

ABDULAZIZ MOHAMMED ALSAAD, BSc, MSc, PhD,

PhD in Clinical/Molecular Pharmacology & Toxicology, Drug Post-Marketing Studies
(Epidemiology/Evidence-Based Medicine/Meta-analysis), and Pharmaceutical Entrepreneur

Department of Pharmacology and Toxicology,
King Saud University, P.O. Box 2457, Riyadh 11451, Saudi Arabia

Phone: (+966539079002) ~ Email: Alsaad@Ksu.edu.sa

~~~~~

**BRIEF BIOGRAPHY**

Originally from Saudi Arabia, Abdulaziz Alsaad, graduated from King Saud University with an undergraduate degree in pharmacy and pharmaceutical sciences. In 2012, Alsaad finished his master's in molecular pharmacology and toxicology from the University of Alberta, Canada. Thereafter, Alsaad joined a world-leading research group at Leslie Dan Faculty of Pharmacy to pursue his PhD in clinical pharmacology and toxicology at the University of Toronto, Canada.

In 2012, the American society of toxicology recognize Alsaad's scientific achievement in San Francisco and he was the recipient of Cardiovascular Toxicology Specialty Section Award, which recognizes the most outstanding contribution in the field of Cardiovascular Toxicology. While pursuing his master's, Alsaad discovered molecular mechanisms mediating cardiotoxic effects of (Doxorubicin) through modulation of cytochrome P450-mediated arachidonic acid metabolism and immediately recognized the opportunity to apply his skills as a pharmacist to the field of personalized medicine.

In 2013, Alsaad chose Dr. Koren to supervise his PhD in the department of clinical pharmacology and toxicology at Sickkids hospital in Toronto, where he developed a unique methodology to detect rare adverse drug effects that Dr. Koren group specializes in (Dr. Koren published more than 1700 papers). While working for Dr. Koren, Alsaad sought new methodological approach to detect rare adverse drug effects during pregnancy and childhood, using his medical experience to improve the current approaches. His PhD research resulted in four published articles—but Alsaad is most proud of his role in refining the relationship between the bench work and clinical findings as essential parts to monitor adverse drug effects.

Alsaad is inspired by the wealth of research he is capable of doing using cutting edge tools. Now as a faculty member at King Saud University, the oldest university in Saudi Arabia, Alsaad is determined to discover drug-induced toxicities by leveraging his knowledge and experience to make significant contributions in the future.

## INTEREST:

- 1) **Molecular Research:** Detection of drug effects using *in vivo* and *in vitro* models (Preclinical studies).
- 2) **Clinical Research:** Detection of drug effects in humans (Clinical trials/Meta-analysis).
- 3) **Pharmaceutical industry focus:** Drug Post-Marketing studies, Evidence-Based Medicine.
- 4) **Administrative focus:** Familiar with the Canadian Pharm D. accreditation process, involved in entrepreneurship and leadership activities.

## EDUCATION

October 2015      **PhD Clinical Pharmacology & Toxicology**, Leslie Dan Faculty of Pharmacy and Pharmaceutical Sciences, University of Toronto, Toronto, ON, Canada.

June 2015          **MSc Molecular Pharmacology & Toxicology**, Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta, Edmonton, Alberta, Canada.

February 2007    **BSc (Honors) Pharmacy**, College of Pharmacy, King Saud University, Riyadh, Saudi Arabia.

- **GPA:** 4.66 (out of 5 points), Excellent with Honor Degree).
- **Track:** Pharmaceutical Industry – Basic & Clinical Analysis
- **Pharmacy Intern:** King Khalid Eye Specialist Hospital, Riyadh, Saudi Arabia. Sep 2006- Feb 2007.

## EMPLOYMENT HISTORY

- 1) Assistant Professor, Department of Pharmacology and Toxicology, King Saud University, Riyadh, Saudi Arabia. (October 2015-now).
- 2) Demonstrator, Department of Pharmacology and Toxicology, King Saud University, Riyadh, Saudi Arabia. (June 2012 – October 2015).
- 3) Research Assistant, SickKids Hospital, University of Toronto, Toronto, ON, Canada (June 2012 - September 2015).
- 4) Teaching Assistant, Leslie Dan Faculty of Pharmacy and Pharmaceutical Sciences, University of Toronto, Toronto, ON, Canada (June 2012- September 2015).
- 5) Teaching Assistant, Department of Pharmacology and Toxicology, King Saud University, Riyadh, Saudi Arabia. (April 2007- June 2012).

