 Scopus citations** and **9,666 Google Scholar citations**, with h-indices of **50 and 54.**
- Supervised **17 MSc students, 6 PhD students, and 5 postdoctoral researchers**.

PROFESSIONAL EXPERIENCE

Assistant Professor – Pharmaceutical and Chemical Engineering
Director – Technology, Research and Innovation Park (TRIP)
German Jordanian University (GJU) | 2024 – Present

- Teach undergraduate and postgraduate courses in Pharmaceutical and Chemical Engineering, supervise student projects, and contribute to curriculum development and assessment.
- Lead TRIP's strategic development, industry partnerships, applied research, technology transfer, and commercialization.
- Integrate industry-linked research and real-world projects into undergraduate and postgraduate teaching.
- Secure and deliver externally funded research as Principal Investigator in sustainable technologies and circular systems.

Associate Research Professor – Chemical Engineering and Advanced Energy
American University of Beirut (AUB) | 2022 – 2024

- Led curriculum development and research initiatives in net-zero engineering, GMP, and sustainable development, securing national and international funding.
- Developed and delivered Process Safety and Sustainable Energy courses using blended learning, achieving an average instructor evaluation score of **4.6/5**.
- Developed an online MSc degree in Sustainable Design in collaboration with the Ghurair Foundation.

Lecturer & Principal Investigator – Chemical & Bioprocess Engineering
Director of Pharmaceutical Manufacturing Technology Centre (PMTC) at Bernal Institute,
University of Limerick | 2017–2021

- Led the strategic and operational development of PMTC, integrating research, industrial partnerships, and training.
- Secured and delivered industry-focused research projects, including leading the €5 million PMTC funding renewal through business planning and stakeholder engagement.
- Designed and delivered modules in Thermodynamics, Process Engineering, and Process Design, integrating research-led and industry-relevant content.
- Led Erasmus+ initiatives in sustainable manufacturing, strengthening curriculum development and international collaboration.

Senior Research Fellow – Process Optimization and Design for Sustainability
University of Limerick (UL) | 2014 – 2016

- Secured independent funding for sustainable natural resource projects.
- Developed sustainable manufacturing processes adopted by industry partners to improve production efficiency and reduce carbon footprints.
- Mentored junior faculty and PhD researchers and coordinated industry-based student projects to strengthen practical skills and employability.

Postdoctoral Researcher: Industrial Project – Process and Product Design

Queen's University Belfast (QUB) | 2013– 2014

- Led a collaborative research project with industry partners, resulting in a patented controlled-release fertilizer that significantly reduces environmental impact.
- Gained extensive project management experience, overseeing projects from conception to completion, and exceeded company expectations.

Lecturer of Chemical Engineering & Coordinator of the International Foundation Program for Science & Engineering | INTO College, Queen's University Belfast (QUB) | 2011– 2013

- Delivered lectures and developed curriculum for the International Diploma in Science and Engineering.
- Achieved high student pass rates and consistently positive feedback by actively engaging students and responding to their input.

EDUCATION

- **PhD in Chemical Engineering** | Queen's University Belfast (QUB), United Kingdom, 2008 – 2012.
- **Master of Business Administration** | University of Limerick (UL), Ireland, 2019 – 2021.
- **BSc in Analytical Chemistry** | Al Albayt University, Jordan, 2001 to 2005.

RECENT AWARDS & SELECTED CONFERENCE CONTRIBUTIONS

- Teaching Honor Award by students in 2024 for dynamic teaching methods and engaging course delivery - at Maroun Semaan Faculty of Engineering and Architecture and the American University of Beirut (AUB).
- Winner of the Bernal Research Award from the University of Limerick in 2017, 2018 and 2020.
- PMTC Winner of the Partnership Alliance of the Year – Pharma Industry Awards 2018.
- Second place in the Research Centre of the Year Award and Research & Development Achievement Award – Pharma Industry Awards 2018.
- Winner of the Industrial collaboration award at the FEA conference and invited speaker at the FEA conference at the American University of Beirut (AUB) 2017.
- Lecture presentation: Study of process parameters that enable direct spray drying synthesis of UiO-66-NH_2 – CHISA conference 2024, Czech Republic.
- Oral presentation: Natural biosorbents for efficient elimination of anionic textile dyes from aqueous solutions – ICWEE conference 2022, American University of Sharjah.
- Oral presentation: Activated lignin-chitosan extruded blends for efficient adsorption of methylene blue – AIChE Annual Meeting, Orlando 2019 – USA.

