

Wael M. Rabeh

New York University Abu Dhabi (NYUAD)
PO Box 129188, Abu Dhabi, United Arab Emirates

Tel: +971 56 798 5131 E-mail: wael.rabeh@nyu.edu

Web page: www.rabehlab.com

ORCID: [0000-0001-6071-8581](https://orcid.org/0000-0001-6071-8581)

Google Scholar: <http://scholar.google.com/citations?user=7rFMDhAAAAAJ&hl=en&oi=ao>

Citizenship: Canadian

Education:

Dec. 2004	Ph.D. in Biochemistry: enzymology. Laboratory of Prof. Paul F. Cook, University of Oklahoma, Norman, OK, USA
May 2002	M.S. in Biochemistry, University of Oklahoma, Norman, OK, USA
Jan. 1996	B.S. in Biological Chemistry, University of Damascus, Syria

Work Experience:

09/2018 – Present	Associate Professor of Chemistry Science Division, New York University Abu Dhabi, UAE
09/2016 – 08/2018	Assistant Professor of Chemistry Science Division, New York University Abu Dhabi, UAE
09/2010 – 08/2016	Assistant Professor of Practice of Chemistry Science Division, New York University Abu Dhabi, UAE
01/2010 – 09/2010	Research Scientist, McGill University, Montreal, QC, Canada Laboratory of Dr. Gergely Lukacs
10/2007 - 12/2009	Postdoctoral fellow, McGill University, Montreal, QC, Canada Laboratory of Dr. Gergely Lukacs
07/2005 - 10/2007	Postdoctoral fellow, Structural Genomics Consortium, Toronto, ON, Canada
01/2005 – 06/2005	Faculty Adjunct OKC Community College, Oklahoma City, OK, USA
01/2005 – 06/2005	Lecturer University of Oklahoma, Norman, OK, USA
08/1998 – 12/2004	Teaching/Research assistant University of Oklahoma, Norman, OK, USA

Grantsmanship:

Mar 2024	UAE-NIH Collaborative Award . coPI: Wael Rabeh. Title: "Targeting LPS endotoxin of gram-negative bacteria for treatment of sepsis and antimicrobial resistance." Funded by NIH and Al-Jalila foundation (\$525,000) Jan 2024 – Dec 2027.
Jan 2023	Orphan Disease Center . Collaborator: Wael Rabeh. Title: "Structural and Functional Investigation of the ZC4H2 Protein." (\$46,846) 2023 – 2024.
Mar 2021	NYUAD, Research Enhancement Fund . PI: Wael Rabeh. Title: "The Newly Identified Inhibitor Site of Human Hexokinase 2 for the Structure-Based Drug Design of Anticancer Therapeutics." (\$60,000) Mar 2021 – Mar 2022.

- Jul 2020 NYUAD, [COVID-19 Facilitator Research Fund](#); **Sole PI**: Wael Rabeh.
Title " Expression and Biochemical Characterization of COVID-19 proteases for the initiation of Drug Screen efforts at GNU and in the UAE." (**\$30,000**) July 2020 – July 2021
- Jan 2019 ADEK (Abu Dhabi Department of Education and Knowledge), Award for Research Excellence [Research Grant](#); **Sole PI**: Wael Rabeh.
Title " The identification of inhibitor site on human hexokinase 2 to be used in the design of Anti-Cancer Therapeutics." (**\$82,000**) Jan 2019 – Jun 2021
- May 2015 Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) [Research Grant](#); **Co-PI**: Wael Rabeh.
Title "Crystallographic and Functional Analysis of mutants rat Cytochrome W31F, W151F and W31F/W151F: Contribution for the Comprehension of the Peroxidase Activity of the Hemeprotein." (**\$56,000**) Aug 2015 – Aug 2016
- Dec 2014 Al Jalila Foundation, [Research Grant](#). **Sole PI**: Wael Rabeh.
Title: "Mitochondrial Dissociation Effect on Human Hexokinase 2 and its role in Tumor Progression". (**\$71,300**) Jan 2015 – Aug 2017
- Aug 2013 NYUAD, [Research Enhancement Fund](#). **Sole PI**: Wael Rabeh.
Title: "Red- and Green-Emitting Luciferases: Determination of the Color Emission Mechanism." (**\$100,000**) Sep 2013 – Aug 2015
- May 2013 UAE Terry Fox Research Foundation, [Research Grant](#). **PI**: Wael Rabeh.
Title: "Discovery, Development and Molecular Mechanism of Novel Inhibitors of Human Hexokinase 2 as Anticancer Therapeutics". (**\$34,500**) Feb 2014 – Feb 2015
- Jun 2011 NYUAD, [Research Enhancement Fund](#). **Sole PI**: Wael Rabeh.
Title: "The Role of the NBD1-NBD2 Interaction in CFTR Folding and Misfolding." (**\$80,000**) Aug 2011 – Aug 2013.
- Sep 2010 NYUAD, [Lab Start up fund](#). (**\$425,000**) Sep 2010 – Aug 2013.

Honors, Awards, and Fellowships

- July 2023 [ACS Fellow](#), The American Chemical Society named 42 members in 2023 as ACS fellows. Prof. Rabeh was selected for his outstanding contribution to the biochemistry community, the ACS society, and the ACS chapter in the UAE. July 27, 2023, Baltimore, MD, USA.
- Oct. 2010 [Young Investigator Best Abstract in Basic Science Award](#), Top Five Finalists. The 24th Annual North American Cystic Fibrosis Conference. Oct 21-23, 2010, Baltimore, MD, USA.
- Jul. 2010 [Postdoctoral Fellowship](#), Canadian Cystic Fibrosis Foundation, Toronto, ON, Canada.
- Jun. 2008 [Postdoctoral Fellowship](#), Groupe de Recherche Axé sur la Structure des Protéines (GRASP), McGill University, QC, Canada.
- Apr. 2004 [Outstanding Teaching Assistant Award](#), Department of Chemistry and Biochemistry, University of Oklahoma, OK, USA.
- Aug. 2000 [Recognition and Honor Award](#), Alpha Phi Omega, University of Oklahoma, OK, USA.

