

**Shymaa Enany, Ph.D**

Microbiology and Immunology Department, Faculty of Pharmacy,  
Suez Canal University, Ismailia, Egypt.

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**Personal information**

<b>Nationality</b>	Egyptian
<b>Date of birth</b>	November 11 <sup>th</sup> , 1979.
<b>Sex</b>	Female

**Current positions**

- **Associate Professor**, Microbiology and Immunology Department, Faculty of Pharmacy, Suez Canal University, Ismailia, Egypt.
- **Egyptian Ambassador**, Next Einstein Forum, Kigali, Rwanda.
- **Africa Science Leadership Fellow**, Pretoria, South Africa.

**Academic qualifications**

(Ongoing)

- **Master of Business Administration (MBA) “Ongoing”**  
Arab Academy for Science, Technology, and Maritime Transport, Cairo, Egypt.

(September 2010)

- **PhD in Biological Functions and Medical Control “Microbiology and Immunology Sciences “with Excellent degree**  
Graduate School of Medical and Dental Sciences, Niigata University, Niigata, Japan.  
{Molecular insights on panton valentine leukocidine positive community acquired methicillin resistant *Staphylococcus aureus*}.

(June 2005)

- **Master degree in Microbiology and Immunology Sciences with Excellent degree**  
Faculty of Pharmacy, Suez Canal University, Ismailia, Egypt.  
{Studies on *Helicobacter pylori* involved in gastroduodenal disorders}.

(May 2001)

- **Bachelor of Pharmaceutical Sciences with Excellent honour degree** Faculty of Pharmacy, Suez Canal University, Ismailia, Egypt.

(May 1997)

- **High and junior school** education in Egypt.

**Employment history**

(January 2018 to current)

- **Associate professor**, Microbiology and Immunology Department, Faculty of Pharmacy, Suez Canal University, Ismailia, Egypt.

(December 2010 to December 2017)

- **Lecturer**, Microbiology and Immunology Department, Faculty of Pharmacy, Suez Canal University, Ismailia, Egypt.

(April 2015 to March 2016)

- **Associate professor**, Division of Bacteriology, Department of Infectious Disease Control and International Medicine, School of Medical and Dental Sciences, Niigata University, Japan.

(August 2014 to March 2015)

- **Research resident**, Division of Bacteriology, Department of Infectious Disease Control and International Medicine, School of Medical and Dental Sciences, Niigata University, Japan.

(May 2014 to July 2014)

- **Part-time researcher**, Department of Structural Pathology, School of Medical and Dental Sciences, Niigata University, Japan.

(November 2013 to April 2014)

- **Visiting scholar**, Division of Infectious Diseases, Department of Medicine, School of Medicine, University of California San Diego (UCSD), San Diego, California, USA.

(November 2013 to February 2014)

- **Researcher biologist**, Division of Pulmonary & Critical Care Medicine, Veterans Affairs San Diego Healthcare System (VASDHS), San Diego, California, USA.

(June 2011 to May 2013)

- **Postdoctoral fellow** in Department of Structural Pathology, School of Medical and Dental Sciences, Niigata University, Japan.

(October 2006 to September 2010)

- **PhD student** in Department of Structural Pathology, School of Medical and Dental Sciences, Niigata University, Japan.

(October 2008 to March 2009)

- **Visiting researcher** in Niigata Prefectural Institute of Public Health and Environmental Sciences, Uchino, Niigata, Japan.

(June 2006 to July 2008)

- **Visiting researcher** in Division of Bacteriology, Department of Infectious Disease Control and International Medicine, School of Medical and Dental Sciences, Niigata University, Japan.

(July 2005 to November 2010)

- **Assistant lecturer**, Microbiology and Immunology Department, Faculty of Pharmacy, Suez Canal University, Ismailia, Egypt.

(May 2001 to June 2005)

- **Demonstrator**, Microbiology and Immunology Department, Faculty of Pharmacy, Suez Canal University, Ismailia, Egypt.

### Experiences and research skills

- Medicinal and basic Bacteriology, Mycology, and Immunology.
- Molecular biology.
- Proteomics analysis; shotgun and bottom- up analysis.
- Microbiome, metagenomics, and metaproteomics, system biology.
- Radioisotopes techniques.
- Bioinformatics programs (Mascot, Progenesis Same spot, Peptide Shaker, and others)
- Bioinformatics servers and databases (NCBI/CDD-BLAST, SOSUI, PSORTb, ExPASy's ProtParam, Pfam, (PS)2-v2, DISULFIND, STRING, and others)
- Computational biology; (TreeView, Muscle, sparklines VBA macro code)
- Statistical programs (SPSS and PRISM)
- Bibliography and References (Endnote X7)

### Technical skills and qualifications

#### Molecular biology techniques

- DNA & RNA extraction
- Polymerase Chain Reaction (PCR); single-plex, multiplex, Real time PCR.
- PCR product purification and gel extraction procedures
- Whole genome sequencing
- Gene sequencing and plasmid profiling
- Multi-locus sequence typing
- Pulsed Field Gel Electrophoresis (PFGE)
- Bacterial Minimum Inhibitory Concentration (MIC); agar microdilution, broth microdilution, Kirby Bauer methods.
- Coagulase typing.
- Agarose and Polyacrylamide gel electrophoresis.
- Cell culturing; Murine alveolar macrophages (MH-s) and Human epithelial cells (HaCaTs).
- Cell lines; Macrophage killing, Adherence invasion, and Keratinocyte viability assays.
- Bioluminescent techniques (ATP- NADH- NAD<sup>+</sup>).
- Measuring bacterial oxidative and nitrosative stresses.
- Antibodies purification (IgG, IgA) with spin column.
- Metagenomics: shotgun and 16S.

#### Proteomics and bioinformatics

- Protein extraction and purification (including preparing of complex protein lysis buffer).
- Protein precipitation.
- Protein assay (Bradford, Std. Lowry, modified Lowry, Ramagli's, Bicinchoninic acid (BCA).
- Protein quantification (micro plate reader, spectrophotometer).
- Metaproteomics.
- Tris- Tricine SDS page.
- Western blot analysis.
- Two-dimensional gel electrophoresis (2DE PAGE) (7cm, 18 cm, and 24 cm).
- Isoelectric focusing (Ettan IPGphor 3, Ettan IPGphor II, and Multiphore II).

- Protein staining (CBB and silver).
- In gel-trypsin digestion.
- In solution trypsin digestion.
- StageTips Fractionation and In-tube gel digestion.
- Mass spectrometric analysis (MS/MS).
- High Performance Liquid Chromatography (HPLC); nanocapillary liquid chromatography.
- MALDI-TOF analysis.
- Bioinformatics tools; typing, assignment, phylogenetic diversity, dendrogram, multiple alignment, homology analysis.
- Mascot/ Mascot Daemon analysis.
- Label free quantitative software (Progenesis Same spot for 2D).
- ImageJ software.

### Teaching activities

(April 2016 to current)

- For postgraduate and undergraduate students at Department of Microbiology and Immunology, Faculty of Pharmacy, Suez Canal University, Ismailia, Egypt.

(February 2018 to June 2018)

- For undergraduate students at Department of Microbiology and Immunology, Faculty of Pharmacy and Drug Manufacturing, Sinai University, Kantara Campus, Egypt.

(October 2017 to January 2018)

- For postgraduate students at Biotechnology Institute, Suez Canal University, Ismailia, Egypt.

(September 2008 to September 2010)

- For undergraduate students at Division of System Biology, Niigata University Graduate School of Medical and Dental Sciences, Niigata.

(July 2006 to August 2008)

- For undergraduate students at Division of Bacteriology, Department of Infectious Disease control and International Medicine, Niigata University Graduate School of Medical and Dental Sciences, Niigata.

(September 2001 to May 2005)

- For undergraduate students at Department of Microbiology and Immunology, Faculty of Pharmacy, Suez Canal University, Ismailia, Egypt.

### Responsibilities

- Conducting research and writing scientific papers.
- Lectures to undergraduate and graduate students.
- Training and supervising graduate students and technicians.
- Writing grants and designing and executing large projects.
- Presenting posters and abstracts in conferences.
- Presenting workshops and orientations.

**Publications**

1. Wafaa Hassan, Amr Mekky, Ali Wahdan, and **Shymaa Enany**. Molecular monitoring and gene expression of some virulence factors responsible for *C. jejuni* and *C. coli* infection in chicken and human. *Comparative Immunology, Microbiology and Infectious Diseases*. Submitted. **2021**.
2. Sanushka Naidoo, Jesse Gitaka, Sara Suliman, Sara Baptista, Oyedemi Blessing Mbabie, Emmanuel Nepolo, and **Shymaa Enany**. Corona virus disease 2019 (COVID-19) Diagnostics – Key to Africa’s recovery. *Science & Diplomacy*. Submitted. **2021**.
3. **Shymaa Enany**, Samira Zakeer, Aya A. Diab, Usama Bakry, and Ahmed A. Sayed. Whole Genome Sequencing of *Klebsiella pneumoniae* Clinical Isolates Sequence Type 627 Isolated from Egyptian Patients. *Journal of Advanced Research*. Submitted. **2021**.
4. Mostafa M. Hegazy, Wael M. Afifi, Ahmed E. Mostafa, Mohamed M. Radwan, Ahmed M. Mehany, Eman Ahmed, **Shymaa Enany**, Sameh Magdeldin, Ahmed M. Metwaly, and Mahmoud. A. ElSohly. Biological and Chemical Evaluation of Some African Plants Belonging to Kalanchoe Species: Antitrypanosomal, Cytotoxic, Anti- Topo I Activities and Chemical Profiling Using UPLC/QTOF–MS. *Pharmacognosy Magazine*. Accepted. **2020**.
5. Hamdoon A Mohammed, Riaz A Khan, Atef Abdel-Hafez, Marwa Abdel-Aziz, Eman Ahmed, **Shymaa Enany**, Sebaey Mahgoub, Osamah Al-Rugaie, Mansour Alsharidah, Mohamed S A Aly, Ahmed B M Mehany, and Mostafa Hegazy. Phytochemical Profiling, In Vitro and In Silico Anti-Microbial and Anti-Cancer Activity Evaluations and Staph GyraseB and h-TOP-II $\beta$  Receptor-Docking Studies of Major Constituents of *Zygophyllum coccineum* L. Aqueous-Ethanol Extract and Its Subsequent Fractions: An Approach to Validate Traditional Phytomedicinal Knowledge. *Molecules*. 26 (3):577. doi: 10.3390/molecules26030577. **2021**.
6. **Shymaa Enany**, Manabuo Ato, and Sohkiichi Matsumoto. Differential Protein Expression in Early Exponential and Late Stationary growth phases of Mycobacterium Avium Complex (MAC) *Mycobacterium avium* 104. *Molecules*. 26(2):305. doi.org/10.3390/molecules26020305. **2021**.
7. Jason Q Nguyen, Lucas Earl, Natalie C Galles, Ashley Marks, Kaja M Abbas, Mohsen Abbasi-Kangevari, **Shymaa Enany**, Babak Eshrati, Khalil Eskandari, et al. Mapping routine measles vaccination in low- and middle-income countries. *Nature*. 2020 Dec 16;1-10. doi: 10.1038/s41586-020-03043-4. **2020**.
8. Ali Wahdan, Emad Mokhtar Riad, and **Shymaa Enany**. Genetic Differentiation of *M. bovis* and *M. tuberculosis* Isolated from Bovine and Human Sources in Suez Canal Area. *Comparative Immunology, Microbiology and Infectious Diseases*. Dec;73:101553. doi: 10.1016/j.cimid.2020.101553. **2020**.
9. Esraa Elsaeed, Nora Fahmy, Amro Hanora, and **Shymaa Enany**. Marine microbiome reveals biological invasion of the Mediterranean Sea microbiota into the Red Sea (anti-lessepsion migration). *OMICS: A Journal of Integrative Biology*. Jan;25(1):60-71. doi: 10.1089/omi.2020.0140. **2020**.

