

MUTASEM RAWAS-QALAJI

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SUMMARY OF RELEVANT BACKGROUND

- **Pharmaceutical Industry Experience** (*more than seven years*):
 - Formulation Scientist, EnWave Corp., Vancouver, British Columbia, Canada (2008)
 - Postdoctoral Fellow - Formulation, Pre-clinical Development, Quadra Logic Technologies (QLT) Inc., Vancouver, British Columbia, Canada (2007-2008)
 - Marketing Department, F. Hoffmann-La Roche, Riyadh, Saudi Arabia (1995-2001)
- **Academic Research and Teaching Experience** (*more than sixteen years*):
 - College of Pharmacy, Nova Southeastern University, FL (2008-present)
 - Faculty of Science, University of Manitoba, Winnipeg, Canada (2002-2006)
 - Faculty of Pharmacy, University of Manitoba, Winnipeg, Canada (2001-2006)
- **Research Experience** (2001-present):
 - Pharmaceutical Dosage Form Design and Development (Solids, ODT, Liquids, Injectables, Ophthalmics, Implants)
 - Nanoparticles and nanocrystals fabrication and characterization
 - *In Vitro* / *In vivo* dissolution, absorption, bioequivalency and bioavailability studies
 - Stability studies
 - Analytical and statistical Analysis
- Technologies, patents and manuscripts writing and reviewing, technology transfer, technologies licensing, and consultations

EDUCATION

- 2001-2006 **Ph.D. (Pharmaceutics)**
Faculty of Pharmacy, University of Manitoba, Winnipeg, Manitoba, Canada
- 1990-1995 **Bachelor of Pharmaceutical Sciences (B. Pharm) (Honor)**
Faculty of Pharmacy, King Saud University, Riyadh, Saudi Arabia

PROFESSIONAL WORKSHOPS AND TRAININGS

- 2012 **Grant Writing Workshop - National Institutes of Health (NIH)**
University of Kentucky, Lexington, KY
- 2006 **Strategic Training in Allergy Research** (ST*AR Program)
American Academy of Allergy, Asthma & Immunology's (AAAAI) Annual Conference, Miami Beach, FL
- 1995 Pharmaceutical Industries & Medical Appliances Corporation (SPIMACO)
Industrial Training – 2 weeks
(SPIMACO), Al Kassim, Saudi Arabia

WORK EXPERIENCE

Academia

- 2017-present Affiliated Associate Professor
College of Allopathic Medicine, Nova Southeastern University
Fort Lauderdale, Florida, USA
- 2016-present Director, NSU's Center for Drug Discovery and Development (CD³)
Nova Southeastern University
Fort Lauderdale, Florida, USA
- 2014-present Associate Professor
Department of Pharmaceutical Sciences,
College of Pharmacy, Nova Southeastern University
Fort Lauderdale, Florida, USA
- 2008-2014 Assistant Professor
Department of Pharmaceutical Sciences,
College of Pharmacy, Nova Southeastern University
Fort Lauderdale, Florida, USA
- 2004-2005 Instructor
Faculty of Pharmacy, University of Manitoba
Winnipeg, Manitoba, Canada
- 2004-2006 Instructor
Faculty of Sciences, University of Manitoba
Winnipeg, Manitoba, Canada
- 2002-2005 Teaching Assistant
Faculty of Pharmacy, University of Manitoba
Winnipeg, Manitoba, Canada
- 2002-2006 Teaching Assistant
Faculty of Sciences, University of Manitoba
Winnipeg, Manitoba, Canada
- 2004 Research Assistant
Faculty of Pharmacy, University of Manitoba, Winnipeg, Manitoba, Canada

Pharmaceutical Industry

- 2008 Research Scientist
EnWave Corp., Vancouver, British Columbia, Canada
- 2007-2008 NSERC Postdoctoral Fellow
(Natural Sciences and Engineering Research Council Industrial Postdoctoral
Fellow)
Formulation - Preclinical Development
Quadra Logic Technologies (QLT) Inc., Vancouver, British Columbia, Canada
- 1995-2001 Primary Care Specialist, F. Hoffmann-La Roche Ltd, Saudi Arabia

RESEARCH INTEREST & EXPERIENCE

Pre-formulation and Preclinical Testing

- Solubility, stability (long and short-term), and compatibility studies at different parameters like additives, temperature, pH, humidity, light, oxygen, antioxidant, and/or inert atmosphere.
- Utilizing various types of solvents and formulation additives like ethanol, THF, DMSO, NMP, PEG, PG, HPMC, MC, PVA, poloxamers, and cyclodextrins.
- pH, tonicity, viscosity, and partition coefficient (Log P) measurements.
- *In vitro* release studies using different methods at different dissolution media and conditions.
- *In vitro* burst studies for sustained release formulations.

Nanoparticles and Microparticles Fabrication

- Using a wide variety of synthetic and natural polymers and co-polymers for the formation of nanoparticles and microparticles like PLA, PLGA, PNIPAAm, and chitosan.
- Using various fabrication methods like salting-out, double emulsion-solvent evaporation, ionic gelation, and high shear fluidization (Microfluidizer).
- Formation of neutral and cationic particles at different particle sizes.
- Characterization of fabricated nanoparticles like particle size measurement, zeta potential measurement, yield %, loading and encapsulation efficiency %, FT-IR, DSC, and SEM.

Vaccines Formulation and Drying

- Formulation and development of attenuated vaccines using different protecting agents like glycerol, trehalose, gelatine, and skim milk.
- Growing bacteria and culturing for viability testing.
- Drying the final vaccine formulation under different parameters and evaluating stability.

Sustained Release Delivery Systems Formulation

- Formulation of biodegradable injectable implants as a sustained release drug delivery systems.
- Formulation of biodegradable injectable and topical in situ-gelling hydrogels for the sustained release drug delivery like poloxamer, PLA, PEG, chitosan, and alginate.
- Formation of biodegradable nanoparticles in various dosage forms for the sustained release drug delivery.

Solids, Liquids, Injectables, and Ophthalmics Dosage Formulation, Manufacturing, and Quality Control:

- Formulation and development of rapidly (fast) disintegrating and/or dissolving tablets (ODT) by direct compression using various types of excipients like starch, lactose, mannitol, MCC, L-HPC, Croscopovidone.
- Small scale manufacturing of tablets using single punch and rotary tablet press machines
- Quality control using USP tests like disintegration, dissolution, friability, and content uniformity tests
- Formulation and development of oral liquid formulations for adults and pediatric use
- Formulations and *in vitro* testing of pH and/or temperature-sensitive hydrogels for topical and injectable administration
- Formulation and sterilization of systemic and local small volume injections for animal administration and for proof of concept and efficacy studies
- Formulation and sterilization of various ophthalmic dosage forms for topical and local administration like eye drops' solutions, suspensions and emulsions, hydrogels, intravitreal injections, and subtenon injections

***In Vitro*, *Ex Vivo* and *In Vivo* Studies:**

- Experimental and protocol design for animal studies (crossover, parallel)
- Diffusion and permeability studies, using Franz cells, and proof-of-concept studies
- Drug absorption and bioavailability/bioequivalency studies

- *In Vitro* - *In Vivo* Correlation
- Handling, catheterization, and blood sampling animals for *in vivo* studies, and dissecting and isolating membranes for *ex vivo* studies.

Analytical Analysis Experiences:

- Solid and liquid phase extraction
- Development of mobile phases and qualifying methods
- Experienced with HPLC systems (old and new Waters® systems, Agilent system, and PerkinElmer system) with UV, PDA, and EC detectors
- Troubleshooting and HPLC cleaning and maintenance
- knowledgeable of LC-Mass (Waters® system)

Pharmacokinetics:

- Using WinNonLin software (analysing multiple profiles, noncompartmental analysis, pharmacokinetic modeling, and bioequivalence)

Laboratory Equipments

- Utilizing a wide range of laboratory equipments like speed mixer, high sheer mixer, probe ultrasonicator, bath sonicator, ultracentrifugator, glove box, freeze dryer, HPLC with UV, PDA, or EC detectors, spectrophotometer, FT-IR, DSC, Zetasizer, Mastersizer, Franz cells, dissolution apparatus, disintegration apparatus, friability tester, hardness tester, blenders, tablet press (single punch and rotary), Microfluidizer

Laboratory Skills:

- Creating and maintaining safe laboratory, creating and developing SOPs, safe chemical handling and disposal, Lab Books keeping, and lab space management
- Knowledge of handling light, oxygen, and moisture-sensitive active ingredients
- Sourcing and ordering active ingredients and other laboratory chemicals and equipments.

