Personal information

Name	Eman Hamza	**Gender**	Female
Marital status	Married	**Citizenship**	Egyptian
Address	Nasr City, New Cairo, Egypt	**Email address**	e.hamza@gmx.ch
Languages	English (Fluent), German (Fluent), French (Good), Arabic (mother tongue)		

Education

2004 – 2008	**PhD** in Immunology, Institute of Veterinary Virology, Vetsuisse Faculty, University of Bern, Switzerland
1995 – 2001	Master followed by **PhD** in Zoonoses, Department of Zoonoses, Faculty of Veterinary Medicine, University of Cairo, Egypt
1987 – 1992	Bachelor in Veterinary Medicine Studies, University of Cairo, Egypt

Further Education

2017	**Good Clinical Practice** (TRREE Program), University of Neuchatel, Switzerland
2016	**Faculty leadership and development courses**, FLDC, University of Cairo, Egypt
2015	**Project management**, University of Bern, Switzerland
2014	**Bioinformatics courses**, Swiss Institute of Bioinformatics, University of Berne, Switzerland R, Bash, RNA and DNA sequencing analysis, modelling and cancer genomics

Employment History

2017-Present	**Associate Professor**, Faculty of Veterinary Medicine, University of Cairo, Egypt
2015-2017	**Senior Lecturer**, Faculty of Veterinary Medicine, University of Cairo, Egypt
2015	**Scientific researcher**, Institute of Veterinary Bacteriology, University of Bern, Switzerland
2014	**Scientific researcher**, National Centre of Competence in Research Trans-Cure (NCCR), University of Bern, Switzerland
2013-2014	**Research Internships**, Swiss Institute of Allergy and Asthma, Davos, Switzerland
2008-2013	**Postdoc**, Clinical Immunology, Department of Clinical Research and Veterinary Public health, Vetsuisse Faculty, University of Bern, Switzerland
2002-2008	**Scientific researcher, then PhD student**, Department of Immunology, Institute of Veterinary Virology, University of Bern, Switzerland
1994-2002	**Demonstrator, assistant lecturer then lecturer**, Department of Zoonoses, Faculty of Veterinary Medicine, Cairo University, Egypt
1993-1994	**Food Inspector**, Department of Food Hygiene, Helwan University, Egypt

Academic Experience

Supervision of Master and PhD students

Teaching

- Immunology lectures and practical courses to undergraduate students of Vetsuisse Faculty, Uni Bern
- Zoonoses lectures to undergraduate and postgraduate students of Vet Medicine Faculty, Uni Cairo

Technical and Professional Experience

Cell Culture

- PBMC isolation from humans, cattle and horses, Ex-Vivo experiments
- Development of Treg and dendritic cells and functional assays
- Primary Cell culture and cell transfections (Lipofectamine, Electroporation, Heat Shock)

Immunology Techniques

- Flow-cytometry, multi-colour fluorescence cellular and intracellular staining.
  Instruments: FACS-Aria, LSRII, LSRII-SORP, FACS-Array, FACS-Aria, ImageStream.
  Data analysis using Cell-Quest, FACS-Diva, and Flow-jo
- ELISA, ELISPOT and cytokine bead assay (Luminex)
- Functional assay of regulatory cells (using Thymidine incorporation and CFSE)
- Western blotting, SDS, Immuno-precipitation and Co-immuno-precipitation
- Immunocytochemistry and confocal microscopy
- Antibody screening and labeling with zenon and or biotinylation
- 2D Gel Electrophoresis

Bacteriology

- Bacterial culture and identification
- Antibiotic resistance tests, MIC
- MALDI-TOF

Molecular Biology

- Small RNA extraction from serum and whole blood to be used as biomarker for infectious diseases
- RNA and DNA isolation from PBMC and skin biopsies, PCR and QRT-PCR
- Molecular cloning in E.coli and yeast
- Protein expression in E.coli and yeast
- Protein purification ÄKTA, Nickel Resin chromatography and protein precipitation

Phylogenetic analysis

- Using Clustal and Mega programs

Statistical analysis

- Quantitative and categorical data
- Multiple, Paired and Factorial Comparisons
- Using NCSS program

Research projects

1. **Micro RNA as biomarker for diagnosis of sarcoid tumors in horses**
   Time period: **2018-2019**. Place: ISME, Horse Clinic, Vetsuisse, University of Bern, Switzerland
2. **Carbapenemase-producing *Klebsiella pneumoniae* in livestock animals and humans in contact in Egypt**
   Time period: **2015-2017**. Place: Department of Zoonoses, Faculty of Veterinary Medicine, University of Cairo, Egypt
3. **Reservoirs of *Helicobacter pylori* in Egypt**
   Time period: **2016-2019**. Place: Department of Zoonoses, Faculty of Veterinary Medicine, University of Cairo, Egypt
4. **Immune response against Campylobacter species**

Time period: **2015**. Place: Institute of Veterinary Bacteriology, Vetsuisse Faculty, University of Bern, Switzerland.