10. Aniruddha Deshpande, Molly K Miller-Petrie, Paulina A Lindstedt, Mathew M Baumann, **Shymaa Enany**, Daniel Adane Endalew, Babak Eshrati, et al. Mapping geographical inequalities in access to drinking water and sanitation facilities in low-income and middle-income countries, 2000-17. *The Lancet Global Health*. 2020 Sep;8(9):e1162-e1185. doi: 10.1016/S2214-109X(20)30278-3. **2020**.
11. Ahmed Kandil, Amro Hanora, Marwa Azab, and **Shymaa Enany**. Proteomic analysis of bacterial communities associated with atopic dermatitis. *Journal of Proteomics*. 18;229: 103944. doi: 10.1016/j.jprot.2020.103944. **2020**.
12. Esraa Elsaed, **Shymaa Enany**, Amro Hanora, and Nora Fahmy. Comparative metagenomic screening of aromatic hydrocarbon degradation and secondary metabolite producing genes in the Red Sea, the Suez Canal, and the Mediterranean Sea. *OMICS: A Journal of Integrative Biology*. 24 (9): 541-550. doi: 10.1089/omi.2020.0070. **2020**.
13. **Shymaa Enany**. Impact of Low PH on Microbial Growth Rate, ATP Production, and NADH to NAD<sup>+</sup> ratio. *The Egyptian Journal of Medical Microbiology*. 29 (3): 121- 128. **2020**.
14. Robert C Reiner Jr, Kirsten E Wiens, Aniruddha Deshpande, Aisha Elsharkawy, **Shymaa Enany**, Aklilu Endalamfaw, Daniel Adane Endalew, et al. Mapping geographical inequalities in childhood diarrhoeal morbidity and mortality in low-income and middle-income countries, 2000–17: analysis for the Global Burden of Disease Study 2017. *Lancet*. doi: 10.1016/S0140-6736(20)30114-8. **2020**.
15. Kinyoki DK, Ross JM, Lazzar-Atwood A, Munro SB, Schaeffer LE, Abbasalizad-Farhangi M, **Shymaa Enany**, Endalew DA, Endalifer ML, et al. Mapping local patterns of childhood overweight and wasting in low- and middle-income countries between 2000 and 2017. *Nature Medicine*. doi: 10.1038/s41591-020-0807-6. **2020**.
16. **Shymaa Enany**, Samira Zakeer, Ahmed Sayed, and Sameh Magdeldin. Shotgun Proteomic Analysis of ESBL-Producing and Non-ESBL-Producing *Klebsiella Pneumoniae* Clinical Isolates. *Microbiological research*. 234:126423. doi.org/10.1016/j.micres.2020.126423. **2020**.
17. Burstein R, Henry NJ, Collison ML, Marczak LB, Sligar A, Watson S, Marquez N, Abbasalizad-Farhangi M, Abbasi M, Abd-Allah F, **Shymaa Enany**, Eskandarieh S, et al. Mapping 123 million neonatal, infant and child deaths between 2000 and 2017. *Nature*. 574(7778):353-358. doi: 10.1038/s41586-019-1545-0. **2019**.
18. **Shymaa Enany**, Samira Zakeer, and Alaa El Din. Hosny. Phylogenetic Relationships among *Staphylococcus epidermidis* based on 16S rRNA Gene Sequence. *Egyptian Journal of Medical Microbiology*. 28(4): 157-163. **2019**.
19. Yasmine Tartor, Marwa Abo Hashem, and **Shymaa Enany**. Toward a Rapid Identification and a Novel Proteomic Analysis for Dermatophytes from Human and Animal Dermatophytosis. *Mycoses*. 62 (12): 1116-1126. doi: 10.1111/myc.12998. **2019**.
20. Shahd Ezzeldin, Aya El-Wazir, **Shymaa Enany**, Abdelrahman Muhammad, Dina Johar, Aya Osama, Eman Ahmed, Sameh Magdeldin. Current Understanding of Human Metaproteome Association and Modulation. *Journal of Proteome Research*. 4;18(10):3539-3554. doi:10.1021/acs.jproteome.9b00301. **2019**. **62 (12): 1116-1126. doi: 10.1111/myc.12998**.



21. Hmwe Hmwe Kyu, Emilie R Maddison, **Shymaa Enany**, Eduarda Fernandes, et al. Global, regional, and national burden of tuberculosis, 1990–2016: results from the Global Burden of Diseases, Injuries, and Risk Factors 2016 Study. **Lancet Infect Dis.** 18: 1329–49. **2018**.
22. **Shymaa Enany**, Yutaka Yoshida, Yoshitaka Tateishi, Yuriko Ozeki, Anna Savitskaya, Akihito Nishiyama, Takehiro Yamaguchi, Yukiko Nishida, Tadashi Yamamoto, Manabu Ato, and Sohkiichi Matsumoto. Histone-like protein-dependent simultaneous coordination of cellular functions is critical for long-term survival of mycobacteria. *Scientific Reports- Nature publishing group.* 7(1):6810. doi: 10.1038/s41598-017-06480-w. **2017**.
23. John Hwang, Matthew Lyes, Katherine Sladewski, **Shymaa Enany**, Elisa McEachern, Denzil P. Mathew, Soumita Das, Alexander Moshensky, David T. Pride, Weg M. Ongkeko, and Laura E. Crotty Alexander. Electronic cigarette inhalation alters innate immunity and airway cytokines while increasing the virulence of colonizing bacteria. *Journal of Molecular Medicine.* DOI 10.1007/s00109-016-1378-3. **2016**.
24. Yuriko Ozeki, Masayuki Igarashi, Matsumi Doe, Aki Tamaru, Naoko Kinoshita, Yoshitoshi Ogura, Tomotada Iwamoto, Ryuichi Sawa; Maya Umekita, **Shymaa Enany**, Mayuko Osada-Oka, Yukiko Nishiuchi, Tetsuya Hayashi, Mamiko Niki, Yoshitaka Tateishi, Masaki Hatano, Sohkiichi Matsumoto. A new screening of tuberculosis drug candidates utilizing luciferase-expressing recombinant *Mycobacterium bovis bacillus Calmette-Gu eren*. *PLOS ONE.* DOI:10.1371/journal.pone.0141658 November 16, **2015**.
25. **Shymaa Enany**. The Sialic Acid Binding Adhesin (SabA) of *Helicobacter pylori* Isolated from Egypt is Associated with Gastric Cancer. *The Egyptian Journal of Medical Microbiology.* 24 (4): 35- 40. **2015**.
26. **Shymaa Enany** and Sohkiichi Matsumoto. Mycobacterial Histone like protein (Hlp) has a significant role in DNA functions. *New Egyptian Journal of Microbiology.* 42: 139-147. **2015**.
27. **Shymaa Enany**, Elisa McEachern, Johnny Hwang, Katherine Sladewski, and, Laura Crotty Alexander. Comparison between the Effects of Regular Cigarettes Smoke and Electronic Nicotine Delivery Devices Vapor on the Pathogenesis of *Pseudomonas aeruginosa*. *The Egyptian Journal of Medical Microbiology.* 24 (1): 81- 89. **2015**.
28. **Shymaa Enany** and Salah Abdalla. In vitro antagonistic activity of *Lactobacillus casei* against *Helicobacter pylori*. *Brazilian Journal of Microbiology.* 46 (4): 1201-1206. **2014**.
29. **Shymaa Enany**. Structural and functional analysis of hypothetical and conserved proteins of *Clostridium tetani*. *Journal of Infection and Public Health.* 7: 296- 307. **2014**.
30. Sameh Magdeldin, **Shymaa Enany**, Yutaka Yoshida, Bo Xu, Ying Zhang, Zam Zureena, Ilambarthi Lokamani, Hidehiko Fujinaka, Eishin Yaoita, Tadashi Yamamoto. Basics and Recent Advances of Two Dimensional- polyacrylamide gel electrophoresis (**Review article**). *Clinical Proteomics.* 15;11(1): 16. **2014**.
31. **Shymaa Enany**, Yutaka Yoshida, and Tadashi Yamamoto. Exploring Extra-cellular Proteins in Methicillin Susceptible and Methicillin Resistant *Staphylococcus aureus* by Liquid Chromatography- Tandem Mass Spectrometry. *World Journal of Microbiology and Biotechnology.* 30: 1269–1283. **2014**.

