



P.O.Box 2457

Riyadh, 11451

M: +966-55-521-4410 | <http://fac.ksu.edu.sa/aalshamsan> | [aalshamsan@ksu.edu.sa](mailto:aalshamsan@ksu.edu.sa)

## DR. AWS ALSHAMSAN

### SUMMARY

Aws Alshamsan earned his B.Pharm from King Saud University in 2002 and his PhD in Pharmaceutical Sciences (Nanobiotechnology) from the University of Alberta, Canada in 2010. He spent a one-year postdoctoral fellowship at the National Institute for Nanotechnology in Canada, where he was given a Visiting Professor status immediately afterwards. He was appointed a Director of Research Center at the College of Pharmacy, King Saud University from 2012-2013, then a Vice Dean of King Abdullah Institute for Nanotechnology, King Saud University from 2013-2014. Currently, Alshamsan is the Dean of King Abdullah Institute for Nanotechnology and the Director of the Center of Excellence in Nanomedicine at KACST. Since 2007, Alshamsan authored and co-authored several peer-reviewed articles and book chapters, and supervised, co-supervised and examined a number of graduate and undergraduate students. He is a reviewer and editor for many reputable journals. He received several awards including the Gattefossé Canada Award for best research publication in 2010, and Dr. Waleed Alkayyali's Award for best research publication in 2014.

### WORK HISTORY

#### ADMINISTRATION

#### DEAN, KING ABDULLAH INSTITUTE FOR NANOTECHNOLOGY, KSU

2014 – to date

#### DIRECTOR, JOINT CENTER OF EXCELLENCE FOR NANOMEDICINE, KACST-UCSD

2013 – to date

#### VICE DEAN, KING ABDULLAH INSTITUTE FOR NANOTECHNOLOGY, KSU

2013 – 2014

#### DIRECTOR OF RESEARCH CENTER, COLLEGE OF PHARMACY, KSU

2012 – 2013

#### HEAD OF NANOMEDICINE UNIT, COLLEGE OF PHARMACY, KSU

2011 – to date

### WORK HISTORY

#### ACADEMIA

#### ASSOCIATE PROFESSOR, COLLEGE OF PHARMACY, KSU, SAUDI ARABIA

2014 – to date

#### ASSISTANT PROFESSOR, COLLEGE OF PHARMACY, KSU, SAUDI ARABIA

2010 – 2014

#### VISITING SCIENTIST, NATIONAL INSTITUTE FOR NANOTECHNOLOGY, CANADA

2011 – 2013

#### POSTDOCTORAL FELLOW, NATIONAL INSTITUTE FOR NANOTECHNOLOGY, CANADA

2010 – 2011

#### TEACHING ASSISTANT, UNIVERSITY OF ALBERTA, CANADA

2004 – 2010

**WORK HISTORY**  
*ACADEMIA*

**TEACHING ASSISTANT, COLLEGE OF PHARMACY, KSU**  
2002 – 2003

---

**WORK HISTORY**  
*CONSULTATION*

**SAUDI FOOD AND DRUG AUTHORITY, SAUDI ARABIA**  
Biologics, Biosimilars, and Vaccines  
**SAUDI STANDARDS, QUALITY AND METROLOGY ORGANIZATION, SAUDI ARABIA**  
Research Center  
**RIYADH VALLEY COMPANY, SAUDI ARABIA**  
Investment

---

**COUNCILS**  
**MEMBERSHIPS**

**ADVISORY SCIENTIFIC COUNCIL, THE SAUDI STANDARDS, QUALITY AND METROLOGY ORGANIZATION**  
2015 – to date  
**KING SAUD UNIVERSITY COUNCIL, KING SAUD UNIVERSITY**  
2014 – 2016  
**RIYADH VALLEY COMPANY GENERAL ASSEMBLY, KING SAUD UNIVERSITY**  
2014 – 2016  
**CENTER OF EXCELLENCE IN NANOMEDICINE COUNCIL, KING ABDULAZIZ CITY FOR SCIENCE AND TECHNOLOGY**  
2013 – to date  
**PRINCE NAIF CENTRE FOR HEALTH SCIENCE RESEARCH EXECUTIVE COUNCIL, KING SAUD UNIVERSITY**  
2013 – 2014  
**DENASHIP OF SCIENTIFIC RESEARCH COUNCIL, KING SAUD UNIVERSITY**  
2012 – 2013  
**COLLEGE OF PHARMACY RESEARCH CENTER COUNCIL, KING SAUD UNIVERSITY**  
2012 – 2013  
**SAUDI PHARMACEUTICAL SOCIETY COUNCIL, KING SAUD UNIVERSITY**  
2011 – 2012  
**DEPARTMENT OF PHARMACEUTICS COUNCIL, KING SAUD UNIVERSITY**  
2010 – to date

---

**COMMITTEES**  
**MEMBERSHIPS**

**STRATEGIC COMMITTEE FOR MERS-COV VACCINE SELECTION, SAUDI MINISTRY OF HEALTH**  
2015 – 2016  
**ESSENTIAL COMMITTEE FOR REGISTRATION OF PHARMACEUTICALS, SAUDI FOOD AND DRUG AUTHORITY**  
2014 – to date  
**BIOLOGICS QUALITY EVALUATION COMMITTEE, SAUDI FOOD AND DRUG AUTHORITY**  
2013 – to date  
**ADVISORY SCIENTIFIC COMMITTEE, SAUDI MINISTRY OF HEALTH**  
2013 – 2014  
**RESEARCH ETHICS COMMITTEE, KING SAUD UNIVERSITY**  
2013 – to date

