PROFESSOR FARIBA DEHGHANI

Current Position and Contact Details:

Professor
Director of ARC Food Processing Training Centre
Director of Bioengineering Research Laboratory
Director of Centre of Excellence for Food Products, Processes and Supply Chain
School of Chemical and Biomolecular Engineering
The University of Sydney, Sydney, 2006, Australia
Email: fariba.dehghani@sydney.edu.au
Tel: 612 9351 4794

Academic Qualifications:

Ph.D.: Chemical Engineering, 1993-1997, The University of New South Wales (UNSW)
M.Sc.: Chemical Engineering, 1989-1991, Shiraz University
B.Sc.: Chemical Engineering, 1985-1989, Shiraz University (University medallist)

Previous Positions:

2006-2013	Associate Professor, *School of Chemical and Biomolecular Engineering, University of Sydney*
2002-2005	Senior Lecturer, *School of Chemical Engineering, UNSW*
1999-2001	ARC Postdoctroal Fellow, *School of Chemical Engineering, UNSW*
1996-1998	Research Associate, *School of Chemical Engineering, UNSW*
1993-1995	Research Assistant, *School of Chemical Engineering, UNSW*
1991-1992	Lecturer, School of Chemical Engineering, Shiraz University

Awards and Fellowships:

- Selected as one of the top Engineers for innovation in 2016 by Engineers Australia
- Dankook University Fellowship Award, 2014
- 2013 Australia-Harvard Fellowship Award
- 2012 WPI-AIMR Fellowship Award
- ICPI2011 Fellowship award 2011
- Research award from IChemE in 2012 for the best oral presentation
- Gold Star Award from the Vice Chancellor at the University of New South Wales for a grant application (2005)
- John Brodie Medal from the Institute of Engineers, Australia for Achievement in Chemical Engineering (1999)
- A travelling award to attend the fourth international symposium of supercritical fluids in Sendai, Japan (1998)
- My research has received more than 10 awards from Hays Corporation and other companies in conversazione at USyd and also IChemE, since 2007 for innovation in process and material development.

Service to discipline and community:

- Member of ARC College of Expert 2016- present
- Member of NHMRC grant assessor 2015-present
- Initiate a new entrepreneurship and innovation program for postgraduates in the Faculty of Engineering and IT at the University of Sydney in 2016
- Organiser of an international workshop for the Advances in Biotechnology for Food and Medical Applications, 5-7th October 2016, Sydney, Australia
- Organiser of a workshop for University of Sydney-Shaghai Jia Tong Research Alliance, 14th November 2016, Shanghai, China
- Organiser of a Forum for the Innovation in Food Processing and

Biotechnology, 8th October, 2015,Sydney, Australia

- Member of editorial board for Progress in Biomaterials
- Organiser of the "International workshop on nanomedicine and biomedical engineering, 14th February 2014,Sydney
- Member of technical Committee of Bio-nanotechnology for Engineering in Medicine and Biology Society (EMBS, IEEE), the world's largest international society of biomedical engineers
- Chair for the EMBS Micro and Nanotechnology in Medicine Conference, Kanapali, Hawaii, 3rd -7th December 2012.
- Member of program committee for Annual International Conference on Chemistry, Chemical Engineering, and Chemical Process (CCECP), Singapore, 2013-present.
- Advisory member of the scientific committee for the International Conference on Process Intensification for Sustainable Chemical Industries (ICPI2011) Beijing, China, on June 26-29, 2011.
- Organising Committee for Asia-Pacific Symposium on Process Intensification and Sustainability, May 9-11, 2014 Changzhou, China.
- Associate editor of Journal Biomaterials and Tissue Engineering
- Program Chair of International Workshop for Nanomedicine and Biomedical Engineering, Sydney, 14th February 2014.
- Assessor for Australian Research Council grants (Discovery, Linkage, Future Fellows, etc) and international competitive grant applications
- Reviewer of high impact factor journals (PNAS, Biomaterial, Acta Biomaterialia, Langmuir, AAPS, etc)

Invited and Keynote Speaker:

- Invited speaker for the 12th Pacific Rim Conference on Ceramic and Glass Technology, May 21-26, 2017, Hawaii, USA
- Invited speaker for ICMAT, 18-23 June 2017, Suntec Singapore
- Invited speaker for EMN Meeting on Polymer, March 13-17, Auckland, New Zealand
- Invited speaker for BIT's 2nd Annual World Congress of Smart Materials, March 4-6, 2016, Singapore
- Invited Speaker for 2015 4th TERMIS World Congress, September 8 -11, Boston, MA, USA
- Invited speaker for 3rd annual workshop on Micro- and Nanotechnologies in Medicine Biomaterial, Biomaterials Innovation Research Center at Brigham Woman's Hospital, 27-31st July, Boston, MA, USA
- Invited Speaker for Biomaterial International 2015, 1-6th June, Kenting, Taiwan
- Keynote speaker for the Asia-Pacific Symposium on Process Intensification and Sustainability, May 9-11, 2014 Changzhou, China.
- Invited speaker for TERMIS EU 2014, Genoa, Italy, June 10-13,
- Invited speaker for the Departments of Materials, Imperial College London, June 2014
- Invited speaker for The 2014 Tissue Engineering Conference, London UK, 2 - 4th June, 2014
- Keynote speaker for the NSF workshop on BioMEMS and Tissue Engineering, Cambridge, MA from July 29th-August 2nd, 2013
- 12th International Conference on Frontiers of Polymers and Advanced Materials (12th ICFPAM), 8-12 December 2013, Auckland, New Zealand.
- Invited speaker for the Tissue engineering workshop held at Harvard Medical School, Boston, US, 29th November 2012
- Keynote speaker for The International Symposium of Regenerative

Medicine in World Class University (ITREN-WCU), Dankook University, Korea, 20th November 2012.

- Invited speaker for Tissue engineering workshop in School of Mechanical Engineering, Seoul University of Technology as part of World Class University program, Seoul, Korea, 21st November 2012.
- Keynote speaker for the 2011 ITREN 13th Symposium of WPI-AIMR Annual Meeting, Sendai, Japan, 21-24 February.
- Keynote speaker for The International Conference on Process Intensification for Sustainable Chemical Industries (ICPI2011) Beijing, China, on June 26-29, 2011.
- Keynote speaker Sharif University and Baboul University of Technology, Iran, November 2010.
- Keynote speaker for the 5th International Symposium on Supercritical Fluids (ISSF), Atlanta April 2000.

Committees:

- Reserach intergrity committe (2008-2013)
- Academic board committe (2010-2012)
- Qualification committe for promotion (2006-present)
- Teaching and learning committee (2013)
- Postgraduate coursework committe (2007-2013)
- Postgraduate research committee (2007-2009)
- Institute of biomedical engineering and technology (2010-present)

National and International Recognition:

- My research led to the establishment of a start-up Company, Trimph Pty Ltd, in 2015 by receiving $1.5 M fund from a private investor
- My research led to several media release Link to personal webpage: http://sydney.edu.au/engineering/people/fariba.dehghani.php
- My recent work in synthesis of an injectable polymer for cartilage repair was nominated as one of top ten posters in MRS 2012 in Boston, USA
- As a results of my international reputation I have been invited to write more than 5 review articles and also book chapters (e.g. three in the last year)
- My research was highlighted in ARS Technica-Boston MA as a breakthrough in biomaterials (http://arstechnica.com/science/news/2008/10/near-liquid-co2-gives-a-boost-to-cell-scaffolds.ars).
- I was interviewed by ABC radio for my cutting edge research for cartilage repair (http://www.radioaustralia.net.au/pacific/radio/program/innovations/cartilage-repairgel-for-sporting-injuries/930384), 23rd November 2012
- My research for the production of vitamin K7 was a hot topic on human health news Rx one of the world's largest producer of health news in November 2011 and January 2012:http://food.verticalnews.com/articles/6360648.html,http://food.verticalnews.com/articles/6360648.html, http://www.newsrx.com/healtharticles/2769808.html)
- The work for vitamin K7 production was also selected as the best postgraduate poster presentation at World Congress on Engineering and Computer Science (WCECS 2012) and IChemE 2012 at Sydney University.
- I have several media release for my innovative research and achievements:http://sydney.edu.au/news/84.html?newscategoryid=2&newsstoryid=13301; http://sydney.edu.au/news/84.html?newsstoryid=11974;

http://sydney.edu.au/news/84.html?newsstoryid=11700;
http://sydney.edu.au/news/84.html?newsstoryid=8787;

Industry Collaborators: I have Strong collaborative research with a broad range of Companies in food and biotech sector. I have been successful to attract competitive funds for strengthening this collaboration and translate my research from laboratory to market. I have received an award from Australian Research Council (ARC) in 2014 to establish an Industrial Training Centre Titled "The Australian Food Processing Industry in the 21st Century". In this Centre 12 companies will collaborate with me. These include but not limited to AB Mauri Technology and Development Pty Ltd, Agricure Pty Ltd, Batlow Premium Juices, Ecopha, Lang Technologies Pty Ltd, Marine Biotechnology Australia Pty Ltd, Peanut Company of Australia, Perfection Fresh Australia Pty Ltd, PharmaCare Laboratories Pty Ltd, Stahmann Farms Enterprises Pty Ltd, Baxter and Sanitarium and Baxter. In addition I have conducted research in collaboration with Companies such as Novotech, Cardia Bioplastics Pty Ltd, Evonik, and Global Human Capital, Gravity, POD, VIP Packaging, and in the past with Merck, Pharmaction and Eiffel Technologies Ltd.