Statistical, and Computer Skills

- Powering studies to reduce type II error
- Performing parametric statistical analysis tests like t-test (paired, non-paired, one and two tailed), ANOVA and repeated measures ANOVA (one, two, and three ways), ANCOVA, curve fitting, testing trends, and using NCSS, SPSS, and Prism statistical analysis software
- Data plotting using Auxum, Sigma Plot, and Prism
- Bibliography designing using EndNote and Reference Manager
- Microsoft Office (Word, Excel, PowerPoint)
- PubMed, IPA, Patents, and Internet searches

Consultations:

- Invited and hired to provide preformulation, formulation, stability and analytical testing, and drug delivery consultations.
- Hired as Expert Witness in various pharmaceutical formulations' litigations.

Other Skills

- Grants writing and reviewing (reviewer for major organizations and institutions)
- Reviewing, evaluating, and recommending technologies for product development
- Conducting literature and patents searches
- Developing and evaluating new methods, techniques, technologies, and delivery systems
- Writing reports and protocols and presenting results on a regular bases
- Training and mentoring students and research associates in pharmaceutical industry and academia
- Interviewing and hiring candidates to work as faculties or as research and technical assistance.

TEACHING EXPERIENCE

Associate and Assistant Professor

- *College of Pharmacy, Nova Southeastern University, Fort Lauderdale, Florida, USA*

Courses taught at **Pharm. D. level:**

- 2012-present PHA4120: Pharmaceutics II (Pharmaceutical Dosage Forms) - 2 credits
Course Coordinator
 Taught 60% of the course, Class size: ~250 students (Winter term)
- 2016 PHRC 6540: Pharmacy Practice Seminar – 1 credit (Winter term)
 Mentored students to conduct literature search, write a report and present.
 Trained 6 students for the annual poster night event
- 2009-2011 PHA4110: Pharmaceutics II (Pharmaceutical Dosage Forms) - 3 credits
Course Coordinator
 Taught 60% of the didactic, Class size: ~200 students (Winter term)
- 2011-2012 PHA5999: Research in Pharmaceutical Sciences (elective) - 3 credits
 Taught and trained 100% of the course, 1 student (Summer, Winter, and Fall)
- 2011 PHA5993: Literature Research in Pharmaceutical Sciences (elective) - 3 credits,
 Mentored and trained 100% of the course, 1 student (Winter, Summer, and Fall terms)
- 2010 PHA 6630: Therapeutics and Pathophysiology III – 4 credits
 Mentored students to conduct literature search, write a report and present.
 Trained 4 students for the annual poster night event, (Winter term)
- 2009-2010 PHA5115: Advances in Drug Delivery (elective course) - 2 credits
 Taught 50% of the course, Class size: ~40 students (Fall term)
- 2009 PHA4310: Pharmaceutical Marketing - 2 credits
 Taught 1 lecture, Class size: 197 students
- 2008 PHA4100: Pharmaceutics I (Physical Pharmacy) – 3 credits
 Taught 2 lectures, Class size: 202 students (Fall term)

Guest Professor

- *College of Pharmacy, Nova Southeastern University, Fort Lauderdale, Florida, USA*

Lectures Taught:

- 2018 PHRE5445: Leadership, Engagement, and Development – 2 credits (Winter term)
 Will be teaching 1 lecture (Guest Professor), Class size ~30 students
- 2017 PHRC 6540: Pharmacy Practice Seminar – 1 credit (Winter term)
 Taught 1 lecture (Guest Panel), Class size: ~230 students
- 2008 PHA5300: Social and Behavioral Pharmacy - 2 credits (Fall term)
 Taught 1 lecture (Guest Panel), Class size: 236 students

Courses Taught at **Master Level:**

- 2017-present PHRM 5204: Research Techniques and Instrumentation - 3 credits
 Taught 2 lectures, Class size: ~2 students (Fall term)
- 2018-present PHRM 5229 Product Development and Industrial Pharmacy – 4 credits

Course Coordinator

Will be teaching 60% of the course, Class size: ~2 students (Winter term)

Courses taught at Ph.D. level:

- 2016-present PHRP 7229 Product Development and Industrial Pharmacy – 4 credits
Course Coordinator
Taught 30% of the course, Class size: ~1 student (Fall term)
- 2016-present PHRP7250 Advanced Topics in Pharmaceutical Sciences – 1 credit
Course Coordinator
Taught 100% of the course, Class size: ~1 student (Winter term)
- 2016-present PHRP7250 Advanced Topics in Pharmaceutical Sciences – 2 credit
Taught 3 lectures, Class size: ~1 student (Fall term)
- 2014-present PHRP 8100 Dissertation Research – 8 credits (per student)
Course Coordinator
Taught and mentored students for their dissertation research, No. of students: 3
(Fall, Summer, and Winter terms)
- 2013-present PHRP 7002: Graduate Seminar – 1 credit
Taught and mentored students for their seminars: 3 students
- 2011-present PHRP 7204: Research Techniques and Instrumentation - 3 credits
Taught 2 lectures, Class size: ~9 students (Fall term)
- 2010-present PHRP 7000: Graduate Research – 2 credits, **Course Coordinator**
Taught and mentored graduate students conducting their research and performing Lab rotations for incoming students ~4-6 students (Fall, Winter, and Summer terms)
- 2012-2015 PHRP 7212: Advances in Drug Delivery - 3 credits, **Course Coordinator**
Taught 100% of the course, Class size: ~6 students (Winter term)
- 2011-2015 PHRP 7005: Pharmaceutical Formulations and Product Development - 3 credits
Taught 2 lectures, Class size: ~6 students (Fall term)
- 2010-2011 PHRP 7004: Advanced Physical Pharmacy - 3 credits
Taught 1 lecture, Class size: ~5 students (Fall term)

Instructor

- **Faculty of Pharmacy**, University of Manitoba, Winnipeg, Manitoba, CA

Courses Taught:

- 2005-2006 46.452: Pharmaceutical Sciences Laboratory - 2 credits
Taught and trained 100% of the course, ~2 students (Winter term)
- 2005 PHRM3550: Clinical Pharmacokinetics - 3 credits
Taught 1 lecture, Class size: 50 students (Fall term)

- **Faculty of Science**, University of Manitoba, Winnipeg, Manitoba, CA

Courses Taught:

- 2004-2006 BIOL2410: Human Physiology I (2nd year) - 3 credits, **Course Coordinator**
Taught 100% of the course, Class size: ~85 students (Summer term)

2004-2006	BIOL2420: Human Physiology II (2 nd year) - 3 credits, Course Coordinator Taught 100% of the course, Class size: ~65 students (Summer term)
2006	BIOL3462: Environmental Physiology of Animals II - 3 credits, Lab Coordinator Taught 100% of the course, Class size: ~28 students (Winter term)
2005	BIOL2420: Human Physiology II (2 nd year) - 3 credits Taught 30% of the course, Class size: 150 students (Winter term)
2005	BIOL3460: Environmental Physiology of Animals I - 3 credits, Lab Coordinator Taught 100% of the course, Class size: 26 students (Fall term)
2004	BIOL1412: Physiology of the Human Body (1 st year) - 3 credits Taught 100% of the course, Class size: 98 students (Fall term)

Teaching Assistant

- *Faculty of Pharmacy*, University of Manitoba, Winnipeg, Manitoba, CA.

Courses Taught:

2002-2006	46.130: Fundamentals of Pharmaceutics (compounding lab), 1st year
2002-2006	46.239: Dispensing Laboratory 1 (compounding lab), 2 nd year
2003-2006	46.239: Dispensing Laboratory 1 (skills lab), 2 nd year
2003-2006	46.349: Contemporary Pharmacy Skills (skills lab), 3 rd year
2003-2006	46.349: Contemporary Pharmacy Skills (dispensing Rx medications), 3 rd year

- *Faculty of Science*, University of Manitoba, Winnipeg, Manitoba, CA

Courses Taught:

2001-2005	BIOL1410: Anatomy of the Human Body, 1st year
2001-2005	BIOL1412: Physiology of The Human Body, including the tutorials, 1st year

FDA, GRANTS AND CONTRACTS

FDA

2015 **Pre-IND Filling** – Phase I waived and Phase II initiation was approved
Role: Inventor

Contracts

2017 **Alan Lab, Inc, (\$20,000.00) – (funded)**
Title: Formulation and *in vitro* assessment of various sublingual formulations
Role: PI and Project Manager

2017 **Licensing Agreement for Atropine Sublingual Tablet** – (Declined by TTO, NSU)
Title: License Contract for US Patent Applications related to Atropine Sublingual Tablet.
Role: Inventor

2016 **Licensing Agreement for Epinephrine Microcrystals Tablet** – Licensed
Title: License Contract for US Patent Applications related to epinephrine microcrystals and nanocrystals tablet.
Role: Inventor

2015 **Option Agreement Contract for Epinephrine Microcrystals Tablet** – (Funded)
Title: US Patent Applications related to epinephrine microcrystals and nanocrystals.
Role: Inventor

2014 **Gensco Laboratories (\$41,490.00) – (Declined by NSU administration)**
Title: In Vivo Testing and Analysis of Two Proprietary Transdermal Formulations
Role: PI and Project Leader