## COMMITTEES MEMBERSHIPS

**HEALTH COLLEGES INTERVIEW COMMITTEE, KING SAUD UNIVERSITY, SAUDI ARABIA**

2013 – 2014

**NATIONAL COMMITTEE FOR NARCOTICS CONTROL, SAUDI MINISTRY OF INTERIOR, SAUDI ARABIA**

2012 – 2013

**SCIENTIFIC RESEARCH FINANCIAL COMMITTEE, KING SAUD UNIVERSITY, SAUDI ARABIA**

2012 – 2013

**COLLEGE OF PHARMACY STRATEGIC PLAN COMMITTEE, KING SAUD UNIVERSITY, SAUDI ARABIA**

2012 – 2013

**TEACHING AND LEARNING STEERING COMMITTEE, KING SAUD UNIVERSITY, SAUDI ARABIA**

2011 – 2012

**COLLEGE OF PHARMACY CURRICULUM COMMITTEE, KING SAUD UNIVERSITY, SAUDI ARABIA**

2011 – 2013

**PHARMACY CAREER DAY COMMITTEE, KING SAUD UNIVERSITY, SAUDI ARABIA**

2011 – 2013

**COLLEGE OF PHARMACY QUALITY ASSURANCE COMMITTEE, KING SAUD UNIVERSITY, SAUDI ARABIA**

2010 – 2013

**COLLEGE OF PHARMACY TEACHING LOAD COMMITTEE, KING SAUD UNIVERSITY, SAUDI ARABIA**

2010 – 2011

**MULTIPLE DEPARTMENTAL COMMITTEES, KING SAUD UNIVERSITY, SAUDI ARABIA**

2010 – to date

**GRADUATE STUDENT ASSOCIATION STEERING COMMITTEE, UNIVERSITY OF ALBERTA, CANADA**

2006 – 2007

**PHARMACY RESEARCH DAY COMMITTEE, UNIVERSITY OF ALBERTA, CANADA**

2005 – 2007

---

## EDUCATION

**PHD (2010), FACULTY OF PHARMACY AND PHARMACEUTICAL SCIENCES, UNIVERSITY OF ALBERTA, CANADA**

Thesis title: Development of STAT3-Targeting siRNA Nano-Carriers for Cancer Therapy

**B.PHARM (2002), COLLEGE OF PHARMACY, KING SAUD UNIVERSITY, SAUDI ARABIA**

Excellence with second class honor (GPA 4.58/5)

---

## TRAINING

### PROFESSIONAL TRAINING

2013 Facility Project Management in the Regulated Pharmaceutical Industry, International Society for Pharmaceutical Engineering (ISPE), Brussels, Belgium

2013 Consultation Sales and Proposal Development Training, King Abdullah Institute for Research and Consulting Studies, Riyadh, Saudi Arabia

2012 Project Management Fundamentals, King Saud University, Riyadh, Saudi Arabia

## TRAINING

2002 Pharmacy Student Internship in King Abdulaziz Medical City, National Guard Hospital, Riyadh, Saudi Arabia

2000 Summer Student Training in community pharmacy involving dispensing, patient counseling and extemporaneous preparations, Riyadh, Saudi Arabia

1998 Summer Student Training in the Administration of Sales and Regulatory Affairs, Saudi Pharmaceutical Industries and Medical Appliances Corporation (SPIMACO), Riyadh, Saudi Arabia

### ACADEMIC TRAINING

2010 Micro-Teaching Application Discussions, King Saud University, Riyadh, Saudi Arabia

2010 Student Assessment and Classroom Management, King Saud University, Riyadh, Saudi Arabia

2010 Effective Teaching and Management System, King Saud University, Riyadh, Saudi Arabia

2010 Course Design and Construction, King Saud University, Riyadh, Saudi Arabia

2007 Workshop of Scientific Writing, University of Alberta, Edmonton, Alberta, Canada

2006 Public Speaking Workshop, Toastmaster International, University of Alberta, Edmonton, Alberta, Canada

### RESEARCH TRAINING

2005 Animal Handling Course Part I, University Animal Policy and Welfare Committee, University of Alberta, Edmonton, Alberta, Canada

2005 Animal Handling Course Part II (mouse), Health Sciences Laboratory Animal Services, Faculty of Medicine and Dentistry, University of Alberta, Edmonton, Alberta, Canada

2004 Radiation Safety Course, Environmental Health and Safety, University of Alberta, Edmonton, Alberta, Canada

2004 Flow Cytometry Training, Cross Cancer Institute, Alberta Cancer Board, University of Alberta, Edmonton, Alberta, Canada

2003 Molecular Biology Research Laboratory Training, King Abdulaziz City for Science and Technology (KACST), Saudi Pharmaceutical Industries and Medical Appliances Corporation (SPIMACO), Riyadh, Saudi Arabia

---

## PUBLICATIONS

### PEER-REVIEWED PAPERS

Abul Kalam M, Khan AA, and **Alshamsan A.** (Corresponding Author), Non-Invasive Administration of Biodegradable Nano-Carrier Vaccines. Am J Transl Res. 2016 (ACCEPTED).

Almalik A, Alradwan I, Abul Kalam M, and **Alshamsan A.** (Corresponding Author), Effect of cryoprotection on particle size stability and preservation of chitosan nanoparticles with and without hyaluronate or alginate coating. Saudi Pharm J. 2016 (ACCEPTED).