5. **Molecular mechanisms involved in the regulation of NHE (Na/Hydrogen transport exchanger)**
   Time period: **2014.** Place: NCCR, University of Bern.
6. **Molecular cloning of 3 *Culicoides* allergens and its protein expression**
   Time period: **2014.** Place: SIAF, Davos, Switzerland.
7. **In vitro evaluation of DC-targeting peptides and of new adjuvants in combination with allergens**
   Time period: **2013-2014,** Place: Clinical Immunology, Department of Veterinary Clinical Research and Public Health, Vetsuisse Faculty, University of Bern.
8. **Individual susceptibility for Equine sarcoids -horse skin tumor disease-**
   Time period: **2012-2013**. Place: Horse Clinic, University of Bern.
9. **Characterization of T cell response in Recurrent airway obstruction**
   Time period: **2010-2012.** Place: Horse Clinic, University of Bern.
10. **Characterization of T regulatory cells and their function in horses**
    Time period: **2008-2013**. Place: Clinical Immunology, Department of Veterinary Clinical Research and Public Health, Vetsuisse Faculty, University of Bern.
11. **Role of T cells in Insect Bite hypersensitivity in Icelandic horses**
    Time period: **2002-2008**. Place: Institute of Veterinary Virology, Vetsuisse Faculty, University of Bern.
12. **Epidemiological studies on some animal reservoirs of Influenza virus** (Time period: **1997-2001)**
    Epidemiological survey on viral zoonotic diseases common in Egypt (Time period: **1994-1997)**
    Place: Department of Zoonoses, Faculty of Veterinary medicine, University of Cairo, Egypt.

Grant Application

Co-applicant in Morris Animal Foundation, Ref. N. D14EQ-81($11.880); entitled: Improving allergen specific immuno-therapy: in vitro evaluation of DC-targeting peptides and of new adjuvants in combination with recombinant allergens.

Reviewer for scientific journals

- European Journal of Clinical and experimental allergy
- Equine Veterinary Journal; Veterinary Dermatology
- Acta Tropica
- Vector-Borne and Zoonotic diseases
- Journal of Food protection

Prizes

- Vetsuisse Faculty prize for the best published research paper year 2013, University of Berne, Switzerland.
- University of Cairo prize for the best published research paper from year 2015 to 2018; Cairo, Egypt.

Membership in scientific organizations

- Food Protection Association (FPA)
- Swiss Society for Allergology and Immunology (SSAI)
- European Academy of Allergy and Clinical Immunology (EAACI)

List of peer-reviewed publications

1. Sabry M, Abdel-Moein K, Abdel-Kader F, **Hamza E (2020)**. Extended-spectrum β-lactamase-producing *Salmonella* serovars among healthy and diseased chickens and their public health implication. ***J Global Antimicrob Resis***. Doi:10.1016/j.jgar.2020.06.019.

2. Hamza D, Dorgham SM, Ismail E, Abd El-Moez S, Elhariri M, Elhelw R, **Hamza E (2020).** Emergence of β-lactamase- and carbapenemase- producing *Enterobacteriaceae* at integrated fish farms. ***Antimicrob Resist Infect Control*** 9, 67. https://doi.org/10.1186/s13756-020-00736-3.

3. Elhariri M, Elhelw R, Selim S, Ibrahim M, Hamza D, **Hamza E (2020)**. Virulence and Antibiotic Resistance Patterns of Extended-Spectrum Beta-Lactamase-Producing *Salmonella enterica* serovar Heidelberg Isolated from Broiler Chickens and Poultry Workers: A Potential Hazard. ***Foodborne Pathog Dis***. 17(6):373-381. doi:10.1089/fpd.2019.2719.

4. Sabry MA, Mansour HAA, Ashour RM, **Hamza E (2019).** Histamine-Producing Bacteria and Histamine Induction in Retail Sardine and Mackerel from Fish Markets in Egypt. ***Foodborne Pathog Dis*** 16(9):597-603. doi:10.1089/fpd.2018.2616.

5. Elhariri M, Hamza D, Elhelw R, **Hamza E (2018)**. Occurrence of *cagA*$^{+}$ *vacA s1a m1 i1 Helicobacter pylori* in farm animals in Egypt and ability to survive in experimentally contaminated UHT milk. ***Sci. Rep.*** 8, article number: 14260. doi:10.1038/s41598-018-32671.