RESEARCH OUPUTS:

Funded Projects between 2006 and 2013

I received **$32 M** over the past 7 years from competitively funded national ($12 M) and international ($20M) grants as well as industry grants. I am sole or first CI on 18 of these grant applications. The following are the list of some of these grants:

Year	Project ID and Funding Source	Applicants and Title	Amount funded
2017-2019	FEIT-USyd	**Dehghani F,** Centre of excellent for Innovation in Food Products, Process and Supply Chain	$3,900K
2017	NHMRC Major Equipment Grant	**Dehghani F,** High Precision 3D Printer for Processing Multi-biomaterials	$260K
2017-2019	ARC Discovery	**Dehghani F,** Khademhosseini A, Fathi A, Design a Skin on a Chip for Investigating Wound Healing Mechanism	$391K
2016-2018	LP160100988	Gomes V, **Dehghani F**, Chandrawati R, Norbert Windnab,	$580K
2015	USYD Major Equipment Grant	**Dehghani F**, Flow cytometer	$100K
2015	USYD Major Equipment Grant	**Dehghani F**, Fully automated reactor	$55K
2015	NHMRC Major Equipment Grant	**Dehghani, F**, Chrzanowski W, O'Neill G , Chandrawati R, ElastoSens TM Bio2-Nondestructive and Contactless biophysical tests of soft biomaterials and cell cultures	$55K
2015-2016	SPARC-Cancer	O'Neill G, Biro M, **Dehghani F**, et al, *Cancer invasion and metastasis: how actin networks control cell movement in 3 dimensional environments*	$136K
2015-2018	LP150100314	**Dehghani F**, Cunningham T, Gomes V, *A new platform for developing a compound against Herpes Simplex Virus*	$760K
2015-2016	NHMRC, APP1093307	Weiss T, **Dehghani F**, Edwards G, Biothermosetting bone filler: an injectable osteoconductive repair material	$588K
2015-2016	International Program Development Fund, USYD	**Dehghani F**, Kirckpatrick C, Heilshorn S, Khademhosseini A, Choy K, Yang Y, Perego P, Bio-inspired strategies and advances in micro and nanotechnology for Food, Medicine and Biomedical Devices	$50K

Year	Project ID and Funding Source	Applicants and Title	Amount funded
2015	USyd Major Equipment grant	**Dehghani F, Valtchev P,** Analytical equipment for structural analysis of complex molecules and targeted quantitation of unknowns. Liquid Chromatography-Mass Spectrometery (LCMS) with ion-trap mass analyzer with extended mass range reaching 4000m/z.	$170K
2014-2015	Marine Biotechnology Australia	**Dehghani F,** Study antiviral activity of hemocyanin	$145K
2014-2016	IC140100026	**Dehghani F**, Kavanagh J, Barton G, Raubenheimer D, Langrish T, Fletcher D, Abbas A, Chae S, Arab Tehrany E, McConchie R, Phan Thien K, Copeland L, Gomes V, Dong Q, Downard K, Making the Most of Every Opportunity: Innovative Solutions for the Australian Food Processing Industry in the 21st Century	$3,573K
2013-2020	Korean Fund	Kim HW, Chrzanowski W, Chan HK, Dehghani F, Weiss T, et al, BK21 Plus Program at Dankook University for Nanobiomedical Regenerative Medicine Global Research Center	$20,000K
2013	USYD Major Equipment Grant	Chrzanowski W, Breat F, Bilek M, Chan HK, Perrier S, **Dehghani F**, et al, NanoIR –nanoscale bioimaging with continuous mapping of chemical and physical properties, USYD major equipment grant 2012	$198K
2013	USYD NHMRC Major Equipment Grant	Young P, Triani D, **Dehghani F**, et al, Simultaneous 3-Dimensional -structural, mechanical and chemical analysis of biological and material samples using a coupled confocal Raman-Atomic Force Microscope (CRAM), USYD NHMRC grant 2012	$200K
2012-2014	LP120200489	**Dehghani F,** Chrzanowski W, Design Clean Technologies for the Synthesis and Purification of Biohybrid Polymers, ARC Linkage grant, 2011	$445K
2012-2014	DP120103911	Weiss A**, Dehghani F,** Versatile Elastin Based Hybrid Hydrogel for Chondrocyte Transplantation and Repair	$280K
2009-2012	LP100100347	**Dehghani F**, Kavanagh J, New Fermentation and Purification Production Technologies for Menaquinone-7 for Promoting Bone and Cardiovascular Health	$320K
2010-2013	LP100100799	**Dehghani F**, Gomes V, Extraction and Purification of a Novel Glycoprotein with Antiviral Activity from an Australian Mollusc	$570K
2009-2011	DP0988545	**Dehghani F**, Kazarian SG, Khademhosseini A, Benign fabrication of microfluidic hydrogel for improved artificial vasculature in bone implants	$330K
2005-2006	LP0455701	Foster N, **Dehghani F**, Oral Insulin Delivery Facilitated by Enteric Coating Using Dense Gas Technologies	$343K
2006-2008	DP0665514	Foster N, **Dehghani F**, Carbon Dioxide: Solvent, Carrier and Reagent for Novel Polymer Networks With Controlled Nano-Architectures	$260K
2007	LE0775720	Chan H-K., Stewart P, Larson I, Young P, Traini D, Weiss A, Murray M, **Dehghani F**, Hibbs D, Warr G, State-of-the-art high resolution thermal analysis suite for the life and material sciences	$100K
2013	Australian-Harvard Fellowship	**Dehghani F,** Khademhosseini A, Co-Culture stem cells with endothelial cells in bioactive hydrogels for tissue regeneration	$25 K
2013	USYD International Research Collaboration Award	Khademhosseini A, **Dehghani F,** Microfluidic fabrication of engineered tissues	$15 K
2012	USYD Major equipment grant	**Dehghani F,** Cellometer/flow cytometer equipment	$37 K
2011	USYD	**Dehghani F**, Fluoroscent Microscopic Analysis, Major	$15K