32. **Shymaa Enany**, Yutaka Yoshida, Sameh Magdeldin, Xu Bo, Ying Zhang, Mohamed Enany, and Tadashi Yamamoto. Two Dimensional electrophoresis of the exoproteome produced from Community Acquired Methicillin Resistant *Staphylococcus aureus* belonged to clonal complex 80. *Microbiological Research*. 168 (8): 504-511. **2013**.
33. **Shymaa Enany**, Yutaka Yoshida, Sameh Magdeldin, Ying Zhang, Xu Bo, and Tadashi Yamamoto. Extensive Proteomic Profiling of the Secretome Expressed by the European Community Acquired Methicillin Resistant *Staphylococcus aureus* Clone. *Peptides*. 37(1):128-37. **2012**.
34. Sameh Magdeldin, Yutaka Yoshida, Huiping Li, Yoshitaka Maeda, Munesuke Yokoyama, **Shymaa Enany**, Ying Zhang, Bo Xu, Hidehiko Fujinaka, Eishin Yaoita, Sei Sasaki, Tadashi Yamamoto. Murine colon proteome and characterization of the protein pathways. *BioData Min*. 28;5(1):11. **2012**.
35. Sameh Magdeldin, Huiping Li, Yutaka Yoshida, Ichiro Satokata, Yoshitaka Maeda, Munesuke Yokoyama, **Shymaa Enany**, Ying Zhang, Bo Xu, Hidehiko Fujinaka, Eishin Yaoita, Tadashi Yamamoto. Differential proteomic shotgun analysis elucidates involvement of water channel aquaporin 8 in presence of alpha amylase in the colon. *Journal of Proteome Research*. 9(12):6635-46. **2010**.
36. Sameh Magdeldin, Huiping Li, Yutaka Yoshida, **Shymaa Enany**, Ying Zhang, Bo Xu, Hidehiko Fujinaka, Eishin Yaoita, Tadashi Yamamoto. Comparison of two dimensional electrophoresis mouse colon proteomes before and after knocking out Aquaporin 8. *Journal of Proteomics*. 73: 2031-2040. **2010**.
37. **Shymaa Enany**, Eishin Yaoita, Yutaka Yoshida, Mohamed Enany, and Tadashi Yamamoto. Molecular Characterization of Panton- Valentine Leukocidin Positive Community Acquired Methicillin Resistant *Staphylococcus aureus* Isolates in Egypt. *Microbiological Research*. 168 (2): 152-162. **2010**.
38. **Shymaa Enany**, Yutaka Yoshida, Sameh Magdeldin, Xu Bo, Ying Zhang, Eishin Yaoita, Tadashi Yamamoto. Proteomic analysis of the European clone *Staphylococcus aureus* exoproteins. *Clinical Proteomics*. 5 (1): 90. **2009**.
39. Ivan Reva, Wataru Higuchi, Tomomi Takano, Olga Singur, Kyoko Ozaki, Hirokazu Isobe, Shizuka Yabe, Kohei Saito, Tatiana Baranovich, **Shymaa Enany**, Taketo Otsuka, Vladimir Potapov, Akihito Nishiyama, Tatsuo Yamamoto. A rapid screening method for Panton-Valentine leukocidin-positive community-acquired methicillin-resistant *Staphylococcus aureus* belonging to multilocus sequence type 30 and its related clone using a combination of multiplex PCR and pulsed-field gel electrophoresis. *Journal of Infection and Chemotherapy (JIC)*. 15: 75-83. **2009**.
40. Tomomi Takano, Wataru Higuchi, Taketo Otsuka, Tatiana Baranovich, **Shymaa Enany**, Kohei Saito, Hirokazu Isobe, Soshi Dohmae, Kyoko Ozaki, Misao Takano, Yasuhisa Iwao, Michiko Shibuya, Takeshi Okubo, Shizuka Yabe, Da Shi, Ivan Reva, Lee-Jene Teng, and Tatsuo Yamamoto. Novel characteristics of community-acquired Methicillin resistant *Staphylococcus aureus* strains belonging to multilocus sequence type 59 in Taiwan. *Antimicrobial Agents and Chemotherapy (AAC)*. 52 (3): 837- 845. **2008**.



41. **Shymaa Enany**, Wataru Higuchi, Takeshi Okubo, Tomomi Takano, Mohamed Enany, and Tatsuo Yamamoto. Brain abscess caused by Panton-Valentine leukocidin-positive community-acquired methicillin-resistant *Staphylococcus aureus* in Egypt, April 2007. Eurosurveillance weekly release. 12 (9). **2007**.
42. Salah Abdalah, Khalil Ali, **Shymaa Enany**, Khafagy El Sayed. *Helicoacter pylori* prevalence and resistance patterns in dyspeptic patients from Ismailia, Egypt. Al-Azhar Medical Journal. 34 (2): 177-184. **2005**.
43. Salah Abdalla, Ali Abdelrahman, Khalil Ali, and **Shymaa Enany**. Role of *Helicobacter pylori* among patients with different gastrointestinal disorders in Ismailia, Egypt. Egyptian Journal of Biotechnology (EJB). 21. **2005**.
44. **Shymaa Enany**, Salah Abdalla, and Khalil Ali. The prevalence of *Helicobacter pylori* and resistance patterns in dyspeptic patients from Ismailia, Egypt. Suez Canal University Medical Journal (SCUMJ). 8(1): 87-92. **2005**.

### Books and literatures

#### 1. Synthetic Biology-New Interdisciplinary Science

Book ISBN (Print ISBN: 978-1-78984-089-6- Online ISBN: 978-1-78984-090-2). **First published, 2020.**

InTech Open Publishing group, Janeza Trdine 9/51000 Rijeka, Croatia.

#### 2. Basic biology and applications of Actinobacteria

Book ISBN (Print ISBN: 978-1-78984-614-0 - Online ISBN: 978-1-78984-615-7). **First published, 2018.**

InTech Open Publishing group, Janeza Trdine 9/51000 Rijeka, Croatia.

#### 3. Probiotics: Current Knowledge and Future Prospects

Book ISBN (Print ISBN: 978-1-78923-386-5- Online ISBN: 978-1-78923-387-2). **First published, 2018.**

InTech Open Publishing group, Janeza Trdine 9/51000 Rijeka, Croatia.

#### 4. Clostridium Difficile: A Comprehensive overview

Book ISBN (Print ISBN: 978-953-51-3427-5- Online ISBN: 978-953-51-3428-2). **First published, 2017.**

InTech Open Publishing group, Janeza Trdine 9/51000 Rijeka, Croatia.

#### 5. The Rise of Virulence and Antibiotic Resistance in *Staphylococcus aureus*

Book ISBN (Print ISBN: 978-953-51-2983-7 - Online ISBN: 978-953-51-2984-4). **First published, 2017.**

InTech Open Publishing group, Janeza Trdine 9/51000 Rijeka, Croatia.

#### 6. Frontiers in *Staphylococcus aureus*

Book ISBN (Print ISBN: 978-953-51-2981-3 - Online ISBN: 978-953-51-2982-0). **First published, 2017.**

InTech Open Publishing group, Janeza Trdine 9/51000 Rijeka, Croatia.

## 7. *Helicobacter pylori* Myths versus Truth

Book ISBN (978-3-659-14375-5). First published June, 2012.

LAP LAMBERT Academic Publishing GmbH & Co. KG, Heinrich-Böcking-Str. 6-8, 66121, Saarbrücken, Germany.

### Abstracts, oral and poster presentations

1. COVID-19 Diagnostics: Key to Africa's recovery. Oral presentation. **Shymaa Enany**. The second International Conference of Biotechnology institute, 2020.
2. Mapping 123 million neonatal, infant and child deaths between 2000 and 2017. Oral presentation. **Shymaa Enany**. The second International Conference: Pharmaceuticals used in Internal Medicines, 2019.
3. Identification and proteomic analysis of dermatophytes from human and animal dermatophytosis. Abstract and poster (512). Yasmine Tartor, Marwa Abo Hashem, and **Shymaa Enany**. Human Proteome Organization (HUPO) 13th Conference, 2019.
4. Proteomic analysis of bacterial communities associated with atopic dermatitis in Egyptian individuals. Abstract and Poster (9). Ahmed Kandil, **Shymaa Enany**, and Amro Hanora. The sixth Young Researchers Conference, Suez Canal University, 2019.
5. Mycobacterial DNA-binding protein 1 is critical for long term survival of *Mycobacterium smegmatis* and simultaneously coordinates cellular functions. Abstract and oral presentation (O12). **Shymaa Enany**. 3rd International conference for Women in science without borders movement/Network (WISWB) - (Science diplomacy for Sustainable Development), 2019.
6. Metagenomic and proteomic analysis of bacterial communities associated with atopic dermatitis in Egyptian individuals. Abstract and Oral presentation (MB-L-3). Mohammed Ramadan, Ahmed Kandil, Samar Solyman, **Shymaa Enany**, Mamdouh Yones, Hamada Halaby, Yasser Abdallah, and Amro Hanora. 5th FUE International Conference of Pharmaceutical Sciences, 2019.
7. Triggering mycobacterial metabolic downshift at late growth state by a histone-like protein. Abstract and Poster (64). **Shymaa Enany**, Akifumi Nishiyama, Manabu Ato, and Sohkiichi Matsumoto. The First International Conference of Pharmaceutical and Medical Sciences, 2017.
8. Mycobacterial metabolism repression by MDP1. Abstract and poster (P1-057). **Shymaa Enany**, Yuriko Ozeki, Akifumi Nishiyama, Yoshitaka Tateishi, and Sohkiichi Matsumoto. The 90th Annual Meeting of the Japanese Association for Infectious Diseases, 2016.
9. Analysis of antigenicity and functions of mycobacterial proteins. Abstract and poster (P1-031). **Shymaa Enany**, Yuriko Ozeki, Akifumi Nishiyama, Anna Savitskaya, Yoshitaka Tateishi, Manabu Ato, Tadashi Yamamoto, and Sohkiichi Matsumoto. The 89th annual meeting of the Japanese Society for Bacteriology, 2016.