## PUBLICATIONS

- Tawfiq E, Ahamed M, Almalik A, Alfaqeeh M, **Alshamsan A.** (Corresponding Author), Prolonged exposure of colon cancer cells to 5-fluorouracil nanoparticles improves its anticancer activity. Saudi Pharm J. 2016 (IN PRESS)
- Akhtar MJ, Ahamed M, Alhadlaq HA, **Alshamsan A.** Nanotoxicity of cobalt induced by oxidant generation and glutathione depletion in MCF-7 cells. Toxicol In Vitro. 2016 Dec 23. pii: S0887-2333(16)30268-5. doi: 10.1016/j.tiv.2016.12.012. (IN PRESS)
- Ahamed M, Akhtar MJ, Khan MA, Alhadlaq HA, **Alshamsan A.** Cobalt iron oxide nanoparticles induce cytotoxicity and regulate the apoptotic genes through ROS in human liver cells (HepG2). Colloids Surf B Biointerfaces. 2016 Sep 29;148:665-673. doi: 10.1016/j.colsurfb.2016.09.047.
- Ahamed M, Khan MA, Akhtar MJ, Alhadlaq HA, **Alshamsan A.** Role of Zn doping in oxidative stress mediated cytotoxicity of TiO<sub>2</sub> nanoparticles in human breast cancer MCF-7 cells. Sci Rep. 2016 Jul 22;6:30196. doi: 10.1038/srep30196.
- Patil SP, Moosa BA, Alsaiani S, Alamoudi K, **Alshamsan A.** AlMalik A, Adil K, Eddaoudi M, Khashab NM, Supramolecular Self-Assembly of Histidine-Capped-Dialkoxo-Anthracene: A Visible-Light-Triggered Platform for Facile siRNA Delivery. Chemistry. 016 Sep 19;22(39):13789-13793. doi: 10.1002/chem.201601442.
- Ahamed M, Akhtar MJ, Alhadlaq HA, **Alshamsan A.**, Copper ferrite nanoparticle-induced cytotoxicity and oxidative stress in human breast cancer MCF-7 cells. Colloids Surf B Biointerfaces. 2016 Jun 1;142:46-54. doi: 10.1016/j.colsurfb.2016.02.043.
- Ahmad J, Alhadlaq HA, **Alshamsan A.** Siddiqui MA, Saquib Q, Khan ST, Wahab R, Al-Khedhairi AA, Musarrat J, Akhtar MJ, Ahamed M., Differential cytotoxicity of copper ferrite nanoparticles in different human cells. J Appl Toxicol. 2016 Oct;36(10):1284-93. doi: 10.1002/jat.3299.
- Deng L, Li Q, Al-Rehili S, Omar H, Almalik A, **Alshamsan A.** Zhang J, Khashab NM., Hybrid Iron Oxide-Graphene Oxide-Polysaccharides Microcapsule: A Micro-Matryoshka for On-Demand Drug Release and Antitumor Therapy In Vivo. ACS Appl Mater Interfaces. 2016 Mar 23;8(11):6859-68. doi: 10.1021/acsami.6b00322.
- Abul Kalam M, Khan AA, Khan S, Almalik A, and **Alshamsan A.** (Corresponding Author), Optimizing indomethacin-loaded chitosan nanoparticle size, encapsulation, and release using Box-Behnken experimental design. Int J Biol Macromol. 2016 Jun;87:329-40. doi: 10.1016/j.ijbiomac.2016.02.033.
- Khan S, Imran A, Khan AA, Kalam MA, and **Alshamsan A.** (Corresponding Author), Systems Biology Approaches for the Prediction of Possible Role of *Chlamydia pneumoniae* Proteins in the Etiology of Lung Cancer. PLoS One. 2016 Feb 12;11(2):e0148530. doi: 10.1371/journal.pone.0148530.
- Binkhathlan Z, Badran M, Alomrani A, Aljuffali IA, Alghonaim M, Al-Muhsen S, Halwani R, and **Alshamsan A.** (Corresponding Author), Reutilization of Tacrolimus Extracted from Expired Prograf® Capsules: Physical, Chemical, and Pharmacological Assessment. AAPS Pharm Sci Tech. 2016 Aug;17(4):978-87. doi: 10.1208/s12249-015-0433-7.

## PUBLICATIONS

- Akhtar MJ, Ahamed M, Alhadlaq HA, **Alshamsan A**, Majeed Khan MA, Alrokayan SA. Antioxidative and cytoprotective response elicited by molybdenum nanoparticles in human cells. *J Colloid Interface Sci.* 2015 Nov 1;457:370-7. doi: 10.1016/j.jcis.2015.07.034.
- Akhtar MJ, Alhadlaq HA, **Alshamsan A**, Khan MAM, Ahamed M. Aluminum doping tunes band gap energy level as well as oxidative stress-mediated cytotoxicity of ZnO nanoparticles in MCF-7 cells. *Sci Rep.* 2015 Sep 8;5:13876. doi: 10.1038/srep13876.
- Khan AA, Khan Z, Malik A, Shrivastava A, Jain SK, **Alshamsan A**. Computational prediction of *Escherichia coli* proteins host subcellular targeting and their implications in colorectal cancer etiology. *Cancer Lett.* 2015 Aug 1;364(1):25-32. doi: 10.1016/j.canlet.2015.04.024.
- Aljuffali IA, Kalam MA, Sultana Y, Imran A, **Alshamsan A**. (Corresponding Author), Development and validation of stability-indicating high performance liquid chromatography method to analyze gatifloxacin in bulk drug and pharmaceutical preparations. *Saudi Pharm J.* 2015 Jan;23(1):85-94 (IF 1.0)
- Alshamsan A**. (Corresponding Author), Nanoprecipitation is more efficient than emulsion solvent evaporation method to encapsulate cucurbitacin I in PLGA nanoparticles. *Saudi Pharm J.* 2014 Jul;22(3):219-22. (IF 1.0)
- Kalam MA, **Alshamsan A**, Aljuffali IA, Mishra AK, and Sultana Y. Delivery of gatifloxacin using microemulsion as vehicle: formulation, evaluation, transcorneal permeation and aqueous humor drug determination. *Drug Deliv.* 2014 May 28:1-12 (IF 2.015)
- Khan AA, Khurshid M, Khan S, and **Alshamsan A**. Gut Microbiota and Probiotics: Current Status and Their Role in Cancer Therapeutics, *Drug Dev Res*, 2013 74(6): 365-375 (IF 0.869).
- Kalam MA, Sultana Y, Ali A, Aqil M, Mishra A, Chuttani K, Aljuffali A, and **Alshamsan A**. (Corresponding Author), Part II: Enhancement of Transcorneal Delivery of Gatifloxacin by Solid Lipid Nanoparticles in Comparison to Commercial Aqueous Eye Drops. *J Biomed Mater Res A.* 2013 Jun;101(6): 1828-36 (IF 2.834).
- Abul Kalam M, Sultana Y, Ali A, Aqil M, Mishra A, Aljuffali A, and **Alshamsan A**. (Corresponding Author), Part I: Development and Optimization of Solid-Lipid Nanoparticles Using Box–Behnken Statistical Design for Ocular Delivery of Gatifloxacin. *J Biomed Mater Res A.* 2013 Jun;101(6):1813-27 (IF 2.834)
- Binkhthlan Z and **Alshamsan A**. (Corresponding Author), Emerging nanodelivery strategies of RNAi molecules for colon cancer therapy: preclinical developments. *Ther Deliv.* 2012 Sep;3(9):1117-30
- Alshamsan A**. (Corresponding Author), Induction of tolerogenic dendritic cells by IL-6-secreting CT26 colon carcinoma. *Immunopharmacol Immunotoxicol.* 2012 Jun;34(3):465-9 (IF 1.356)
- Alshamsan A**. (Corresponding Author), Paradoxical Signaling Pathways in Developing Thymocytes. *J Pharm Pharmaceut Sci.* 2011 Oct; 14(3):378-386 (IF 2.198)