Year	Project ID and Funding Source	Applicants and Title	Amount funded
		equipment grant, Faculty of Engineering, USYD	
2011	USYD	**Dehghani F,** John Kavanagh, Xiaoke Yi, Fiber Optic Biosensor, Major equipment grant, Faculty of Engineering,	$16.5K
2010/2011	USYD, NHMRC equipment grant scheme	**Dehghani F**, Weiss T, Bilek M., Zreiqat H., Dunstan C, Rohanizadeh R, Chrzanowski W, Instron Testing Material Instrument	$75K
2010/2011	USYD, NHMRC equipment grant scheme	Chrzanowski W, Bebawy M, **Dehghani F**, Chan Hk, Rohanizadeh R, qNano - Scanning Ion Occlusion Spectroscopy (SIOS)	$16K
2010	UNSW	Mammucari R**, Dehghani F,** Biosynthesis of structured triglycerides in dense gases	$25K
2010	Australian Harvard Fellowship	Khademhosseini A, **Dehghani F**, Cell-laden microfluidic hydrogels for creating neural tissue constructs	$26K
2009	USYD Fellowship award	Khademhosseini A, **Dehghani F**, "Fabrication of microfluidic hdyrogels for tissue engineering"	$16K
2008	NSEC, USA	Tomasko D, **Dehghani F**, Production of a new bioactive polymeric composite for total 200joint arthroplasty using one stage dense gas technology	$25K
2008	USYD major equipment grant	**Dehghani F**, Fourier Transfer Infrared Microscope with Mapping, USyd, Major equipment grant	$78K
2008	USYD fellowship award	Kazarian S, **Dehghani F**, "Enhancing Pharmaceutical and Biomedical Research with Spectroscopic Imaging"	$13K
2008	USYD, Sydnovate	**Dehghani F**, Solvent free process for the synthesis of solid based catalysts	$43K
2007	NSEC, USA	Tomasko D, **Dehghani F**, "Functionality of enzymes in polymer surfaces after CO2 impregnation and bonding"	$9K
2007	USYD	**Dehghani F**, "Design a benign technique for impregnation of active compound into polymer matrix for biomedical applications"	$70K
2007	USYD	**Dehghani F**, "Multipurpose high performance liquid	$95K
2007	USYD, Sydnovate	**Dehghani F**, Biohydrogel fabrication by a novel method	$25K
2007	LE0775720	Chan HK, Stewart P, Larson I, Young P, Traini D, Weiss T, Murray M, **Dehghani F**, Hibbs D, Warr G, State-of-the-art high resolution thermal analysis suite for the life and material sciences	$100K
2004-2006	LP0455701	Foster N, **Dehghani F**, Oral Insulin Delivery facilitated by Enteric Coating using Dense Gas Technologies, ARC Linkage	$360K
1999-2001	ARC Postdoctoral Fellowship	**Dehghani F,** The effect of intermolecular interaction in a molecular level on solubility of Naproxen in supercritical CO_2	$300K

List of Publications

Patents:

Australian Provisional Patent Application

(1) **Dehghani F**, Bahramian B, Method of extracting impurities from plastic materials, Provisional Patent No. 2016901288.