10. A new screen for TB drug candidates utilizing a luciferase expressing recombinant BCG. Abstract and poster (P1-114) (WS15-3). Yuriko Ozeki, Takehiro Yamaguchi, **Shymaa Enany**, Masayuki Igarashi, Yukiko Nishiuchi, Mayuko Oka, Tomotada Iwamoto, Yoshitoshi Ogura, Tetsuya Hayashi, Yoshitaka Tateishi, Akihito Nishiyama, and Sohkiichi Matsumoto. The 89th annual meeting of the Japanese Society for Bacteriology, 2016.
11. Suppression of the metabolism by histone-like protein in *Mycobacterium smegmatis*. Abstract and oral presentation (II-06). **Shymaa Enany**, Yuriko Ozeki, Akifumi Nishiyama, Anna Savitskaya, Yoshitaka Tateishi, and Sohkiichi Matsumoto. The 52th annual meeting of the Japanese Society for Bacteriology, Central Japan Branch, Chubu Branch, 2015.
12. Urinary proteins originating uniquely from each nephron segment. Oral presentation and abstract (CS19.08). Ying Zhang, Tadashi Yamamoto, Bo Xu, **Shymaa Enany**, Sameh Magdeldin, Yoshitoshi Hirao, Hiroki Takimoto, Naohiko Kinoshita, and Hidehiko Fujinaka. The 14th Human Proteome Organisation (HUPO) World Congress, 2015.
13. Comparative Proteome Analysis of *Mycobacterium smegmatis* mc2155, MDP1 Mutant, and MDP1 Complementary. Abstract and poster (P102). **Shymaa Enany**, Yuriko Ozeki, Akifumi Nishiyama, Yutaka Yoshida, Tadashi Yamamoto, and Sohkiichi Matsumoto. Japan Human Proteome Organization (JHUPO) 13th Conference, 2015.
14. Liquid Chromatography and Mass Spectrometry for Comparing Clinical Isolates of MRSA and MSSA. Abstract and poster (24.00). **Shymaa Enany**, Yutaka Yoshida, Sameh Magdeldin, and Tadashi Yamamoto. The Human Proteome Organisation (HUPO) 13th World Congress, 2014.
15. Electronic Cigarette Vapor (ECV) Exposure Decreases *Staphylococcus Aureus* Susceptibility To Macrophage And Neutrophil Killing. Poster (A6624). Laura Crotty Alexander, **Shymaa Enany**, Johnny Hwang, Katherine Sladewski, and Victor Nizet. American Thoracic Society (ATS) International Conference, 2014.
16. Cigarette Smoke Exposure Increases *Pseudomonas Aeruginosa* Resistance To Neutrophil Killing via Resistance to Reactive Oxygen Species. Poster (A6626). Johnny Hwang, Katherine Sladewski, Elisa McEachern, **Shymaa Enany**, Victor Nizet, and Laura Crotty Alexander. American Thoracic Society (ATS) International Conference, 2014.
17. Recognition of Some Unique Virulence Characteristics for Methicillin Resistant *Staphylococcus aureus*. Poster (372). **Shymaa Enany** and Tadashi Yamamoto. ID week, 2013.
18. Evaluation of OFF Gel- based prefractionation approach in combination with in-solution or Ultra filtration protein digestion. Abstract and poster (POS-03-191). Sameh Magdeldin, Keiko Yamamoto, Yutaka Yoshida, Bo Xu, Ying Zhang, **Shymaa Enany**, Eishin Yaoita, and Tadashi Yamamoto. The Human Proteome Organisation (HUPO) 12th HUPO World Congress, 2013.
19. In –depth proteomic analysis of the secretome of European CA-MRSA. Abstract and poster (10220). **Shymaa Enany**, Sameh Magdeldin, Yutaka Yoshida, and Tadashi Yamamoto. The 86th Meeting of the Japanese Association for Infectious Diseases (JAID), 2012.
20. Micro-purification, enrichment, and pre-fractionation of MRSA exoproteome peptides using StageTips. Abstract and poster (P10167). **Shymaa Enany**, Sameh Magdeldin, Yutaka Yoshida, and Tadashi Yamamoto. International Union of Microbiological Societies 2011 Congress (IUMS), 2011.

21. Exploring Resistant Determinants of Methicillin in *Staphylococcus aureus* with Comparative Proteomics Approach. Abstract and poster (P1559). **Shymaa Enany**, Sameh Magdeldin, Yutaka Yoshida, and Tadashi Yamamoto. The Human Proteome Organisation (HUPO) 10th World Congress, 2011.
22. Characterization and building up a comprehensive murine colon proteome catalogue. Abstract and poster (P1411). Sameh Magdeldin, Li H, Yutaka Yoshida, **Shymaa Enany**, Bo Xu, Ying Zhang, Eishen Yaoita, Tadashi Yamamoto. The Human Proteome Organisation (HUPO) 10th World Congress, 2011.
23. Extensive profiling of human urinary proteome: construction of SRM transition for quantification of urinary biomarkers for acute and chronic kidney diseases. Abstract and poster (OC058). Yutaka Yoshida, Ying Zhang, **Shymaa Enany**, Z Cui, S Watanabi, J Adachi, T Tomonaga, Tadashi Yamamoto. The Human Proteome Organisation (HUPO) 10th World Congress, 2011.
24. Murine colon proteome and characterization of the protein pathways. Abstract and poster (P049). Sameh Magdeldin, Yutaka Yoshida, Munesuke Yokoyama, **Shymaa Enany**, Bo XU , Ying Zhang, Eishen Yaoita, and Tadashi Yamamoto. Japan Human Proteome Organization (JHUPRO) 9th Conference, 2011.
25. In-depth analysis of aquaporin 8 knockout mice colon using tandem mass spectrometry. Abstract and poster (PO033). Sameh Magdeldin, Yutaka Yoshida, Huiping Li, **Shymaa Enany**, Yokoyama, Bo Xu, Hidehiko Fujinaka, Ying Zhang, Eishin Yaoita, and Tadashi Yamamoto. Proteomics of Human Health: Environment and Disease (HUPO) HUPO 9th Annual World Congress, 2010.
26. Exploring Resistant Determinants of Methicillin in *Staphylococcus aureus* with Comparative Proteomics Approach. Abstract and poster (PO129). **Shymaa Enany**, Sameh Magdeldin, Yutaka Yoshida, and Tadashi Yamamoto. Proteomics of Human Health: Environment and Disease (HUPO) HUPO 9th Annual World Congress, 2010.
27. In-depth proteomic analysis of secretome of European community-acquired methicillin-resistant *Staphylococcus aureus*. Abstract and poster (P16). **Shymaa Enany**, Sameh Magdeldin, Yutaka Yoshida, and Tadashi Yamamoto. Japan Human Proteome Organization (JHUPRO) 8th Conference/ 6th Annual Meeting of Japan Society for Clinical Proteomics Joint Conference, 2010.
28. Proteomic profiling of aquaporin 8 knockout mice reveals its involvement in alpha amylase regulation. Abstract and poster (P32). Sameh Magdeldin, Yutaka Yoshida, **Shymaa Enany**, Yokoyama, Bo Xu, Hidehiko Fujinaka, Ying Zhang, Eishin Yaoita, and Tadashi Yamamoto. Japan Human Proteome Organization (JHUPRO) 8th Conference/ 6th Annual Meeting of Japan Society for Clinical Proteomics Joint Conference, 2010.
29. Comprehensive Proteomic Analysis of the Secretome of CA-MRSA (CC 80). Abstract and poster (P2-197). **Shymaa Enany**, and Tadashi Yamamoto. The 83st General Assembly of Japanese Society for Bacteriology, 2010.
30. In Vitro Inhibition of *Helicobacter pylori* by *Lactobacillus casei*. Abstract and oral presentation (1001). **Shymaa Enany**, and Salah Abdallah. The 84th Meeting of the Japanese Association for Infectious Diseases (JAID), 2010.

31. Complementary Analysis of the European Clone *Staphylococcus aureus* Exoproteins. Abstract and poster (C408). **Shymaa Enany**, Yutaka Yoshida, Sameh Magdeldin, Bo Xu, Ying Zhang, Eishin Yaoita, and Tadashi Yamamoto. Proteomics of Human Health: Environment and Disease (HUPO) HUPO 8th World Congress, 2009.
32. Molecular characterization of PVL- positive *Staphylococcus aureus* isolated from Egypt. Abstract and oral presentation (ID-48). **Shymaa Enany**, and Tatsuo Yamamoto. The First Egypt- Japan International Symposium on Science and Technology (EJISST), 2008.
33. Brain abscess due to community-acquired methicillin resistant *Staphylococcus aureus*. Abstract and oral presentation (182). Tatiana Baranovich, **Shymaa Enany**, Wataru Higuchi, and Tatsuo Yamamoto. The 82th Meeting of the Japanese Association for Infectious Diseases, 2008.
34. Molecular characterization of PVL- positive *Staphylococcus aureus*, Egypt. Abstract, oral presentation (2-G-2), and poster (P396). **Shymaa Enany**, Wataru Higuchi, and Tatsuo Yamamoto. The 81st General Assembly of Japanese Society for Bacteriology, 2008.
35. In vitro activity and mode of action of DX-619 (Des-F[6]-Quinolone) and Sitafloxacin (Fluroquinolone) against *Helicobacter pylori*. Abstract and poster (F1-2128). Tatsuo Yamamoto, Wataru Higuchi, Hirokazu Isobe, Tomomi Takano, Ivan Reva, and **Shymaa Enany**. Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC), American Society of Microbiology (ASM), 2007.

#### Other merits

- Biljana Gjoneska, Reina Camacho Toro, Natasa Simic, Katalin Solymosi, Aiah Abu Douleh, Ana Chies Santos, Melek Chaouch, Hazem Elbaz, **Shymaa Enany**, Stamatia Giannarou, Angela Gono Bwalya, Daniela Haidu, Marcos Manzanares, and Anet Režek Jambrak. S.O.S. booklet for global young scholars: Facing the scientific and ethical challenges of the modern age. 2020. **The InterAcademy Partnership and Global Young Academy**. (<https://www.interacademies.org/59027/SOS-Booklet-for-Global-Young-Scholars>)
- **Shymaa Enany**, Yuriko Ozeki, Akifumi Nishiyama, Anna Savitskaya, Yoshitaka Tateishi, and Sohkiichi Matsumoto. Suppression of the metabolism by histone-like protein in *Mycobacterium smegmatis*. 2015. **Central Japan Branch of Japanese Society for Bacteriology**. (<http://www.med.nagoya-cu.ac.jp/micro.dir/gakkai/program.htm>)
- Laura Crotty Alexander, **Shymaa Enany**, Johnny Hwang, Katherine Sladewski, and Victor Nizet. Electronic Cigarettes May Boost Resistance of Drug-Resistant Pathogens. 2014. **Infection Control Today ICT**; May 19, 2014. (<http://www.infectioncontrolday.com/news/2014/05/electronic-cigarettes-may-boost-resistance-of-drugresistant-pathogens.aspx>)
- Laura Crotty Alexander, **Shymaa Enany**, Johnny Hwang, Katherine Sladewski, and Victor Nizet. E-cigarettes may boost resistance of drug-resistant pathogens. 2014. **Medical Press**; May 18, 2014. (<http://medicalxpress.com/news/2014-05-e-cigarettes-boost-resistance-drug-resistant-pathogens.html>)