Teaching Experience:

Undergraduate Courses

- NYU Abu Dhabi** **Biochemistry: Macromolecular structure & Function** (CHEM-UH 3020). Sole instructor & developer; (FA12; FA13; FA14; FA15; FA16; FA17; FA18; FA19, FA20, FA21, FA22, FA23).
- Biochemistry: metabolism** (CHEM-UH 3021). Sole instructor & developer; (SP14; SP15; SP16; SP17; SP18; SP19; SP20, SP21, SP22, SP23, SP24).
- Experimental Biochemistry** (CHEM-UH 3022): Protein expression, purification, and biophysical and biochemical characterization. Instructor & sole developer; (FA14; SP17, SP21, SP22, SP23).

- NYU Abu Dhabi** **Foundations of Science 2 Laboratory** (SCIEN-UH 1201-1203): Chemistry laboratory. (FA10)
- Foundations of Science 3 and 4 Laboratory** (SCIEN-UH 1301-1304 and SCIEN-UH 1401-1404): Sole instructor & developer. Chemistry laboratory and the Crystal growth project (SP11; SP12, SP13, SP14, SP15, SP16).
- Foundations of Science 5 and 6 Laboratory** (SCIEN-UH 1503 and SCIEN-UH 1601-1603): Sole instructor & developer Molecular biology and DNA manipulation laboratory. (FA11, FA12)
- Domain of Crystals** (COREI-AD 17): a non-science course exploring the growth of crystals and its scientific applications; includes a lab session. Instructor & sole developer; (SP12, SP13).
- U of Oklahoma** **General Chemistry I laboratory** (CHEM 1315) Sole instructor for 3 hours lab section and an hour recitation period; (FA98, SP99; FA00; FA02; SP03; FA03; SP04; FA04).
- Introduction to Biochemical Methods** (CHEM 3753) instructor for 3 hours lab section (SP01).
- Biochemical and Biophysical Methods** (CHEM 5240) **graduate-level course**. Teaching assistant involved with PhD students on their course project (SP02).
- U of Oklahoma** **General Chemistry I lecture** (CHEM 1315) **substitute instructor** for 8 sessions of one-hour lectures for 250 student section; (SP05).
- Organic Chemistry I lecture** (CHEM 3064) **substitute instructor** for 6 sessions one-hour lectures for 100 student section; (SP05).
- OKC Com College** **General Chemistry I** (CHEM 1115) Sole instructor for 3 hours lecture and 3 hours lab for 54 students. (SP05).

Patents:

1. Ferreira, J.C.; Cardoso, T.H.S.; Saksena, N.K.; **Rabeh, W.M.** Compositions Having Synergistic Anti-Viral Action. U.S. Provisional Patent Application No. 63/296,750 & No. 63/296,791 filed January 5, 2022.

Publications:

37. Ferreira, J.C.; Fadl, S.; Cardoso, T. H.S.; Andrade, B.S.; Melo, T.S.; Andrade Silva, E.M.; Agarwal, A.; Turville, S.J.; Saksena, N. K.; **Rabeh, W.M.** [Boosting immunity: synergistic antiviral effects of luteolin, vitamin C, magnesium and zinc against SARS-CoV-2 3CLpro](#). *Biosci Rep* (2024) 44 (8): BSR20240617.
36. Ferreira, J.C.; Villanueva, A.J.; Fadl, S.; Al Adem, K.; Cinviz, Z.N.; Nedyalkova, L.; Cardoso, T. H.S.; Andrade, M.E.; Saksena, Sensoy, O.; **Rabeh, W.M.** [Residues in the Fructose Binding Pocket Are Required for Ketohexokinase-A Activity](#). *J. Biol. Chem.* (2024):107538.
35. Al Adem, K.; Ferreira, J.C.; Villanueva, A.J.; Fadl, S.; El-Sadaany, F.; Masmoudi, I.; Gidiya, Y.; Gurudza, T.; Cardoso, T. H.S.; Saksena, N. K.; **Rabeh, W.M.** [3-chymotrypsin-like protease in SARS-CoV-2](#). *Bioscience Reports*. (2024) 44 (8): BSR20231395 (Invited review paper)
34. Mahgoub, R.E.; Mohamed, F.; Alzyoud, L.; Ali, B.R.; Ferreira, J.C.; **Rabeh, W.M.**; AlNeyadi, S.S.; Atatreh, N.; Ghattas, M.A. [Discovery of Pyrimidoindol and Benzylpyrrolyl Inhibitors Targeting SARS-CoV-2 Main Protease \(Mpro\) through Pharmacophore Modelling, Covalent Docking, and Biological Evaluation](#). *J. Mol. Graph. Model.* (2023) 108672
33. Alzyoud, L.; Mahgoub, R.E.; Mohamed, F.; Ali, B.R.; Ferreira, J.C.; **Rabeh, W.M.**; Atatreh, N.; Ghattas, M.A. [The Discovery of Novel Small Oxindole-based Inhibitors Targeting the SARS-CoV-2 Main Protease \(Mpro\)](#). *Chemistry & Biodiversity* (2023) e202301176
32. Saksena, N. K.; Reddy, S. B.; Saksena, M. M.; Cardoso, T. H.S.; Silva, E. M.A.; Ferreira, J.C.; **Rabeh, W.M.** [SARS-CoV-2 variants, its recombinants and epigenomic exploitation of host defenses](#). *BBA Molecular Basis of Disease* (2023) 1869(8):166836.
32. Al Adem, K.; Ferreira, J.C.; Fadl, S.; **Rabeh, W.M.** [Key Allosteric and Active Site Residues of SARS-CoV-2 3CLpro Are Promising Drug Targets](#). *Biochem. J.* (2023) 480 (11): 791–813.