## PUBLICATIONS

**Alshamsan A.** (Corresponding Author), Hamdy S, Haddadi A, Samuel J, El-Kadi A, Uludag H, and Lavasanifar A., STAT3 Knockdown in B16 Melanoma by siRNA Lipopolyplexes Induces Bystander Immune Response in vitro and in vivo. *Transl Oncol.* 2011 Jun; 4(3):178-88 (IF 2.943)

Hamdy S, Haddadi A, Shayeganpour A, **Alshamsan A**, Montazeri Aliabadi H, and Lavasanifar A., The Immunosuppressive Activity of Polymeric Micellar Formulation of Cyclosporine A: In Vitro and In Vivo Studies. *AAPS J.* 2011 Jun;13(2):159-68 (IF 4.386)

**Alshamsan A** (Corresponding Author), El Bakkari M, Fenniri H., Efficiency of Cationic Rosette Nanotubes for siRNA Delivery. *MRS Proceedings.* 2011 1316, mrsf10-1316-qq09-36 doi:10.1557/opl.2011.435.

El Bakkari M, Beingessner R. L, **Alshamsan A**, Fenniri H., Electrostatic and Steric Effect of Peptides Functionalized on Self-Assembled Rosette Nanotubes. *MRS Proceedings.* 2011 1316, mrsf10-1316-qq12-16 doi:10.1557/opl.2011.436..

**Alshamsan A**, Haddadi A, Hamdy S, Samuel J, Uludag H, El-Kadi A, and Lavasanifar A., STAT3 Silencing in Dendritic Cells by siRNA Polyplexes Encapsulated in PLGA Nanoparticles for the Modulation of Anticancer Immune Response. *Mol Pharm* 2010 Oct ;7(5):1643-1654 (IF 4.5)

**Alshamsan A**, Hamdy S, Samuel J, El-Kadi A, Lavasanifar A, and Uludag H., The induction of tumor apoptosis in B16 melanoma following STAT3 siRNA delivery with a lipid-substituted polyethylenimine. *Biomaterials* 2010 Feb;31(6):1420-8 (IF 7.604)

**Alshamsan A**, Hamdy S, Das S, Lavasanifar A, Samuel J, and El-Kadi A., Bone Marrow Derived Dendritic Cells are More Suitable Than Dendritic Cell Line DC2.4 to Study Tumor-Mediated Suppression of DC Maturation Through STAT3 Hyperactivation. *J Pharm Pharmaceut Sci* 2010 Jan;13(1):21-26 (IF 2.198)

**Alshamsan A**, Haddadi A, Incani V, Samuel J, Lavasanifar A, Uludag H. Formulation and Delivery of siRNA by Oleic Acid and Stearic Acid Modified Polyethylenimine. *Mol Pharm* 2009 Jan-Feb;6(1):121-33 (IF 4.5)

Hamdy S, Molavi O, Ma Z, Haddadi A, **Alshamsan A**, Gobti Z, et al. Co-delivery of cancer-associated antigen and Toll-like receptor 4 ligand in PLGA nanoparticles induces potent CD8+ T cell-mediated anti-tumor immunity. *Vaccine* 2008 Sep 15;26(39):5046-5057 (IF 3.492)

Molavi O, Ma Z, Mahmud A, **Alshamsan A**, Samuel J, Lai R, et al. Polymeric micelles for the solubilization and delivery of STAT3 inhibitor cucurbitacins in solid tumors. *Int J Pharm* 2008 Jan 22;347(1-2):118-127 (IF 3.458)

Hamdy S, Elamanchili P, **Alshamsan A**, Molavi O, Satou T, Samuel J. Enhanced antigen-specific primary CD4+ and CD8+ responses by codelivery of ovalbumin and toll-like receptor ligand monophosphoryl lipid A in poly(D,L-lactic-co-glycolic acid) nanoparticles. *J Biomed Mater Res A* 2007 Jun 1;81(3):652-662 (IF 2.834)

## BOOK CHAPTERS

**Alshamsan, A.,** Aljuffali, I. A., *Biopharmaceuticals: Fundamentals of Manufacturing and Evaluation.* KSU Press: 2016 (IN PREPARATION)

## PUBLICATIONS

**Alshamsan, A.** Nanotechnology-Based Cancer Vaccines. In Cancer Nanotechnology. Methods in Molecular Biology. Walker, John M, Eds. Springer: 2016 (ACCEPTED)

Hamdy, H., **Alshamsan, A.**, Samuel, J. Nanotechnology for Cancer Vaccine Delivery. In Nanotechnology in Drug Delivery, de Villiers, M. M.; Aramwit, P.; Kwon, G. S., Eds. Springer New York: 2009; Vol. Volume X, pp 519-543

## ABSTRACTS AND PROCEEDINGS

**Alshamsan A**, Binkhathlan Z, Al-Omrani A, Aljuffali IA, Alghonaim M, and Kfoury H, PLGA Nanoparticles for the Reduction of Tacrolimus-Associated Nephrotoxicity In Vivo. 2015 Materials Research Society (MRS) Fall Meeting. Boston, MA, USA, 2015.