## EXPERIENCES

### A. Research Experience: “RESEARCH THEME”

Bench-to-Bedside research is a scientific field to share knowledge, research, and practices in order to improve the patient care. Although the modern drug discovery has focused on the interaction between a candidate drug and its immediate cellular target, predicting the effects of a particular drug in humans is currently all but impossible, and many initially promising drugs have been found to have unsupportable levels of toxicity — typically at a late stage of a randomized clinical trial. Both lack of causality and ethical issues have led to the current deficiencies in our understanding of drug toxicities and, thus, the need to optimize the use of drug post-marketing studies has arisen in an attempt to close this gap.

#### 1. **Molecular Research:** detection of drug effects using *in vivo* and *in vitro* models:

Investigating the molecular mechanisms involved in the modulation of aryl hydrocarbon receptor (AhR)-regulated genes by environmental pollutants and contaminants, such heavy metals, at the activity, protein and mRNA levels in hepatic cell lines. Both AhR ligands and heavy metals are ranked highly as the most hazardous xenobiotics in the environment, prepared by Canadian Environmental Protection Act and the Agency for Toxic Substances and Disease Registry and the Environmental Protection Agency. Environmental co-contamination of heavy metals with AhR ligands could affect the mutagenicity and

carcinogenicity of these compounds. Our long-term objectives: 1) understand the potential interaction between heavy metals and AhR ligands which are common in the environment on the regulation of AhR-regulated genes, and 2) investigate the effects of AhR ligand/metal mixtures on AhR ligands mutagenicity and carcinogenicity.

**Techniques:**

1. Real-time polymerase chain reaction (RT-PCR), reverse-transcription polymerase chain reaction, and Northern blot analysis.
2. Western blot analysis for determination of protein expression.
3. Electrophoretic mobility shift assay (EMSA) for determination of DNA-protein interactions.
4. Measurement of total CYP450s and cellular heme content.
5. Measurement of catalytic activities of several enzymes, such as CYP1A1, 1A2, 1B1, NQO1, GST, GSTA1, using specific substrates.
6. Determination of oxidative stress markers such as mitochondrial reactive oxygen species using DCF assay, lipid peroxidation, and heme oxygenase expression, NF- $\kappa$ B, and AP-1.
7. MTT assay for determination of cytotoxicity.
8. Luciferase reporter gene activity.
9. Cell culture techniques for different cell lines, such as human hepatoma HepG2 cells, murine hepatoma Hepa 1c1c7 cells, AhR-knockout hepatoma C12 cells, ARNT-knockout hepatoma C4 cells, and rat cardiomyocyte H9C2 cells.

**Training:**

1. Radiation and Safety Course, University of Alberta, Canada (2010).
2. NON-MEM Population Pharmacokinetics Workshop, University of Alberta, Canada (2010).

**2. Clinical Research:** detection of drug effects in humans:

Expert in conducting clinical trials, prospective long-term safety studies, retrospective studies, pharmaco-epidemiology, Biostatistics, Medical and Clinical Aspects of Adverse Drug Reactions, National pharmacovigilance regulations, Pharmacovigilance methods, Evidence based-medicine, literature search, and Causality assessment.

**Professional training:**

- 1) Collaborative Institutional Training Initiative (CITI) for Canada Good Clinical Practice (GCP), The Hospital for Sick children (Sickkids), Toronto, Canada.
- 2) Canadian Institute of Health Research (CIHR)'s Institute in Maternal-Fetal and Pediatric Pharmacology, The Hospital for Sick children (Sickkids), Toronto, Canada.
- 3) Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans. A Course on Research Ethics (TCPS 2: CORE), The Hospital for Sick children (Sickkids), Toronto, Canada.

**B. Teaching Experience:**

Teaching clinical and molecular pharmacology and toxicology for the undergraduate and graduate pharmacy students. Involved in designing, preparing, organizing and teaching continuing education programs for pharmacists. Teaching pharmacology for the undergraduate and the graduate medical and dental students.

**Developed Courses:**

|                       |                                     |                                               |
|-----------------------|-------------------------------------|-----------------------------------------------|
| Clinical Pharmacology | Evidence-Based Medicine             | Advanced Clinical Pharmacology and Toxicology |
| Clinical Toxicology   | Systematic Review and Meta-analysis | Environmental Toxicology                      |

**Tutoring Help:**

I provided one-to-one tutoring help for students seeking more assistance in Pharmacology and Toxicology.

**C. Pharmaceutical Industry Experience:**

Involved in drug post-marketing studies and familiar with FDA requirements for a good pharmacovigilance practice as well as drug registration/regulatory affairs in KSA:

- 1) Entrepreneurship and Innovations, MaRS Discovery District, Toronto, Canada.
- 2) Training at GlaxoSmithKline as a medical representative.

**D. Administrative Experience and Community Services:**

- 1) Member of the scientific review committee of publication submitted to department of pharmacology and toxicology for faculty members' promotion, College of Pharmacy, King Saud University.