31. Al Adem, K.; Ferreira, J.C.; Fadl, S.; **Rabeh, W.M.** [pH profiles of 3-chymotrypsin-like protease \(3CLpro\) from SARS-CoV-2 elucidate its catalytic mechanism and a histidine residue critical for activity](#). *J. Biol. Chem.* (2023) 299 (2): 102790.
30. Mahgoub, R.E.; Mohamed, F.; Alzyoud, L.; Ali, B.R.; Ferreira, J.C.; **Rabeh, W.M.**; AlNeyadi, S.S.; Atatreh, N.; Ghattas, M.A. [The Discovery of Small Leadlike Inhibitors of the SARS-Cov-2 Main Protease via Structure-Based Virtual Screening and Biological Evaluation](#). *Molecules* (2022) 27(19): 10.3390/molecules27196710
29. Shetler, C.L.; Ferreira, J.C.; Cardoso, T.H.S.; Silva, E.M.A.; Saksena, N.K.; **Rabeh, W.M.** [Therapeutic potential of metal ions for COVID-19: insights from the papain-like protease of SARS-CoV-2](#). *Biochme. J.* (2022); BCJ20220380. doi: 10.1042/BCJ2022038
28. Yozgat, Y.; Karakoc, E.; Sahin, O.; Cimen, S.; **Rabeh, W.M.**; Aydin, M.S.; Mardinoglu, A.; Gursel, I.; Cakir, A.; Sensoy, O.; Ozdemir, E.M.; Bayrak, Y.; Gunluoglu, M.Z.; Saatci, O.; Jabbar, J.; Ferreira, J.C.; Aslan, M.D.; Yildirim, M.; Mansoor, S.; Kerman, B.E.; Aladag, Z.; Kim, W.; Arif, M.; Vatandaslar, E.; Tok, O.E.; Dogru, Z.; Demir, A.G.O.; Yildirim, T.C.; Yozgat, I.; Senturk, S.; Ozturk, G.; Cevher, M.A. [Hexokinase 1b is a novel target for Non-small-cell lung cancer](#). bioRxiv doi: <https://doi.org/10.1101/2022.06.27.497447>
27. Ferreira, J.C.; Fadl, S.; **Rabeh, W.M.** [Key dimer interface residues impact the catalytic activity of 3CLpro, the main protease of SARS-CoV-2](#). *J. Biol. Chem.* (2022) 298(6):102023.
26. Ferreira, J.C.; Fadl, S.; Ilter, M.; Pekel, H.; Rezugui, R.; Sensoy, O.; **Rabeh, W.M.** [Dimethyl sulfoxide reduces the stability but enhances catalytic activity of the main SARS-CoV-2 protease 3CLpro](#). *FASEB J.* (2021) doi: 10.1096/fj.202100994
25. Ferreira, J.C.; Fadl, S.; Villanueva, A.J.; **Rabeh, W.M.** [Catalytic Dyad Residues His41 and Cys145 Impact the Catalytic Activity and Overall Conformational Fold of the Main SARS-CoV-2 Protease 3-Chymotrypsin-like Protease](#). *Front. Chem.* (2021) doi: 10.3389/fchem.2021.692168
24. Ferreira, J.C.; Abdul-Rahman Khrbtli, A.R.; Shetler, C.L.; Mansoor, S.; Ali, L.; Sensoy, O.; **Rabeh, W.M.** [Linker residues regulate the activity and stability of hexokinase 2, a promising anticancer target](#). *J. Biol. Chem.* (2021) 296:100071. RA120.015293.
23. Ferreira, J.C.; **Rabeh, W.M.** [Biochemical and biophysical characterization of the main protease, 3-chymotrypsin-like protease \(3CLpro\) from the novel coronavirus SARS-CoV 2](#). *Scientific Reports* (2020) v. 10: 22200
22. López, C.C.; Ferreira, J.C.; Lui, N.M.; Schramm, S.; Berraud-Pache, R.; Navizet, I.; Panjikar, S.; Naumov, P.; **Rabeh, W.M.** [Beetle luciferases with naturally red- and blue-shifted emissions](#). *Life Science Alliance*. (2018) 1(4) e201800072
21. Whelan, J.; Koussa, J.; Chehade, I.; Sabanovic, M.; Chang, A.; Carelli, D.; An, Z.; Zhang, L.; Bernstein, J.; **Rabeh, W.M.** [Crystal Growth, a Research-Driven Laboratory Course](#). *J. Appl. Cryst.* (2018). 51, 1474–1480
20. Nawaz, M.H.*; Ferreira, J.C.; Nedyalkova, L.; Zhu, H.Z.; López, C.C.; Kirmizialtin, S.; **Rabeh, W.M.*** [The Catalytic Inactivation of the N-half of Human Hexokinase 2 and Structural and Biochemical Characterization of its Mitochondrial Interactions](#). *Bioscience Reports*. (2018) 38(1). BSR20171666; DOI: 10.1042/BSR20171666 *Co-first Authors.
19. Vunnam, S.; Mazitschek, R.; Kariem, N.M.; Reddy, A.; **Rabeh, W.**; Li, L.; O'Connor, M.J.; Al-Tel, T.H. [Modular Bi-Directional One-Pot Strategies for the Diastereoselective Synthesis of Structurally Diverse Collections of Constrained \$\beta\$ -Carboline-Benzoxazepines](#). *Chem. Eur. J.* (2017) doi: 10.1002/chem.201702495.
18. Woldetsadik, A.D.; Vogel, M.C.; **Rabeh, W.M.**; Magzoub, M. [Hexokinase II-derived cell-penetrating peptide targets mitochondria and triggers apoptosis in cancer cells](#). *FASEB J.* (2017) 31(5):2168-2184.
17. Gražulis, S.; Sarjeant, A.A.; Moeck, P.; Stone-Sundberg, J.; Snyder, T.J.; Kaminsky, W.; Oliver, A.G.; Stern, C.L.; Dawe, L.N.; Rychkov, D.A.; Losev, E.A.; Boldyreva, E.V.; Tanski, J.M.; Bernstein, J.; **Rabeh, W.M.**; Kantardjieff, K.A. [Crystallographic education in the 21st century](#). *J. Appl. Cryst.* (2015) 48: 1964-1975.
16. Nath, N.K.; Yasuda, N.; **Rabeh, W.M.**; Chandra Sahoo, S.; Naumov, P. [Structural Elucidation of the Neuraminidase Inhibitor Zanamivir \(Relenza\): Creeping and Diffusion for Polymorph Separation](#). *Cryst. Growth Des.* (2014) 14 (2): 770–774
15. Naumov P.; Yasuda, N.; **Rabeh W.M.**; Bernstein, J. [The elusive crystal structure of the neuraminidase inhibitor Tamiflu \(oseltamivir phosphate\): molecular details of action](#). *Chem Commun.* (2013) 49:1948-50.

