Curriculum Vitae

Kawthar Khalil Abla

Position: Assistant professor, Faculty of Pharmacy, Department of Pharmaceutical Science, Beirut Arab University/ Post-doc, Faculty of Biomedical Engineering, American University of Beirut.
Date of birth: 11/04/1989
Citizenship: Lebanese
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Address: Faculty of Pharmacy, Beirut Arab University, Beirut, Lebanon.
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Academic records:

January 2024-September 2024: Post-doc, biomedical engineering. American University of Beirut

Jun 2020-January 2024: Ph.D. Degree in Pharmaceutical Sciences Thesis title:

"Nanoparticulate Systems as Potential Drug Delivery Candidate for Overcoming the Biological Barriers"

2020: Qualified courses for Ph.D. degree fulfillment **(GPA: 4).**

Jun 2015 - May 2020: Master's Degree in Pharmaceutical Sciences.

Thesis title: "Formulation and Characterization of Nanovehicle-based Drug Delivery Systems"

2015: Special courses for master's degree fulfillment (GPA: 3.58).

Sep. 2008 - Jul. 2013: Bachelor's degree in pharmacy, Beirut Arab University, Beirut, Lebanon **(GPA: 3.71).**

Licenses and Certifications

- Faculty of the seminar on learning and teaching excellence with a certificate, American University of Beirut
- Animal care training with a certificate from the American University of Beirut.

- Participated in and submitted a proposal to the 4th Forum for Women in Research with a certificate for being among the shortlisted participants in the 4th Forum for Women in Research (QUWA: Sustaining Women's Empowerment in Research and Innovations).
- Mastering Presentation Skills for Academic Excellence with a certificate from Beirut Arab University

Work experience.

September 2024- Forward: Assistant professor at the Faculty of Pharmacy, Beirut Arab University, teaching the following courses.

"Pharmaceutical dosage form I" (PHAR 271), 2nd level,

"Physical Pharmacy and Drug Stability PHAR 281" 2nd level

"Manufacturing" (PHAR 470)", 4th level

"Res. Methodol. and Bioethics" (PHGC703), post-grad

"Pharmaceutical technology" (PHIPP 711), post-grad

January 2025- March 2025: Member of the 3-minute presentation Committee, Beirut Arab University

January 2025- March 2025: Coordinator of 3 MT presentation events in the Faculty of Pharmacy, Beirut Arab University.

September 2024- Forward: Committee research member, Beirut Arab University

January 2025- Forward: Colloquium Committee Member and member in subcomiite of pharmaceutical research in OPL, Beirut, Lebanon

September 2024-Forward: Ethics workshop committee, Beirut Arab University

August 2023- December 2024: post-doc fellow in the biomedical engineering lab at the American University of Beirut (AUB).

Fall 2023: Teaching assistant on Drug Delivery and Tissue Engineering courses and labs,

biomedical engineering program (BMEN 600 and 673L), post-grad level, AUB

2021-onward: Lab instructor of "**Pharmaceutical dosage form I" (PHAR 271), 2nd level,** pharmaceutical technology department (BAU)

2021-onward: Lab instructor of "**Biopharmaceutics and Pharmacokinetics" (PHAR 460), 4th**

level, pharmaceutical technology department (BAU)

2021-onward: Lab instructor of **"physical pharmacy and drug stability" (PHAR 281),** 2nd level, pharmaceutical technology department (BAU)

2021-onward: Lab instructor of **"Pharmaceutical dosage form I" (PHAR 271),** 2nd level, pharmaceutical technology department (BAU)

2020-Onward: Lab instructor of **"Manufacturing" (PHAR 470),** 4nd level, pharmaceutical technology department (BAU).

Examiners on the committee

1. Pharm D: thesis under the title "Medication Adherence of Hypertensive, Diabetic, and Dyslipidemia Patients During the Economic Crisis in South Lebanon." December 2025, Faculty of Pharmacy, Beirut Arab University.
2. Pharm D: thesis under the title "Physicians' Perception of the Emerging Role of Clinical Pharmacists in Saida, Lebanon". November 2025, Faculty of Pharmacy, Beirut Arab University.
3. Master's thesis: thesis under the title "The prevalence of coronary artery disease and the impact of in-hospital management on readmission rates, chest events, and medication adherence," November 2025, Faculty of Health, Beirut Arab University, Lebanon.