2013 **Biologix Hair, Inc, (\$27,340.00) – (funded)**
Title: Assessment of Hair Product Formulation
Role: PI and Project Manager

2006 **Licensing Agreement with Verus Pharm - Licensed**
Title: License Contract for US Patent Applications # 20070059361 and 20070202163, and International Patent Applications “PCT” # PCT/CA2006/001472 and PCT/CA2008/000197.
Role: Inventor

Grants

2017 **President’s Faculty Research and Development Grant (\$15,000) - Funded**
Title: Optimization of Epinephrine Sublingual Tablet for Pediatric Administration
Role: PI

2016 **Community Pharmacy Foundation (\$30,000) – not funded**
Title: Evaluation of Quality of Care Provided by Community Pharmacists for the Administration and Storage of an Epinephrine Autoinjector for the Treatment of Anaphylaxis
Role: PI

- 2015 State Pilot Grants-Miami Center for AIDS Research (\$80,000) – not funded**
 Title: Development of Nanomedicine Based Targeted Anti-HIV Therapy to Eliminate HIV Reservoirs in the Brain
 Role: Co-PI
 PI: Roy Upal (Florida International University)
- 2014-2015 Health Professions Division's Grant, NSU (\$5,000) - funded**
 Title: Sublingual Absorption of Atropine as an Antidote for Organophosphates
 Toxicity: Prof-of-Concept Animal Study
 Role: PI
- 2014 Canadian Institutes of Health Research (CIHR) Grant (\$70,000/year, for 2 years) – not funded**
 Banting Postdoctoral Fellow Training Program, Canada
 Title: Nanocrystals of Epinephrine in Sublingual Tablets: A Potential Non-Invasive, First-Aid, Life-Saving Treatment of Anaphylaxis.
 Role: Supervisor (PI),
 Postdoctoral Trainee: Dr. Ousama Rachid
- 2013-2014 President's Faculty Research and Development Grant (\$10,000) - funded**
 Title: Formulation and diffusion of epinephrine's prodrug for anaphylaxis treatment
 Role: PI
- 2013 (R15) NIGMS-NIH Grant (\$300,000) – not funded**
 Title: Reverse Micelles as Metallo drug Stabilizing Delivery Platforms
 Role: Collaborator
 PI: Michael Johnson (University of New Mexico)
- 2012 (R25) NIMH-NIH Grant – not funded**
 Title: Summer Research Experience
 Role: Preceptor
 PI: Dr. Silvia Rabionet (NSU)
- 2012 President's Faculty Research and Development Grant (\$10,000) – not funded**
(not approved by the Dean due to limited use of animal facility space)
 Title: Feasibility of Epinephrine's Prodrug for Anaphylaxis Treatment: Proof of Concept
 Role: PI
- 2011-2012 Health Professions Division's Grant, NSU (\$5,000) - funded**
 Title: *In vitro* quantification of Xylitol release from tooth wipes
 Role: PI
- 2010 AACP - New Pharmacy Faculty Research Award (\$10,000) – not funded**
 Title: Sublingual Epinephrine Tablets for the Non-Invasive Emergency Treatment of Anaphylaxis
 Role: PI
- 2009 AACP - New Pharmacy Faculty Research Award (\$10,000) – Award put on hold due to bad economy**
 Title: Sublingual Epinephrine Tablets for the Non-Invasive Emergency Treatment of Anaphylaxis
 Role: PI

- 2009-2011 President's Faculty Research and Development Grant (\$10,000) - funded**
Title: Novel approach for the drug delivery of epinephrine for anaphylaxis
Role: PI
- 2008-2009 Health Professions Division's Grant, NSU (\$5,000) - funded**
Title: Sublingual epinephrine tablets for the non-invasive emergency treatment of anaphylaxis
Role: PI
- 2007-2008 Natural Sciences and Engineering Research Council (NSERC) Industrial Grant (\$40,000/year for 2 years) - funded**
Title: Ophthalmic drug formulation and delivery
Role: PI

RECOGNITIONS, SCHOLARSHIPS AND AWARDS

Research Recognitions (NSU)

- 1) Recognized as **Outstanding Faculty** by Provost Ralph V. Rogers at the **NSU Board of Trustees Meeting** (April 17, 2017).
- 2) Featured on various **national news channels** including Local10 TV (FL), ABC TV (Fresno, CA), WaayTV (AL), WKBT TV (WI), WNDU TV (IN), KSAT TV (TX), NBC-DFW (NB), and Ivanhoe Broadcast News.
- 3) Featured in CNBC, Life Sciences South Florida, Popular Sciences, Digital Trends, Snack Safely, Innovation Essence, ZME Science, and NSU Realizing Potential Newsletter
- 4) Selected as a **Faculty Speaker and recognized** during the **Celebration of Excellence**, Nova Southeastern University (Jan 28, 2017).
- 5) Invited as a speaker during the **NSU Ambassadors Board**, Nova Southeastern University (Feb 9, 2017)
- 6) Recognized for entering into **License Agreement** for Epinephrine Tablet by various NSU administrators (2016).
- 7) Poster was **selected for the best poster award (3rd place)** during the 126th Florida Pharmacy Association Annual Meeting and Convention, Fort Lauderdale, FL (June 30-July 3, 2016)
- 8) Recognized as **Outstanding Faculty** by Provost Ralph V. Rogers at the **NSU Board of Trustees Meeting** (Nov 16, 2015).
- 9) **Pre-IND filling and meeting with FDA** was recognized during the Department Meeting by College of Pharmacy Dean, Associate Dean for Research, and Department Chair (Oct 14, 2015).
- 10) **External funding was recognized by President George Hanbury** during the 2014 External Funding Recognition Reception, Nova Southeastern University (Oct 21, 2014)
- 11) Poster was **selected for the best poster award (1st place)** during the Manitoba Society of Pharmacists Annual Conference, Winnipeg, Manitoba, Canada (April 25-27, 2014)
- 12) Abstract was **selected for a featured poster presentation** as the “**Best of Food Allergy, Anaphylaxis, Dermatology and Drug Allergy (FADDA)**” by the Review Committee of the American Academy of Allergy, Asthma & Immunology (AAAAI) Annual Meeting Program, San Diego, CA (Feb 28- Mar 4, 2014)
- 13) **Recognized by President George Hanbury**, President of Nova Southeastern University, during the **Annual Faculty Reception** (October 2013).
- 14) Epinephrine **research project and patents were discussed** in 4 pages in Acton, Q. A. **Allergies: New Insights for the Healthcare Professional**. Atlanta, GA: ScholarlyEditions; 2013. P. 7-10.
- 15) Research project and inventions were **featured in Research and Technology Transfer Office Annual Report**, Nova Southeastern University (**2011 – present**)
- 16) Research and mentorship activities were **featured in Florida Pharmacy Today, 2013**, 76 May (5): 17. Official publication of the Florida Pharmacy Association
- 17) **Selected for Grant Writing Workshop** sponsored by National Institute of General Medical Sciences (NIMGS) at **National Institutes of Health (NIH)**, University of Kentucky (2012).

- 18) Selected for the **front page of the Research and Technology Transfer Office Annual Report**, Nova Southeastern University (2011)
- 19) **Featured in *Florida Trend magazine's* research issue (2011).**

Teaching Awards (NSU)

- 20) **Nominated for Student Life Achievement Award** at the university level by the College of Pharmacy Awards Committee, Nova Southeastern University (2014).
- 21) Selected the **Professor of the Year**, College of Pharmacy Awards Committee, Nova Southeastern University (2014).
- 22) **Nominated for the Golden Apple Award**, College of Pharmacy, Nova Southeastern University to be recognized at the American Association of Colleges of Pharmacy (2010).
- 23) The **Best Teacher Award** for the first year pharmacy students, College of Pharmacy, Nova Southeastern University (2010).

Postdoctoral Fellowship Award

- 24) Natural Sciences and Engineering Research Council (**NSERC**) **Industrial Postdoctoral Fellowship** (2007) (\$40,000/year for 2 years).

Ph.D. Graduate Awards

2006

- 25) Manitoba Health Research Council (**MHRC**) Award (**\$16,000.00 CAD**).
- 26) The Canadian Foundation for Pharmacy (**CFP**) **National Best Poster Award**.
- 27) **Strategic Training in Allergy Research (ST*AR) Award** - American Academy of Allergy, Asthma & Immunology's (**AAAAI**) ST*AR Program – March 3-7, 2006, Miami Beach, FL.
- 28) AAPS-UManitoba Pharmacy Student Chapter Research Abstract Competition Award (\$100.00 CAD).
- 29) Manitoba Institute of Child Health (MICH) Travel Award (\$1,400.00 CAD)
- 30) University of Manitoba Graduate Students Association (UMGSA) Conference Travel Grant (\$200.00 CAD).
- 31) University of Manitoba Student Union (UMSU) Travel Award (\$200.00 CAD).
- 32) The Alumni Association Inc. of The University of Manitoba Conference Travel Grant (\$140.00 CAD).