14. Ahner, A.; Gong, X.; Schmidt, B.Z.; Peters, K.W.; **Rabeh, W.M.**; Thibodeau, P.H.; Lukacs, G.L.; Frizzell, R.A. [Small heat shock proteins target mutant CFTR for degradation via a SUMO-dependent pathway](#). *Mol. Biol. Cell* (2013) 24(2):74-84.
13. **Rabeh, W.M.**; Bossard, F.; Xu, H.; Okiyoned, T.; Bagdany, M.; Liu, Y.; Mulvihill, C.M.; Du, K.; Di Bernardo, S.; Konermann, L.; Roldan, A.; Lukacs, G.L. [Correction of both NBD1 energetics and domain interface is required to restore \$\Delta F508\$ CFTR folding and function](#). *Cell*; (2012) 148(1-2): 150-63. (Featured on the cover page of Science-Business eXchange).
12. Colas, J.; Faure, G.; Sausseureau, E.; Trudel, S.; **Rabeh, W.M.**; Bitam, S.; Guerrera, I.C.; Fritsch, J.; Sermet-Gaudelus, I.; Davezac, N.; Brouillard, F.; Lukacs, G.L.; Herrmann, H.; Ollero, M. and Edelman, A. [Disruption of cytokeratin-8 interaction with F508del-CFTR corrects its functional defect](#). *Hum. Mol. Genet.* (2012) 21(3): 623-34.
11. Wyatt, E.; Wu, R.; **Rabeh, W.**; Park, H.W.; Ghanefar, M. and Ardehali, H. [Regulation and Cytoprotective Role of Hexokinase III](#). *PLoS One*. (2010) 5(11): e13823
10. Okiyoned, T.; Barrière, H.; Bagdány, M.; **Rabeh, W.M.**; Du, K.; Höhfeld, J.; Young, J.C. and Lukacs, G.L. [Peripheral Protein Quality Control Removes Unfolded CFTR from the Plasma Membrane](#). *Science*. (2010) 805-10.
9. Tai, C.H., **Rabeh, W.M.**, Guan, R., Schnackerz, K.D. and Cook, P.F. [Role of Histidine-152 in cofactor orientation in the PLP-dependent O-acetylserine sulphydrylase reaction](#). *Arch. Biochem. Biophys.* (2008) 472, 115-25
8. Tai, C.H., **Rabeh, W.M.**, Guan, R., Schnackerz, K.D. and Cook, P.F. [Effect of mutation of lysine-120, located at the entry to the active site of O-acetylserine sulphydrylase-A from *Salmonella typhimurium*](#). *Biochim. Biophys. Acta*. (2008) 1784, 629-37.
7. Tempel, W.* , **Rabeh, W.M.***, Bogan, K.L., Belenky, P., Wojcik, M., Seidle, H.F., Nedyalkova, L., Yang, T., Sauve, A.A., Park, H.W. and Brenner, C. [Nicotinamide Riboside Kinase Structures Reveal New Pathways to NAD⁺](#). *PLoS Biol.* (2007) 5(10): e263 *Co-first Authors
6. Hong, B.S., Senisterra, G., **Rabeh, W.M.**, Vedadi, M., Leonardi, R., Zhang, Y.M., Rock, C.O., Jackowski, S. and Park, H.W. [Crystal Structures of Human Pantothenate Kinases: Insights into Allosteric Regulation and Mutations linked to Neurodegeneration Disorder](#). *J. Bio. Chem.* (2007) 282, 27984-93
5. Dong A, Xu X, Edwards AM, Chang C, Chruszcz M, Cuff M, eta...**Rabeh W**, Shen L, Shen Y, Sukumard D, Tempel W, Tong Y, Tresagues L, Vedadi M, Walker JR, Weigelt J, Welin M, Wu H, Xiao T, Zeng H, Zhu H. [In situ proteolysis for protein crystallization and structure determination](#). *Nat. Methods*. (2007) 4, 1019-21.
4. Chattopadhyay, A.* , Meier, M., Ivaninskii, S., Burkhard, P., Speroni, F.* , Campanini, B., Bettati, S., Mozzarelli, A., **Rabeh, W.M.***, Li, L. and Cook, P.F. [Structure, Mechanism, and Conformational Dynamics of O-Acetylserine Sulphydrylase from *Salmonella typhimurium*: Comparison of A and B Isozymes](#). *Biochemistry* (2007) 46, 8315-30 *Co-first Authors.
3. **Rabeh, W.M.**, Mather, T. and Cook, P. F. [A Three-Dimensional Homology Model of the O-Acetylserine Sulphydrylase-B from *Salmonella typhimurium*](#). *Protein Pept Lett.* (2006) 13, 7-13
2. **Rabeh, W.M.**, Alguindigue, S. S. and Cook, P. F. [Mechanism of the Addition Half of the O-Acetylserine Sulphydrylase-A Reaction](#). *Biochemistry* (2005) 44, 5541-50.
1. **Rabeh, W.M.**, and Cook, P. F. [Structure and Mechanism of O-Acetylserine Sulphydrylase](#). *J. Bio. Chem.* (2004) 279, 26803-26806.