Peer-reviewed journal publications (*h-index* 12):

1. Jammoul, D.; Torossian, T.; Issa, M.; Saab, M.; Harmouch, S.; Mhanna, R.; **Abla, K. K.** Umbilical Cord Mesenchymal Stem Cell Exosomes in Breast Cancer. False Hope or a Real Solution? *Clin. Chim. Acta* 2026, *586*, 120915. https://doi.org/https://doi.org/10.1016/j.cca.2026.120915.

2. **K.K. Abla,** T. Torossian, J. Ammar, M. Karam, M. Fawaz, R. Debian, M. Mehanna, A. Daou, R. Mhanna, Double-layered nano vesicular chitosan-coated liposomal system loaded with donepezil cargo for Alzheimer's disease: design, optimization, and in vivo evaluation, Int. J. Biol. Macromol. 332 (2025) 148548. https://doi.org/10.1016/j.ijbiomac.2025.148548.

3. **K.K. Abla,** M.M. Mehanna, Freeze-Drying as a Tool for Preparing Porous Materials: From Proof of Concept to Recent Pharmaceutical Applications, AAPS PharmSciTech 26 (2025) 159. https://doi.org/10.1208/s12249-025-03117-4.

4. **K.K. Abla,** M. Zahwi, S.A. El-Lakany, M. Karam, Advances in siRNA-loaded liposomes for lung cancer: Challenges and future perspectives, Int. J. Biol. Macromol. 319 (2025) 145461. https://doi.org/https://doi.org/10.1016/j.ijbiomac.2025.145461.

5. G. Deeb, A.J. Adeoye, B. Maatouk, **K. Abla**, M. Harb, R. Mhanna, Synthesis of Eco-Friendly Biocompatible Membranes and Filters from Sugar Cane and Banana Byproducts, ACS Omega 10 (2025) 19491–19501. https://doi.org/10.1021/acsomega.4c11618.

6. **K.K. Abla**, M.K. Alamoudi, G.A. Soliman, M.S. Abdel-Kader, M.F. Aldawsari, M. M., Mehanna, Alopecia Management Potential of Rosemary-based Nanoemulgel Loaded with Metformin: Approach Combining Active Essential Oil and Repurposed Drug, Int. J. Nanomedicine 22 (2025) 1–26.

7. 2. **Abla, K.K.;** Zahwi, M.K. Alzheimer's Disease: Current Concept and a New Hope with SiRNA-Liposomal System. *J. Drug Deliv. Sci. Technol.* 2024, *102*, 106409, doi:https://doi.org/10.1016/j.jddst.2024.106409.

8. Ahmad, N.; Kiriako, G.; Saliba, J.; **Abla, K**.; El-Sabban, M.; Mhanna, R. Engineering a 3D Biomimetic Peptides Functionalized-Polyethylene Glycol Hydrogel Model Cocultured with Endothelial Cells and Astrocytes: Enhancing In Vitro Blood–Brain Barrier Biomimicry. *Mol. Pharm.* 2024, doi:https://doi.org/10.1021/acs.molpharmaceut.4c00599.

9. **Abla, K.K.**; Mehanna, M.M. Lipid-Based Nanocarriers Challenging the Ocular Biological Barriers: Current Paradigm and Future Perspectives. *J. Control. Release* 2023, *362*, 70–96, doi:https://doi.org/10.1016/j.jconrel.2023.08.018.

10. **Abla, K.K.;** Mehanna, M.M. The Battle of Lipid-Based Nanocarriers against Blood-Brain Barrier: A Critical Review. *J. Drug Target.* 2023, 1–26, doi:10.1080/1061186X.2023.2247583.

11. **Abla, K.K.;** Hijazi, S.M.; Mehanna, M.M. Augmented Efficiency of Azithromycin for MRSA Ocular Infections Management: Limonene-Based Nanostructured Lipid Carriers in-Situ Approach. *J. Drug Deliv. Sci. Technol.* 2023, *87*, 104764, doi:10.1016/j.jddst.2023.104764.