**Alshamsan A**, Binkhathlan Z, Al-Omrani A, Aljuffali IA, Alghonaim M, Kfoury H, and Almuhsen S, Mitigating Tacrolimus Nephrotoxicity by PLGA Nanoparticles: A Comparative In Vivo Study with Prograf®. 42nd Annual Meeting & Exposition of the Controlled Release Society. Edinburgh, United Kingdom, 2015.

Alghonaim M, **Alshamsan A**, Binkhathlan Z, Al-Omrani A, and Aljuffali IA, Utilization of Nanotechnology to Mitigate Tacrolimus-Associated Nephrotoxicity: A Preclinical Assessment. World Congress of Nephrology 2015. Cape Town, South Africa, 2015.

**Alshamsan A**, Kalam MA, Badran M, Al-Omrani A, Binkhathlan Z, Aljuffali IA, and Alghonaim M, Development and Characterization of Tacrolimus-Loaded PLGA Nanoparticles. 16th Canadian Society for Pharmaceutical Sciences (CSPS) Annual Meeting. Vancouver, BC, Canada, 2013.

**Alshamsan A**, Size Control Of Poly(D,L-Lactic-co-Glycolic Acid) Nanoparticles By Multiparametric Optimization. SelectBioNet Nanomedicine 2013. Barcelona, Spain, 2013.

Alzhrani R and **Alshamsan A**, Influence of Solvent, Stabilizer, and Stabilizer's Concentration on the Physical Properties of PLGA Nanoparticles. 39th Annual Meeting & Exposition of the Controlled Release Society. Québec City, QC, Canada, 2012.

Ho U, **Alshamsan A**, El-Bakkari M, and Fenniri H, Delivery of siRNA Using Cationic Rosettes Nanotubes. 95th Canadian Chemistry Conference and Exhibition. Calgary, AB, Canada, 2012.

Bayomi M, Alomrani A, Salem-Bekhit M, and **Alshamsan A**, Effect of Single Protonable Nitrogen per Mole on Encapsulation of Plasmid DNA in Niosomal Core. 15th Canadian Society for Pharmaceutical Sciences (CSPS) Annual Meeting. Toronto, ON, Canada, 2012.

**Alshamsan A**, Ho U, El Bakkari M, and Fenniri H., Potentiated Silencing Following the Co-delivery of Anti-VEGF and Anti-STAT3 siRNA to Human Colorectal Carcinoma Cells (HCT116) Using Lysine-Functionalized GAC Rosette Nanotubes. 15th Canadian Society for Pharmaceutical Sciences (CSPS) Annual Meeting. Toronto, ON, Canada, 2012.

**Alshamsan A**, El Bakkari M, and Fenniri H., Influence of siRNA on the Self Assembly of Twin G<sup>+</sup>C Supramolecular Structure. 14th Canadian Society for Pharmaceutical Sciences (CSPS) Annual Meeting. Montréal, QC, Canada, 2011.



## PUBLICATIONS

**Alshamsan A**, El Bakkari M, and Fenniri H., Efficiency of Cationic Rosette Nanotubes for siRNA Delivery. 2010 Materials Research Society (MRS) Fall Meeting. Boston, MA, USA, 2010.

El Bakkari M, Beingessner R. L, **Alshamsan A**, and Fenniri H., Electrostatic and Steric Effect of Peptides Functionalized on Self-Assembled Rosette Nanotubes. 2010 Materials Research Society (MRS) Fall Meeting. Boston, MA, USA, 2010.

**Alshamsan A**, El Bakkari M, and Fenniri H., Self-Assembling Rosette Nanotubes as a Novel Delivery System for siRNA. 13th Canadian Society for Pharmaceutical Sciences (CSPS) Annual Meeting. Vancouver, BC, Canada, 2010.

**Alshamsan A**, Hamdy S, Haddadi A, Samuel J, Uludag H, El-Kadi A, and Lavasanifar A., Down-Modulation of Stat3 in B16 Melanoma by siRNA Induces Bystander Immune Response: An in vitro and in vivo Study. 37th Annual Meeting & Exposition of the Controlled Release Society. Portland, OR, USA, 2010.

**Alshamsan A**, Haddadi A, Hamdy S, Samuel J, Uludag H, El-Kadi A, and Lavasanifar A., Targeting Dendritic Cells with PLGA Nanoparticles of Anti-STAT3 siRNA Breaks Cancer-Mediated Immune Tolerance. American Association of Pharmaceutical Scientists (AAPS) Annual Meeting and Exposition. Los Angeles, CA, USA, 2009.

**Alshamsan A**, Hamdy S, Samuel J, Uludag H, El-Kadi A, and Lavasanifar A., Tumor Apoptosis after STAT3 Knockdown by Nano-Sized siRNA Complexes. 66th Association of Faculties of Pharmacy of Canada (AFPC) Annual Meeting. Halifax, NS, Canada, 2009.

**Alshamsan A**, Uludag H, Samuel J, El-Kadi A, Lavasanifar A. RNAi-Based Nanomedicine for Stat3 Knockdown in Melanoma Using Novel Poly(ethylenimine) Derivatives. The Faculty of Pharmacy and Pharmaceutical Sciences Research and Development Day. University of Alberta, Edmonton, AB, Canada, 2008.