Presentations:

Invited Talks:

27. New Insights into Color Emission of Beetle Luciferases. **June 3–7, 2024**. 22nd International Symposium for Bioluminescence (ISBC), **Foz do Iguacu, Brazil**.
26. New Insights in Cancer Inhibition and Therapeutics. **Feb 5 – 7, 2024**. The American Chemical Society (ACS) conference for the Middle East and Africa (MEA). **Abu Dhabi, UAE**. (Keynote Speaker)
25. The proteases of SARS-CoV-2 for antiviral development. **Oct 25 – 27, 2023**. International Meeting of the Microbiological Society of Korea (MSK2023). **Yeosu-si, South Korea**.
24. Drug Development Against COVID-19. **Dec 5-6, 2022**. First UAE Scientific Conference on Health and Medical Research. **Dubai, UAE**.

23. Non-active Site Residues Inactivate the N-terminal Domain of the Human Hexokinase 2. **Oct 30–Nov 2, 2022.** The 17th conference of the Asian Crystallographic Association (AsCA2022). **Jeju-do, South Korea.**
22. Protein Crystal Growth in Microgravity for Anticancer Drug Discovery. **Oct 20, 2022.** Space Life Sciences Workshop, Mohammed Bin Rashid Space Centre & Mohammed Bin Rashid University, **Dubai, UAE.**
21. Dimer interface for the inhibition of Main Protease of SARS-CoV-2. **June 21-23, 2022.** 4th Protein Engineering Canada (PEC) Conference, Concordia University, **Montreal, QC Canada.**
20. Protein Dynamics Insight into the Origin of the Green and Red Emission of Beetle Luciferases. **May 31-Jun 3, 2022.** 21st International Symposium for Bioluminescence (ISBC), **Gijon, Spain.**
19. Characterization of the 3CLpro main protease of SARS-CoV2. **Mar. 09-10, 2021.** Regional E-Gathering in Chemistry. Virtual conference.
18. Glucose Metabolism for the Inhibition of Cancer Growth. **Jan. 12-14, 2020.** The 3rd NYU Biomedical and Biosystems Conference. NYUAD, **Abu Dhabi, UAE.**
17. The American Chemical Society (ACS) Chapter in the UAE. **Oct. 26-31, 2019.** Arab Chemistry Week. University of Sharjah, **Sharjah, UAE.**
16. The Color Tuning Mechanism of Beetle Luciferases. **Nov. 12-14, 2018.** The 2nd Middle-Eastern Materials Science Conference. NYUAD, **Abu Dhabi, UAE.**
15. The Color Emission of Beetle Luciferases. **June 18, 2018.** Protein Engineering Canada (PEC) Conference, the University of British Columbia, **Vancouver, B.C. Canada.**
14. Cancer Metabolism and its Therapeutic Applications. **Nov. 4, 2017.** The 4th Middle East Molecular Biology (MEMBS) Congress and Exhibition. **Abu Dhabi, UAE.**
13. The Catalytic and Structural Roles of the Human Hexokinase 2 in Cancer. **March 21, 2017.** 2nd International Conference on Enzymology and Molecular Biology. **Rome, Italy.**
12. Glucose Metabolism in Cancer and its Therapeutic Applications. **March 1, 2016.** 2nd UAE Conference on Pure and Applied Chemistry (ECPAC16). American University of Sharjah, **Sharjah, UAE.**
11. Glycolysis in Cancer Metabolism and Apoptosis. **Feb. 16, 2016.** 7th International Conference on Drug Discovery and Therapy. Eureka conference. University of Sharjah, **Sharjah, UAE.**
10. The Warburg Effect and Molecular Mechanism of Human Hexokinase 2 in Cancer Metabolism and Apoptosis. **Aug 17, 2015.** Beatson Institute, *Cancer Research UK, Glasgow, UK.*
9. Structural and Molecular Mechanisms of Human Hexokinase 2 in Cancer Metabolism and Apoptosis. **Mar 18, 2015.** Sharjah Institute for Medical Research (SIMR), the University of Sharjah. **Sharjah, UAE.**
8. Human Hexokinase 2: a Key Enzyme and Promoter of Tumor Growth. **Nov. 23-25, 2013.** ARC'13: Qatar Foundation Annual Research Conference. **Doha, Qatar.**
7. Glycolysis in Cancer Metabolism and Apoptosis. **Feb. 16, 2016.** 7th International Conference on Drug Discovery and Therapy. University of Sharjah, **Sharjah, UAE.**
6. Glucose Metabolism in Cancer and its Therapeutic Applications. **March 1, 2016.** 2nd UAE Conference on Pure and Applied Chemistry (ECPAC16). American University of Sharjah, **Sharjah, UAE.**
5. Cystic Fibrosis Disease Mechanism: Recovery of the Misfolded CFTR Channel. **Jun. 3-6, 2013.** Drug Discovery & Therapy World Congress. **Boston, USA.**
4. *Crystal Growth to Foster Inquiry-Based Learning: First Year Science Laboratory.* **Aug. 5-12, 2014.** 23rd International Union of Crystallography (IUCr) Congress. **Montreal, QC, Canada.**
3. *Correction of the Misfolded Cystic Fibrosis Transmembrane Conductance Regulator Channel is a Two-Step Process.* **Feb. 18-21, 2013.** 5th International Conference on Drug Discovery & Therapy. **Dubai, UAE.**
2. *Correction of Both NBD1 Energetics and Domain Interface is Required to Restore $\Delta F508$ CFTR Folding and Function.* **Jun. 6-9, 2012.** 35th European Cystic Fibrosis Conference. P.54. **Dublin, Ireland.**
1. *Conformational stabilization of the NBD1 is necessary, but not sufficient for CFTR biogenesis.* **Oct 21-23, 2010.** The 24th Annual North American Cystic Fibrosis Conference. Baltimore, MD, United States. *Pediatric Pulmonology* **2010.** P.220