12. **Abla, K.K.;** Domiati, S.; El Majzoub, R.; Mehanna, M.M. Propranolol-Loaded Limonene-Based Microemulsion Thermo-Responsive Mucoadhesive Nasal Nanogel: Design, In Vitro Assessment, Ex Vivo Permeation, and Brain Biodistribution. *Gels* 2023, *9*, doi:10.3390/gels9060491.

13. **Abla, K.K**.; Mneimneh, A.T.; Allam, A.N.; Mehanna, M.M. Application of Box-Behnken Design in the Preparation, Optimization, and In-Vivo Pharmacokinetic Evaluation of Oral Tadalafil-Loaded Niosomal Film. *Pharmaceutics* 2023, *15*, 1–20, doi:10.3390/pharmaceutics15010173.

14. Mehanna, M.M.; **Abla, K.K.** Recent Advances in Freeze-Drying: Variables, Cycle Optimization, and Innovative Techniques. *Pharm. Dev. Technol.* 2022, 1–20, doi:10.1080/10837450.2022.2129385.

15. **Abla, K.K.**; Mehanna, M.M. Freeze-Drying: A Flourishing Strategy to Fabricate Stable Pharmaceutical and Biological Products. *Int. J. Pharm.* 2022, *628*, 12–33, doi:https://doi.org/10.1016/j.ijpharm.2022.122233.

16. Mehanna, M.M.; **Abla, K.K.;** Domiati, S.; Elmaradny, H. Superiority of Microemulsion-Based Hydrogel for Non-Steroidal Anti-Inflammatory Drug Transdermal Delivery: A Comparative Safety and Anti-Nociceptive Efficacy Study. *Int. J. Pharm.* 2022, *622*, 121830, doi:https://doi.org/10.1016/j.ijpharm.2022.121830.

17. Mehanna, M.M.; **Abla, K.K.** SiRNA Nanohybrid Systems: False Hope or Feasible Answer in Cancer Management. *Ther. Deliv.* 2022, *13*, 109–133, doi:10.4155/tde-2021-0068.

18. Alwattar, J.K.; Mneimneh, A.T.; **Abla, K.K.**; Mehanna, M.M.; Allam, A.N. Smart Stimuli-Responsive Liposomal Nanohybrid Systems: A Critical Review of Theranostic Behavior in Cancer. *Pharmaceutics* 2021, *13*, 355, doi:10.3390/pharmaceutics13030355.

19. Mehanna, M.M.; **Abla, K.K**.; Elmaradny, H.A. Tailored Limonene-Based Nanosized Microemulsion: Formulation, Physicochemical Characterization and in-Vivo Skin Irritation Assessment. *Adv. Pharm. Bull.* 2020, *11*, 274–285, doi:10.34172/apb.2021.040.

Grants and award

1. **Lebanese Industrial Research Achievements program (LIRA)** 17 incubation award, Co-PI, "3D model of the blood-brain barrier as a tool to predict the in vivo performance of novel drug candidates", €10,000, October 2024 – July 2025
2. Winner of the **moral incentives for the Academic Year 2024-2025**, which is carried out at Beirut Arab University, for the best researcher for the academic year. The event is held annually.
3. **Intramural grants (Beirut Arab University),** Lead PI, “Novel tetrahydroquinoline derivative molecules-loaded c-RGD peptide-modified liposomes: A flourishing strategy to treat rheumatoid arthritis”. $ 9106, January 2026-June 2027.
4. **Woman researcher Award** by the International Academic Achievements and Awards for the cycle 2026 under the subject Toxicology and Pharmaceutical Science.

Scientific activity: Peer reviewer in highly ranked international journals in pharmaceutics and pharmaceutical technology:

1. Journal of Drug Targeting (Taylor & Francis)
2. European journal of pharmaceutical science (ELSEVIER)
3. Journal of Biological Macromolecules (ELSEVIER)
4. Archives of Pharmacology (Springer)
5. International Journal of Pharmaceutics (Taylor and Francis)

Conference:

1. 2nd International Conference and Exhibition on "Pharmaceutical & Healthcare Science" PHS 2022, October 2022, Alexandria, Egypt.

2. The 1st International Electronic Conference on Medicinal Chemistry and Pharmaceutics. The 10th International Electronic Conference on Medicinal Chemistry & The 2nd Electronic Conference on Pharmaceutics. November 2025, Basel, Switzerland.