- 2) Familiar with the Canadian Pharm D. accreditation process, involved in entrepreneurship and leadership activities.

**WORKSHOPS**

- 1- A workshop on Evidence-Based Medicine, King Saud University (2015).
- 2- Molecular Pharmacology techniques, College of Pharmacy, King Saud University (2016).
- 3- A workshop on Meta-analysis, College of Pharmacy, King Saud University (2017).

**CONFERENCES**

- 1- Faculty of Pharmacy and Pharmaceutical Sciences Research Day, U of Toronto. 2015
- 2- Canadian Society for Pharmaceutical Sciences Annual Conference. Montréal, Canada. 2014
- 3- Society of Toxicology Annual Meeting. San Diego, California. 2012
- 4- 15<sup>th</sup> Annual Cardiac Sciences Research Day, U of Alberta, Canada. 2011
- 5- Faculty of Pharmacy and Pharmaceutical Sciences Research Day, U of Alberta, Canada. 2010
- 6- The 9th International Pharmaceutical Sciences Conference & Exhibition. Saudi Arabia. 2005

## GRANTS & FUNDING:

|                  |                                                                                                                                                                                                                                                                                                          |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>2016-2017</b> | <p>Raed Program grant from King Saud University for one year</p> <p><b>Role:</b> Principal Investigator</p> <p><b>Total funding:</b> 70,000 (Saudi Riyals)</p> <p><b>Status:</b> Active</p>                                                                                                              |
| <b>2015-2016</b> | <p><b>Funding source:</b> Faculty of Pharmacy – King Saud University</p> <p><b>Role:</b> Principle Investigator</p> <p><b>Program:</b> Start-up Fund</p> <p><b>Total funding:</b> 100,000 (Saudi Riyals)</p> <p><b>Status:</b> Active</p>                                                                |
| <b>2013-2015</b> | <p><b>Funding source:</b> Ministry of Higher Education scholarship – King Saud University</p> <p><b>Role:</b> Principle Investigator</p> <p><b>Program:</b> Post-graduate Research fund at University of Toronto</p> <p><b>Total funding:</b> 1000,000 (Saudi Riyals)</p> <p><b>Status:</b> Finished</p> |
| <b>2010-2012</b> | <p><b>Funding source:</b> Ministry of Higher Education scholarship – King Saud University</p> <p><b>Role:</b> Principle Investigator</p> <p><b>Program:</b> Post-graduate Research fund at University of Alberta</p> <p><b>Total funding:</b> 1000,000 (Saudi Riyals)</p> <p><b>Status:</b> Finished</p> |

## ACADEMIC AWARDS

- 1- The Saudi Arabian Ambassador award for research excellence was given to Dr. Alsaad, in the presence of the Governor general of Canada. May 2015.
- 2- King Saud University Highest Research's Excellence Award. May 2014.
- 3- King Saud University Scholarship for Graduate Studies (PhD studies). January 2013.
- 4- Mary Louise Imrie Graduate Student Award, Faculty of Graduate studies and research, University of Alberta, Canada. May 2012.
- 5- DMT - Cardiovascular Toxicology Specialty Section Student Award that recognizes the most outstanding scientific contribution in the field of Cardiovascular Toxicology by the largest society of toxicology in the United States (SOT), SOT meeting San Francisco, CA, USA. March 2012.
- 6- King Saud University Scholarship for Graduate Studies (MSc studies). Jan 2010.
- 7- First honor degree, BSc Pharmacy. College of Pharmacy, King Saud University, Riyadh, Saudi Arabia. February 2007.
- 8- Best Undergraduate student award, College of Pharmacy, King Saud University, Riyadh, KSA. June 2006.

## LEADERSHIP AND MENTORING:

Committees' & Associations Membership:

1. **College of Pharmacy, King Saud University, Riyadh, Saudi Arabia**  
January 2016 - present, Member of the Health and Safety committee.
2. **College of Pharmacy, King Saud University, Riyadh, Saudi Arabia**  
July 2015 – Member of scientific review committee of publications submitted to department of pharmacology and toxicology for faculty members' promotion.
3. **University of Alberta, Edmonton, AB, Canada**  
June 2011, Member of Graduate Student Association.