Conferences and Workshops:

26. César Carrasco-López, Juliana C. Ferreira, & **Wael M. Rabeh.** Beetle Luciferases and their Color Emission. **18-23 Aug 2019.** 32nd European Crystallographic Meeting (ECM32). **Vienna, Austria.**
25. Abdulrahman Khrbtli, Juliana C. Ferreira, César Carrasco-López, & **Wael M. Rabeh.** Red or Blue Emission of Beetle Luciferases and their Applications. **22-26 July 2019.** 6th SSBSS in **Pisa, Italy.**

24. César Carrasco-López, Juliana Ferreira, & **Wael Rabeh**. The Origin of Color Emission of Beetle Luciferases. **Mar. 28-30, 2019**. The 9th International Conference on Biomedical Engineering & Technology. **Tokyo, Japan**.
23. Ferreira, J.; Nawaz, M.H.; **Rabeh, W.M.** Cancer Metabolism and the Human Hexokinase 2 as an Anticancer Target. **7-12 July 2018**. The 43rd FEBS congress in **Prague, Czech Republic**.
22. Ferreira, J.; Nawaz, M.H.; **Rabeh, W.M.** Characterization of the Human Hexokinase 2 role in Cancer Metabolism and Apoptosis. **July 16-21, 2017**. Enzymes, Coenzymes & Metabolic Pathways; a **Gordon Research Conference (GRC)** in **Waterville Valley, NH, USA**.
21. Nawaz, M.H.; **Rabeh, W.M.** Human Hexokinase 2 in Cancer Metabolism and Apoptosis. **Sep. 28-30, 2015**. Cancer and Metabolism conference, an Abcam cancer conference series. Robinson College, **Cambridge, UK**.
20. Nawaz, M.H.; **Rabeh, W.M.** Mechanisms of Action of the Human Hexokinase 2 in Cancer Metabolism and Apoptosis. **Aug. 19-21, 2015**. Carbohydrate Active Enzymes in Medicine and Biotechnology. University of St Andrews, **St Andrews, Scotland**.
19. Nawaz, M.H.; **Rabeh, W.M.**; Structural and Molecular Mechanisms of Human Hexokinase 2 in Cancer Metabolism and Apoptosis. Metabolism and Cancer; an American Association for Cancer Research (AACR) special conference. June 7 - 10, 2015; Bellevue, Washington, USA.
18. Nawaz, M.H.; **Rabeh, W.M.**; How to Cure Cancer with a Pill? A Structure-Based Drug Design Study on Human Hexokinase 2 targeting different Tumor types. ARC'14: Qatar Foundation Annual Research Conference. Nov. 18-19, 2014. Doha, Qatar.
17. Nawaz, M.H.; **Rabeh, W.M.** *The Mitochondrial Dissociation Effect on the Human Hexokinase 2 and its role in Tumor Progression*. Enzyme mechanisms by biological systems, EMBO conference. Jun. 1-4, 2014. Manchester, UK.
16. **Rabeh, W.M.**; Bossard, F.; Xu, H.; Okiyonedo, T.; Bagdany, M.; Mulvihill, C.M.; Du, K.; Di Bernardo, S.; Liu, Y.; Konermann, L.; Roldan, A. and Lukacs, G.L. *Recovery of the Genetic Mutation of CFTR Channel and the Cystic Fibrosis Disease Mechanism*. ARC'13: Qatar Foundation Annual Research Conference. Nov. 23-25, 2013. Doha, Qatar.
15. Okiyonedo, T.; Guido, V.; Xu, H.; Roldan, A.; Bagdany, M.; **Rabeh, W.M.**; Lukacs, G.L. *Pharmaco- and chemical-chaperone combination synergistically rescues the $\Delta F508$ -CFTR coupled domain-folding defect in cystic fibrosis*. *Molecular Chaperones & Stress Responses*. May 1- 5, **2012**, Cold Spring Harbor, NY, USA.
14. **Rabeh, W.M.** *Protein Science in drug discovery and design*. 1st Material Science Symposium: Mar. 8, **2012**, Abu Dhabi, the United Arab Emirates (**Oral presentation**).
13. **Rabeh, W.M.**, Bossard, F., Di Bernardo, S., Okiyonedo, T., Liu, Y., Mulvihill, C.M., Du, K., Xu, H., Konermann, L., Lukacs, G.L. *Linking the deletion of F508 imposed localized NBD1 folding defect to CFTR cooperative misassembly in cystic fibrosis*. 1st Arab-American Frontiers Symposium: Oct. 17-19, **2011**, Kuwait City, Kuwait.
12. **Rabeh, W.M.**; Zhu, H.; Nedyalkova, L.; Tempel, W.; Vedadi, M.; Arrowsmith, C.H. and Edwards, A.M. *The Crystal Structure of Human Hexokinase 2: a Key Enzyme and Promoter of Tumor Growth*. Changing Landscape of the Cancer Genome: June 20 - 25, **2011**, Boston, MA, USA
11. **Rabeh, W.M.** et al. (2010) *Conformational stabilization of the NBD1 is necessary, but not sufficient for CFTR biogenesis*. *Ped. Pulm. Suppl.* 33, 220
10. Okiyonedo, T. ; Apaja, P.M.; Barriere, H.; Bagdany, M.; **Rabeh, W.M.**; Du, K.; Hohfeld, J.; Young, J.C.; Lukacs, G.L. *Protein quality control mechanism responsible for triage decision of unfolded CFTR at plasma membrane*. Gordon Research Conference (Lysosomes & endocytosis): Jun 20-25, **2010**. Andover, NH, USA.
9. Gong, X., Ahner, A., Schmidt, B., **Rabeh, W.M.**, Lukacs, G., Thibodeau, P., Frizzell, R.A. *Preferential Sumoylation of $\Delta F508$ CFTR and NBD1 Leads to Protein Degradation*. The 33rd European Cystic Fibrosis Society Conference: Jun 16-19, **2010**, Valencia, Spain.
8. **Rabeh, W.M.**, Di Bernardo, S., Xu, H., Mulvihill, C.M., Du, K. and Lukacs, G.L. *CFTR Folding in Vitro and in Vivo: Implication of Cooperative Domain Assembly*. 2010 ECFS Basic Science Conference: April 7-10, **2010**, Carcavelos, Portugal. *European Cystic Fibrosis Society*
7. Okiyonedo, T. ; Barriere, H.; Bagdany, M.; **Rabeh, W.M.**; Young, J.C.; Lukacs, G.L. *Quality control machinery responsible for ubiquitination and elimination of misfolded CFTR from the cell surface*. Annual GRASP/MSBR Symposium: Nov 23-24, **2009**, Montreal, QC, Canada.
6. Okiyonedo, T. ; Barriere, H.; Bagdany, M.; **Rabeh, W.M.**; Young, J.C.; Lukacs, G.L. *Quality control machinery responsible for ubiquitination and elimination of misfolded CFTR from the cell surface*. *Cell Stress Society*

