



**Esther Ghanem, Ph.D.**

Associate Professor

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## Biography

Dr. Esther Ghanem serves as an Associate Professor within the Department of Sciences at NDU, bringing over a decade of dedicated teaching experience across both undergraduate and graduate biology courses. In 2022-23, she enriched her academic journey during a sabbatical year at the Center of Excellence in Biobanking and Biomedical Research at the University of Cyprus, Nicosia.

Dr. Ghanem's academic journey is anchored in her educational background, with a Master's degree in Molecular Biology and a Doctorate Degree in Cell Biology from Jacobs University Bremen in Germany, in 2010. Her doctoral studies were conducted under the guidance of Prof. Sebastian Springer.

Her scholarly pursuits lie at the interface of protein trafficking and nano-based applications for antibody and drug delivery. Dr. Ghanem holds a record of publications in esteemed international journals, underscoring her dedication to advancing the field.

Beyond teaching and researching, she is committed to nurturing the next generation of scholars through her passion to mentoring and advising Master's and senior students. She is enthusiastic about fostering collaborations with both national and international laboratories, aiming to amplify the impact of her research while charting a research path for NDU Master's students.

Her extensive list of practices related to Equity, Inclusion, and Diversity is an exemplary demonstration of her ethical dedication to her academic and professional community. She actively champions equity in education, fostering an inclusive environment that is aligned with the university mission and vision.

## Peer-reviewed Journals

### International

- Mitri, N., Rahme, K., Fracasso, G., & Ghanem, E. Upgrading Gold to Green Nanoparticles: Applications in Prostate Cancer. *Advances in Natural Sciences: Nanoscience and Nanotechnology*. (2023) 10.1088/2043-6262/acd0aa.
- Sarkis M, Minassian G, Mitri N, Rahme K, Fracasso G, El Hage R, Ghanem E. D2B-Functionalized Gold Nanoparticles: Promising Vehicles for Targeted Drug Delivery to Prostate Cancer. *ACS Appl Bio Mater*. 2023 Feb 20;6(2):819-827. doi: 10.1021/acsabm.2c00975. Epub 2023 Feb 8. PMID: 36755401; PMCID: PMC9945086.
- Minassian G, Ghanem E, Hage R.E, Rahme K. Gold Nanoparticles Conjugated with Dendrigrft Poly-L-lysine and Folate-Targeted Poly(ethylene glycol) for siRNA Delivery to Prostate cancer. *Nanotheranostics* (2023) 7 (2), 152-166. DOI: 10.7150/ntno.79050.
- Mitri N, Rahme K, Fracasso G, Ghanem E. Human blood biocompatibility and immunogenicity of scFvD2B PEGylated gold nanoparticles. *Nanotechnology*. 2022 May 11;33(31). doi: 10.1088/1361-6528/ac66ef.