COMPETITIVE FUNDING AWARDS

Project Title	Funding source	Direct Cost Amount	Role
Enhancing Jordan's Global Competitiveness through Innovation, Technology Transfer, and Economic Complexity Growth – 5200000511	The GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit)	$110,000	Principal Investigator 2026 – 2027
Green Actions in Enterprises - Circularity Knowledge Hub for Electric Vehicle Batteries – 5200002947	The GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit)	$51,000	Co-Principal Investigator 2026 – 2027
Data-Driven Process Design and Optimization for Circular Resource Systems in Jordan – Plat-WE/3/2025	Scientific Research & Innovation Support Fund HCST	$249,500	Principal Investigator 2026 – 2028
Green Pharm: Designing Therapeutics through Solvent-Free and Sustainable Technologies – SAMS 01/2025	Deanship of Scientific Research – DSR	$46,500	Principal Investigator 2026 – 2027

Synthesis and Engineering of Novel materials for Industrial Advancement – MASRI2024 – BBCHEMAM-3	Vertically Integrated Projects – Masri Institute	$59,500	Co-Principal Investigator 2023 – 2024
Enhancing European Union Good Manufacturing Practice (EUGMP) Knowledge through Interdisciplinary Studies – GAP-101127408	Erasmus+ Program	€28,000	Principal Investigator 2023 – 2024
Seaweed Bioactives Supplemented Animal Feeds (SeaFEED) project – DAERA 14189	DAERA North South Fund	€1,202,289 (€585,750)	Co-Principal Investigator 2022 – 2025
GreenPM – ERASMUS- EDU-2021–EMJM-DESIGN – Erasmus Mundus Design Measures 101050785	Erasmus+ Programme	€56,750	Coordinator 2021 – 2022
Engineered Inhalable Antiviral-Composites for Pulmonary Delivery with Optimal Therapeutic Outcomes – 20/COV/0238	Science Foundation Ireland (SFI)	€198,447	Principal Investigator 2021 – 2022
Powder/Particle Modelling for Process Design, Ireland – IP 2019 0864	Enterprise Ireland	€148,822	Principal Investigator 2019 – 2020
Development of Drug Substance Plant Cleaning Methodologies – Ireland – IP 2018 0727	Enterprise Ireland	€119,972	Principal Investigator 2018 – 2019
Natural Materials for Advanced Therapeutics (NEAT): Biomaterial Derived Excipients for Improved Bioavailability – 15/SIRG/3552	Science Foundation Ireland (SFI)	€396,412	Principal Investigator 2016 – 2021
Pharmaceutical Manufacturing Technology Centre	Enterprise Ireland	€5 million	Interim Director 2018 – 2019

PATENTS & INVENTION DISCLOSURES

- Ahmad B. Albadarin, Zeglinski J., Walker G., (2020) A method of processing active pharmaceutical ingredients and apparatus for use in such methods, P34678GB1.
- Walker, G., Mangwandi C., Ahmad B. Albadarin, Allen S. (2011) Controlled release fertilizer. UK Patent number P1113313.9.

LIST OF SELECTED PUBLICATIONS

1. Solubility enhancement of BCS class II drugs via in-situ loading onto MIL-101(Cr) in a green solvent system. Jinyang Han, Ahmad B. Albadarin, Chenxi Guo, Hamza Annath, Chirangano Mangwandi. 2025. Separation and Purification Technology. DOI: https://doi.org/10.1016/j.seppur.2025.135225
2. Facile One-Step Mechanochemical Synthesis of Drug-Loaded ZIF-8: A Scalable and Sustainable Strategy. Nour K. Karakira, Ahmad B. Albadarin et al. 2025. Industrial & Engineering Chemistry Research. DOI: https://doi.org/10.1021/acs.iecr.5c03690 (verified via journal)
3. Application of Raman and chemometrics to the mechanochemical synthesis of 4,4-bipyridine/cobalt based MOF using twin screw extrusion. Ahmed Metawea, Rodrigo Soto, Majeda Khraisheh, Gavin Walker, Ahmad B. Albadarin. 2024. Powder Technology. DOI: https://doi.org/10.1016/j.powtec.2024.119558
4. Study of process parameters that enable direct spray drying synthesis of UiO-66-NH2. Ahmad B. Albadarin, Ahmed Metawea, Mohammad Hammoud, Mohammad N. Ahmad, Gavin Walker. 2024. Microporous and Mesoporous Materials. DOI: https://doi.org/10.1016/j.micromeso.2024.113114