(2) Fathi A, Mithieux S, Weiss A, **Dehghani F**, Bone formation, Australian Provisional patent, AU2015903565.

(3) Fathi A, Mithieux S, Weiss A, **Dehghani F**, Application of thermo-responsive bioactive injectable hydrogel for bone regeneration, Australian Provisional patent, 2015, AU2015903552.

(4) Fathi A, **Dehghani F**, Antiseptic polymer and synthesis thereof, AUP2015902943.

(5) Talaie Zanjani N, Valtchev P, Gomes V, Saksina MM, Diefenbach R, Cunningham T, **Dehghani F,** Abalone hemocaynin and method of treatment and prevention of viral infection using the same, AUP 2014904790

(6) Schindeler A, Cheng T, Valtchev P, **Dehghani F**, Little D, High viscosity liquid carrier materials for biotechnology and drug delivery, PCT/AU2015/050069.

(7) **Dehghani F**, Kavanagh J, Regtop HL, Talbot A, Berenjian A, Mahanama R, Fermentation and *in situ* extraction of products, WO 2014131084.

(8) **Dehghani F**, Ravarian R, Chrzanowski W, Improved PMMA-hybrid network, Aus. Prov. Pat. No. 2013900475, PCT/AU2014/000126.

(9) **Dehghani F**, Weiss A, Wei H, Mithieux S, Fathi A, A peptide-hydrogel composite, PCT/AU 2012/001566.

(10) **Dehghani F**, Zhong X, Organometallic catalyst and preparation thereof, Patent PCT Int. Appl. (2010), WO 2010069000, PCT/AU2009/001652

(11) **Dehghani F**, Annabi N, Mithieux S, Weiss A, Hydrogels derived from biological polymers PCT Int. Appl. (2009), WO 2009105820, PCT/AU2009/000223

(12) Foster, N.R., Regtop, H.L., **Dehghani, F**., Bustami, R.T., Chan, H-K., Synthesis of small particles. PCT Int. Appl. (2002), WO 0245690, PCT/AU2001/001584

(13) Foster NR; Regtop HL; **Dehghani F**, Preparation of small particles for pharmaceutical delivery**.** PCT Int. Appl. (2003), WO 2003047553.

(14) Foster NR; Regtop HL; **Dehghani F**; Tandya A, Formulation of fine particles using liquefied or dense gases. PCT Int. Appl. (2003), WO 2003088951.

(15) Foster NR; **Dehghani F**; Combes G, Regtop H L; Particles Synthesis Apparatus and Method, WO2004/089524.

Book Chapters:

1. Bahramian B, **Dehghani F**, New catalytic systems for fixation of carbon dioxide into valuable poly alkaline carbonate, in Advanced Catalytic Materials", Chapter 3, ISBN 978-953-51-4596-7 (accepted, 24th October 2015) http://dx.doi.org/10.5772/6196 **(invited)**

2. Negahi Shirazi A, Chrzanowski W, Khademhosseini A, **Dehghani F**, Anterior cruciate ligament: structure, injuries and treatments, in Engineering Mineralized and Load Bearing Tissues, Springer International Publishing,161-186, **2015** (accepted April 2015) **(invited)**

3. **Dehghani F**, Fathi A, Controlling architecture and shape of hydorgels, in Fundamentals, Properties and Applications Volume 1: Fundamentals of Hydrogels, in Gels Handbook, edited by Utkan Demirci, Ali Khademhosseini, World Scientific Publishing, 2016. **(invited)**

4. **Dehghani F**, Fathi A, Challenges for cartilage regeneration, in Biomaterials for implants and scaffolds, Springer Series in Biomaterials Science and Engineering, editor Qing Li, Yiu-Wing Mai, and Heather Feng, **2014. (invited)**

5. Annabi N, Vrana NE, Zorlutuna P, **Dehghani F**, Khademhosseini A. "Engineering Biomimetic Scaffolds" in "Scaffolds for Tissue Engineering: Biological Design, Materials and Fabrication" edited by Claudio Migliaresi and Antonella Motta. Pan Stanford Publishing, **2014**, ISBN 978-981-4463-20-1.**(invited)**
https://www.academia.edu/5208032/Scaffolds_for_Tissue_Engineering_Biological_Design_Materials_and_Fabrication.

