

## Dr. Samer R. Abulateefeh

<http://academic.ju.edu.jo/S.AbuLateefeh/default.aspx>

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### Education:

- Ph.D. in Pharmacy, School of Pharmacy, University of Nottingham, Nottingham-UK. 2007-2011
  - Major: Pharmaceutics, Pharmaceutical Technology and Drug Delivery.
  - Minor: Nanotechnology, Smart Polymer Colloids and Cancer Therapy.
  - Thesis Title: Novel Thermo-Responsive Polymeric Nanoparticles for Cancer Therapy.
- B.Sc. of Pharmacy, Faculty of Pharmacy, University of Jordan, Amman-Jordan. 2000-2005

### Professional Experience:

- **September 2014 – Present:** Assistant Dean for Student Affairs, Faculty of Pharmacy, University of Jordan.
- **June 2011 - Present:** Assistant Professor, Department of Pharmaceutics and Pharmaceutical Technology, Faculty of Pharmacy, University of Jordan.
- **July 2005 – July 2007:** Pharmacist Formulator, Department of Research and Development (R&D), Hikma Pharmaceuticals, Amman, Jordan.

### Related expertise and skills:

- Preformulation studies.
- Formulation (Product development) studies.
- Scale-up of process and Troubleshooting.
- Bioequivalence studies, analysis of bioavailability and pharmacokinetic parameters.
- Validation Studies.

## Research Interests:

- **Polymeric nanoparticles for enhanced oral stability and bioavailability of drugs and proteins**

For low and high molecular weight drugs, oral delivery remains the most preferred route of drug administration due to the ease of administration and high patient compliance. In case of macromolecular drugs as insulin; oral administration mimics its precise physiologic pathway implying efficient extraction in the liver and hence minimizing undesired hypoglycemic shock that is associated with other routes of administration. However, oral delivery of proteins and many low molecular weight drugs is challenging due to the degradative action of proteolytic enzymes and harsh acidic environment in stomach. In addition, the hydrophilic nature of these drugs limits their cellular uptake and gastrointestinal permeability. We investigate the ability to enhance the oral bioavailability of drugs/ peptides by developing a number of advanced formulation techniques based on nanotechnology.

- **“Smart” thermo-responsive nanomedicine for cancer therapy**

Cancer is the leading cause of death in the world; a fact combined with the ineffective eradication of tumors by cytotoxic drugs alone, prompted to new therapeutic strategies combining chemotherapy with adjunctive treatments such as hyperthermia. We investigate the potential of combined chemotherapy and hyperthermia against tumors by developing thermos-responsive polymeric nanoparticles loaded with potent anti-cancer drugs and targeting them to “heated” tumors. Stimuli-responsive systems such as thermo-responsive polymers proved to enable better control over drug release, selective cellular uptake and tumor targeting. Collaborative projects encompass the utilization of gold nanoparticles as nano-heaters by taking advantage of their surface plasmon resonance properties.

## Research and Technical Skills:

- Synthesis of polymeric nanoparticles for biomedical applications. This includes the development of novel thermo-responsive nanomedicine for cancer therapy.
- Characterization of drug-loaded nanoparticles using:
  - Dynamic light scattering (DLS).
  - Zeta potential analysis.
  - Transmission Electron Microscope (TEM).

- Scanning Electron Microscope (SEM).
- HPLC.
- Fluorescence Spectroscopy.
- Synthesis of novel thermo-responsive polymers using a number of techniques such as:
  - Atom Transfer Radical Polymerization (ATRP).
  - Ring Opening Polymerization (ROP).
- Characterization of polymers using:
  - Gel Permeation Chromatography (GPC).
  - NMR
  - FT-IR
  - Temperature-controlled UV-Visible spectroscopy.
- Cell culture techniques, cellular uptake and toxicity studies:
  - Confocal microscope.
  - Fluorescence Activated Cell Sorting (FACS).
  - MTT assays.

### **Membership in Pharmaceutical Societies:**

- Jordan Association of Pharmacists.

### **Workshops and Training Courses:**

- E-Learning Workshop at the University of Jordan: Vision and Ideas for Development, 2 September 2012, University of Jordan, Amman, Jordan.
- Staff Development Workshops (50 hours), 15 January - 6 February 2012, Center for Educational Development, University of Jordan, Amman, Jordan.  
Subjects of Staff Development Workshops:
  - Designing Study Plans (6 hours).
  - Teaching Design and its Strategies (12 hours).
  - Effective University Teaching Skills (12 hours).
  - Exams Preparation and Learner's Assessment (12 hours).
  - Laws, Bylaws and Regulations of the University of Jordan (6 hours).
  - Academic Ethics (2 hours).
- Bioavailability and Bioequivalence Studies Workshop (BA/BE Studies), 17 and 18 June 2007, Prescription Pharma Support, in accordance with Hikma Pharmaceuticals, Amman, Jordan.

## Teaching Experience:

I'm teaching the following courses:

- Physicochemical Principles of Pharmacy.
- Physical Pharmacy.
- Pharmaceutical Calculations and Compounding of Dosage Forms.
- Pharmaceutical Technology 1.
- Seminar in Pharmaceutics and Pharmaceutical Technology.
- Practical Physical Pharmacy.
- Practical Pharmaceutical Calculations and Compounding of Dosage Forms.
- Practical Pharmaceutical Technology 1.