- Conti, G.; Pitea, M.; Ossanna, R.; Opri, R.; Tisci, G.; Falvo, E.; Innamorati, G.; Ghanem, E.; Sbarbati, A.; Ceci, P.; Fracasso, G. Mitoxantrone-Loaded Nanoferritin Slows Tumor Growth and Improves the Overall Survival Rate in a Subcutaneous Pancreatic Cancer Mouse Model. *Biomedicines*. (2021) 9, 1622. <https://doi.org/10.3390/biomedicines9111622> .
- Nadim Jihad Mitri, Kamil Rahme, Giulio Fracasso, Esther Ghanem. D2B antibody and its scFvD2B fragment in Nanomedicine: Promising Tools in the Theranostics of Prostate Cancer. *Advances in Natural Sciences: Nanoscience and Nanotechnology*. (2021) 12, 035008 <https://doi.org/10.1088/2043-6262/ac2747>.
- Monira Sarkis, Esther Ghanem, Kamil Rahme. Jumping On The Bandwagon: A Review on the Versatile Applications of Gold Nanostructures in Prostate Cancer. *Int. J. Mol. Sci.* 2019, 20(4), 970; <https://doi.org/10.3390/ijms20040970>.
- Esther Ghanem, Samar Al Bitar, Robert Dib, Colette S. Kabrita Sleep restriction alters the temporal expression of major histocompatibility complex class II molecules in murine lymphoid tissues. *Behavioural Brain Research*. 362 (2019) 152–159.
- Esther Ghanem, M. Sarkis , K. Rahme, G. Minassian, J.D. Holmes, H. Y. Naim, G. Fracasso. Targeting prostate cancer cells with D2B-gold Nanoparticles. *Proceedings of the Nanotech France 2018 International Conference* (2018). pp 67-71.
- Al Reef T, Ghanem E. Caffeine: Well-known as psychotropic substance, but little as immunomodulator. *Immunobiology*, 2018. pii: S0171-2985(18)30096-2. doi: 10.1016/j.imbio.2018.08.011.
- K. Rahme , G. Minassian, M. Sarkis, M. Nakhl, R. El Hage, E. Souaid, J. D. Holmes, and E. Ghanem. Assessment of Charged AuNPs: From Synthesis to Innate Immune Recognition. *Journal of Nanomaterials*. 2018, <https://doi.org/10.1155/2018/9301912>.
- K. Rahme, G. Minassian, E. Ghanem, J.D. Holmes, E. Souaid, M. Nakhl, M. Sarkis, R. El Hage. A Simple Synthesis of Polymer Coated Gold and Silver Nanoparticles in Water for Potential Use in Biomedical Applications. *TechConnect Briefs*. 1: 87-90, 2018. ISBN: 978-0-9975117-8-9.
- C.M. O’Driscoll, E. Ghanem, E. Souaid, G. Minassian, J. Guo, J.D. Holmes, K. Rahme. Dendrigrft Poly-L-lysine (d-PLL) Coated Gold Nanoparticles in Water for siRNA Delivery to Prostate Cancer Cells. *TechConnect Briefs*. 1: 91-94, 2018. ISBN: 978-0-9975117-8-9.
- Esther Ghanem and Re-Mi Hage. Behavior of Lung Health Parameters among Smokers and Secondhand Smokers. *Journal of Environmental and Public Health*. 2018:5217675, 2018.
- Stephanie Tannous and Esther Ghanem. A bite to fight: front-line innate immune defenses against malaria parasites. *Pathogens and Global Health*. 112(1):1-12, 2018.
- Tarek Beytamouni and Esther Ghanem. Properties of Uterine Natural Killer Cells in Human Pregnancy, Major Receptors Involved, and Routes of Trophoblast Invasion. *Single Cell Biol*. 5: 133, 2016. doi: 10.4172/2168-9431.1000133.
- Esther Ghanem, Mohammed Al-Balushi. Adopting the rapamycin trapping assay to track the trafficking of murine MHC class I alleles, H-2K (b). *BMC Cell Biol*. 16:30, 2015. doi: 10.1186/s12860-015-0077-1.
- Nele Beutler, Sebastian Hauka, Alexandra Niepel, Daniel Kowalewski, Julia Uhlmann , Esther Ghanem, Steffen Erkelenz, Helmut Hanenberg, Heiner Schaal, Stefan Stevanovic, Sebastian Springer, Frank Momburg, Hartmut Hengel and Anne Halenius. A natural tapasin isoform lacking exon 3 modifies peptide loading complex function. *European Journal of Immunology*. 43(6):1459-69, 2013. doi: 10.1002/eji.201242725.
- Esther Ghanem and Sebastian Springer. Determining the activity of the transporter associated with antigen processing in the compartments of the secretory pathway. *Methods Mol Biol*. 960:137-44, 2013.
- Esther Ghanem, Susanne Fritzsche, Jood Hashem, et al. The Transporter associated with Antigen processing is active in a post-ER compartment. *Journal of Cell Science*. 123: 4271-4279, 2010.
- Christopher Howe, Malgorzata Garstka, Mohammed Al-Balushi, Esther Ghanem, Antony Antoniou, Susanne Fritzsche, Gytis Jankevicius, Nasia Kontouli, Clemens Scheeweiss, Antony Williams, Tim Elliott, Sebastian Springer. Calreticulin-dependent recycling in the early secretory pathway mediates optimal peptide loading of MHC class I molecules. *The EMBO Journal*. 28:3730 – 3744, 2009.