- Laura Crotty Alexander, **Shymaa Enany**, Johnny Hwang, Katherine Sladewski, and Victor Nizet. Here's Why Bacteria Like E-Cigs. 2014. **TIME**; May 18, 2014. (<http://time.com/103412/e-cigarettes-boost-antibiotic-resistance/>)
- Laura Crotty Alexander, **Shymaa Enany**, Johnny Hwang, Katherine Sladewski, and Victor Nizet. Are e-cigarette smokers at risk from superbugs? Vapour helps deadly bacteria to thrive, say scientists. 2014. **Mail Online**; 18 May 2014. ([http://www.dailymail.co.uk/news/article-2632076/Are-e-cigarette-smokers-risk-superbugs-Vapour-helps-deadly-bacteria-thrive-say-scientists.html?ITO=1490&ns\\_mchannel=rss&ns\\_campaign=1490](http://www.dailymail.co.uk/news/article-2632076/Are-e-cigarette-smokers-risk-superbugs-Vapour-helps-deadly-bacteria-thrive-say-scientists.html?ITO=1490&ns_mchannel=rss&ns_campaign=1490))
- **Shymaa Enany** and Tadashi Yamamoto. Proteomic Analysis of the European Clone *Staphylococcus aureus* Exoprotein. **Medical Online Japan**; 2012. ([http://mol.medicalonline.jp/library/journal/download?GoodsID=ck0saiki/2012/006701/154&name=0087-0087e&UserID=133.35.196.158&base=jamas\\_pdf](http://mol.medicalonline.jp/library/journal/download?GoodsID=ck0saiki/2012/006701/154&name=0087-0087e&UserID=133.35.196.158&base=jamas_pdf))
- **Shymaa Enany** and Tadashi Yamamoto. In-depth proteomic analysis of the secretome of European CA-MRSA. **Japan Medical Abstracts Society**; 2012. (<http://demo.jamas.or.jp/api/opensearch?q=%5BEnanyShymaa%5D/AU#>)
  - **Shymaa Enany**, Wataru Higuchi, and Tatsuo Yamamoto. Molecular characterization of PVL positive *Staphylococcus aureus*, Egypt. 2008. **Medical online, Japanese Journal of Bacteria**; 63 (12008). (<http://mol.medicalonline.jp/archive/search?jo=ck0saiki&vo=63&nu=11>)
  - **Shymaa Enany**, Wataru Higuchi, and Tatsuo Yamamoto. Molecular characterization of PVL- positive *Staphylococcus aureus*, Egypt. 2008. **Japan Science and Technology Agency (JST); J-Global online**; F0920A. ([http://jglobal.jst.go.jp/detail.php?JGLOBAL\\_ID=200902279424467584&q=japan+science+and+technology+agency+%28jst%29%3B+j-global+online+enany&t=0](http://jglobal.jst.go.jp/detail.php?JGLOBAL_ID=200902279424467584&q=japan+science+and+technology+agency+%28jst%29%3B+j-global+online+enany&t=0))

### Memberships in International and Local Scientific Associations

(November 2020)

- Member of Natural Sciences Publishing (**NSP**).

(March 2020)

- Member of Open Science Global Working Group.

(February 2020)

- Member of Organization for Women in Science for Developing World (**OWSD**).

(February 2019)

- Member of Egyptian Society of Applied Microbiology.

(October 2018)

- Member of National Committee for Microbiology (**NCM**).

(September 2018)

- TWAS Young Affiliate for 2018-2022 (**TWAS-AREP**).

(January 2018)

- Member of Egyptian Young Academy of Science (**EYAS**).

(September 2017)

- Member of Egyptian Society for Medical Microbiology (**ESMM**).

(March 2016)

- Member of Japanese Association for Infectious Diseases (**JAID**).



- (November 2015)
  - Member of Japanese Society for Tuberculosis (**JSTB**).
- (March 2013)
  - Member of American Society for Microbiology (**ASM**).
- (November 2012)
  - Member of San Diego Microbiology Group (**SDMG**).
- (September 2009)
  - Member of Japan Society for Clinical Proteomics (**JSCP**).
- (September 2009)
  - Member of Japanese Human Proteome Organization (**JHUPO**).
- (August 2009)
  - Member of Human Proteome Organization (**HUPO**).
- (January 2007)
  - Member of Japanese Society for Bacteriology (**JSB**).
- (July 2003)
  - Member of Society of Physiological Sciences and their Applications (**SPSA**).
- (July 2001)
  - Member of Egyptian Pharmacists Syndicate (**EPS**).

### Conferences

- Youth Science Forum (Digital), 14- 16 January 2021, Cairo, **Egypt**.
- World Health Summit (Digital), 25- 27 October 2020, Berlin, **Germany**.
- The 17<sup>th</sup> Annual Meeting of Science and technology in society (STS) forum (Online), 3-6 October 2020, Kyoto, **Japan**.
- GYA 2020 e- conference "Heal the Earth: Sustainable Development Goals in a Changing World".
- The Second International Conference: Pharmaceuticals used in Internal Medicines, 8-9 December 2019, Ismailia, **Egypt**.
- World Science Forum, 20-23 November 2019, Budapest, **Hungary**.
- Tsukuba conference, 2-4 October 2019, Tsukuba, **Japan**.
- The 16<sup>th</sup> Annual Meeting of Science and technology in society (STS) forum, 6-8 October 2019, Kyoto, **Japan**.
- The Sixth Young Researchers Conference, Suez Canal University, Egypt, 7-8 April 2019, Ismailia, **Egypt**.
- 3rd International conference for Women in science without borders movement/Network (WISWB) - (Science diplomacy for Sustainable Development), 12-14 March 2019, Cairo, **Egypt**.
- The First Annual Conference for Postgraduate Studies: Pharmaceutical Science; Innovation and Development, 3<sup>rd</sup> December 2018, Ismailia, **Egypt**.
- The Second SCU Conference of Clinical Pharmacy: Between Reality & Expectation, 20<sup>th</sup> November 2018, Ismailia, **Egypt**.

- Cairo International Exhibition of Innovation, 8<sup>th</sup>: 9<sup>th</sup> November 2018, Cairo, **Egypt**.
- The 5th Annual Cardiology Conference of Suez Canal Authority, 18<sup>th</sup>: 20<sup>th</sup> July 2018, Ismailia, **Egypt**.
- National Conference for Scientific Research: Revealing Egyptian Potentials, 24<sup>th</sup>: 25<sup>th</sup> March 2018, Cairo, **Egypt**.
- The First International Conference of Pharmaceutical and Medical Sciences, 1<sup>st</sup>: 2<sup>nd</sup> April 2017, Cairo, **Egypt**.
- The First annual symposium at Department of Pharmacology & Toxicology, SCU, 9<sup>th</sup> May 2016, Ismailia, **Egypt**.
- The 90th Annual Meeting of the Japanese Association for Infectious Diseases (JAID), 15<sup>th</sup>: 16<sup>th</sup> April 2016, Sendai, **Japan**.
- The 89th annual meeting of the Japanese Society for Bacteriology (JSB), 23<sup>rd</sup>: 25<sup>th</sup> March 2016, Osaka, **Japan**.
- The 52th annual meeting of the Japanese Society for Bacteriology, Central Japan Branch, Chubu Branch, 23<sup>rd</sup>: 24<sup>th</sup> October, 2015, Nagoya, **Japan**.
- The 14th Human Proteome Organisation (HUPO) World Congress, 27<sup>th</sup>: 30<sup>th</sup> September 2015, Vancouver, **Canada**.
- Japan Human Proteome Organization (JHUPO) 13th Conference, 23<sup>rd</sup>: 24<sup>th</sup> July 2015, Kumamoto, **Japan**.
- The Human Proteome Organisation (HUPO) 13<sup>th</sup> World Congress, 5<sup>th</sup>: 8<sup>th</sup> October **2014**, Madrid, **Spain**.
- American Thoracic Society (ATS) 2014 International Conference, 16<sup>th</sup>: 21<sup>st</sup> May **2014**, San Diego, California, **USA**.
- ID week 2013, 2<sup>nd</sup>: 6<sup>th</sup> October **2013**, San Francisco, California, **USA**.
- The Human Proteome Organisation (HUPO) 12<sup>th</sup> HUPO World Congress, 14<sup>th</sup>: 18<sup>th</sup> September **2013**, Yokohama, **Japan**.
- Bio-Conference Live Virtual Conference, 29<sup>th</sup>:31<sup>st</sup> May **2013**.
- The 86<sup>th</sup> Meeting of the Japanese Association for Infectious Diseases (JAID), 25<sup>th</sup>: 27<sup>th</sup> April **2012**, Nagasaki, **Japan**.
- International Union of Microbiological Societies 2011 Congress (IUMS), 8<sup>th</sup>: 16<sup>th</sup> September **2011**, Sapporo, **Japan**.
- The Human Proteome Organisation (HUPO) 10<sup>th</sup> World Congress, 4<sup>th</sup>: 7<sup>th</sup> September **2011**, Geneva, **Switzerland**.

- Japan Human Proteome Organization (JHUPO) 9<sup>th</sup> Conference, 28<sup>th</sup>: 29<sup>th</sup> July **2011**, Niigata, **Japan**.
- Proteomics of Human Health: Environment and Disease (HUPO) HUPO 9<sup>th</sup> Annual World Congress, 19<sup>th</sup>: 23<sup>rd</sup> September **2010**, Sydney, **Australia**.
- Japan Human Proteome Organization (JHUPO) 8<sup>th</sup> Conference/ 6<sup>th</sup> Annual Meeting of Japan Society for Clinical Proteomics Joint Conference, 26<sup>th</sup>: 27<sup>th</sup> July **2010**, Tokyo, **Japan**.
- The 53<sup>rd</sup> Annual Meeting of the Japanese Society of Nephrology, 16<sup>th</sup>: 19<sup>th</sup> June **2010**, Kobe, **Japan**.
- The 83<sup>rd</sup> General Assembly of Japanese Society for Bacteriology, 27<sup>th</sup>: 29<sup>th</sup> March **2010**, Yokohama, Tokyo, **Japan**.
- The 84<sup>th</sup> Meeting of the Japanese Association for Infectious Diseases (JAID), 5<sup>th</sup>: 6<sup>th</sup> April **2010**, Kyoto, **Japan**.
- Proteomics of Human Health: Environment and Disease (HUPO) HUPO 8<sup>th</sup> World Congress, 26<sup>th</sup>: 30<sup>th</sup> September **2009**, Toronto, **Canada**.
- The First Egypt- Japan International Symposium on Science and Technology (EJISST) 8<sup>th</sup>: 10<sup>th</sup> June **2008**, Tokyo, **Japan**.
- The 82<sup>nd</sup> Meeting of the Japanese Association for Infectious Diseases, 17<sup>th</sup>: 18<sup>th</sup> April **2008**, Matsue, Shimane, **Japan**.
- The 81<sup>st</sup> General Assembly of Japanese Society for Bacteriology, 24<sup>th</sup>: 26<sup>th</sup> March **2008**, Kyoto, **Japan**.
- Inter-science Conference on Antimicrobial Agents and Chemotherapy (ICAAC), American Society of Microbiology (ASM), 17<sup>th</sup>: 20<sup>th</sup> September **2007**, Chicago, **United States**.
- The 2<sup>nd</sup> scientific conference of the Egyptian society of Physiological Sciences and their applications, 28-31 July **2004**, El-Arish, **Egypt**.
- The 1<sup>st</sup> scientific conference of Egyptian society of Physiological Sciences and their applications, Advanced applications for Physiological Sciences, 5-9 August **2003**, Portsaid, **Egypt**.

### Workshops, seminars, and traineeship

(10<sup>th</sup> to 11<sup>th</sup> March **2021**)

- **Keynote speaker:** Virtual Conference on COVID-19 Pandemic: "Pharmaceutical & Biomedical Research and Perspectives" Faculty of Pharmacy at Jadara University, Jadara, Jordon.

(8<sup>th</sup> to 10<sup>th</sup> March **2021**)

- **Speaker:** The 3<sup>rd</sup> international conference for women in science network (World Forum for Women in Science), University of Duhok, Iraq.