6. Ahmed-Hassan H, Abdul-Cader MS, Sabry MA, **Hamza E**, Nagy E, Sharif S, Abdul-Careem MF **(2018)**. Double-Stranded Ribonucleic Acid-mediated antiviral response against low pathogenic avian influenza virus infection. ***Viral Immunol.*** 31(6):433-446. doi:10.1089/vim.2017.0142.

7. Ahmed-Hassan H, Abdul-Cader MS, Senapathi UDS, Sabry MA, **Hamza E**, Nagy E, Sharif S, Abdul-Careem MF **(2018)**. Potential mediators of *in ovo* delivered double stranded (ds) RNA-induced innate response against low pathogenic avian influenza virus infection. ***Virology J.*** 15:43.

8. Ziegler A, **Hamza E**, Jonsdottir S; Rhyner C, Wagner B, Schuepbach-Regula G, Torsteinsdottir S, Svansson V, Marti E **(2018)**. Analysis of allergen-specific IgE and IgG subclasses as potential predictors of insect bite hypersensitivity following first exposure to Culicoides. ***Veterinary Dermatology*** 29(1):51-e22.

9. Hamza E, Kittl S, Kuhnert P **(2017)**. Temporal induction of Pro-Inflammatory and Regulatory cytokines in human peripheral blood mononuclear cells by *Campylobacter jejuni* and *Campylobacter coli*. ***PLOS ONE*** 12(2): e0171350.

10. Hamed O, Sabry M, Hassanain N, **Hamza E**, Hegazi A, Salman M **(2017)**. Occurrence of virulent and antibiotic-resistant Shiga toxin-producing *Escherichia coli* in some food products and human stool in Egypt. ***Veterinary World*** 10 (10): 1233-1240.

11. Ziegler A, Everett H, **Hamza E**, Garbani M, Gerber V, Marti E, Steinbach F **(2016)**. Equine dendritic cells generated with horse serum have enhanced functionality in comparison to dendritic cells generated with fetal bovine serum. ***BMC Vet Research*** 12: 254.

12. Hamza E, Dorgham SM, Hamza DA **(2016)**. Carbapenemase-producing *Klebsiella pneumoniae* in broiler poultry farming in Egypt. ***J Global Antimicrobial Resitance*** 7: 8-10.

13. Sabry M, Abd-El Moein K, **Hamza E**, Karam F **(2016)**. Occurrence of *Clostridium perfringens* types A, E and C in fresh fish and its public health significance. ***J Food Protection*** 79 (6): 994-1000.

14. Hamza E, Mirkovitch J, Steinbach F, Marti E **(2015)**. Regulatory T cells in early life: Comparative study of CD4+CD25 high T cells from foals and adult horses. ***PLOS ONE*** 10(3): e0120661.

15. Jonsdottir S, **Hamza E**, Janda J, Rhyner C, Meinke A, Marti E, Svansson W, Torsteinsdottir S **(2015)**. Developing a preventive immunization approach against insect bite hypersensitivity using recombinant allergens: a pilot study. ***Vet Immunol Immunopathol*** 166 (1-2):8-21

16. Pacholewska A, Jagannathan V**,** Drögemüller M, Klukowska-Rötzler J, Lanz S, **Hamza E**, Dermitzakis E, Marti E, Leeb T, Gerber V (**2015)**. Impaired Cell Cycle Regulation in a Natural Equine Model of Asthma. ***PLOS ONE*** 10(8): e0136103.

17. Pacholewska A, Drögemüller M, Klukowska-Rötzler J, Lanz S, **Hamza E**, Dermitzakis E, Marti E, Gerber V, Leeb T, Jagannathan V **(2015)**.Transcriptome of equine peripheral blood mononuclear cells. ***PLOS ONE*** 10(3): e0122011.

18. Mählmann K, **Hamza E**, Marti E, Klukowska-Rötzler J, Gerber V, Koch C **(2014)**. Increased FoxP3 expression in tumor associated tissues of horses affected with equine sarcoid disease. ***Veterinary Journal Elsevier*** 202(3): 516-21.

19. Hamza E, Akdis CA, Wagner B, Steinbach F, Marti E **(2013)**. Restoring the ability of $CD4^{+}CD25^{+}$ T cells to suppress allergen-induced proliferation of $CD4^{+}CD25^{-}$ Cells in horses affected with insect bite hypersensitivity. ***Clinical and experimental Allergy*** 43:889-901.