6. Chrzanowski W, **Dehghani F**, Standardisation in cell and tissue engineering, Chapter 6 in Synthetic materials development, Edited by Vahid Salih, Woodhead Publishing, **2012**, Chapter 9, 166-196.

7. Mammucari R.; **Dehghani F**; Foster NR; "*Processing pharmaceuticals using dense gas technologies, in Encyclopedia of Chemical Processing*", Lee, S. and LaPierre, C. W., (Eds) Marcel Dekker, 2451–59, **2005**.**(Invited)**

8. Combes G, **Dehghani F**, Mammucari R, Foster NR, *"Hydrogenation Reactions in Dense Gas Systems"*, in Encyclopedia of Chemical Processing, Lee S and LaPierre CW, (Eds) Marcel Dekker, 1337–48, **2005**. **(invited)**

9. Combes GB, **Dehghani F**, Lucien FP, Dillow AK, Foster NR, "Asymmetric catalytic hydrogenation in CO_2 expanded methanol an application of Gas antisolvent reactions (GASR)", Reaction engineering for pollution prevention, in Abraham M.A. and Hesketh R.P. (Eds), Elsevier, **2000. (Invited)**

Journal Articles:

1. Bahramian B, Fathi A, **Dehghani F,** A renewable and compostable polymer for reducing consumption of non-degradable plastics, Polymer Degradation and Stability, **2016**, 133, 174-181.
2. Karahan H, Wei L, Goh K, Liu Z, Birer O, **Dehghani F,** Xu C, Wei J, Chen Y, Bacterial physiology is a key modulator of the antibacterial activity of graphene oxide, *Nanoscale,* **2016, 8**, 17181-17189.
3. Wu J, **Dehghani F**, Cunningham A, Dienfenbach R, Comparison of Haliotis rubra hemocyanin isoforms 1 and 2, Gene Reports, **2016**, 4, 123-130.

4. Goh K, Heising J, Yuan Y, Karahan H, Wei L, Zhai S, Koh JX, Htin NM, Zhang F, Wang R, Fane A, Dekker M, **Dehghani F**, Chen Y, Sandwich-architectured poly(lactic acid)-graphene composite food packaging films, ACS Applied Materials & Interfaces, **2016**, 8, 9994-10,004.

5. Negahi Shirazi A, Fathi A, Suarez FG, Wang Y, Maitz PK, **Dehghani F**, A Novel Strategy for Softening the Gelatin-Bioactive Glass Hybrids, *Journal of ACS Applied Materials and Interfaces,* **2016**, *8* (3), pp 1676–1686.

6. Ebrahimi Ghadi A, Saffari M, **Dehghani F**, Langrish T, Incorporation of Acetaminophen as an Active Pharmaceutical Ingredient into Porous Lactose, *International Journal of Pharmaceutics*, **2016,** 499(1-2), 217-227 (IF:3.65)

7. Talaei N, Sairi F, Saksena MM, Valtchev P, Dienfenbach R, Hueston L, Dienfenbach E, Cunningham T, Gomes V, **Dehghani F,** Abalone Hemocyanin Blocks the Entry of HSV-1 into Cells Calling a New Antiviral Strategy, Journal of Antimicrobial Agents and Chemotherapy, **2016**, 6(2), 1003-1012 (IF:4.4).

8. Manavitehrani I, Fathi A, Badr H, Daly S, Negahi Shirazi A, **Dehghani F**, Biomedical Applications of Biodegradable Polyesters, *Polymers*, **2016**, 8 (1),1-32.

9. Paini M, Daly SR, Aliakbarian B, Fathi A, Arab Tehrany E, Perego P, **Dehghani F**, Valtchev P, An Efficient liposome based method for antioxidants encapsulation to prolong their shelf life, *Colloids and Surfaces B: Biointerfaces*, **2015**, 136, 1067-1072 (IF:4.15)

10. Bahramian B, Ma Y, Rohanizadeh R, Chrzanowski W, **Dehghani F**, A new solution for removing organometallic compounds residues from biodegradable polymers, *Green Chemistry*,2016, 18, 3740-3748.(IF: 8.02)

11. Manavitehrani I, Fathi A, Wang Y, Maitz PK, **Dehghani F**, Reinforced poly(propylene carbonate) composite with enhanced and tunable characteristics, an alternative for poly(lactic acid), *Journal of ACS Applied Materials and Interfaces*, **2015**, 7(40):22421-30 (IF:6.72)