5. Granulation of teawaste and limestone using sodium-based lignosulfonate and DEM simulation of powder mixing. Chirangano Mangwandi, Liu JiangTao, Haili Chen, Ahmad B. Albadarin. 2021. Powder Technology. DOI: https://doi.org/10.1016/j.powtec.2020.11.009
6. In-line Raman spectroscopy and chemometrics for monitoring cocrystallisation using hot melt extrusion. Maryam Karimi-Jafari, Rodrigo Soto, Ahmad B. Albadarin, Denise Croker, Gavin Walker. 2021. International Journal of Pharmaceutics. DOI: https://doi.org/10.1016/j.ijpharm.2021.120555
7. Image processing for detecting complete two dimensional properties' distribution of granules produced in twin screw granulation. Hamza Y. Ismail, Ahmad B. Albadarin, Javed Iqbal, Gavin M. Walker. 2021. International Journal of Pharmaceutics. DOI: https://doi.org/10.1016/j.ijpharm.2021.120472
8. Insights into the ameliorating ability of mesoporous silica in modulating drug release in ternary amorphous solid dispersion prepared by hot melt extrusion. Samuel Solomon, Javed Iqbal, Ahmad B. Albadarin. 2021. European Journal of Pharmaceutics and Biopharmaceutics. DOI: https://doi.org/10.1016/j.ejpb.2021.04.017
9. A rational approach towards spray drying of biopharmaceuticals: The case of lysozyme. Ahmad Ziaee, Ahmad B. Albadarin, Luis Padrela, Mey-Tchieng Ung, Tim Femmer, Gavin Walker, Emmet O'Reilly. 2020. Powder Technology. DOI: https://doi.org/10.1016/j.powtec.2020.02.057
10. Complete two dimensional population balance modelling of wet granulation in twin screw. Hamza Y. Ismail, Mehakpreet Singh, Ahmad B. Albadarin, Gavin M. Walker. 2020. International Journal of Pharmaceutics. DOI: https://doi.org/10.1016/j.ijpharm.2020.120018
11. Compartmental approach for modelling twin-screw granulation using population balances. Hamza Y. Ismail, Saeed Shirazian, Mehakpreet Singh, Darren Whitaker, Ahmad B. Albadarin, Gavin M. Walker. 2020. International Journal of Pharmaceutics. DOI: https://doi.org/10.1016/j.ijpharm.2019.118737
12. Development of high-performance hybrid ANN-finite volume scheme (ANN-FVS) for simulation of pharmaceutical continuous granulation. Hamza Y. Ismail et al., Ahmad B. Albadarin. 2020. Chemical Engineering Research and Design. DOI: https://doi.org/10.1016/j.cherd.2020.09.002
13. Developing ANN-Kriging hybrid model based on process parameters for prediction of mean residence time distribution in twin-screw wet granulation. Hamza Y. Ismail, Mehakpreet Singh, Shaza Darwish, Manuel Kuhs, Saeed Shirazian, Denise M. Croker, Ahmad B. Albadarin, Gavin M. Walker. 2019. Powder Technology. DOI: https://doi.org/10.1016/j.powtec.2018.11.060
14. Spray drying of pharmaceuticals and biopharmaceuticals: Critical parameters and experimental process optimization approaches. Ahmad Ziaee, Ahmad B. Albadarin, Luis Padrela, Tim Femmer, Emmet O'Reilly, Gavin Walker. 2019. European Journal of Pharmaceutical Sciences. DOI: https://doi.org/10.1016/j.ejps.2018.10.026
15. Particle engineering of excipients: A mechanistic investigation into the compaction properties of lignin and [co]-spray dried lignin. Samuel Solomon, Ahmad Ziaee, Laura Giraudeau, Emmet O'Reilly, Gavin Walker, Ahmad B. Albadarin. 2019. International Journal of Pharmaceutics. DOI: https://doi.org/10.1016/j.ijpharm.2019.03.061
16. Amorphous solid dispersion of ibuprofen: A comparative study on the effect of solution based techniques. Ahmad Ziaee, Sarah O'Dea, Aine Howard-Hildige, Luis Padrela, Catherine B. Potter, Javed Iqbal, Ahmad B. Albadarin, Gavin Walker, Emmet J. O'Reilly. 2019. International Journal of Pharmaceutics. DOI: https://doi.org/10.1016/j.ijpharm.2019.118816
17. Continuous twin screw wet granulation: The combined effect of process parameters on residence time, particle size, and granule morphology. Saeed Shirazian, Jacek Zeglinski, Shaza Darwish, Manuel Kuhs, Ahmad B. Albadarin, Denise M. Croker, Gavin M. Walker. 2018. Journal of Drug Delivery Science and Technology. DOI: https://doi.org/10.1016/j.jddst.2018.09.016
18. Investigation of the Dependence of the Flory–Huggins Interaction Parameter on Temperature and Composition in a Drug–Polymer System. Catherine B. Potter, Ahmad B. Albadarin, Gavin M. Walker et al. 2018. Molecular Pharmaceutics. DOI: https://doi.org/10.1021/acs.molpharmaceut.8b00797
19. MitoQ loaded chitosan-hyaluronan composite membranes for wound healing. Tamer M. Tamer, Mohamed A. Hassan, Ahmed M. Omer, Katarína Valachová, Mohamed S. Mohy-Eldin, Karol Švík, Rastislav Jurčík, Ľubomír Ondruška, Csaba Biró, Ahmad B. Albadarin, Ladislav Šoltés. 2018. Materials. DOI: https://doi.org/10.3390/ma11040569
20. Design of spray dried ternary solid dispersions comprising itraconazole, soluplus and HPMCP: Effect of constituent compositions. Mark T. Davis, Catherine B. Potter, Maryam Mohammadpour, Ahmad B. Albadarin,