**SUPERVISION:**

Undergraduate Students:

|           |                                                                                                                                                                                             |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2015-2016 | <b>Student Name:</b> Zeyad S. AL-Harbi<br><b>Program:</b> Pharm D.<br><b>Project:</b> Role of AhR receptors in mediation of anticancer drugs cardiotoxicities<br><b>Status:</b> Finished    |
| 2015-2016 | <b>Student Name:</b> Abdulrahman AL-Anazi<br><b>Program:</b> Pharm D.<br><b>Project:</b> Role of AhR receptors in mediation of anticancer drugs cardiotoxicities<br><b>Status:</b> Finished |
| 2015-2016 | <b>Student Name:</b> Hussam Al-Zamil<br><b>Program:</b> Pharm D.<br><b>Project:</b> Role of AhR receptors in mediation of anticancer drugs cardiotoxicities<br><b>Status:</b> Finished      |

## SCIENTIFIC CONTRIBUTION

### Clinical & Translational Research (Evidence-Based Medicine) ~ Publications:

1. **Alsaad, A.M.**, and Koren G., Exposure to rufinamide and risks of CNS adverse event in drug-resistant epilepsy: a meta-analysis of randomized, Placebo-Controlled trials. **British Journal of Clinical Pharmacology (BJCP)**, 78:6, 1264-1271, 2014.
2. **Alsaad, A.M.**, Kaplan C., and Koren G., Exposure to fluconazole and risk of congenital malformations in the offspring: A systematic review and meta-analysis. **Reproductive Toxicology** 52: 78-82, 2015.
3. **Alsaad, A.M.**, Chaudhry S., and Koren G., First trimester exposure to topiramate and the risk of oral clefts in the offspring: A systematic review and meta-analysis. **Reproductive Toxicology** 53: 45-50, 2015.
4. **Alsaad, A.M.**, Fox C., and Koren G., Toxicology and teratology of the active ingredients of professional therapy MuscleCare products during pregnancy and lactation: a Systematic review. **BMC Complementary and Alternative Medicine**, 15-40, 2015.

### Molecular Pharmacology and Toxicology Publications:

5. **Alsaad A.M.**, Al- Arifi M., Maayah Z, Attafi I, and Korashy H.M., Impact of Long-term Cigarette and Water pipes Smoking on DNA Damage and Repair, Oxidative Stress and Xenobiotic Metabolizing Genes in Healthy Subjects. 2016. (in preparation).
6. Al-Harbi NO, Nadeem A, Ansari MA, Al-Harbi MM, Alotaibi MR, **Alsaad AM**, Ahmad SF., Psoriasis-like inflammation leads to renal dysfunction via upregulation of NADPH oxidases and inducible nitric oxide synthase. *International Immunopharmacology*. (accepted). 2017.

7. Nadeem A., Ansari M., Bakheet S.A., Attia S.M., Zoheir K., Ayadhi L., Alzahrani M, **Alsaad A.M.**, Alotaibi M., Abdullah A., Imbalance between the anti- and pro-inflammatory milieu in blood leukocytes of autistic children. *Molecular Immunology*. (accepted). 2016.
8. Ansari MA, Raish M, Ahmad A, Alkharfy KM, Ahmad SF, Attia SM, **Alsaad AM**, Bakheet SA, Sinapic acid ameliorate cadmium-induced nephrotoxicity: In vivo possible involvement of oxidative stress, apoptosis, and inflammation via NF- $\kappa$ B downregulation. *Environmental Toxicology and Pharmacology*. (accepted). 2017.
9. Korashy H.M., Attafi I., Famulski K., Al Bakheet S., Hafez M, Alanazi I, **Alsaad A.M.**, Al-Ghadeer A., Gene expression profiling to identify the toxicities and potentially relevant human disease outcomes associated with environmental heavy metals exposure. *Environmental Pollution*. (accepted). 2016.
10. Ahmad S.F., Ansari M.A., Nadeem A., Zoheir K.M., Bakheet S.A., **Alsaad A.M.**, Al-Shabanah O.A., Attia S.M., STA-21, a STAT-3 inhibitor, attenuates the development and progression of inflammation in collagen antibody-induced arthritis. *Immunobiology*. (Accepted). 2016.
11. Korashy H.M., Ansari M., Maayah M., Assiri M., Ahmad S., Al-Shamasan A., and **Alsaad A.M.**, Mechanisms Underlying the Anti-Proliferative Actions of Sunitinib in Human Breast Cancer Cells, MCF7: The Role of Apoptosis, Cell Cycle and Oxidative Stress Pathways. (Submitted). 2016.
12. **Alsaad A.M.**, Zordoky B.N., El-Sherbeni A.A., El-Kadi A., Chronic Doxorubicin Cardiotoxicity Modulates Cardiac Cytochrome P450-Mediated Arachidonic Acid Metabolism in Rats. **Drug Metabolism And Disposition (DMD)**. The American Society for Pharmacology and Experimental Therapeutics. 2126-2135, 2012.

13. **Alsaad A.M.**, Zordoky B.N., Tse M.M., El-Kadi A., Role of cytochrome P450-mediated arachidonic acid metabolites in the pathogenesis of cardiac hypertrophy (Review Article), **Drug Metabolism Reviews**, 45(2): 173-195, 2013.