2005

- 33) Manitoba Health Research Council (**MHRC**) Studentship Award (**\$16,000.00 CAD**).
- 34) Manitoba Institute of Child Health (MICH) Travel Award (\$1,400.00 CAD).
- 35) University of Manitoba Graduate Student Conference Travel Award (\$500.00 CAD).
- 36) University of Manitoba Student Union (UMSU) Travel Award (\$200.00 CAD).
- 37) University of Manitoba Graduate Students Association (UMGSA) Conference Travel Grant (\$200.00 CAD).
- 38) The Alumni Association Inc. of The University of Manitoba Conference Travel Grant (\$140.00 CAD).

2004

- 39) **Honourable Mention**-The Manitoba Health Research Council (**MHRC**) Poster Competition, Faculty of Medicine, University of Manitoba.

- 40) University of Manitoba Graduate Fellowship (**UMGF**) Award (**\$14,000.00 CAD**).
- 41) Manitoba Pharmaceutical Association (**MPhA**) Graduate Scholarship (**\$2,000.00 CAD**).
- 42) University of Manitoba Student Union (UMSU) Scholarship Award (\$200.00 CAD).
- 43) Manitoba Institute of Child Health (MICH) Travel Award (\$1,400.00 CAD).
- 44) University of Manitoba Graduate Student Conference Travel Award (\$200.00 CAD).
- 45) University of Manitoba Student Union (UMSU) Travel Award (\$200.00 CAD).
- 46) University of Manitoba Bursary (\$2000.00 CAD).

2003

- 47) Manitoba Institute of Child Health (**MICH**) Graduate Award (**\$16,000.00 CAD**).
- 48) University of Manitoba Bursary (\$2000.00 CAD).

2002

- 49) University of Manitoba Graduate Fellowship (**UMGF**) Award (**\$14,000.00 CAD**).
- 50) University of Manitoba Bursary (\$2000.00 CAD).

2001

- 51) Manitoba Institute of Child Health (**MICH**) Graduate Award (**\$16,000.00 CAD**).

F. Hoffmann La-Roche Awards (1996-2000)

- 52) The Pharma International Award of Excellence, Basel, Switzerland (1997).
- 53) Winner - Territory Management Simulation, Riyadh, Saudi Arabia (1997).
- 54) Product Champion in marketing Glucagon® (2000), Rocephin® (2000), Tilcotil® (1999), Coreg® (1999), and Bactrim® (1996), Riyadh, Saudi Arabia.
- 55) Product Runner-Up in marketing Rocephin® (1999), Manerix® (1996), and Dormicum® (1996), Riyadh, Saudi Arabia.

Pharmacy Graduate Awards (1994-1995)

- 56) **Academic Excellence Award**, King Saud University, Riyadh, Saudi Arabia (1994-1995).
- 57) **Student Fund Award**, King Saud University, Riyadh, Saudi Arabia (1995) (**\$1000.00 SAR**).
- 58) Pharmaceutical Industries & Medical Appliances Corporation (**SPIMACO**) Training Award, Saudi Arabia (1995) (**\$2000.00 SAR**).

PATENTS

Group 11: Formulation Optimization and Diffusion Evaluation of Rapidly Disintegrating Sublingual Atropine Sulfate Tablets (2nd Generation)

1. **Rawas-Qalaji MM**, Bafail R. Atropine Sulfate Rapidly-Disintegrating Sublingual Tablets, Methods for Manufacture Thereof, and Methods for Use Thereof for Treatment of Acute Organophosphate Toxicity. US Provisional Patent Application # 62/383,115, Filled September 2, 2016. Assignee: Nova Southeastern University.
2. **Rawas-Qalaji MM**, Bafail R. Atropine Sulfate Rapidly-Disintegrating Sublingual Tablets, Methods for Manufacture Thereof, and Methods for Use Thereof for Treatment of Acute Organophosphate Toxicity. **International Patent Application (WIPO) # PCT/US17/50030**, Filled September 5, 2017. Assignee: Nova Southeastern University.

Group 10: Formulation and Evaluation of Cobalamin Composition for Improving Cognitive Function in Humans

3. **Rawas-Qalaji MM**, Deth R. Cobalamin Composition and Use Thereof for Improving Cognitive Function in Humans. US Provisional Patent Application # 62/301,876, Filled March 1, 2016. Assignee: Nova Southeastern University.
4. **Rawas-Qalaji MM**, Deth R. Cobalamin Composition and Use Thereof for Improving Cognitive Function in Humans. [International Patent Application \(WIPO\) # PCT/US17/20125](#), Filled March 1, 2017 and **published September 8, 2017**. Assignee: Nova Southeastern University.

Group 9: (a) Formulation and Characterization of 1st Generation Rapidly Disintegrating Sublingual Atropine Sulfate Tablets (b) Diffusion Studies of Rapidly Disintegrating Sublingual Atropine Sulfate Tablets (1st Generation)

5. **Rawas-Qalaji MM**, Aodah AH. Atropine Sulfate Rapidly-Disintegrating Sublingual Tablets, Methods for Manufacture Thereof, and Methods for Use Thereof for Treatment of Acute Organophosphate Toxicity. **US Provisional Patent Application # 62/058722, Filled October 2, 2014**. Assignee: Nova Southeastern University.
6. **Rawas-Qalaji MM**, Aodah AH. Atropine Sulfate Rapidly-Disintegrating Sublingual Tablets, Methods for Manufacture Thereof, and Methods for Use Thereof for Treatment of Acute Organophosphate Toxicity. [International Patent Application \(WIPO\) # PCT/US2015/053713](#). Filled October 2, 2015 and **published July 4, 2016**. Assignee: Nova Southeastern University
7. **Rawas-Qalaji MM**, Aodah AH. Atropine Sulfate Rapidly-Disintegrating Sublingual Tablets, Methods for Manufacture Thereof, and Methods for Use Thereof for Treatment of Acute Organophosphate Toxicity. [US Patent Application \(USPTO\)# US2017/0246158](#). Filed April 3, 2017 **published Aug 31, 2017**. Assignee: Nova Southeastern University
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9. **Rawas-Qalaji MM**, Aodah AH. Atropine Sulfate Rapidly-Disintegrating Sublingual Tablets, Methods for Manufacture Thereof, and Methods for Use Thereof for Treatment

of Acute Organophosphate Toxicity. [Canadian International Property Office \(CIPO\) # CA2963525](#). Filed April 12, 2017 and **published August 9, 2017**. Assignee: Nova Southeastern University

Group 8: (a) Optimization of Epinephrine Nanocrystals Fabrication and (b) In vitro/Ex vivo Diffusion Studies of Rapidly Disintegrating Sublingual Epinephrine Nanocrystals Tablets (3rd Generation) (c) Bioavailability and Absorption Studies of Rapidly Disintegrating Sublingual Epinephrine Nanocrystals Tablets (3rd Generation) (licensed to Alan Lab Pharma)

10. **Rawas-Qalaji, MM**, Rachid, OM, Simons, KJ, Simons, ER. Epinephrine Nanoparticles Methods of Fabrication Thereof, and Methods for use Thereof for Treatment of Conditions Responsive to Epinephrine. **US Provisional Patent Application # 61/804,892**. Filed March 25, 2013. **Assignee: Nova Southeastern University**.
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Group 7: Bioavailability and Absorption Studies of Rapidly Disintegrating Sublingual Epinephrine Nanocrystals Tablets (3rd Generation)*

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Group 6: (a) Bioavailability and Absorption Studies for 2nd Generation Taste-Masked Rapidly Disintegrating Sublingual Epinephrine Tablets and (b) Sublingual Epinephrine Tablets long-Term Stability Studies (licensed to Alan Lab Pharma)

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Group 5: (a) Formulation and Characterization of 2nd Generation Taste-Masked Rapidly Disintegrating Sublingual Epinephrine Tablets* and (b) Fabrication of Chitosan Nanoparticles Loaded with Epinephrine (licensed to Alan Lab Pharma)

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Group 4: Preliminary Epinephrine Nanocrystals Fabrication and Diffusion Studies (licensed to Alan Lab Pharma)

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Group 3: Novel Dissolution Apparatus for Sublingual Tablets

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Group 2: Bioavailability and Absorption Studies for 1st Generation Rapidly Disintegrating Sublingual Epinephrine Tablets (licensed to Verus Pharma)

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Group 1: Formulation and Characterization of 1st Generation Rapidly Disintegrating Sublingual Epinephrine Tablets (licensed to Verus Pharma)