National and International Collaboration

Over the past few years, I have engaged in multiple collaborative research initiatives with reputable institutions across the Middle East and internationally, leading to high-impact peer-reviewed publications:

- **American University of Beirut (AUB), Biomedical Engineering Program**
  Duration: 2 years
  Collaboration focused on the development of biomimetic in vitro models to enhance blood–brain barrier research.
    - **Publication:** Ahmad, N.; Kiriako, G.; Saliba, J.; Abla, K.; El-Sabban, M.; Mhanna, R. *Engineering a 3D Biomimetic Peptides Functionalized-Polyethylene Glycol Hydrogel Model Cocultured with Endothelial Cells and Astrocytes: Enhancing In Vitro Blood–Brain Barrier Biomimicry.* Mol. Pharm. 2024. https://doi.org/10.1021/acs.molpharmaceut.4c00599
    -
- **Lebanese American University (LAU), Faculty of Medicine**
  Duration: 2 years
  Collaborative work on novel therapeutic strategies for neurodegenerative diseases, specifically Alzheimer's disease.
    - **Publication:** Abla, K.K.; Zahwi, M.K. *Alzheimer's Disease: Current Concept and a New Hope with SiRNA-Liposomal System.* J. Drug Deliv. Sci. Technol. 2024, 102, 106409. https://doi.org/10.1016/j.jddst.2024.106409
- **Alexandria University, Egypt – Faculty of Pharmacy, Department of Pharmaceutics**
  Duration: 1 year

Joint work on optimizing oral drug delivery systems using advanced experimental designs.

- **Publication:** Abla, K.K.; Mneimneh, A.T.; Allam, A.N.; Mehanna, M.M. *Application of Box-Behnken Design in the Preparation, Optimization, and In-Vivo Pharmacokinetic Evaluation of Oral Tadalafil-Loaded Niosomal Film.* Pharmaceutics 2023, 15, 1–20. https://doi.org/10.3390/pharmaceutics15010173
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- **Prince Sattam Bin Abdulaziz University, Saudi Arabia – College of Pharmacy (Departments of Pharmacology and Pharmacognosy)**
  Duration: 2 years
  Research focused on developing novel topical formulations for alopecia management using natural and repurposed therapeutics.
  - **Publication:** *Alopecia Management Potential of Rosemary-based Nanoemulgel Loaded with Metformin: Approach Combining Active Essential Oil and Repurposed Drug.* Int. J. Nanomedicine. 2025; 22:26 https://doi.org/10.2147/IJN.S500487

Research interest:

I'm interested in pharmaceutical nanotechnology, especially anticancer theranostics and non-invasive drug delivery systems with a particular emphasis on tailoring liposomes and nano-carriers for various drugs through different routes of administration. I'm an expert in the elaboration and appraisal procedures and techniques of nano- and micro-sized pharmaceutical carriers among them; microemulsion, nanoemulsion, cubosomes, nanoliposomes, nanoparticles, nanocrystals, nanocapsules, and micelles. Mathematical optimization and assessment of delivery systems cover various routes of administration viz. oral, transdermal, pulmonary, and ocular is considered an area of my specialty.

Computer skills:

• Very Good command of Microsoft Office™ tools, research tools, and online digital learning tools.
• Very good command of Excell.
• Excellent command of Paint 3D, Inkscape, and scientific illustrators (Biorender).

Communication skills:

• Very good written and verbal communication skills.
• Confident, articulate, and professional speaking abilities gained through workshops and 4 years of experience in teaching and mentoring.
• Excellent presentation skills.

• Empathic listener and persuasive speaker. Organizational/managerial skills:
• Manage time and deadlines effectively
• Prioritize tasks
• Structure data
• Maintain a clean physical space at work

References

1. **Prof. Dr. Mohamed M. Mehanna**
   Head of the industrial pharmacy department, Alexandria University, Alexandria, Egypt.
   Associate professor, Department of Pharmaceutical Science Technology, Faculty of Pharmacy, Beirut Arab University, Beirut, Lebanon
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2. **Prof. Dr. Rami Mhanna**

   Coordinator of biomedical engineering department and associate professor of biomedical engineering, American University of Beirut.

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