Uludag H, **Alshamsan A**, Haddadi A, Incani V, Samuel J, Lavasanifar A. Delivery of siRNA by Lipid-Modified Poly(ethyleneimine): Lipid Substitution Improves siRNA Stability in Serum. 8th World Biomaterials Congress. Amsterdam, Netherlands, 2008.

**Alshamsan A**, Haddadi A, Incani V, Samuel J, Lavasanifar A, Uludag H. Oleic-Acid and Stearic-Acid Modification of Polyethylenimine Improved siRNA Silencing Effect in B16 Melanoma. 11th Canadian Society for Pharmaceutical Sciences (CSPS) Annual Meeting. Banff, AB, Canada, 2008.

Hamdy S, Molavi O, Ma Z, Haddadi A, Gobti Z, Elhasi S, **Alshamsan A** et al. Therapy of established B16 melanoma tumors by vaccination with melanoma antigen co-encapsulated with adjuvant in PLGA nanoparticles. 11th Canadian Society for Pharmaceutical Sciences (CSPS) Annual Meeting. Banff, AB, Canada, 2008.

**Alshamsan A**, Uludag H, Samuel J, Lavasanifar A. RNAi-Based Nanomedicine for Stat3 Knockdown in Melanoma Using Novel Poly(ethylenimine) Derivatives. 6th International Nanomedicine and Drug Delivery Symposium. Toronto, ON, Canada, 2008.

## PUBLICATIONS

**Alshamsan A**, Haddadi A, Incani V, Uludag H, Samuel J. Formulation of siRNA nanoplexes by novel PEI-derivatives. The Faculty of Pharmacy and Pharmaceutical Sciences Research and Development Day. University of Alberta, Edmonton, AB, Canada, 2007.

**Alshamsan A**, Haddadi A, Incani V, Uludag H, Samuel J. Formulation of siRNA nanoplexes by novel PEI-derivatives. 10th Canadian Society for Pharmaceutical Sciences (CSPS) Annual Meeting / 18th Pharmaceutical & Biomedical Analysis (PBA) Annual Meeting / 64th Association of Faculties of Pharmacy of Canada (AFPC) Annual Meeting. Montréal, QC, Canada, 2007.

Hamdy S, Elamanchili P, **Alshamsan A**, Samuel J. Characterization of the CD4+ T cell responses to PLGA nanoparticle vaccines. The Faculty of Pharmacy and Pharmaceutical Sciences Research and Development Day. University of Alberta, Edmonton, AB, Canada, 2006.

**Alshamsan A**, Hamdy S, Samuel J. PLGA nanoparticles as a delivery system for cucurbitacin I to dendritic cells. The Faculty of Pharmacy and Pharmaceutical Sciences Research and Development Day. University of Alberta, Edmonton, AB, Canada, 2006.

Hamdy S, Elamanchili P, **Alshamsan A**, Molavi O, Samuel J. Characterization of the CD4+ T cell responses to PLGA nanoparticle vaccines. The Faculty of Pharmacy and Pharmaceutical Sciences Research and Development Day. University of Alberta, Edmonton, AB, Canada, 2005.

**Alshamsan A**, Hamdy S, Das S, Samuel J. Tumor-induced phosphorylation of stat3 is involved in abnormal maturation of dendritic cells. The Faculty of Pharmacy and Pharmaceutical Sciences Research and Development Day. University of Alberta, Edmonton, AB, Canada, 2005.

Elamanchili P, Diwan M, Hamdy S, **Alshamsan A**, Samuel J. Nanoparticle mediated vaccine delivery to dendritic cells for the generation of Th1 type immune responses. 12th International congress of Immunology 2004 / 4th Annual conference of FOCIS. Montréal, QC, Canada, 2004.

---

## INVITATIONS

### SPEAKER/MODERATOR

Next-Generation Vaccine Strategies, Biologics Conference, Manama, Bahrain, 2016.

Nanotechnology for Cancer Vaccine Delivery, 22nd Dubai International Pharmaceuticals and Technologies Conference and Exhibition, Dubai, United Arab Emirates, 2016.

Overview of King Abdullah Institute for Nanotechnology, 1st International Nanotechnology Conference, Central Agency for Information Technology, Kuwait, 2016.

King Abdullah Institute for Nanotechnology, King Saud University: Institutional Experience, 6th KAIMRC Annual Forum for Medical Research, Ministry of National Guard, Riyadh, Saudi Arabia, 2015.

Moderator of Similar Biopharmaceuticals Session, First MENA Educational Workshop on Similar Biotherapeutic Products/Biosimilars, Generics and Biosimilars Initiative (GaBI), Dubai, UAE, 2015.

King Abdullah Institute for Nanotechnology: and Overview, The Saudi International Nanotechnology Conference, King Abdulaziz City for Science and Technology (KACST), Riyadh, Saudi Arabia, 2014.

**INVITATIONS**  
**SPEAKER/MODERATOR**

Polymeric Nanoparticles for siRNA Delivery: Potentials and Challenges in Cancer Therapy, Early Cancer Diagnosis Workshop, Max-Plan Institute for Quantum Optics, Garching, Germany, 2014

Pharmaceutical Considerations in the Production and Application of Biotechnology Products, The 9th International Saudi Pharmaceutical Society Conference & Exhibition, Saudi Pharmaceutical Society, Jeddah, Saudi Arabia, 2013.

Optimizing Nanocarriers for Cancer-Targeting siRNA Delivery, The Saudi International Biotechnology Conference 2012, King Abdulaziz City for Science and Technology (KACST), Riyadh, Saudi Arabia, 2012.

Recent Advances in siRNA Delivery and Targeting for Cancer Therapy, Breast Cancer: Current Practice and Future Directions. College of Medicine, King Saudi University, Riyadh, Saudi Arabia, 2012.

