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EDUCATION

- 2010-2011 Postdoctoral Fellowship in Nanomedicine, Supramolecular Nanoscale Assembly Group (SNAG), National Institute for Nanotechnology (NINT), National Research Council (NRC), Edmonton, Alberta, Canada
- 2003-2010 Ph.D. in Pharmaceutical Sciences (Nanobiotechnology), Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta, Edmonton, Alberta, Canada
- 1997-2001 Bachelor of Pharmaceutical Sciences (B.Pharm) (Excellence with Second Class Honor), College of Pharmacy, King Saud University, Riyadh, Saudi Arabia

POSITIONS AND APPOINTMENTS

- 2014 to date Dean of King Abdullah Institute for Nanotechnology, King Saud University, Riyadh, Saudi Arabia
- 2013 to 2014 Vice Dean of King Abdullah Institute for Nanotechnology, King Saud University, Riyadh, Saudi Arabia
- 2011 to date Director of the Nanomedicine Research Unit, Department of Pharmaceutics,
 College of Pharmacy, King Saud University, Riyadh, Saudi Arabia
- 2014 to date Associate Professor, College of Pharmacy, King Saud University, Riyadh, Saudi Arabia
- 2010 to 2014 Assistant Professor, College of Pharmacy, King Saud University, Riyadh, Saudi Arabia
- 2012 2013 Director of College of Pharmacy Research Centre, King Saud University, Riyadh, Saudi Arabia
- 2011 2013 Visiting Professor, National Institute for Nanotechnology (NINT), National Research Council (NRC), Edmonton, Alberta, Canada
- 2010 2011 Postdoctoral Fellow in Nanobiotechnology, Supramolecular Nanoscale Assembly Group (SNAG), National Institute for Nanotechnology (NINT), National Research Council (NRC), Edmonton, Alberta, Canada
- 2004 2005 Teaching and Research Assistant, Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta, Edmonton, Alberta, Canada
- 2002 2003 Teaching and Research Assistant, Department of Pharmaceutics, College of Pharmacy, King Saud University, Saudi Arabia

TRAINING AND WORKSHOPS

- 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
- 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
- 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, 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
- 2000 Community Pharmacy Training: dispensing, patient counseling and extemporaneous preparations, Riyadh, Saudi Arabia
- 1998 Summer Training in the Administration of Sales and Regulatory Affairs, Saudi Pharmaceutical Industries and Medical Appliances Corporation (SPIMACO), Riyadh, Saudi Arabia

GRANTS				
Grant	Agency	Role	Duration	Status
Nanoparticles Development for the prevention of Tacrolimus-Associated Nephrotoxicity	NPST- KACST	P.I.	2 years	Funded
Optimization of Oral Delivery for DNA Based Vaccines	CEBR	Co.I.	2 years	Funded

PUBLICATIONS

- 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 (IN PRESS).
- 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):1813-27.
- 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):1828-36
- 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
- Alshamsan A. (Corresponding Author), Paradoxical Signaling Pathways in Developing Thymocytes. J Pharm Pharmaceut Sci. 2011 Oct; 14(3):378-386
- 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
- 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
- Alshamsan A (Corresponding Author), El Bakkari M, Fenniri H., Efficiency of Cationic Rosette Nanotubes for siRNA Delivery. MRS Online Proceedings Library 2011, Jan.
- El Bakkari M, Beingessner R. L, Alshamsan A, Fenniri H., Electrostatic and Steric Effect of Peptides Functionalized on Self-Asssembled Rosette Nanotubes. MRS Online Proceedings Library 2011, Jan.
- 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
- 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
- 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
- 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

- 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
- 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
- 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

BOOK CHAPTERS

 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

- 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.
- 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 G∧C Rosette Nanotubes. 15th Canadian Society for Pharmaceutical Sciences (CSPS) Annual Meeting. Toronto, ON, Canada, 2012.
- Alshamsan A, El Bakkari M, Fenniri H., Influence of siRNA on the Self Assembly of Twin G^C Supramolecular Structure. 14th Canadian Society for Pharmaceutical Sciences (CSPS) Annual Meeting. Montréal, QC, Canada, 2011.
- Alshamsan A, El Bakkari M, 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, Fenniri H., Electrostatic and Steric Effect of Peptides Functionalized on Self-Asssembled 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 coencapsulated 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.
- 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, 200^v.
- 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.

PEER REVIEW

• Reviewer to the following Journals: Molecular Pharmaceutics, Journal of Pharmacy and Pharmaceutical Sciences, Journal of Biomedicine and Biotechnology, Saudi Pharmaceutical Journal, Tumor Biology

INVITED TALKS AND LECTURES

- Nanocarrier Delivery of siRNA to Cancer Cells, 96th Canadian Chemistry Conference and Exhibition, Canadian Society for Chemistry, Québec City, QC, Canada, 2013.
- 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

PROFESSIONAL MEMBERSHIPS

- International Society for Pharmaceutical Engineering (ISPE)
- Material Research Society (MRS)
- Controlled Release Society (CRS)
- American Association of Pharmaceutical Scientists (AAPS)
- American Society of Health-System Pharmacists (ASHP)
- Canadian Pharmacists Association (CPhA)
- Canadian Society of Pharmaceutical Sciences (CSPS)
- International Pharmaceutical Federation (FIP)
- Saudi Pharmaceutical Society (SPS)

AWARDS AND RECOGNITIONS

- 2013 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
- 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

COLLABORATORS

- Hicham Fenniri, Ph.D (Northeastern University, Boston, MA, USA)
 Professor of Chemistry
- Ayman El-Kadi, Ph.D (University of Alberta, Edmonton, AB, CANADA)
 Professor of Molecular Toxicology
- Hasan Uludag, Ph.D (University of Alberta, Edmonton, AB, CANADA)
 Professor of Chemical and Material Engineering
- Azita Haddadi, Ph.D (University of Saskatchewan, Saskatoon, SK, CANADA)
 Assistant Professor of Pharmaceutics

TEACHING ACTIVITIES

Course #	Description	Institution	Duration
PHT 351	Sterile Dosage Forms	King Saud University	2002-2003
PHT 451	Extemporaneous Preparations	King Saud University	2002-2003
PHT 452	Principles of Medication Despising	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- present
PHT 427	Pharmaceutical Biotechnology II	King Saud University	2013- present