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PUBLICATIONS

A. Published Peer-Reviewed Articles:

1. Rachid OM, Simons KJ, **Rawas-Qalaji MM**[&]. In Vivo Evaluation of Taste-Masked Fast-Disintegrating Sublingual Tablets of Epinephrine Microcrystals. **Submitted** to *AAPS PharmSciTech*, Dec 5, 2017.
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3. Aodah AH[§], Bafail R[§], **Rawas-Qalaji MM**[&]. Formulation and Evaluation of Fast-Disintegrating Sublingual Tablets of Atropine Sulfate: the Effect of Tablet Dimensions and Drug Load on Tablet Characteristics. [AAPS PharmSciTech 2017;18\(5\):1624-1633](#) (Times Cited: 1, Impact factor: 2.5) PMID: 27650282. DOI: 10.1208/s12249-016-0631-y
4. Rachid OM, Simons ER, **Rawas-Qalaji MM**, Lewis S*, Simons KJ. Epinephrine doses delivered from auto-injectors stored at excessively high temperatures. [Drug Dev Ind Pharm 2016;42\(1\):131-5](#). (Times Cited: 3(Journal); 5(Google), Impact factor: 2.3) PMID: 25997362. DOI: 10.3109/03639045.2015.1035283
5. **Rawas-Qalaji MM**[&], Werdy SH*, Rachid OM, Simons KJ, Simons ER. Sublingual Diffusion of Epinephrine Microparticles from Rapidly Disintegrating Tablets for the Potential First-Aid Treatment of Anaphylaxis: *In Vitro* and *Ex Vivo* Study. [AAPS PharmSciTech 2015; 16\(5\): 1203-12](#) (Times Cited: 2(Journal); 3(Google), Impact factor: 2.5) PMID: 25732373. DOI: 10.1208/s12249-015-0306-0.
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8. **Rawas-Qalaji MM**[&], Rachid OM, Mendez BA*, Losada A*, Simons ER, Simons KJ. Adrenaline (Epinephrine) Microcrystal Sublingual Tablet Formulation: Enhanced Absorption in a Preclinical Model. [J Pharm Pharmacol 2015; 67\(1\):20-5](#) (Times Cited: 5(Journal); 4(Google), Impact factor: 2.4) PMID: 25256073. DOI: 10.1111/jphp.12312.
9. Alayoubi A[§], Abu-Fayyad A[§], **Rawas-Qalaji MM**, Sylvester P, Nazzal S. Effect of Lipid Viscosity and High-Pressure Homogenization on The Physical Stability of "Vitamin E" Enriched Emulsion. [Pharm. Dev. Technol. 2015; 20\(5\):555-61](#). (Times Cited: 2(Journal); 4(Google), Impact factor: 1.9) PMID:24621375. DOI: 10.3109/10837450.2014.898655.
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B. Published Peer-Reviewed Abstracts and Poster Presentations:

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2. Bafail R[§], Aodah AH[§], **Rawas-Qalaji MM[&]**. Microenvironment's pH Modification and Its Effect on Enhancing the Sublingual Permeability of Atropine from Fast Disintegrating Sublingual Tablets (FDSTs). Accepted Presentation and Publication during AAPS 2017 - San Diego, CA (Nov. 11-15)
3. Zahrah F, Shosha'a S, Alzahabi K, Khalil A, **Rawas-Qalaji MM**, Rachid O. A novel, simple semi-automated solid phase extraction method of epinephrine: A potential approach for optimizing the recovery of catecholamines and their metabolites from biological samples. Accepted Presentation and Publication during AAPS 2017 - San Diego, CA (Nov. 11-15)
4. **Rawas-Qalaji MM[&]**, Rachid OM, Simons KJ..Preclinical Study of Taste-Masked Epinephrine Microcrystals formulated as Fast-Disintegrating Sublingual Tablets. Accepted Presentation and Publication during AAPS 2017 - San Diego, CA (Nov. 11-15)
5. Aodah AH[§], Bafail R[§], **Rawas-Qalaji MM[&]**. Effect of Changing Tablet Dimensions on the Characteristics of Fast Disintegrating Sublingual Tablets of Atropine Sulfate. [AAPS 2016:27T0100](#) - Denver, CO (Nov. 13-17)
6. Aodah AH[§], Bafail R[§], **Rawas-Qalaji MM[&]**. Effect of Atropine Sulfate Load on the Physical Properties of Fast Disintegrating Sublingual Tablets. [AAPS 2016:30M0100](#) - Denver, CO (Nov. 13-17)
7. Bafail R[§], Aodah AH[§], **Rawas-Qalaji MM[&]**. The Effect of pH on the Sublingual Permeability of Atropine Sulfate Tablets. Presented during [AAPS 2016:06M0330](#) - Denver, CO (Nov. 13-17)
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12. Aodah AH[§], Bafail R[§], **Rawas-Qalaji MM[&]**. Development and Validation of a Simple Disintegration Test for Rapidly Disintegrating Tablets. [AAPS 2015:R6138](#) - Orlando, FL (Oct. 25-29)
13. Alaydi L[§], **Rawas-Qalaji MM[&]**. Development and Validation of RP-HPLC Method Using Photo Diode Array Detection for Simultaneous Quantification of Dipivefrine and its Active Metabolites Co-eluting in Pharmaceutical Samples. *SIGMA XI Annual*

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21. Aodah AH[§], Mendez AB*, Losada A*, **Rawas-Qalaji MM[&]**. Fabrication of Epinephrine Nanocrystals Using High Sheer Fluid Processor (Microfluidizer). [AAPS 2013: W5090](#) - San Antonio, TX (Nov. 10-14)
22. **Rawas-Qalaji MM[&]**, Losada A*, Mendez B*, Rachid OM[§], Simons ER, Simons KJ. *In Vitro* and *Ex Vivo* Diffusion of Epinephrine Nanocrystals Using Novel Rapidly Disintegrating Sublingual Tablets for the Potential First-Aid Treatment of Anaphylaxis. [AAPS 2013: M1100](#) - San Antonio, TX (Nov. 10-14)
23. **Rawas-Qalaji MM[&]**, Rachid OM[§], Mendez AB*, Losada A*, Simons ER, Simons KJ. Absorption of Epinephrine Nanocrystals from Novel Rapidly Disintegrating Sublingual Tablets for the Potential First-Aid Treatment of Anaphylaxis. [AAPS 2013: R6312](#) - San Antonio, TX (Nov. 10-14)
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25. Simons KJ, Rachid O[§], **Rawas-Qalaji MM**, Simons FER. Preclinical Study: Dose Comparison of New-Generation Taste-Masked Epinephrine (E) Sublingual Tablets. [J Allergy Clin Immunol 2013; 131\(2\) SUPPL. 1: AB190](#) - San Antonio, TX (Feb. 22-26)

26. Rachid O[§], **Rawas-Qalaji MM**, Simons FER, Simons KJ. Epinephrine for the First-aid Treatment of Anaphylaxis: A Preclinical Study of New-generation, Fast-disintegrating Taste-masked Sublingual Tablets. [AAPS 2012: M1291](#) - Chicago, IL (Oct. 14-18)
27. **Rawas-Qalaji MM**[&], Mendez B*, Daghistani N*, Rachid OM[§], Simons ER, Simons KJ. Evaluation of the Development of Epinephrine Nanoparticles using Ionic Gelation Technique. [AAPS 2012: T3243](#) - Chicago, IL (Oct. 14-18)
28. **Rawas-Qalaji MM**[&], Rachid OM[§], Simons ER, Simons KJ. Fast-disintegrating Sublingual Epinephrine Tablets: Long Term Stability Study. [AAPS 2012: M1381](#) - Chicago, IL (Oct. 14-18)
29. Simons KJ, Rachid O[§], **Rawas-Qalaji MM**, Wein M, Simons FER. Outdated Epinephrine Autoinjectors: Ejection Volume Integrity and Epinephrine Content and Dose. [J Allergy Clin Immunol 2012; 129\(1\) SUPPL. 1: AB180](#) - Orlando, FL (Mar. 2-6)
30. Rachid O[§], **Rawas-Qalaji MM**, Simons FER, Simons KJ. Outdated Epinephrine Autoinjectors: Integrity of the Delivery Systems/ Stability of the Contents. [AAPS 2011: M1026](#) - Washington, D.C. (Oct. 23-27)
31. Rachid O[§], **Rawas-Qalaji MM**, Simons FER, Simons KJ. Rapidly-Disintegrating Sublingual Tablets of Epinephrine: Effect of Various Excipients on Disintegration and Dissolution. [AAPS 2011: T3074](#) - Washington, D.C. (Oct. 23-27)
32. **Rawas-Qalaji MM**[&], Desai K*, Rachid O[§], Simons FER, Simons KJ. Development of Epinephrine Nanoparticles Using Chitosan for the Treatment of Anaphylaxis. [AAPS 2011: W4174](#) - Washington, D.C. (Oct. 23-27)
33. **Rawas-Qalaji MM**[&], Nieves E. Fabrication of Epinephrine Nanoparticles Using Microfluidizer Processor for the Treatment of Anaphylaxis. [NanoFlorida 2011: The 4th Annual NanoScience Technology Symposium, 2011, P18: P49](#) - Florida International University, Miami, FL, (Sep. 30-Oct 1)
34. Simons KJ, Rachid OM[§], **Rawas-Qalaji MM**, Simons FER. Epinephrine autoinjectors for the first-aid treatment of anaphylaxis: Epinephrine dose ejected after 11-13 years in controlled storage conditions. [J Allergy Clin Immunol 2011; 127\(2\) SUPPL. 1: AB244](#) - San Francisco, CA (Mar. 18-22)
35. Rachid OM[§], **Rawas-Qalaji MM**, Simons FER, Simons KJ. Epinephrine Autoinjectors for the First-Aid Treatment of Anaphylaxis: Epinephrine Contents Post-Expiry Date. [AAPS 2010: T3045](#) - New Orleans, LA (Nov. 14-18)
36. **Rawas-Qalaji MM**[&], Nieves E, Desai K*, Stubblefield J*, Rachid O, Simons KJ. In vitro Diffusion of Epinephrine Nanoparticles Using a Flow-Through Diffusion System. [JPPS 2010; 13\(3\): 81-82s](#) - Vancouver, Ca (Jun. 2-5)
37. Rachid OM[§], **Rawas-Qalaji MM**, Simons FER, Simons KJ. Novel Dissolution Apparatus Designed to Evaluate Sublingual Tablets. [AAPS 2008: R6311](#) - Atlanta, GA (Nov. 16-20)
38. Rachid OM[§], **Rawas-Qalaji MM**, Simons FER, Simons KJ. The Effect of Non-Medicinal Ingredients on the Dissolution of Epinephrine from Novel Sublingual Tablets. [AAPS 2007: T3367](#) - San Diego, CA (Nov. 10-15)
39. Rachid OM[§], **Rawas-Qalaji MM**, Simons FER, Simons KJ. Novel Epinephrine Sublingual Tablets: Does the Grade of the Microcrystalline Cellulose Diluent Affect the Dissolution Rate? [AAPS 2007: T3373](#) - San Diego, CA (Nov. 10-15)