(14<sup>th</sup> to 16<sup>th</sup> January **2021**)

- **Speaker:** Youth Science Forum, National Research Centre, Cairo , Egypt.

- (10<sup>th</sup> December 2021)
- **Moderator: Webinar on COVID-19 Diagnostics: Their applications and key unanswered questions in low-resource settings.** COVID-19 Clinical Research Coalition, Drugs for Neglected Diseases initiative (DNDi), Geneva, Switzerland.
- (26<sup>th</sup> November 2021)
- **Keynote speaker: Conference on Biotechnology Innovation and the COVID-19 Pandemic"** Biotechnology Institute, Suez Canal University, Egypt.
- (10<sup>th</sup> November 2020)
- **Online workshop on Strategic Foresight for Early-Career Researchers.** Policy Horizon, Canada.
- (27<sup>th</sup> October 2020)
- **Speaker: New voices in global health perspectives and responses of young scientists to the coronavirus pandemic.** Global Young Academy of Science, World Health Summit (Digital), Berlin, Germany.
- (26<sup>th</sup> October 2020)
- **Speaker: Youth perspectives on health covid-19 and gender engagement.** International Federation of Medical Students' Associations (IFMSA), World Health Summit (Digital), Berlin, Germany.
- (3<sup>rd</sup> October 2020)
- **Organizer: Workshop on Zoonotic diseases: One Health.** National Microbiology Committee (NMC), Cairo, Egypt.
- (9<sup>th</sup> – 10<sup>th</sup> September 2020)
- **Workshop on Pathways to Sustainability: A virtual workshop for African early career researchers.** CNRS, Sorbonne University, Paris.
- (15<sup>th</sup> – 16<sup>th</sup> August 2020)
- **Workshop on Electronic Exams.** Measurement and Evaluation Center, Higher Education Development Projects Management Unit, Ministry of Higher Education and Scientific Research, Cairo, Egypt.
- (11<sup>th</sup> July 2020)
- **Webinar on Reforming of Academia during & After COVID-19.** Academy of Scientific Research and Technology, Cairo, Egypt.
- (18<sup>th</sup> June 2020)
- **Webinar on Digital transformation in higher education.** DAAD, Kairo, Akademie (DKA).
- (1<sup>st</sup> June 2020)
- **Webinar on CovidSurg: How can it change practice? Results from the first CovidSurg Paper.** Royal College of Surgeons of England.
- (12<sup>th</sup> February 2020)
- **Invited participant: IUPAC Global women's breakfast — building bonds to create future leaders,** Cairo, Egypt.

(17<sup>th</sup> – 23<sup>rd</sup> November 2019)

- **Invited participant**: GYA-IAP Leadership Workshop, Budapest, Hungary.

(25<sup>th</sup>- 27<sup>th</sup> October 2019)

- **The International Summer School on Bioinformatics**, Nile University, Cairo, Egypt.

(5<sup>th</sup> October 2019)

- **Invited participant**: **The Young leaders Network and The Dialogue between Young Leaders and Nobel Laureates**. Japan Science and Technology Agency (JST), Kyoto, Japan.

(21<sup>st</sup> April 2019)

- **Organizer**: **The first dialogue forum of the Egyptian Youth Academy for Science: The Future of Jobs in Egypt: Challenges and Opportunities**. Academy of Scientific Research and Technology, Cairo, Egypt.

(5<sup>th</sup> March 2019)

- **Organizer and presenter**: **Antimicrobial Resistance threat: Time to act workshop**. National Microbiology Committee (NMC), Cairo, Egypt.

(18<sup>th</sup> to 20<sup>th</sup> December 2018)

- **Workshop on “Young Scientists Training Program, Research Ethics Essentials: Conduct Your Research Responsibly”**. The Center for Special Studies and Programs (CSSP) & The World Academy of Sciences for the Advancement of Science in Developing Countries- Arab Regional Partner (TWAS/AREP), Alexandria, Egypt.

(24<sup>th</sup> October 2018)

- **Workshop on “Science Communication Training; How to integrate ‘Storytelling’ into your communication style”**. Arab-German Young Academy of Sciences and Humanities (AGYA) and the Academy of Scientific Research and Technology (ASRT), Cairo, Egypt.

(26<sup>th</sup> December 2016)

- **Seminar on “Application of Nanotechnology in Scientific Researches”**. Central lab, Faculty of Veterinary Medicine, Suez Canal University, Ismailia, Egypt.

(27<sup>th</sup> August 2013)

- **Traineeship on “Veterans Affairs San Diego Healthcare System fiscal year 2013 Annual Medical Safety and Environment of Care Training (VASDHS FY2013 Annual Safety and EOC Training)”**. Talent management system, Veterans Affairs Learning University (VALU), San Diego, CA, USA.

(27<sup>th</sup> August 2013)

- **Traineeship on “VA Medical Privacy and Patients Information Security Awareness and Rules of Behavior”**. Talent management system, Veterans Affairs Learning University (VALU), San Diego, CA, USA.

(7<sup>th</sup> May 2013)

- **Seminar about “Recent Work & Current Methods in Immunology microRNA Research”**. LC Sciences, LLC Company.

(2<sup>nd</sup> May 2013)

- **Webinar on Introduction to real time PCR (Q-PCR/qPCR/qrt-PCR).** QIAGEN, SABiosciences QIAGEN Company.

(29<sup>th</sup> April 2013)

- **Webinar on Analyze 12 cytokines or chemokines simultaneously with ELISArrays.** QIAGEN, SABiosciences QIAGEN Company.

(24<sup>th</sup> April 2013)

- **Webinar on Rapid functional analysis of genes, biologics and small molecule compounds.** QIAGEN, SABiosciences QIAGEN Company.

(23<sup>rd</sup> April 2013)

- **Webinar on Cancer and inflammation: How strong is the link?** QIAGEN, SABiosciences QIAGEN Company.

(2<sup>nd</sup> to 13<sup>th</sup> November 2008)

- **Traineeship program on Measures for Prevention of Bacterial Food Poisoning.** Niigata Prefectural Institute of Public Health and Environmental Sciences, Uchino, Niigata, Japan.

(1<sup>st</sup> to 15<sup>th</sup> October 2008)

- **Traineeship program on Epidemic Prevention of the Bacterial Infectious Diseases.** Niigata Prefectural Institute of Public Health and Environmental Sciences, Uchino, Niigata, Japan.

(6<sup>th</sup> March 2008)

- **Workshop on International Infectious Diseases.** International Medical Centre of Japan (IMCJ), Tokyo, Japan.

(7<sup>th</sup> and 8<sup>th</sup> May 2005)

- **Workshop on Legionelle and Water Analysis.** Faculty of Pharmacy, Suez Canal University, Ismailia, Egypt.

(2<sup>nd</sup> to 8<sup>th</sup> October 2004)

- **Traineeship program on the School of Pharmacy and Chemistry, Liverpool John Moores University, Liverpool, United Kingdom** as a part of three years EU-TEMPUS funded Project (JEP-30065).

### Certified Courses

(17<sup>th</sup> August 2020)

- **European Science Diplomacy online Course (S4D4C).** European Union's Horizon 2020.

(10<sup>th</sup>-12<sup>th</sup> November 2015)

- **Japanese Radioisotope Centre in Niigata University- Radiation worker license.** Law of prevention from radiation hazards of radioisotopes (LPRH).

(13<sup>th</sup> May to 24<sup>th</sup> June 2015)

- **University of Copenhagen online offering.** Bacteria and Chronic Infections.

(18<sup>th</sup> June 2014)



- **American Society for Microbiology; ASM M(icro)OOCs course.** ASM Guidelines for Biosafety in Teaching Laboratories: Building a Culture of Biosafety.  
(16<sup>th</sup> July 2014)
- **American Society for Microbiology; ASM M(icro)OOCs course.** Writing a Teaching Philosophy Statement: Documenting Your Perspective on Teaching.  
(13<sup>th</sup> August 2014)
- **American Society for Microbiology; ASM M(icro)OOCs course.** ASM Curriculum Guidelines for Undergraduate Microbiology: Aligning Concepts, Learning Objectives, and Assessments.

### Honours in international Publishing Organizations

- Guest Associate Editor in *Frontiers in Cellular and Infection Microbiology: Molecular Bacterial Pathogenesis*.
- Editor Board member in *Austin Proteomics*.
- Editorial board member in *Clinical Journal of Microbiology & Pathology*.
- Editor in *JSM Bioinformatics, Genomics and Proteomics*.
- Editorial board member in *American Journal of Epidemiology and Infectious Diseases (AJEID)*.
- Editorial board member in the *Journal of Integrated OMICS (JIOMICS)*.
- Associate editor of the *Journal of Integrated OMICS (JIOMICS)*.
- Handling editor in *Frontiers Cellular and Infection Microbiology*.
- Scholarly reviewer in *Webmed Central in Bacteriology*.
- Book reviewer in *OMICS Group Incorporation*.
- Reviewer in *Journal Infection and Drug Resistance*.
- Reviewer in *Science of the Total Environment (STOTEN)*.
- Reviewer in *Journal of Infection in Developing Countries (JIDC)*.
- Reviewer in *Heliyon Journal*.
- Reviewer in *Meta Gene Journal*.
- Reviewer in *Gene Journal*
- Reviewer in *Biochemical Genetics Journal*.
- Reviewer in *PLOS ONE Journal*.
- Reviewer in *ACS Journals*.
- Reviewer in *Journal of Medical Microbiology*.
- Reviewer in *African Journal of Microbiology Research*.
- Reviewer for the *Journal of Nephrology & Therapeutics*.
- Reviewer in the *American Journal of Epidemiology and Infectious Disease*.
- Reviewer in "*La Prensa Médica Argentina*" Journal.
- Peer reviewer for *BMC Biotechnology Journal*.
- Peer reviewer for *BMC Research Notes*.

