

Curriculum Vitae

Name: Mostafa Ibrahim Fekry Abdelhamed
Title: Assistant Professor (lecturer),
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Education

• Academic Degrees

PhD

Metabolic bioactivation, biotransformations of genotoxic agents, and chemical toxicology Sciences
2011, University of Missouri-Columbia, USA, Prof. Kent S. Gates

Bachelor

Pharmaceutical Sciences
2003, Cairo University, Distinguished Honors

• Research interest

The Ph.D. dissertation has focused on elucidating the mechanisms of DNA damage by the antitumor natural products, leinamycin and kinamycin D. In addition, I have examined DNA damage chemistry relevant to α -haloacrylyl containing mutagens, anticancer agents, and natural products. Currently, my research is focusing on the impact of gut microbiota on dietary carcinogens (heterocyclic amine) and its relevance to colon cancer. I am also involved in research that aims to understand mechanisms of translesion DNA synthesis past various C8-linked guanine adducts. I have a diverse background in chemistry and toxicology regarding various aspects of DNA chemistry such as DNA radiolabeling, running different types of gels, and measuring DNA reaction kinetics, as well as my current focus on small molecules bioanalysis from complex biological samples using LC-MS.

This experience has been transformed into the following research skills:

1. UPLC coupled with UV/MS. MS/MS data interpretation of small molecules and metabolites.
2. qPCR and measuring kinetic parameters of enzymatic and chemical reaction.
3. DNA-³²P radiolabeling and DNA sequencing gel analysis (PAGE and agarose gel analysis).
4. Carrying out reactions under hypoxic conditions (enzymatic, bacterial, and nucleic acid reactions).
5. Leadership, communication skills, prioritize multiple tasks, and time management
6. Listen well to others, stick to the rules, and negotiating skills in non-scientific discussions.

Teaching

	Course Title
Undergraduate Courses (General Program)	204 Pharmacognosy III
	205 Phytochemistry I
Undergraduate Courses (Clinical Program)	Choose an item.
Postgraduate Courses	1213 Quality control of Natural Products Special Topics in Toxicology (Masters & PhD Students at ETH Zurich)

Career History and Professional Experience

Titles	<p>Chief Scientific Officer, Nawah-Scientific research center, Since 06.2015</p> <p>Supervising all scientific activities performed by the company including execution of various scientific projects, developing SOPs, ensure adhering to GLP, and providing scientific support to the research team.</p> <p>Postdoctoral Fellow, Swiss Federal Institute of Technology (ETH); Prof. Shana J. Sturla, 02.2012 – 10.2014</p> <p>Laboratory of Food and Nutrition Toxicology</p> <ul style="list-style-type: none"> • Impact of gut microbiome on biotransformation of dietary carcinogens. • Investigate the translesion DNA synthesis past various guanine adducts.
Awards	<p>Breckenridge/Lyon's Award for Outstanding Graduate Research, 2011, University of Missouri-Columbia, USA</p> <p>Professional Presentation Travel Scholarship, 2010, University of Missouri-Columbia, USA</p> <p>Chemistry Department Travel Award, 2010, University of Missouri-Columbia, USA</p>
Projects	<ol style="list-style-type: none"> 1. Impact of gut microbiome on biotransformation of dietary carcinogens. 2. Metabolite profiling of various cultivars via GC-MS and multivariate data analyses 3. Examined the chemical mechanisms underlying bioactivation of genotoxins (leinamycin, kinamycin D natural products, and α-bromo-2-cyclopentenones) 4. Investigate the translesion DNA synthesis past various guanine adducts. 5. Characterization of interstrand DNA cross-links derived from an abasic Site.

Publications and Presentations

Publications

1. The strict anaerobic gut microbe *Eubacterium hallii* transforms the dietary carcinogen 2-amino-1-methyl-6-phenylimidazo[4,5-b]pyridine (PhIP). Mostafa I. Fekry; Christina Engels; Jianbo Zhang; Clarissa Schwab; Christophe Lacroix; Shana J. Sturla; Christophe Chassard. *Environmental Microbiology Report*. In press.
2. Metabolites profiling in 18 Saudi date palm fruit cultivars and their antioxidant potential via UPLC-qTOF-MS and multivariate data analyses. Mohammed Farag, Mostafa I. Fekry, Heba Handousa and Ludger A. Wessjohann. *Food & Function*. In press
3. Structural and Biochemical Impact of C8-Aryl-Guanine Adducts within the NarI Recognition DNA Sequence: Influence of Aryl Ring Size on Targeted and Semitargeted Mutagenicity. Michael Sproviero; Anne Verwey; Katherine Rankin; Aaron Witham; Dmitriy Soldatov; Richard Manderville; Mostafa I. Fekry; Shana Sturla; Purshotam Sharma; Stacey Wetmore. *Nucleic Acids Res.* 2014, 42, 13405–13421.
4. Interstrand DNA–DNA Cross-Link Formation Between Adenine Residues and Abasic Sites in Duplex DNA. Nathan E. Price, Kevin M. Johnson, Jin Wang, Mostafa I. Fekry, Yinsheng Wang, and Kent S. Gates. *J. Am. Chem. Soc.*, 2014, 136, 3483–3490. This article is one of four spotlighted at the front issues and is one of seven from ALL fields of science that is highlighted in the Editor's Choice section of *Science Magazine*, March 7th issue.
5. On the Formation and Properties of Interstrand DNA-DNA Cross-links Forged by Reaction of an Abasic Site with the Opposing Guanine Residue of 5'-CAp Sequences in Duplex DNA. Kevin Johnson; Nathan Price; Jin Wang; Mostafa I. Fekry; Sanjay Dutta; Derrick Seiner; Yinsheng Wang; Kent S.Gates. *J. Am. Chem. Soc.* 2013, 135, 1015–1025.
6. Noncovalent DNA Binding Drives DNA Alkylation by Leinamycin. Evidence That the Z,E-5-(Thiazol-4-yl)-penta-2,4-dienone Moiety of the Natural Product Serves As An Atypical DNA Intercalator. Mostafa I. Fekry; Joseph Szekely; Sanjay Dutta; Leonid Breydo; Hong Zang; Kent S.Gates. *J. Am. Chem. Soc.* 2011, 133, 17641–17651.
7. Kinetic Consequences of Replacing the Internucleotide Phosphorus Atoms in DNA with Arsenic. Mostafa I. Fekry; Peter A. Tipton; Kent S. Gates. *ACS Chemical Biology*, 2011, 6, 127-130.
8. Thiol-Activated DNA Damage By α -Bromo-2-cyclopentenone. Mostafa I. Fekry; Nathan Price; Hong Zang; Chaofeng Huang; Michael Harmata; J. Scott Daniels; Kent S. Gates. *Chemical Research in Toxicology*, 2011, 24, 217-228. The article above is highlighted in the "In This Issue" section of *Chemical Research in Toxicology*, 2011, 24, 146-147.
9. DNA-Catalyzed Hydrolysis of DNA Phosphodiesterases. Mostafa I. Fekry and Kent S. Gates. *Nature Chemical Biology* 2009, 5, 710-711.

Research Presentations

1. Mostafa I. Fekry and Kent S.Gates Investigation of the non-covalent binding mode of leinamycin with double-stranded DNA 240th ACS National Meeting, Boston, 2010, Division of Toxicology.
2. Nathan Price, Collette Linder, Paul Brown, Brett Hollingshead, Andrew Burdick, Cindy Gross, Mostafa I. Fekry, Kent S. Gates and J. Scott Daniels. Human bioactivation and biological activity of an α -halo- α,β -unsaturated motif. Pfizer Intern Forum, 2009.