Nanotechnology for Cancer Therapy, King Abdulaziz City for Science and Technology (KACST), Riyadh, Saudi Arabia, 2011.

Nanobiotechnological Applications in Cancer Immunotherapy, College of Pharmacy, King Saudi University, Riyadh, Saudi Arabia, 2010.

The induction of tumor apoptosis in B16 melanoma following STAT3 siRNA delivery with a lipid-substituted polyethylenimine, 13th Canadian Society for Pharmaceutical Sciences (CSPS) Annual Meeting. Vancouver, BC, Canada, 2010.

The Nano-Bio Interface, National Institute for Nanotechnology, Edmonton, AB, Canada, 2010.

STAT3 Targeting by siRNA Nanocarriers in Tumor and DCs: a Strategy for Cancer Immunotherapy, Faculty of Pharmacy and Pharmaceutical Sciences Seminar Series, University of Alberta, Edmonton, AB, Canada, 2009

Inhibiting Tumor-Induced p-STAT3 in DCs as a Strategy for Cancer Immunotherapy, Faculty of Pharmacy and Pharmaceutical Sciences Research and Development Day, University of Alberta, Edmonton, AB, Canada, 2005

The Use of Nanoparticulate Delivery System to Disrupt Constitutively Activated STAT3 Signaling: an Approach for Cancer Immunotherapy, Faculty of Pharmacy and Pharmaceutical Sciences Seminar Series, University of Alberta, Edmonton, AB, Canada, 2005

---

**AWARDS**

2014 Dr. Waleed Kayali 1st Prize for Scientific Research (national wide), Saudi Pharmaceutical Society, Riyadh, Saudi Arabia

2010 Gattefossé Canada CSPS Award in Lipid-Based Drug Delivery (national wide), 13th Canadian Society for Pharmaceutical Sciences (CSPS) Annual Meeting. Vancouver, British Columbia, Canada

2009 Commendation letter on behalf of the American Association of Pharmaceutical Scientists (AAPS) and Springer for contribution in the Nanotechnology in Drug Delivery which is Volume X of the series Biotechnology: Pharmaceutical Aspects

## AWARDS

2009 AFPC Travel Award for Best Graduate Student Poster, Faculty of Pharmacy and Pharmaceutical Sciences Research Day, University of Alberta, Edmonton, AB, Canada

2008 1st Place Wu Hong Memorial Poster Prize, Faculty of Pharmacy and Pharmaceutical Sciences Research Day, University of Alberta, Edmonton, AB, Canada

2006 Faculty of Pharmacy and Pharmaceutical Sciences Nominee for the Ivy A Thomson and William A Thomson Graduate Scholarship (campus wide), University of Alberta, Edmonton, AB, Canada

2006 Dr. Nojaim Memorial Award for Best Graduate Student Poster Presentation, Faculty of Pharmacy and Pharmaceutical Sciences Research Day, University of Alberta, Edmonton, AB, Canada

2005 Wyeth Award for Best Podium Presentation, Faculty of Pharmacy and Pharmaceutical Sciences Research and Development Day, University of Alberta, Edmonton, AB, Canada

2005 Faculty of Pharmacy and Pharmaceutical Sciences Nominee for the Ivy A Thomson and William A Thomson Graduate Scholarship (campus wide), University of Alberta, Edmonton, AB, Canada

2005 Dorothy Whiteman Scholarship, Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta, Edmonton, Alberta, Canada

2005 Selected for inclusion in the 23rd Edition of Who's Who in the World, MARQUIS Who's Who®, New Providence, NJ, U.S.A

2004 Shoppers Drug Mart Graduate Scholarship in Pharmacy and Pharmaceutical Sciences, Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta, Edmonton, Alberta, Canada

2004 Selected for inclusion in the 5th Edition of Who's Who in Medicine and Healthcare, MARQUIS Who's Who®, New Providence, NJ, U.S.A

2003 Saudi Arabia Governmental Scholarship for Graduate Studies, King Saudi University, Riyadh, Saudi Arabia

2002 Second Class Honor, Kind Saud University, Riyadh, Saudi Arabia

2000 Student of the Year, College of Pharmacy, King Saud University, Riyadh, Saudi Arabia

2000 Servier Laboratories Award for Young Pharmacist, Paris, France

## RESEARCH GRANTS

YEAR	GRANT TITLE	AGENCY	ROLE	FUND (SAR)	STATUS
2011	Optimization of Oral Delivery for DNA Based Vaccines	KSU	Co-I	500,000	Completed
2013	Nanoparticles Development for the prevention of Tacrolimus-Associated Nephrotoxicity	KACST	PI	1,860,000	Completed
2015	Development of Functionalized Nanoparticles for Selective Killing of Cancer	KSU and University of Würzburg	Co-I	1,985,000	Funded

## RESEARCH GRANTS

2015	Selective Killing of Cancer with Metal Nanoparticles: Preclinical and Clinical Assessment	KSU and University of Würzburg	Co-I	2,860,000	Funded
2015	Bioresponsive Polymer Capsules for Disease-Triggered Activation of MRI Agents	KACST	PI	1,100,000	Funded
2015	Development and Characterization of a Novel Paclitaxel Nanoformulation for the Treatment of Multidrug Resistant Breast Cancer Model	KACST	PI	1,322,000	Funded
2015	Light-Responsive Nano-Based Delivery Systems of Biological and Chemical Therapeutics for Retinopathy	KACST	PI	1,100,000	Funded
2015	Development of Novel Nano-Formulations to Combat MRSA Infection	KACST	Co-I	1,944,000	Funded
2015	A Synergistic Theranostic Platform Based on DNA Cages for Dual Cancer Therapy and Imaging	KACST	Co-I	1,350,000	Funded
2016	Determining of Upconversion Nanoparticles Efficiency and Toxicity potentiality for In Vitro Luminescent Bioimaging Application	KACST	Co-I	1,500,000	Pending
2016	Novel Bioresponsive Micelle-Forming Copolymer for Ocular Delivery of Cyclosporine A	MOH	PI	1,200,000	Pending
2016	Application of Nanomaterials and Nano-composites in Cancer Detection and Therapy	KSU and University of Nottingham	PI	3,122,215	Pending
2016	Hybrid nanomaterials for on-demand drug delivery	KSU and University of Manchester	PI	3,161,456	Pending