### Professional activities

- **Member** in the **scientific committee** of the **Youth Science Forum**, National Research Center, Cairo, Egypt, **2021**.
- **Co-chair** of the COVID-19 Clinical Research Coalition platform (Immunology, Virology and Diagnostics Working Group) - The Drugs for Neglected Diseases initiative (DNDi) - (<https://covid19crc.org/members/>), **2020**.
- **Member** in the COVID-19 Clinical Research Coalition platform (Ethics working group) - The Drugs for Neglected Diseases initiative (DNDi) - (<https://covid19crc.org/members/>), **2020**.
- **Member** in the COVID-19 Diagnostics and Clinical Work, Next Einstein Forum (NEF), **2020**.
- **Member** in the Global Health COVID-19 diagnostics implementation-working group in Mass General Brigham Centre for COVID Innovation, **2020**.
- **Invited participate** in Young Leaders' Program (Kyoto, **Japan**), Science and Technology in Society forum (STS forum), October **2019**.
- **Invited member** in the Dialogue between Young Leaders and Nobel Laureates (Kyoto, **Japan**), Japan Science and Technology Agency (JST), October **2019**.
- **Member** in the **scientific committee** of the 3<sup>rd</sup> international conference for women in science network (**World Forum for Women in Science**), **2019**.
- **Evaluator** of projects submitted in Cairo International Exhibition of Innovation; Academy of Scientific Research and Technology (**ASRT**), **2018**.
- **Collaborator** in The Global Burden of Disease (**GBD**), 2018.
- **Evaluator** in Academy of Scientific Research and Technology (**ASRT**); evaluator for the research proposal ID 3155 to the program Imhotep call, in the fields of Microbiology, **2018**.
- **Investigator** on **PRA** International; Study Protocol Assessment: Acute Bacterial Skin & Skin Structure Infection: **ABSSI**, **2013**.
- **Participant** in **Salient Surveys** study; Antibiotic Resistance, **2013**.

### Awards

- **The Egyptian state encouragement prize** for women in the field of health and pharmaceutical sciences, 2019.
- **TWAS Young Arab Scientist (YAS) Prize** "Scientific and Technological Achievement in Medical and Health Sciences" from The World Academy of Sciences for the Advancement of Science in Developing Countries - Arab Regional Partner (TWAS/AREP), 2018.
- **Award** for publication in **scientifically classified and distinguished journals**. 2019
- **International publication award** from Suez Canal University, Egypt, 2012, 2015, 2017, 2018, and 2020.
- **Suez Canal University award** in PhD thesis studies, 2012.
- **Niigata University Grant Prize** for international student to attend Proteomics of Human Health: Environment and Disease (HUPO) World Congress, 2009, Toronto, Canada.
- **Niigata University award** for training in Niigata Prefectural Institute of Public Health and Environmental Sciences, Bacteriology section from 1<sup>st</sup> October 2008 to 1<sup>st</sup> March 2009.
- **EJISST2008 Award** from the Culture, Education, and Science Bureau of the Embassy of Egypt in Japan. 2008, Tokyo, Japan.
- **Ismailia governorate award** in Microbiology and Immunology Sciences, 2007.
- **The Egyptian Government Scholarship** for PhD study, 2006.

- **Suez Canal University award** in Master thesis, 2006.
- **Ismailia governorate awards** in Medical and Pharmaceutical Sciences, 1997, 1998, 2002.
- **Suez Canal University award** in Pharmaceutical Sciences, 2001.
- **Egyptian Ministry award** of Information and Communication in information technology and computer science, 2000.
- **College of Pharmacy nomination** for training course in Medical Union Pharmaceutical Company, Microbiology Department, Quality Control Unit from 14<sup>th</sup> July to 26<sup>th</sup> August 1999.

### Grants

- **World Health Organization (WHO):** 'Preparing International Recommendations for Ethics Committees (IECs/IRBs) When Reviewing Vaccine Clinical Trials During Public Health Emergencies'. From November 1<sup>st</sup>, 2020 to 31<sup>st</sup> March 2021.
- **Japan International Corporation of Welfare Services (JICWELS) international grant:** “Research on Emerging and Re-emerging Infectious Diseases” under the Health and Labor Sciences Research Grants. From August 1<sup>st</sup>, 2014 to March 31<sup>st</sup>, 2015.

### Projects

- Main participant in the project of “Corona virus disease 2019 (COVID-19) Diagnostics in Africa” in collaboration with different African Universities.
- Main participant in the project of “Whole Genome Sequencing of *Klebsiella pneumoniae* Clinical Isolates Sequence Type 627 Isolated from Egyptian Patients” in collaboration with Children cancer Hospital 57357, Cairo, Egypt.
- Participant in the project of “Biological and Chemical Evaluation of Some African Plants Belonging to Kalanchoe Species: Antitrypanosomal, Cytotoxic, Anti- Topo I Activities and Chemical Profiling Using UPLC/QTOF–MS” in collaboration with AL-Azhar University, Cairo, Egypt.
- Participant in the project of “Genetic Differentiation of *Mycobacterium bovis* and *Mycobacterium tuberculosis* Isolated from Bovine and Human Sources in Suez Canal Area” in collaboration with Animal Health Research Institute, Giza, Egypt.
- Participant in the project of “Molecular monitoring and gene expression of virulence factors responsible for *Campylobacter jejuni* and *Campylobacter coli* infection in chicken and human” in collaboration with Animal Health Research Institute, Giza, Egypt.
- Participant in the project of “Chemical profile, in vitro biological evaluation, and in silico study of the halophyte *Zygophyllum coccineum L*” in collaboration with AL-Azhar University, Cairo, Egypt.
- Main participant in the project of “Comparative metagenomic screening of aromatic hydrocarbon degradation and secondary metabolite producing genes in the Red Sea, the Suez Canal, and the Mediterranean Sea.”.
- Collaborator in the project of “Mapping geographical inequalities in access to drinking water and sanitation facilities in low-income and middle-income countries, 2000-17” in collaboration with University of Washington, United States of America.
- Collaborator in the project of “Mapping local patterns of childhood overweight and wasting in low- and middle-income countries between 2000 and 2017” in collaboration with University of Washington, United States of America.
- Participant in the project of “Human Metaproteome Association and Modulation” in collaboration with Children cancer Hospital 57357, Cairo, Egypt.

- Main participant in the project of “Impact of Suez Canal on microbial communities of both Red and Mediterranean seas”.
- Main participant in the project of “Metagenomic and proteomic analysis of marine wood boring bivalves (shipworms) from red sea regions”.
- Main participant in the project of “Identification and molecular characterization of milk pathogens”.
- Main participant in the project of “Proteomic analysis of the expressed protein profile of symbiont microbial communities associated with nudibranch molluscs”.
- Main participant in the project of “Proteomic analysis of bacterial communities associated with atopic dermatitis in Egyptian individuals”.
- Participant in the project of “Epidemiology of *Helicobacter pylori* infection isolated from Egyptian patients”.
- Active member in the project of “Toward a rapid identification and a novel proteomic analysis for dermatophytes from human and animal dermatophytosis”.
- Collaborator in the project of “Mapping 123 million neonatal, infant and child deaths between 2000 and 2017” in collaboration with University of Washington, United States of America.
- Main participant in the project of “Shotgun proteomic analysis of ESBL and non ESBL producing *Klebsiella Pneumoniae* clinical isolates”.
- Collaborator in the project of “Global, regional, and national burden of tuberculosis, 1990–2016: results from the Global Burden of Diseases, Injuries, and Risk Factors 2016 Study”.
- Main participant in the project of “Differential protein expression in active and dormant *Mycobacterium Avium* Complex (MAC) *Mycobacterium avium* 104” in collaboration with National Institute of Infectious Diseases, Tokyo and Niigata University, Niigata, Japan.
- A joint collaboration with University of Pretoria, South Africa (Professor Marthie Ehlers) on studies related to *Staphylococcus aureus*, MRSA, from zoonotic and clinical origin in South Africa and Africa.
- Main participant in the project of “Exploring Biomarkers for Meticillin Resistant *Staphylococcus aureus* Associated Glomerulonephritis (MRSA-GN)” in collaboration with Niigata University, Niigata, Japan.
- Main participant in the project of “Comparative proteome analysis of *Mycobacterium smegmatis* mc2155, MDP1 mutant, and MDP1 complemented mutant by two dimensional electrophoresis and mass spectrometry” in collaboration with National Institute of Infectious Diseases, Tokyo and Niigata University, Niigata, Japan.
- Main participant in the project of “Effect of E-Cigarette Vapor on *Staphylococcus aureus* and *Pseudomonas aeruginosa* Virulence” in collaboration with University of California San Diego and Veterans Affairs San Diego Healthcare System, San Diego, California, United States of America.
- Main participant in the research project of “Proteomic Profiling of the Secretome of European Community Acquired Methicillin Resistant *Staphylococcus aureus* Clone” in collaboration with Niigata University and Prefectural Institute of Public Health and Environmental Sciences, Uchino, Niigata, Japan.
- Member in the teamwork of “Aquaporin 8 project in the Colon and its Relation with Normal Floral Bacteria in Colon” in collaboration with Niigata University, Niigata, Japan.
- Main participant in the research project of “Genetic characteristics of community acquired methicillin resistant *Staphylococcus aureus* strains from Egypt” in collaboration with Niigata University and Prefectural Institute of Public Health and Environmental Sciences, Uchino, Niigata, Japan.

- Active member in the research project of “Genetic characteristics of community acquired methicillin resistant *Staphylococcus aureus* strains from Taiwan” in collaboration with Niigata University, Niigata, Japan.

### Contribution of the Researches in the Service of the Community

- The project of COVID-19 diagnostics in Africa aims to help the poor continent to face the global threat of the pandemic that hit the world especially that all developed countries failed to stop it. Africa has a huge burden of other diseases and if we cannot diagnose COVID-19 early, it will add insult to injury. We focused to help Africa recover easily from COVID-19.
- Studying the whole genome sequencing of *K. pneumoniae* ST 627 which is spreading in Egypt help to understand the genetic variations between clinical isolates of *K. pneumoniae* ST 627 isolated from Egyptian patients for the first time and to discern their relatedness with another reported genome worldwide. As well, our study helped in determining the molecular characterization of antibiotic resistance genes, virulence factors, and various mobile genetic elements accompanied with *K. pneumoniae* ST 627. *K. pneumoniae* is a major public health problem spreading in community and in hospital.
- The importance of some *Kalanchoe* species for their therapeutic activity and their traditional medicinal use has been established in many regions, especially Africa. Our project helped to evaluate the antitrypanosomal, antimalarial, antileishmanial, antimicrobial and cytotoxicity of the whole extracts of some African plants belonging to the *Kalanchoe* sp. In addition, exploring the mechanism of action and the chemical profiling of the most active plant's extracts. That in turn helps in treatment of many diseases.
- The project of examining one of the natural products through comprehensive phytochemical investigations of *Z. coccineum* and testing its extracts contribute in finding a solution for the common infections and cancer diseases. By mass spectrometric identification we discovered some metabolites implicated in anti-biofilm and anti-cancer in *Zygophyllum Coccineum* L extracts.
- Studying *Mycobacterium bovis* and *Mycobacterium tuberculosis* Isolated from Bovine and Human Sources in Suez Canal Area contributed directly to the environment as we examined bovine tuberculosis for the first time at this important trade. Suez Canal area as an international navigation trade canal linking between East and West is of significant importance. Identification of and differentiation between bovine tuberculosis from human and animal sources revealed high similarities between them suggesting that transmission of *M. bovis* from cattle to human is most probably occurred.
- The project of Molecular monitoring and gene expression of virulence factors responsible for *Campylobacter jejuni* and *Campylobacter coli* infection in chicken and human plays an important role in helping in easily detection of these pathogens from chicken and human samples.
- Metagenomic screening of aromatic hydrocarbon degradation and secondary metabolite producing genes in the Red Sea, the Suez Canal, and the Mediterranean Sea revealed that seawater is a valuable source for biotechnological product, searching for bacterial aromatic HC-degrading genes and secondary metabolite-coding genes that enable further bioremediation application and drug discovery.