40. **Rawas-Qalaji MM**, Simons ER, Simons KJ. Fast-Disintegrating Sublingual Epinephrine Tablets: High Temperature Stability Study. [J Allergy Clin Immunol 2007; 119\(1\):S32-33](#) - San Diego, CA (Feb. 23-27)
41. **Rawas-Qalaji MM**, Simons ER, Simons KJ. Epinephrine for the Treatment of Anaphylaxis: Do all Sublingual Epinephrine Tablet Formulations with Similar In Vitro Characteristics have the Same Bioavailability? [AAPS 2006: 001280](#) - San Antonio, TX (Oct. 29-Nov 2)
42. **Rawas-Qalaji MM**, Simons ER, Simons KJ. Epinephrine for the Treatment of Anaphylaxis: Sublingual Epinephrine Tablet Versus EpiPen®. [J Allergy Clin Immunol 2006; 117\(2\): S85](#) - **Selected for featured presentation** at AAAAI Annual Conference in Miami Beach, FL (Mar 3-7)
43. **Rawas-Qalaji MM**, Simons ER, Simons KJ. Stability of Epinephrine Over Five Months at Four Different Non-Optimal Storage Conditions. [J Allergy Clin Immunol 2005; 115\(2\): S136-137](#) - San Antonio, TX (Mar. 18-22)
44. **Rawas-Qalaji MM**, Simons ER, Simons KJ. Fast-Disintegrating Sublingual Epinephrine Tablets: Long Term Stability Study. [AAPS 2005: 001051](#) - Nashville, TN (Nov. 6-10)
45. **Rawas-Qalaji MM**, Simons ER, Simons KJ. Fast-Disintegrating Sublingual Epinephrine Tablets: Effect of Drug and Tablet Dimensions on Tablet Characteristics. [AAPS 2005: 001041](#) - Nashville, TN (Nov. 6-10)
46. Alessi-Severini S, **Rawas-Qalaji MM**, Racher A, Collins D, Kozyrskyj A. Prescribing Trends for Celecoxib (Celebrex®) in the Province of Manitoba: Influence of Published Clinical Evidence and Provincial Reimbursement Status. [AAPS 2004: T2372](#) - Baltimore, MD (Nov. 7-10)
47. **Rawas-Qalaji MM**, Simons ER, Simons KJ. Pre-Loaded Epinephrine Syringes Stored Under Light in Dry or Humid Conditions at 38 °C for 5 Days are Stable for Emergency Treatment of Anaphylaxis. [AAPS 2004: T3115](#) - Baltimore, MD (Nov. 7-10)
48. **Rawas-Qalaji MM**, Simons ER, Simons KJ. Stability of Epinephrine in Buffers and Human Saliva at 37 °C. [AAPS 2004: W4180](#) - Baltimore, MD (Nov. 7-10)
49. **Rawas-Qalaji MM**, Simons ER, Simons KJ. Evaluation of the Effect of Changing Tablet Dimensions on the Characteristics of Fast-Disintegrating Sublingual Epinephrine Tablets for the First-Aid Treatment of Anaphylaxis Away from Health Care Facilities. [AAPS 2004: W4179](#) - Baltimore, MD (Nov. 7-10)
50. **Rawas-Qalaji MM**, Gu X, Simons ER, Simons KJ. Formulation of Fast-Disintegrating Sublingual Epinephrine Tablets for the First-Aid Treatment of Anaphylaxis Away from Health Care Facilities. [AAPS 2004: W4178](#) - Baltimore, MD (Nov. 7-10)
51. Simons KJ, **Rawas-Qalaji MM**, Chan ES, Simons ER. Stability of Epinephrine in Pre-Loaded Syringes Located in Pediatric Allergy Clinics for the Prompt Emergency Treatment of Anaphylaxis. [AAPS 2003: T3273](#) - Salt Lake City, UT (Oct. 26-30)

§ Ph.D. Student

* Pharm. D. Student

& Corresponding Author

PRESENTATIONS

1. 28th Annual Contemporary Pharmacy Issues Conference, Nova Southeastern University, May 6-7, 2017
Title: Value of Research and Commitment
2. Sharjah University, College of Pharmacy, Sharjah, United Arab Emirates, April 10, 2017
Title: Novel Approach for Enhancing Sublingual Absorption Using Nanotechnology: Sublingual Epinephrine for the Potential First-Aid Treatment of Anaphylaxis
3. The Institute for Neuro-Immune Medicine (INIM): Research Seminar, Center for Collaborative Research, Nova Southeastern University, Feb. 3, 2017
Title: Organophosphates Toxicities and Potential Alternative Route for Atropine Administration
4. Susie and Alan Levan Ambassadors Board, Executive Conference Center at the Sales Institute, Huizenga College of Business and Entrepreneurship, Nova Southeastern University, Feb. 9, 2017
Title: Epi-Pill, an Alternative to the EpiPen®
5. The 126th Florida Pharmacy Association Annual Meeting and Convention, Fort Lauderdale, FL, June 30-July 3, 2016
Title: Improving Adherence in Type I Diabetics Through Mobile Application (**won the 3rd Place Award**)
6. Dubai International Pharmaceuticals and Technologies (DUPHAT) Conference and Exhibition, Dubai, United Arab Emirates, March 15 – 17, 2016
Title: Novel Approach for Enhancing Sublingual Absorption Using Nanotechnology: Sublingual Epinephrine for the Potential First-Aid Treatment of Anaphylaxis
7. The 5th Annual Syrian American Medical Society (SAMS) National Conference, Orlando, Florida, Feb 12-14, 2016
Title: An Overview of Organophosphates Toxicities: Current Treatment and Potential Alternatives
8. Health Professions Divisions (HPD) Research Day, Nova Southeastern University, Feb. 12, 2016
Title: The Effect of MCC Grade on the Physical Properties of Atropine Sulfate Rapidly Disintegrating Sublingual Tablets.
9. Health Professions Divisions (HPD) Research Day, Nova Southeastern University, Feb. 12, 2016
Title: Sublingual Permeability of Atropine Sulfate Using Novel Rapidly Disintegrating Tablets for The Potential Treatment of Acute Organophosphates.
10. Health Professions Divisions (HPD) Research Day, Nova Southeastern University, Feb. 12, 2016
Title: Validation of a Simple Disintegration Test for Rapidly Disintegrating Tablets.
11. Dean's Innovations in Teaching Award, Annual Faculty Development Program, College of Pharmacy, Nova Southeastern University, May 19-20, 2015
Title: Can Innovative Teaching Tools Reduce the Difference between Distant Teaching Sites or Improve Student's Grades?
12. New Faculty Orientation Program, Department of Pharmacy Practice, Nova Southeastern University, Aug 4-8, 2014
Title: Constructing and Cultivating a Pharmacy Curriculum.