20. Lanz S, Gerber V, Klukowska-Rötzler J, Rettmer H, Marti E, Matthews J, Pirie S, **Hamza E (2013)**. Effect of hay-dust extract and cyathostomins stimulation on cytokine expression by PBMC from horses affected with recurrent airway obstruction. ***Vet Immunol Immunopathol*** 155 (4): 229- 237.

21. Hamza E, Steinbach F, Marti E **(2012)**. $CD4^{+}CD25^{+}$ T cells expressing FoxP3 in Icelandic horses affected with insect bite hypersensitivity. ***Vet Immunol Immunopathol***. 148 (1-2):139-44.

22. Hamza E, Gerber V, Steinbach F, Marti E **(2011)**. Equine $CD4^{+}CD25^{high}$ T cells exhibit regulatory activity by close contact and cytokine-dependent mechanisms in vitro. ***Immunology*** 134:292-304.

23. Schaffartzik A, Marti E, **Hamza E**, Janda J, Crameri R, Rhyner C **(2011)**. Equine insect bite hypersensitivity: what do we know? ***Vet Immunol Immunopathol***. 147 (3-4): 113-26.

20. Hamza E, Torsteinsdottir S, Eydal M, Frey CF, Mirkovitch J, Brcic M, Wagner B, Wilson AD, Jungi TW, Marti E **(2010).** Increased IL-4 and decreased regulatory cytokine production following relocation of Icelandic horses from a high to low endoparasite environment. ***Vet Immunol Immunopathol***. 133: 40-50.

21. Hamza E, Wagner B, Jungi TW, Mirkovitch J, Marti E **(2008)**. Reduced incidence of insect-bite hypersensitivity in Icelandic horses is associated with a down-regulation of interleukin-4 by interleukin-10 and transforming growth factor-β1. ***Vet Immunol Immunopathol***. 122: 65-75.

22. Marti E, Gerber V, Wilson AD, Lavoie JP, Horohov D, Crameri R, Lunn DP, Antczak D, Björnsdóttir S, Björnsdóttir TS, Cunningham F, Dérer M, Frey R, **Hamza E**, Horin P, Heimann M, Kolm-Stark G, Olafsdóttir G, Ramery E, Russell C, Schaffartzik A, Svansson V, Torsteinsdóttir S, Wagner B. **(2008).** Report

of the 3rd Havemeyer workshop on allergic diseases of the Horse, Hólar, Iceland, June 2007. ***Vet Immunol Immunopathol*** 126(3-4):351-61.

23. Hamza E, Doherr MG, Bertoni G, Jungi TW, Marti E **(2007)**. Modulation of allergy incidence in Icelandic horses is associated with a change in IL-4-producing T cells. ***Intern Arch of Allergy and Immunology*** 144: 325-337.

Book chapter

24. Marti E and **Hamza E (2014)**. Equine immunoglobulin E. in Veterinary Allergy, Eds Noli, C, Foster, A, Rosenkrantz W. ***Wiley Blackwell***, pp 279-286.

Seminars and Congress Talks

1. **Invited speaker and poster presentation at 71 DGHM**, Germany, **2018**
2. **Invited speaker at 4th** International Workshop on allergic diseases of the horse, Iceland, **2016**
3. **Poster presentation at** Netzwerk Pferdeforschung Schweiz, Switzerland, **2015**
4. **Poster presentation** at Swiss Society for Allergology and Immunology **SSAI**, Switzerland, **2015**
5. **Poster presentation at** World Immune Regulation Meeting **WIRM-VI**, Switzerland, **2014**
6. **Two Poster presentations at EAACI**, Italy, **2013**
7. **Invited speaker** at 2nd World Immunology online conference, **2013**
8. **Invited speaker at EAACI**, Switzerland, **2012**
9. **Poster presentation at 4th EVIW**, Scotland**, 2012**
10. **Poster presentation at WIRM-IV**, Switzerland, **2012**
11. **Invited speaker** at DermFocus Meeting, Berne, Switzerland, **2011**
12. **Invited speaker at 9th IVIS**, Japan, **2010**
13. **Poster presentation at IAD,** Paris, France, **2010**
14. **Invited speaker at WIRM-III**, Switzerland. **2009**
15. **Invited speaker at the Swiss Institute of Allergy and Asthma SIAF,** Davos, Switzerland **2008**
16. **Invited speaker at 3rd** International Workshop on allergic diseases of the horse, Holar, Iceland, **2007**
17. **Invited speaker at 2nd EVIW**, France, **2006**
18. **Invited speaker at the University of Iceland,** Reykjavik, Iceland, **2006**
19. **Invited speaker at JAMI**, Maastricht, the Netherlands, **2004**
20. **Invited speaker at 7th IVIS**, Quebec, Canada, **2004**