## Peer-Reviewed Publications:

- **S.R. Abulateefeh**, M.O. Taha, Enhanced drug encapsulation and extended release profiles of calcium-alginate nanoparticles by using tannic acid as a bridging cross-linking agent. *Journal of microencapsulation* 32 (2015) 96-105.
- A.M. Alkilany, **S.R. Abulateefeh**, K.K. Mills, A.I. Bani Yaseen, M.A. Hamaly, H.S. Alkhatib, K.M. Aiedeh, J.W. Stone, Colloidal Stability of Citrate and Mercaptoacetic Acid Capped Gold Nanoparticles upon Lyophilization: Effect of Capping Ligand Attachment and Type of Cryoprotectants. *Langmuir* 30 (2014) 13799-13808.
- **S.R. Abulateefeh**, M.A. Khanfar, R.Z. Al Bakain, M.O. Taha, Synthesis and characterization of new derivatives of alginic acid and evaluation of their iron(III)-crosslinked beads as potential controlled release matrices. *Pharmaceutical Development and Technology* 19 (2014) 856-867.
- R. Al-Otoum, **S.R. Abulateefeh**, M.O. Taha, Preparation of novel ionotropically crosslinked beads based on alginate-terephthalic acid composites as potential controlled release matrices. *Pharmazie* 69 (2014) 10-18.
- **S.R. Abulateefeh**, S.G. Spain, K.J. Thurecht, J.W. Aylott, W.C. Chan, M.C. Garnett, C. Alexander, Enhanced uptake of nanoparticle drug carriers via a thermoresponsive shell enhances cytotoxicity in a cancer cell line. *Biomaterials Science* 1 (2013) 434-442
- M. Soliman, R. Nasanit, **S.R. Abulateefeh**, S. Allen, M.C. Davies, S.S. Briggs, L.W. Seymour, J. A. Preece, A.M. Grabowska, S.A. Watson, C. Alexander, Multi-component synthetic polymers with viral-mimetic chemistry for nucleic acid delivery. *Molecular Pharmaceutics* 9 (2012) 1-13

- **S.R. Abulateefeh**, S.G. Spain, J.W. Aylott, W.C. Chan, M.C. Garnett, C. Alexander, Thermoresponsive polymer colloids for drug delivery and cancer therapy. *Macromolecular Bioscience* 11 (2011) 1722-1734

\*Among 1300 published articles, the above article has been selected as one of the top 9 articles and appeared for Wiley's *Best of Macromolecular Journals 2012*: <http://www.materialsvIEWS.com/best-of-macros-2012>

- **S.R. Abulateefeh**, A.O. Saeed, J.W. Aylott, W.C. Chan, M.C. Garnett, B.R. Saunders, C. Alexander, Facile synthesis of responsive nanoparticles with reversible, tunable and rapid thermal transitions from biocompatible constituents. *Chemical Communications* 40 (2009) 6068-6070

### Conference Contributions:

- **S.R. Abulateefeh**, Nanomedicines for cancer therapy. Oral presentation, *The 15<sup>th</sup> Scientific Congress of the Association of Pharmacy Colleges in the Arab World & The 3<sup>rd</sup> International Conference of the Faculty of Pharmacy at the University of Jordan*, Amman, Jordan (2012).
- **S.R. Abulateefeh**, J.W. Aylott, W.C. Chan, M.C. Garnett, B.R. Saunders, C. Alexander, Synthesis & characterization of novel thermo-responsive nanoparticles from biocompatible constituents. Oral presentation, *Polymeric Biomaterials Conference*, Reading, UK (2010).
- **S.R. Abulateefeh**, J.W. Aylott, W.C. Chan, M.C. Garnett, B.R. Saunders, C. Alexander, Responsive PLGA-b-(PPGMA-co-PEGMEMA) nanoparticles with reversible and tunable thermal transitions. Poster presentation, *RSC/SCI Macro Group Young Researchers Meeting*, Nottingham, UK (2010).
- **S.R. Abulateefeh**, J.W. Aylott, W.C. Chan, M.C. Garnett, B.R. Saunders, C. Alexander, Novel thermo-responsive nanoparticles: Synthesis and drug loading aspects. Poster presentation, *8<sup>th</sup> International Symposium on Polymer Therapeutics: From Laboratory to Clinical Practice*, Valencia, Spain (2010).
- **S.R. Abulateefeh**, J.W. Aylott, W.C. Chan, M.C. Garnett, B.R. Saunders, C. Alexander, Smart colloids with thermal transitions. Poster presentation, *UK-PharmSci- The Science of Medicines*, Nottingham, UK (2010).

## Funded Research Projects

- Deanship of Academic Research, The University of Jordan, Principal Investigator, “ *Pharmaceutical Nanotechnology for Enhancing the Oral Bioavailability of Bisphosphonates (BPs)-Osteoporosis agents*”. 2013-2015; JD 10,000.
- Deanship of Academic Research, The University of Jordan, Principal Investigator, “*Preparation of new thermo-responsive PLGA-polyether amine nanoparticles for drug delivery applications*”. 2015-2017; JD 27,000.
- Higher Council of Science and Technology, The University of Jordan, Principal Investigator, “*Enhanced oral bioavailability of insulin using PLGA NPs: in vivo evaluation of toxicity and therapeutic effect*”. 2015-2018; JD 38,370.

*Last updated in April, 2015*