13. Manitoba Society of Pharmacists Conference, Winnipeg. Manitoba, Canada, Apr. 25-27, 2014
 Title: Preclinical Study of Rapidly-Disintegrating Sublingual Tablets (RDST) containing Epinephrine Nano-Crystals (E-NC) for Potential First-Aid Treatment of Anaphylaxis
(Selected for The Best Poster Award)
14. Health Professions Divisions (HPD) Research Day, Nova Southeastern University, Feb. 14, 2014
 Title: A Novel Approach for Enhancing the Sublingual Absorption of Epinephrine from Rapidly Disintegrating Tablets for the Potential First-Aid Treatment of Anaphylaxis.
15. Health Professions Divisions (HPD) Research Day, Nova Southeastern University, Feb. 14, 2014
 Title: Effect of Particles Size on Epinephrine Sublingual Diffusion for the Potential First-Aid Treatment of Anaphylaxis: In Vitro and Ex Vivo Study.
16. Health Professions Divisions (HPD) Research Day, Nova Southeastern University, Feb. 14, 2014
 Title: Absorption of Taste-Masked Rapidly-Disintegrating Sublingual Epinephrine Tablets for Pediatric Use for the Treatment of Anaphylaxis.
17. Health Professions Divisions (HPD) Research Day, Nova Southeastern University, Feb. 14, 2014
 Title: Fabrication and Characterization of Epinephrine Nanocrystals Using Top-Down Technique.
18. Health Professions Divisions (HPD) Research Day, Nova Southeastern University, Feb. 14, 2014
 Title: Development and Validation of HPLC Method with PDA Detector for Simultaneous Quantification of co-eluted compounds in Pharmaceutical Samples.
 Abstract submitted for poster presentation
19. Health Professions Divisions (HPD) Research Day, Nova Southeastern University, Feb. 14, 2014
 Title: Validation of HPLC Method and Ultra Violet Detection for the Quantification of Atropine Sulfate in Aqueous Samples.
20. Canadian Society for Pharmaceutical Sciences (CSPS) Annual Symposium, Vancouver, Canada, Jun. 11-14, 2013
 Title: Effect of Epinephrine Particles Size on Its *Ex Vivo* Sublingual Diffusion from Rapidly Disintegrating Epinephrine Tablets for the Potential First-Aid Treatment of Anaphylaxis.
21. Globalization of Pharmaceuticals Education Network Meeting, Monash University, Melbourne, Australia, Nov. 29, 2012
 Title: A Preclinical Study of New-Generation, Rapidly-Disintegrating Taste-Masked Epinephrine Sublingual Tablets for the Treatment of Anaphylaxis.
22. Collegium International Allergologicum (CIA), Jeju Island, South Korea, Oct. 16-19, 2012
 Title: New-Generation, Fast-Disintegrating Taste-Masked Epinephrine Sublingual Tablets: Preclinical Study.
23. Association of Pharmacists of PR Meeting, Fajardo, PR, Aug. 23 - 25, 2012
 Title: Fabrication of Epinephrine Nanoparticles Using Microfluidizer Processor for the Treatment of Anaphylaxis.
24. American Academy of Pediatric Dentistry (AAPD) Annual Session, San Diego, CA, May 24-27, 2012

- Title: In Vitro Evaluation of Xylitol Release from Baby Tooth Wipes.
25. Research Day, College of Dental Medicine- Nova Southeastern University, May. 14, 2012
Title: In Vitro Evaluation of Xylitol Release from Baby Tooth Wipes.
 26. Research Day, College of Pharmacy-Nova Southeastern University, Feb. 10, 2012
Title: Development of Epinephrine Nanoparticles Using Chitosan for the Treatment of Anaphylaxis.
 27. Graduate Seminar, College of Pharmacy-Nova Southeastern University, Nov. 2011
Title: Fabrication of Epinephrine Nanoparticles: Success and Failures.
 28. Scientific Series 2011: Bringing Pharmaceutical Research to Practice, Sheraton Hotel, Ponce, Puerto Rico, Apr. 17, 2011
Title: Oral Controlled Drug Delivery
 29. Asia Pharmaceutical Industries, Aleppo, Syria, Jul. 2010
Title: A Novel Approach for the treatment of Anaphylaxis
 30. Ebla Private University, Aleppo, Syria, Jun. 2010
Title: A Novel Approach for the treatment of Anaphylaxis
 31. School of Pharmacy-University of Waterloo, Ontario, Canada, Feb. 2008
Title: Fast-Disintegrating Sublingual Epinephrine Tablets: A Novel Approach for the Emergency Treatment of Anaphylaxis
 32. American Academy of Allergy Asthma and Immunology, Miami Beach, Florida. 2006
Title: Epinephrine for the Treatment of Anaphylaxis: Sublingual Epinephrine Tablet Versus EpiPen®
 33. Association of Faculties of Pharmacy of Canada (AFPC), Canada, Ottawa, Canada, 2006
Title: Sublingual Epinephrine Tablets Versus Intramuscular Injection of Epinephrine: Dose Equivalence for Potential Treatment of Anaphylaxis
 34. Roche Symposium on Advances in the Management of Cardiovascular Diseases, Singapore, 1999
Title: The Role of β -Blockers in Heart Failure

STUDENTS MENTORING AND ADVISING EXPERIENCES

Students Advising:

- Advising Ph.D. students: **3 Ph.D. students**.
- Advising **Pharm.D. students** as a faculty advisor, College of Pharmacy, Nova Southeastern University, 2009 - present

Laboratory Research Mentoring:

- Mentoring **9 Ph.D. students** during their laboratory research rotations. College of Pharmacy, Nova Southeastern University, 2010-present.
- Mentoring and training **16 Pharmacy, Dental, and Medical students**, College of Pharmacy, Nova Southeastern University, 2009-present
- Mentoring **8 research associates and co-op students** in industry, QLT Inc. and EnWave Corp., Vancouver, Canada, 2007-2008.
- Mentoring **2 summer research assistant students**, University of Manitoba, Canada, 2004-2006

Literature Research Mentoring:

- Mentoring students on literature searches, writing manuscripts, submitting manuscripts for publication, responding to reviewer's comments and questions, College of Pharmacy, NSU, 2009 – present (**we published one review article and 6 peer-reviewed abstracts**).

Poster Presentations Mentoring:

- Mentoring and judging for Students' Poster Session of Therapeutics and Pathophysiology III course (including report, poster, and presentation), College of Pharmacy, NSU, Winter 2016 (**my group won the Best Presentation Award and Third Place FPA Award**).
- Mentoring and judging for Students' Poster Session of Therapeutics and Pathophysiology III course (including report, poster, and presentation), College of Pharmacy, NSU, Winter 2009 and 2010 (**my group won the best poster content award**).
- Mentoring Pharmacy students to prepare posters and present at international conferences (**4 students have presented at international AAPS conferences**)
- Mentoring Ph.D. students to prepare posters and present at local and international conferences

ADMINISTRATIVE AND SERVICE EXPERIENCE

National and International Level:

- **Invited External Reviewer** for Technology Commercialization Fund program for the University of Connecticut, December 2017
- **Invited International Grant Reviewer** for Long Lasting Medications Panel for NASA-Translational Research Institute (TRI), July 2017
- **Invited Primary Grant Reviewer** for Qatar University, October 2017
- **Invited Primary Grant Reviewer** for Long Lasting Medications Panel for NASA-Translational Research Institute (TRI), July 2017
- **Invited External Ph.D. Dissertation Committee Member** for Center of Research, Anna University, India, Aug 2017
- **Represented NSU and College of Pharmacy** at the International Exhibition and Conference on Higher Education, Riyadh, Saudi Arabia, April 12-25, 2017.
- **Represented NSU-TRED** at BioFlorida Annual Conference, Jacksonville, FL, Dec 11-13, 2016.
- **Represented NSU-TRED** at FierceBiotech Drug Development Forum, Boston, MA, Sep 18-21, 2016.
- **Represented NSU- and College of Pharmacy** at eMerg Americas Tech Conference, Miami, FL, May 2-5, 2015
- **Invited External Member of Faculty Tenure/Promotion Committee** for Texas A&M College of Pharmacy, July, 2013
- **Invited External Grant Reviewer** for California Northstate University College of Pharmacy Seed Grant, 2012-2013
- **Bioequivalence Focus Group:** Active Member
American Association of Pharmaceutical Scientists (AAPS), 2012-present.
Role: promote understanding of equivalence of different dosage forms, develop programs and publications for AAPS annual meeting and National Biotechnology conferences
- **In Vitro Release and Dissolution Testing (IVRDT) Focus Group:** Active Member
American Association of Pharmaceutical Scientists (AAPS), 2013-present.
Role: promote understanding of IVRDT, develop programs and publications for AAPS annual meeting and National Biotechnology conferences
- **Excipients Focus Group:** Active Member
American Association of Pharmaceutical Scientists (AAPS), 2012-present.
Role: promote understanding of Excipients utilization, develop programs and publications for AAPS annual meeting and National Biotechnology conference
- **Invited Speaker** for several international and national conferences.
- **Invited Mentor** at the Career Mentoring Breakfast
Canadian Society for Pharmaceutical Sciences (CSPS) Annual Symposium, Richmond, BC, Canada, June 2-5, 2010.
- **Invited Curriculum Reviewer** for the Department of Pharmaceutics and Pharmaceutical Technology, Ebla Private University, Aleppo, Syria, June, 2010.