12. Wakelin E, Fathi A, Kracica M, McCulloch D, Wise S, Weiss A, **Dehghani F**, McKenzie D, Bilek M, Mechanical Properties of Plasma Immersion Ion Implanted PEEK for Orthopaedic Implants, *Journal of ACS Applied Materials and Interfaces*, **2015**, 7, 23029-23040. (IF: 6.72)

13. Cheng TL, Murphy CM, Ravarian R, **Dehghani F,** Little DG, Schindeler A, Bisphosphonate-adsorbed ceramic nanoparticles increase bone formation in an injectable carrier for bone tissue engineering, *Journal of Tissue Engineering,* **2015***,* 6, 1-9. doi:10.1177/2041731415609448 (IF:2.72)

14. Ravarian R, Murphy CM, Schindeler A, Rawal A, Hook JM, **Dehghani F**, Bioactive poly(methyl methacrylate) for bone fixation, RSC Advances, **2015**, 5, 60681–60690. (IF:3.84)

15. Yu NYC, Fathi A, Murphy CM, Mikulec K, Peacock L, Cantrill LC, **Dehghani F**, Little DG, Schindeler A, Local co-delivery of rh-BMP-2 and cathepsin K inhibitor L006235 in poly(d,l-lactide-co-glycolide) (PLGA) nanospheres, *Journal of Biomedical Materials Research: Part B - Applied Biomaterials,* **2015,** DOI: 10.1002/jbm.b.33481. (IF: 2.75)

16. Ravarian R, Craft M, **Dehghani F**, Enhancing the biological activity of chitosan and controlling the degradation by nano-scale interaction with bioglass, *Journal of Biomedical Materials Research: Part A* **2015**, 103(9), 2898-2908. (IF: 2.3)

17. Marshall G, Valtchev P, **Dehghani F**, Gomes VG, Thermal denaturation and protein stability analysis of hemocyanin from *Haliotis Rubra, Journal of Thermal Analysis and Calorimetry,* **2015***,* 123(3), 2499-2505. DOI: 10.1007/s10973-015-4827-2 (IF: 2.04)

18. Sairi F, Valtchev P, Gomes V, **Dehghani F**, Fluorescence-Activated Cell Sorting combined with Fluorescence *in situ* Hybridization and Immunofluorescence to Isolate and Characterize Rhogocytes in *Haliotis laevigata, Marine Biotechnology*, **2015**, 17(2), 168-179 (IF: 3.43)

19. Wang Y, Mithieux SM, Kong Y, Wang XQ, Chong C, Fathi A, **Dehghani F**, Panas E, Kemnitzer J, Daniels R, Kimble RM, Maitz PK, Li Z, Weiss AS, Tropoelastin icorporation into a dermal regeneration template promotes wound angiogenesis, *Advanced healthcare Materials*, **2015**, 4(4):577-84. (IF: 4.88)

20. Berenjian A, Mahanama R, Talbot A, Biffin R, Regtop H, Kavanagh J, **Dehghani F,** Vitamin K series: current status and future prospects, *Critical Reviews in Biotechnology*, **2015,** 35(2), 199-208 (IF: 6.47)

21. Fathi A, Lee S, Breen A, Negahi Shirazi A, Valtchev P, **Dehghani F**, Enhancing the mechanical properties and physical stability of a biomimetic polymer hydrogels for micro-patterning and tissue engineering applications, *European Polymer Journal,* **2014**, 59, 161-170 (IF:3.07)

22. Fathi A, Mithieux SM, Wei H, Chrzanowski W, Valtchev P, Weiss AS, **Dehghani F**, Fabrication of protein based cell-laden injectable hydrogels with tunable gelation, mechanical and biodegradation properties, *Biomaterials*, **2014**, 35, 5423-35 (IF:9.07)

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Management Role/Service to University and Community:

I have made considerable service to the national community of chemical engineering and biomedical engineering. I have also been active in service to the University of Sydney in varied roles during the last seven years.

Associate Dean of Postgraduate Coursework (2009)

This role involved enormous tasks including monitoring the performance of students, implementing the resolutions and policies of the Faculty and university, assessment of the new UoS, amendments of the current programs and UoS, the development of new degrees, liaising with postgraduate committee, faculty board, directors in each school, graduate school of engineering and the university postgraduate committee. During this period I have also taken on a leadership role in restructuring the ME and MPE programs in the Faculty of Engineering and IT that have been approved by academic board and received provisional accreditation in 2009, followed by full accreditation in 2012.