## STUDENTS SUPERVISION

YEAR	STUDENT	INSTITUTION	PROJECT	ROLE	DEGREE
2016	Mohammad Alshihri	King Saud University	Characterization of Chitosome NP of 5-FU	Supervisor	B.Pharm
2016	Hammam Al-Baseet	King Saud University	PLGA NP for Ocular Delivery of Acyclovir	Supervisor	B.Pharm
2015	Mohammed Pharon	King Saud University	Characterization of Tacrolimus-Loaded NP	Supervisor	MBBS
2014	Essam Tawfik	King Saud University	Optimizing 5-Fluorouracil Loaded Polymeric Nanoparticles For Cancer Chemotherapy	Supervisor	MSc
2013	Uyen Tra Truc Ho	University of Alberta	Delivery of siRNA Using Lysine-Functionalized Rosette Nanotubes for Cancer Therapy	Co-supervisor	MSc
2013	Ziyad Alotaibi	King Saud University	PLGA NP for Loading of Atorvastatin	Supervisor	B.Pharm
2013	Mohammad Alyahia	King Saud University	PLGA NP for Loading of Tacrolimus	Supervisor	B.Pharm
2013	Abdulelah Alzahrani	King Saud University	PLGA NP for Loading of Simvastatin	Supervisor	B.Pharm
2013	Hisham Jghaiman	King Saud University	PLGA NP for Loading of Pravastatin	Supervisor	B.Pharm
2012	Abdullah Alqudhybi	King Saud University	Optimization of Drug Loading in PLGA Nanoparticles for Structurally Related Drugs with Different Water Solubility	Supervisor	B.Pharm
2012	Saqer Alarifi	King Saud University	Optimization of Drug Loading in PLGA Nanoparticles for	Supervisor	B.Pharm

## STUDENTS SUPERVISION

2012	Mohanned Alrahili	King Saud University	Structurally Related Drugs with Different Water Solubility Optimization of Drug Loading in PLGA Nanoparticles for Structurally Related Drugs with Different Water Solubility	Supervisor	B.Pharm
2011	Riyad Alzhirani	King Saud University	Influence of Solvent, Stabilizer, & Stabilizer's Concentration on the Physical Properties of PLGA Nanoparticles	Supervisor	B.Pharm

## TRAINING OF HIGHLY QUALIFIED PERSONNEL (HQP)

TRAINEE	POSITION	SPECIALTY	YEAR
Dr. Abdularif Khan	Research Assistant Professor	Microbiology	2011-present
Mohsen Khorshid	Senior Researcher	Microbiology	2011-2012
Dr. Mohammad Abulakalam	Research Assistant Professor	Pharmaceutics	2012-present
Dr. Shahnawaz Khan	Research Assistant Professor	Microbiology	2012-present
Riyad Alzhirani	Research Assistant	Pharmaceutics	2013-2015
Ahmad Alshahrani	Technician/Lab Manager	Biochemistry	2014-present
Adel Alhowaian	Research Assistant	Pharmaceutics	2015-present

## TEACHING ACTIVITIES

CODE	COURSE	INSTITUTION	YEAR
PHT 351	Sterile Dosage Forms	King Saud University	2002-2003
PHT 451	Extemporaneous Preparations	King Saud University	2002-2003
PHT 452	Principles of Dispensing Medications	King Saud University	2002-2003
PHARM 493	Pharmaceutical Biotechnology	University of Alberta	2007-2008
PHT 434	Ophthalmic Preparations	King Saud University	2010-2012
PHT 221	Colloidal Dispersions	King Saud University	2010-2012
PHG 424	Pharmaceutical Biotechnology	King Saud University	2010-2013
PHTR 495	Graduation Research Project	King Saud University	2010-present
PHT 560	Advanced Pharmaceutical Biotechnology	King Saud University	2012-present
PHT 324	General Immunology	King Saud University	2012-present
PHT 426	Pharmaceutical Biotechnology I	King Saud University	2013-2015
PHT 427	Pharmaceutical Biotechnology II	King Saud University	2013-2015
PHT 533	Drug Administration Systems	King Saud University	2015-present
PHT 540	Drug Delivery Systems	King Saud University	2015-present
PHT 626	Advanced Pharmaceutical Biotechnology	King Saud University	2016-present
PHT 628	Nanotechnology in Drug Delivery	King Saud University	2016-present

## PROFESSIONAL MEMBERSHIPS

International Society for Pharmaceutical Engineering (ISPE)

Material Research Society (MRS)

Controlled Release Society (CRS)

American Association of Pharmaceutical Scientists (AAPS)

Canadian Society of Pharmaceutical Sciences (CSPS)

International Pharmaceutical Federation (FIP)

Saudi Pharmaceutical Society (SPS)

## REFERENCES



His Highness Prince Dr. Turki Bin Saud Bin Mohammed Al Saud  
(King Abdulaziz City for Science and Technology, Saud Arabia)  
*President*



His Excellency Prof. Mohammed Almeshal  
(Saudi Food and Drug Authority, Saud Arabia)  
*Former CEO*



His Excellency Prof. Saad Al-Qasabi  
(Saudi Standards and Quality Organization, Saud Arabia)  
*Governor*



His Excellency Prof. Badran A. Alomar  
(King Saud University, Saud Arabia)  
*Rector*