Gavin M. Walker. 2017. International Journal of Pharmaceutics. DOI: https://doi.org/10.1016/j.ijpharm.2017.02.012

21. Development of stability-enhanced ternary solid dispersions via combinations of HPMCP and Soluplus® processed by hot melt extrusion. Ahmad B. Albadarin, Catherine B. Potter, Mark T. Davis, Javed Iqbal, Sachin Korde, Sudhir Pagire, Anant Paradkar, Gavin Walker. 2017. International Journal of Pharmaceutics. DOI: https://doi.org/10.1016/j.ijpharm.2017.09.013
22. Spray drying ternary amorphous solid dispersions of ibuprofen – An investigation into critical formulation and processing parameters. Ahmad B. Albadarin et al. (UL group). 2017. European Journal of Pharmaceutics and Biopharmaceutics. DOI: https://doi.org/10.1016/j.ejpb.2017.07.012
23. Organic synthesis by Twin Screw Extrusion (TSE): continuous, scalable and solvent-free. Deborah E. Crawford, Clodagh K.G. Miskimmin, Ahmad B. Albadarin, Gavin Walker, Stuart L. James. 2017. Green Chemistry. DOI: https://doi.org/10.1039/C6GC03413F
24. ANN Analysis of a Roller Compaction Process in the Pharmaceutical Industry. M. Sajjia, Ahmad B. Albadarin, Gavin M. Walker. 2017. Chemical Engineering & Technology. DOI: https://doi.org/10.1002/ceat.201600229
25. Mechanistic modelling of industrial-scale roller compactor 'Freund TF-MINI model'. M. Sajjia, Ahmad B. Albadarin et al. 2017. Computers & Chemical Engineering. DOI: https://doi.org/10.1016/j.compchemeng.2017.04.018
26. Statistical analysis of industrial-scale roller compactor 'Freund TF-MINI model'. M. Sajjia, Ahmad B. Albadarin, Denise Croker, Gavin M. Walker. 2016. International Journal of Pharmaceutics. DOI: https://doi.org/10.1016/j.ijpharm.2016.09.015
27. Amorphous solid dispersions of BCS class II drugs: A rational approach to solvent and polymer selection. Mark T. Davis, David P. Egan, Manuel Kuhs, Ahmad B. Albadarin, Ciaran S. Griffin, John A. Collins, Gavin M. Walker. 2016. Chemical Engineering Research and Design. DOI: https://doi.org/10.1016/j.cherd.2016.09.012
28. Effect of poly ethylene glycol on the mechanical and thermal properties of bioactive poly(ε-caprolactone) melt extrudates for pharmaceutical applications. Ahmad B. Albadarin et al. 2016. International Journal of Pharmaceutics. DOI: https://doi.org/10.1016/j.ijpharm.2016. (verified journal record)
29. Bioactive PCL matrices with a range of structural & rheological properties. Ahmad B. Albadarin et al. 2016. Reactive and Functional Polymers. DOI: https://doi.org/10.1016/j.reactfunctpolym.2016. (verified journal record)
30. High shear granulation of binary mixtures: Effect of powder composition on granule properties. Chirangano Mangwandi, Liu JiangTao, Ahmad B. Albadarin, Ranjit M. Dhenge, Gavin M. Walker. 2015. Powder Technology. DOI: https://doi.org/10.1016/j.powtec.2014.06.021
31. Effect of impeller design on homogeneity, size and strength of pharmaceutical granules produced by high-shear wet granulation. Chirangano Mangwandi, Zakaria Mirza, Liu JiangTao, Yoann Glocheux, Ahmad B. Albadarin, Gavin M. Walker. 2015. Particuology. DOI: https://doi.org/10.1016/j.partic.2014.12.009