## Oral and Poster Presentation

- Guest speaker at the 3<sup>rd</sup> version conference on online education by Universidad Mistral, Chile. “Managing Sciences and Lab courses Remotely.” June 2022.
- Guest Speaker at the MediEuro Network Workshop at University of Cyprus. “Perspectives and Publications related to Biobanking in Lebanon.” May 2022.
- Guest Speaker at the DAAD alumni conference organized by the University of Jordan on ‘Digital higher education in Jordan, Iraq & Lebanon: institutional strategies, good practices, and future perspectives.’ December 2021.
- Targeting prostate cancer cells with D2B-gold Nanoparticles. *Proceedings of the Nanotech France 2018 International Conference*.

- Dendrigrapt Poly-L-lysine (d-PLL) Coated Gold Nanoparticles in Water for siRNA Delivery to Prostate Cancer Cells. Nanotech 2018 Conference & Expo. Anaheim, California, USA.
- Biodegradable polymer-capped Gold and Silver Nanoparticles in water. "First National Workshop on Innovative Materials and Applications". AUB, Lebanon.
- 'Innovative Learning and Teaching at NDU: What happened?' NDU, Lebanon.
- Panelist in the conference 'Our common Home: Sustaining a Green and Clean campus. Shared my contribution as a faculty member towards a sustainable campus.
- Synthesis and Bioconjugation of water dispersible Nanoparticles for Potential applications in Cancerous Tumor Therapy. George. Minassian, Esther Ghanem, Michel Nakhl, Roland El Hage, Eddy souaid, and Kamil Rahme, 23<sup>rd</sup> International Scientific Conference, LAAS, 2017, page 161.
- Effective teaching methodologies to deliver GER courses: ENS201. National conference on Education 2015: Adapting Education to a Changing Arab Region held at Notre Dame University, Lebanon.
- Online course through iversity: Molecular Basis of Nutrition-Related Diseases.
- The quality control of proteins extends to post-ER compartments. LAAS conference, NDU, Lebanon.
- Cellular Protein Transport, Heidelberg, Germany.
- 7<sup>th</sup> international congress of the European Life Scientist Organization (ELSO), Nice, France.
- Bremen Molecular and Marine Biology (BMMB) Meeting, Etelsen, Germany.
- Gesellschaft für Biochemie und Molekularbiologie (GBM), Mosbach, Germany.
- 3<sup>rd</sup> International PhD symposium, Horizons in Molecular Biology, Göttingen, Germany.

## Equity, Diversity, and Inclusion (EDI) Practices

- Advocating for a smoke free campus: 'Unleash your addiction', (2015).
- Main Organizer of the Anti-Microbial Resistance workshop for 96 Students (Grade 8) at The Senior School, Nicosia. In collaboration with the Multipliers Project at University of Cyprus and biobank.cy. Fall 2022.
- STEAM activities for different classes in the Maronite School of Nicosia, Nareg School, and Terra Santa School. Fall 2022.
- STEAM for Peace:<https://twitter.com/CYBiobank/status/1556924377605758976/photo/1> summer camp organized by the US. Embassy at Ledra Palace Hotel. Organized and supervised activities with biobank.cy team related to blood typing, body organs, healthy diets, and fingerprint decoding. Bi-communal communication between middle school students from both sides of Nicosia, Cyprus. Summer 2022.

## Scholarship Contribution

- Editor Reviewer in Biomedical Nanotechnology (Frontiers in Nanotechnology).
- Ethics External Reviewer to several grants.