- The project of mapping geographical inequalities in access to drinking water and sanitation facilities in low-income and middle-income countries contributed to society through estimation the diarrhoeal burden and identifying where efforts to increase access to safe drinking water and sanitation facilities are most needed. By highlighting areas with successful approaches or in need of targeted interventions, our estimates enable precision public health to effectively progress towards universal access to safe water and sanitation.
- The project of mapping local patterns of childhood overweight and wasting in low- and middle-income countries showed geospatial estimates of overweight and wasting prevalence among children under 5 years of age in 105 low- and middle-income countries. Our estimates provide a new perspective to researchers, policy makers and public health agencies in their efforts to address this global childhood syndemic.
- Studying human metaproteome association and modulation provided better understanding and functional characterization of microbiome addressing the current progress in the study of the human metaproteome and suggesting the possible modulation, metaproteome dysbiotic signature, challenges, and future perspective.
- Studying the effect of Suez Canal on the microbial communities of the Red Sea and the Mediterranean Sea contributes to understanding the vulnerability of these organisms to the different factors, which in turn, is reflected on the fish wealth and then on human health. As a result of channels and artificial water connections, the reproduction of fish and both wild and amphibian organisms is affected. Now, some organisms that live naturally in the Red Sea have moved to the Mediterranean Sea through the Suez Canal. The microorganisms are expected to be affected by these changes and other natural factors, so the aim was to study the evolution and the development of these microorganisms.
- The project of metagenomic and proteomic analysis of marine wood boring bivalves (shipworms) from red sea regions aims to isolate endosymbiotic bacteria, *Teredinibacter Turnerae*, associated with shipworms community, followed by metagenomic and proteomic analysis of these bacteria. Recent discoveries have shown that, about 7% of the genome of these bacteria contains secondary metabolite pathways that produce antibiotics with similar intensity to Streptomyces; the major antibiotic producers available today, which may be useful in medical research to kill pathogens in humans as promising isolates and a new source of biologically active compounds.
- The study of isolating the pathogens in the raw milk aims to identify the different microbes and determine them by identifying their DNA. The study raising awareness in the society of the need to raise the temperature of the raw milk for boiling and the importance of pasteurization before consuming it or making dairy products to kill the pathogenic bacteria and to avoid their symptoms such as vomiting, fever, bloody stool, dizziness, and diarrhoea.
- The project of proteomic analysis of the expressed protein profile of symbiont microbial communities associated with nudibranch molluscs reveals that the sea slug associated microbiome is a promising source for bacterial strains, which hold the potential for the biotechnological production of antibiotics.
- The project of proteomic analysis of bacterial communities associated with atopic dermatitis revealed the association between certain bacteria with the atopic dermatitis and explored the role of different proteins in increasing the bacterial pathogenesis and decreasing the patient immune system.



- The project of isolating and defining *Helicobacter pylori*, which is the main cause of gastric ulcer disease and the main risk factor for stomach cancer, aims at knowing the molecular classification of the group of primary pathogen genes using both polymerase chain reaction and PFGE techniques. Through this study we can correlate between the degree of spread of the disease and the various genetic factors that enable us to predict possible symptoms and develop new strategies to manage the disease and prevent the occurrence of more cases.
- Mapping 123 million neonatal, infant and child deaths between 2000 and 2017 enables the identification of high-mortality clusters, patterns of progress and geographical inequalities to inform appropriate investments and implementations that will help to improve the health of all populations.
- The study of dermatophytosis in animal and human provided a rapid and new method for dermatophytes identification that helps robustly in the rapid diagnosis.
- The project of comparing the proteome of ESBL and non ESBL producing *Klebsiella Pneumoniae* clinical isolates have revealed the increased pathogenicity for the resistant strains of *K. pneumonia* and increase our knowledge about the pathways that it used opening new venues for developing new drugs for its treatment.
- The study of the global, regional and national burden of tuberculosis aims to determine the proportion and extent of tuberculosis with its rate of infection and its risk factors that causing the disease during the period 1990 to 2016 in many regions of the world. The results showed that if current trends in TB incidence continue, few countries are likely to meet the SDG target to end the tuberculosis epidemic by 2030. Progress in this direction should be accelerated by improving the quality of TB diagnosis, access to new diagnostics tools and care by developing new tools and expanding interventions to prevent TB risk factors while integrating control programs for TB and HIV.
- The project of differential protein expression in active and dormant *Mycobacterium Avium* Complex contributes to increase the possibility of finding out new vaccine for this important pathogen.
- The collaborative project with South Africa aimed to comparatively characterize MRSA strains isolated from human with that isolated from animals in different regions in Africa including South Africa and Egypt that can help in finding out the possibility of transmission to human for the zoonotic strains.
- The study of biomarkers for glomerulonephritis associated with methicillin resistant *Staphylococcus aureus* contribute to reveal some of the proteins involved in renal diseases associated with this microbe.
- Studying the proteome of *Mycobacterium smegmatis* mc2155, MDP1 mutant, and MDP1 complemented mutant may contribute in revealing the effect of MDP1 on up-regulation and down-regulation of different bacterial proteins that are expressed in the cell which increases the chance of producing a vaccine against mycobacterium.
- The project of studying the effect of the E- cigarette vapor on the virulence of the *Staphylococcus aureus* and the possibility of changes in its pathogenesis revealed that E-cigarette vapor is cytotoxic to human cells and decreases innate immune responses to bacterial infection while also promoting MRSA virulence. Therefore, E-cigarette vaping is not a benign alternative to traditional cigarette smoking.

- The proteome research works and projects are concerned with the study of the proteome of the Methicillin resistant and methicillin susceptible *Staphylococcus aureus*, in addition to the study of kidney proteome and their relationship and to what extent they affected each other to identify the nature of these proteins and their quantitative estimation, which helps to assess the change of these proteins in different conditions and helps in the detection of disease related biomarkers that aid in the prevention and early treatment of kidney diseases and the diseases caused by these microbes in the community.
- Aquaporin project aims to study this protein in the colon and to identify its physiological role in the absorption of water and also its impact pathological effect in the case of removing it.
- MRSA genomic projects aimed to reveal the virulence characteristics and elements involved in the pathogenesis of strains from different regions including Egypt and Taiwan thereby helping in the treatment of this microbe.

### Certificates

- **Medscape Education** Credit Earned (Pharmacist Activities & Infectious Diseases) "35.00"
- **Institutional TOEFL "602"** Paper Based Test (PBT).
- **International TOEFL "233"** Computer Based Test (CBT).
- **ESL Advanced (level 7)**; San Diego Continuing Education Community College, California, USA.
- **ESL Conversation Advanced level**; San Diego Continuing Education Community College, California, USA.
- Honour certificate from **Egyptian Student Association in Japan (ESAJ)**.

### Supervised Theses:

- Ph.D. student in Microbiology and Immunology Department, Faculty of Pharmacy, Suez Canal University, Egypt. "Metagenomic and proteomic analysis of marine wood boring bivalves (shipworms) from red sea regions".
- Ph.D. student in Microbiology and Immunology Department, Faculty of Pharmacy, Suez Canal University, Egypt. "Metatranscriptomic and Metaproteomic Analysis of Symbiotic Microbial Community Associated with Nudibranchia."
- Ph.D. student in Microbiology and Immunology Department, Faculty of Pharmacy, Suez Canal University, Egypt. "A trial to discover the metabolic functions of vaginal microbiota in different health states using whole shotgun metagenome sequencing".
- Ph.D. student in Microbiology and Immunology Department, Faculty of Pharmacy, Suez Canal University, Egypt. "Molecular characterization of the nasal associated bacterial communities".
- M.Sc. student in Microbiology and Immunology Department, Faculty of Veterinary Medicine, Suez Canal University, Egypt. "Bacteriological studies on *Helicobacter pylori* in pet animals in Ismailia governorate".
- M.Sc. student in Microbiology and Immunology Department, Faculty of Pharmacy, Suez Canal University, Egypt. "Metagenomic analysis of bacterial species in microbiome of respiratory diseased patients".
- M.Sc. student in Microbiology and Immunology Department, Faculty of Pharmacy, Suez Canal University, Egypt. "Detection and Development Controls for Coronavirus Disease 2019 (COVID-19)".

- M.Sc. student in Microbiology and Immunology Department, Faculty of Pharmacy, Suez Canal University, Egypt. “Epidemiology of *Helicobacter pylori* infection isolated from Egyptian patients” **Graduated**).
- M.Sc. student in Microbiology and Immunology Department, Faculty of Pharmacy, Suez Canal University, Egypt. “Identification and molecular characterization of milk pathogens”.
- M.Sc. student in Microbiology and Immunology Department, Faculty of Pharmacy, Suez Canal University, Egypt. “Proteomic analysis of expressed protein profile of symbiont microbial communities associated with nudibranch molluscs”.
- M.Sc. student in Microbiology and Immunology Department, Faculty of Pharmacy, Suez Canal University, Egypt. “Impact of Suez Canal on microbial communities of both Red and Mediterranean seas”. **(Graduated)**.
- M.Sc. student in Microbiology and Immunology Department, Faculty of Pharmacy, Suez Canal University, Egypt. “Proteomic analysis of bacterial communities associated with atopic dermatitis in Egyptian individuals”. **(Graduated)**.

### Evaluated Theses:

- Master student in Microbiology and Immunology Department, Faculty of Pharmacy, Suez Canal University, Egypt. “Molecular Characterization of Bacterial Metagenome Isolated from Healthy Women Vagina and Vaginal Infections”.

### Social activities

- ELAC member in Lindbergh Schweitzer School, San Diego, CA, USA.
- One of the moderators of Japan Muslim Women Group, Japan.
- Active member in Annur Mosque Committee- Niigata, Japan.
- Member of team of capacity building for young scientists and raising the skills of youth in the Egyptian Youth Academy of Sciences at the Academy of Scientific Research and Technology.
- Main member of the talent care team of the Egyptian Youth Academy of Sciences, Academy of Scientific Research and Technology.
- Founder of an initiative of an **online platform on Facebook** “Keep Infection Away” that provide simple tips and health care advice to raise the society awareness to be ready for the next pandemic.

### Languages

- **Arabic** (Native)
- **English** (Excellent)
- **Japanese** (Good)
- **Germany** (Good)