International (CSSI) The 4th International Congress on Stress Response in Biology and Medicine, The 4th Annual Meeting of The Biomedical Society for Stress Response (BSSR): Oct 6-9, 2009, Sapporo, Japan.

5. Exploring protein-protein interaction via mass spectroscopy workshop: Jun 16, 2009, Life Sciences Complex. Montreal, Quebec, Canada. *McGill University*.
4. **Rabeh, W.M.**, Mulvihill, C.M., Di Bernardo, S., Bagdany, M., Du, K. and Lukacs, G.L. *The Biophysical Characteristics defect of $\Delta F508$ on the nucleotide binding domain 1 of the cystic fibrosis transmembrane conductance regulator*. The 1st Annual GRASP Symposium: Nov 24, 2008, Montreal, Quebec, Canada. *Groupe de Recherche Axésur la Structure des Protéines*.
3. **Rabeh, W.M.**, Mulvihill, C.M., Di Bernardo, S., Bagdany, M., Du, K. and Lukacs, G.L. *Characterization of Wild-Type and $\Delta F508$ -NBD1 with a Single Solubilization Mutation*. The 22nd Annual North American Cystic Fibrosis Conference: Oct 23-25, 2008, Orlando, FL, United States. *Pediatric Pulmonology* 2008, p 205.
2. **Rabeh, W.M.** and Cook, P.F. *Mechanism of the second-half of the O-Acetylserine Sulfhydrylase-A reaction*. The 19th Enzyme Mechanisms Conference: Jan 5-9, 2005 Pacific Grove, CA, United States.
1. **Rabeh, W.M.** and Paul, F.C. *Insights into the kinetic mechanism of Malic Enzyme from *Ascaris suum**. The 90th Annual Technical Meeting: Nov 2, 2001 Oklahoma City, OK, United States. *Oklahoma Academy of Science*.

Press Release:

3. Cain, Chris. "Cystic fibrosis two-step" Feb 23, 2012. McGill University and the University of Texas Southwestern Medical Center. Science-Business eXchange, Cover story; Vol. 5(8). Print.
2. Olson, Marie-Louise. "Big leap forward for disease treatment". Feb 4, 2012. New York University Abu Dhabi. The National, Lead story. Print.
1. Olson, Marie-Louise. "Big leap forward for disease treatment". Feb 4, 2012. New York University Abu Dhabi. Gulf in the Media. < <http://www.gulfinthemedia.com>>

Conference Organization:

3. Drug Discovery and Therapeutics (DDT). **May 6 – 8, 2024. NYU Abu Dhabi, UAE**. I co-organized the second conference to bring experts in the drug discovery field to enhance our labs' visibility.
2. American Chemical Society (ACS) conference for the Middle East and Africa (MEA). **5 – 7 Feb 2024. NYU Abu Dhabi, UAE**. I co-organized and raised funding to host over 380 registrations from 25 countries, including most of the Gulf, Middle East, and Africa. The conference is a collaboration with the ACS chapter in the UAE.
1. Drug Discovery and Therapeutics (DDT). **6–8 Feb 2023. NYU Abu Dhabi, UAE**. I co-organized the first conference to bring experts in the drug discovery field to enhance our labs' visibility.

Protein Data Bank Crystal Structure Coordinate Releases:

20. Carrasco-Lopez, C. **Rabeh, W.M.** *et al.*, Structure of a natural red emitting luciferase from *Phrixothrix hirtus*. (PDB code: **6AC3** & **6ABH**) 2018.
19. Carrasco-Lopez, C., Ferreira, J.C., Lui, N.M., Schramm, S., *et al.*, **Rabeh, W.M.** Structure of a blue-shifted Luciferase from *Amydetes vivianii*. (PDB code: **6AAA**) 2018.
18. Nedyalkova, L., **Rabeh, W.**, *et al.* Crystal structure of the C-terminal of human HK3 (PDB code: **3HM8**) 2009.
17. Hong, B. *et al*, Crystal structure of human choline kinase alpha (PDB code: **3F2R**, **3G15**) 2008.
16. Hong, B. *et al*, Crystal structure of human choline kinase Beta (PDB code: **3LQ3**, **3FEG**) 2008.
15. Nedyalkova, L. *et al*, N-acetylmannosamine kinase domain of human GNE (PDB code: **3EO3**) 2008.
14. **Rabeh, W.M.** *et al*, Human septin 2 in complex with GDP (PDB code: **2QNR**) 2007.
13. **Rabeh, W.M.** *et al*, Human nicotinamide riboside kinase 1 in complex with tiazofurin (PDB code: **2P0E**) 2007.
12. **Rabeh, W.M.** *et al*, Human nicotinamide riboside kinase 1 in complex with ADP (PDB code: **2QSY**) 2007.
11. **Rabeh, W.M.** *et al*, Human nicotinamide riboside kinase 1 (PDB code: **2QT1**, **2QT0**, **2QSZ**, & **2P0E**) 2007.
10. Mulichak, A.M., **Rabeh, W.M.** *et al*, Human Ras-Related GTP-Binding D (PDB code: **2Q3F**) 2007.
9. Chattopadhyay, A. *et al*, Structure of OASS-B from *Salmonella typhimurium* (PDB code: **2JC3**) 2007.
8. **Rabeh, W.M.** *et al*, Crystal structure of human hexokinase II (PDB code: **2NZT**) 2006.
7. **Rabeh, W.M.** *et al*, Crystal structure of human choline kinase A (PDB code: **2I7Q**) 2006.