- **Reviewer in peer-reviewed journals** for manuscripts submitted for publication (*Journal of Pharmaceutical Scientist, International Journal of Pharmaceutics, Journal of Biopharmaceutics and Drug Disposition, Journal of Materials Research Society Bulletin, Journal of AAPSPharmaSciTech, Journal of Biomaterials Science: Polymer Edition, British Journal of Pharmaceutical Research, etc.*)
- **Reviewer of submitted conferences abstracts** for poster presentation and publication in peer-reviewed journals or conference proceedings (*American Association of Pharmaceutical Scientists (AAPS) Annual Conference, AAPS National Biotechnology Conference, and Materials Research Society (MRS) Annual Conference, 2010-present*)
- **Chair of AAPS-UManitoba Student Chapter**, American Association of Pharmaceutical Scientists (**AAPS**) (2005-2006)
- **Vice Chair of AAPS-UManitoba Student Chapter**, American Association of Pharmaceutical Scientists (**AAPS**) 2004-2005

University Level:

- **Director** for the Center for Drug Discovery and Development (CD³), NSU (2016-present)
- **Quality Enhancement Plan Committee** (Member), NSU (2014-present)
- **President's Faculty Research and Development Grant (PFRDG) Reviewer**, NSU (2014)
- **HPD Research Day Abstract Reviewer**, NSU (2012-2013)

College of Pharmacy Level:

- **Visionary Education Team for Strategic Planning** (Member), College of Pharmacy, NSU (2017-present)
- **Pharm. D. Curriculum – Basic Knowledge Group (Chair/Group Leader)**, College of Pharmacy, NSU (2016-present)
- **Visionary Education Modular Development Taskforce**, College of Pharmacy, NSU (2015-2016)
- **Ph.D. Admission Committee** (Member), College of Pharmacy, NSU (2014-present)
- **Research Committee** (Member), College of Pharmacy, NSU (2014-2015)
- **Ph.D. Dissertation Committee (Chair)**, College of Pharmacy, NSU (2013-present)
- **Ph.D. Dissertation Committee** (Member), College of Pharmacy, NSU (2013-2017)
- **Interprofessional Education (IPE) Committee** (Member), College of Pharmacy, NSU (2015-2016)
- **Pharm. D. Curriculum Committee** (Member), College of Pharmacy, NSU (2012-present)
- **AACP Accreditation Self-Study Committee-Curriculum standards (Team Leader)**, College of Pharmacy, NSU (2013-2014)
- **Pharm. D. Curriculum Outcomes Sub-Committee** (Member), College of Pharmacy, NSU (2012-2013)

- **Ph.D. Curriculum Committee** (Member), College of Pharmacy, NSU (2010-2013)
- **Admissions Committee** (Member), College of Pharmacy, NSU (2008-2012)
- **Interviewing students** applying for admission into the College of Pharmacy, NSU (2008-present)
- **Faculty Student's Advisor**, College of Pharmacy, NSU (2009-present)
- Graduate Students Representative, Faculty of Pharmacy, University of Manitoba (2005-2006)
- Graduates students Awards Committee (Member), Faculty of Pharmacy, University of Manitoba (2005-2006)

Department of Pharmaceutical Sciences Level:

- **Curriculum and Assessment Committee (Chair)**, Department of Pharmaceutical Sciences, College of Pharmacy, NSU (2015-present)
- **Faculty Recruitment Committee (Chair)**, Department of Pharmaceutical Sciences, College of Pharmacy, NSU (2010-2014)
- **Ph.D. Curriculum Committee (Chair)**, Department of Pharmaceutical Sciences, College of Pharmacy, NSU (2012-2013)
- **Department Secretary Recruitment Committee** (Member), Department of Pharmaceutical Sciences, College of Pharmacy, NSU (for Krista Marshall in 2011 and Christie Priemer in 2012)
- **Pharmaceutics Sub-curriculum Committee** (Member), Department of Pharmaceutical Sciences, College of Pharmacy, NSU (2009-2010)
- **Faculty Recruitment Committee** (Member), Department of Pharmaceutical Sciences, College of Pharmacy, NSU (2008-2010)
- **Scholarship and Faculty Development Committee** (Member), Department of Pharmaceutical Sciences, College of Pharmacy, NSU (2008-2009)
- **Curriculum and Assessment Committee** (Member), Department of Pharmaceutical Sciences, College of Pharmacy, NSU (2008-2009)

FACULTY PROFESSIONAL DEVELOPMENT AND TRAINING

National Institute for Health (NIH)

2012 Grant Writing Workshop. NGSM/NIH, University of Kentucky, Lexington, KY, May 7-9, 2012.

Nova Southeastern University

2017 Title IX training “Preventing Harassment & Sexual Violence”, NSU
 2017 Faculty Certification Course - Blackboard Basics course, Office of Innovation & Information Technology, NSU
 2016 Faculty Online Certification, Office of Innovation & Information Technology, NSU
 2015 Blackboard Training, IZone
 2015 HIPA Privacy, Security, and Research Training, Environmental Health and Safety Department
 2015 Satellite Container Management Training, Environmental Health and Safety Department
 2015 Radiation Safety Training, Environmental Health and Safety Department
 2015 Personal Protective Equipment Training, Environmental Health and Safety Department
 2015 Laboratory Safety Training, Environmental Health and Safety Department
 2015 High Pressure Cylinder Training, Environmental Health and Safety Department
 2015 Hazard Communication Training, Environmental Health and Safety Department
 2015 Global Harmonized Systems Training, Environmental Health and Safety Department
 2015 Chemical Safety Training, Environmental Health and Safety Department
 2015 Chemical Hygiene Training, Environmental Health and Safety Department
 2015 Bloodborne Pathogens Training, Environmental Health and Safety Department
 2015 Biological Safety, Environmental Health and Safety Department
 2015 Ariba Training and Resources Course, IZone
 2014 Employee HIPAA Privacy Security and Research Training
 2014 Effort Reporting and ECRT for Principal Investigators and Faculty Certifiers
 2014 Environmental Health and Safety Education Services
 2014 Emergency Preparedness and Crisis Response Training
 2013 TurningPoint Response Systems using iPad and Android Apps, IZone
 2013 Ariba Training, IZone
 2012 Faculty Event: Converse, Connect, and Collaborate, Office of Research and Technology Transfer
 2011 “Instructional Design: Integrating Objectives, Learning Strategies and Assessment”, College of Pharmacy
 2010 Blackboard Training, IZone
 2009 Career Development Day, College of Pharmacy
 2009 Faculty Development and Faculty Research Development Seminars, Educational Development Office - HPD
 2009 Sponsored Funding Post-Award Training
 2009 HPD Library Services, Searches, and Resources Seminars, Educational Development Office - HPD
 2009 TurningPoint Response Systems (clickers response pads), Educational Technology Office
 2009 Blackboard Training, IZone
 2009 Banner System, IZone

- 2008 WebCT training, IZone
- 2008 Online Course Development training, IZone
- 2008 Tegrity training, IZone
- 2008 Item Analysis, Testing center
- 2008 Faculty Development and Faculty Research Development Seminars, Educational Development Office - HPD
- 2008 HPD Library Services, Searches, and Resources Seminars, Educational Development Office - HPD
- 2008 Career Development Day, College of Pharmacy

American Association of Pharmaceutical Scientists (AAPS)

- 2008 Professional development sessions
- 2008 “Life as a professor at a university with a focus on teaching” session

American Academy of Allergy, Asthma & Immunology’s (AAAAI)

- 2006 Strategic Training in Allergy Research - ST*AR Program

University of Manitoba

- 2001 Laboratory Animal Care and Use

F. Hoffmann-La Roche Ltd

- 2000 - Behavior in Competition: A Guide to Competition Law
- 1999 - Gustave Kaser Training, Leading in a Team
- 1998 - Put It in Writing: Writing for Communication
- 1997 - Round Table Discussion
- Gustave Kaser Training, Sales 2:
 - Personal effectiveness in dealing with customer
 - Courage to excel oneself
 - Development of personal strengths
 - Self organization.
- Territory Management
- 1996 - Gustave Kaser Training, Sales 1:
 - Basic sales psychology and Self motivation
 - Personal planning and preparation
 - Public speaking and presentation
 - Conducting negotiation
 - Handling objections and Dealing with complaints
 - Effective influence within and outside the organization
- Presentation Skills

PROFESSIONAL AFFILIATIONS

- 2010-present Member, Rho Chi honor society
- 2004-present Member, Canadian Society for Pharmaceutical Sciences (CSPS)
- 2004-present Member, American Association of Pharmaceutical Scientists (AAPS)
- 2008-2010 Member, American Association of Colleges of Pharmacy (AACP)
- 2006-2008 Member, American Academy of Allergy, Asthma & Immunology (AAAAI)