6. **Rabeh, W.M. et al**, Crystal structure of human choline kinase B (PDB code: **2IG7**) 2006.
5. **Rabeh, W.M. et al**, Crystal structure of human ketohexokinase (PDB code: **2HLZ**) 2006.
4. **Rabeh, W.M. et al**, Crystal structure of human ADP-ribosylation factor-like 5 (PDB code: **2H16 & 2H17**) 2006.
3. **Rabeh, W.M. et al**, Crystal structure of human ribokinase (PDB code: **2FV7**) 2006.
2. **Rabeh, W.M. et al**, Crystal structure of human mitochondrial creatine kinase (PDB code: **4Z9M**) 2006.
1. **Rabeh, W.M. et al**, Human 3'-phosphoadenosine 5'-phosphosulfate synth. 2 (PDB code: **2AX4**) 2005.

Services:

- 2016 – 2022 [Chair](#) of the [American Chemical Society](#) (ACS) chapter in the UAE. Initiating the setup and registration of the ACS chapter in the UAE.
- 2015 – 2020 The faculty advisor of the ACS Student Chapter in NYUAD. Advising and managing the activities for the setup and initiation of the ACS student chapter at NYUAD.
- 2014 – 2017 [Biochemical Journal](#): member of the Biochemical Journal's Editorial Advisory Panel. Established in 1906, the journal is a leading bioscience journal with an Impact Factor of 4.6.

Professional Activities:

- 2014 – Present Biochemical Society
- 2015 – Present American Chemical Society (ACS)
- 2020 – Present American Society for Biochemistry and Molecular Biology (ASBMB)
- 2015 – 2017 American Association for Cancer Research (AACR)

Research advising and training:

Post-doctoral fellows.

- 2015 – present Dr. **Juliana Conrado Ferreira**
- 2022 – 2023 Dr. **Kenana Al Adem**. Currently: Postdoc at Technische Universität München
- 2014 – 2017 Dr. **César Carrasco-López**. Currently: Team Leader in Protein Production at Evotec.
- 2012 – 2015 Dr. **Mir Hussain Nawaz**. Currently: Manager, Biological Safety at NYUAD.

Research Technician.

- 2022 – 2024 **Adrian Joshua**, NYUAD graduate.
- 2021 – 2022 **Cameron Lee Shetler**, NYU-Shanghai graduate.

Undergraduate Students.

- Summer 2024 **Adam Jammoul**, Constructor University Bremen, Germany. Project: Purification and characterization of different human proteins with disease significance.
- Spring 2024 **Mariah Mukasa**, NYUAD. Class of 2027. Project: Protein purification
- 2023 – Current **Imen Masmoudi**, NYUAD. Class of 2027. Project: Protein purification
- 2023 – Current **Farah El-Sadaany**, NYUAD. Class of 2026. Project: Protein purification
- 2023 – Current **Angela Noh**, NYUAD. Class of 2026. Project: The surface pockets of enzyme for drug discovery and design.
- 2023 – Current **Lina Lee**, NYUAD. Class of 2027. Project: Review of the druggability of the main protease of COVID-19
- 2023 – Current **Tariro Gurudza**, NYUAD. Class of 2026. Project: PLpro protease of COVID-19
- 2023 – 2024 **Yugmee Gidiya**, NYUAD. Class of 2026. Project: Main protease of COVID-19

2023 – 2025	Jandos Shegenov , NYUAD. Class of 2025. Project: Oligomerization of Ketohexokinase.
2021 – 2023	Marilena Shupac , NYUAD. Class of 2023. Project: Characterization of C-terminal domain of human HK2.
Spring 2021	Ha-Neul Yu , NYUAD. Class of 2023. Project: Characterization of 3CLpro from SARS-CoV2.
2019 – 2022	Adrian Joshua , NYUAD. Class of 2022. Project: Oligomerization of creatine kinase and its effect on structural stability and catalytic activity.
2018 – 2022	Kristos Baffour , NYUAD. Class of 2021. Project: The regulatory site of HK2 in the discovery of anticancer therapeutics.
2018 – 2021	Gabriel Egbunu , NYUAD. Class of 2021. Project: Human Hexokinase 3 biochemical and biophysical characterization.
2018 – 2019	Cameron Lee Shetler , NYU-Shanghai. Class of 2019. Project: The role of the linker helix- α_{13} on the activity of the N-terminal domain of human hexokinase-2.
2016 – 2018	Nathan Lui , NYUAD. Class of 2018. Project: Red and blue shifted beetle luciferases.
Summer 2016	Naila Adam , UAE University, Al-Ain. Project: Characterization of the mitochondrial conformation of human hexokinase 2.
Summer 2016	Kathrina Mae Kumaresan , Bishops' University, Sherbrooke, QC Canada. Project: Biochemical characterization of the emission of a blue-shifted luciferase.
2014 – 2015	Tina Skorjanc , NYUAD. Class of 2015. Project: High throughput drug discovery of anticancer inhibitors of human hexokinase 2.
Summer 2015	Monica Bahoshy , McGill University, Montreal. Project: Glucose binding analysis on human hexokinase 2 using tryptophan fluorescence spectroscopy. Currently: Dental student at NYU, New York.
2013 – 2014	Amnah Alzahmi , UAE University, Al-Ain. Nine-month research intern as part of Graduate Trainee program. Project: Characterization of active-site mutants of human hexokinase 2.