Director of postgraduate coursework and Accreditation

I have had this role in my School since 2007, which has been a very demanding task due to the significant changes that have been made in the postgraduate coursework program. I managed the restructuring of the ME and MPE programs for Chemical Engineering stream in 2009 and 2011. I have directed the preparation of documentations for MPE for submission to the Engineers Australia in 2009 and 2011, a major task that involved months of work and coordination between students and staff. MPE in Chemical Engineering was the first Master degree that was accredited in 2011 due to our outstanding submission of performance in implementing this curriculum and adequate number of postgraduates who completed their degree in our school successfully and recruited by several large companies in Australia.

Director of Postgraduate Research (*2007-2009)*

This role is extensively research oriented and carries a large administration load in managing approximately 70 postgraduates/year. I was responsible for liaising between the Faculty and School for implementing resolutions and policies. I have actively been involved in decision making for ranking applicants for scholarships, postdoctoral fellowships, early career and major equipment grant applications. In addition, I managed postgraduates throughout their candidature for their induction, annual review, confirmation seminars, thesis submission, and their related issues. I have been a leader to make significant changes in managing postgraduates in our school and marketing the research in my School.

Service to the University

I have been invited to serve on a number of key central University committees to work on policies, guidelines and resolutions. This includes Academic Board member (2010-2011) and Member of Research Integrity (2009-2013). During this period I have attended the academic board meetings, several interviews for recruiting academic staff and promotion committees. In addition, I ensure that the policies we develop in research integrity committee have been implemented in my Faculty. It is important to note that my Faculty, compared with others, has minimal issues and cases of research misconduct. I have also actively been involved in the recruiting process in my School, Faculty and also University level for selection of dean, academics, postdoctoral fellows and administration

staff.

Finally, I serve as a disciplinary advisor at the university open day, information day and enrolment days. I creatively initiated making ice cream, which attracts many students to consider degrees in my faculty and one of the most popular activities of open day.

Establishment of Institute of Biomedical Engineering and Technology

I played a key role as an outstanding biomedical engineering researcher in my school to establish with my colleagues (e.g. Prof. Feng, Prof. Ruys, A/Prof. Dunstan and Dr McEwan) the Institute of Biomedical Engineering and Technology, which is a major research cluster in our Faculty. This institute has been launched in 2011 and since then we have led the Faculty to further foster interdisciplinary, multidisciplinary research across Faculty, University, nationally and internationally.

- I have organised workshops in the area of biomedical engineering;
- I have invited world class leaders to give lectures at this institute that led to establishment of several collaborations;
- I have invited the manager of US Airforce to visit our Faculty for future fund applications from this organisation;
- Our recent application for USyd Research Networks Scheme was successful in 2013 and we are now applying for funding to create a research network to have a visible impact in addressing the complex and significant problems facing our nation and our world.

We are planning to use relevant intellectual resources from across the University and provide structures for cross-disciplinary research and education at the University level. Our goal is to integrate our research with Charles Perkins Centre (CPC) that is one of the recent initiatives at USyd to work collaboratively with our colleagues and resolve the major health issues such as cardiovascular, obesity and diabetes.

Establishment of Bioengineering Laboratory

I have established an advanced world class facility in the school of Chemical and Biomolecular Engineering for conducting cutting edge research in bioengineering. This facility provides an opportunity for collaboration and attracting researchers (since 2006 at least 30 postgraduates, 60 honours/ME/MPE and visitors nationally and internationally). I have played a significant role in training these researchers that has been appreciated by them and my colleagues. This laboratory has facilities for synthesis and processing of biomaterials including polymers and bioceramics using advanced technologies, fermentation facility, cell culturing and several world class analytical instruments for characterisation of these materials and conducting biological assays.

Establishment of International collaboration

I have initiated collaboration between University of Sydney and international world class universities:

- I have established long term collaborations with Harvard Medical School and Massachusetts Institute of Technology (MIT) since 2007. This collaboration resulted in publication of book chapter, papers in high impact factor journals (more than 8), 6 conference

proceedings, a successful ARC grant (DP0988545) and an NHMRC grant for my former PhD student to conduct collaborative research for a period of 4 years between Harvard Medical School and the University of Sydney. We are currently seeking to apply for several different competitive grant applications (e.g. NIH, ARC, NHMRC).

- I have commenced collaborative research with other prominent researchers in several different universities such as Imperial College London, Stanford University, Ohio State University, Tohoko University, University Medical Centre of the Johannes Gutenberg University and Genoa University since 2007. These collaborative research resulted in receiving over than 10 awards from different organisations (e.g. US NSF, Australian Endeavor Awards, funds from these Universities and also University of Sydney) for Visiting Research Fellowships. The outcomes of these collaborative research have been published in high impact factor journals in the field of biotechnology and biomedical engineering.
- I had a leadership role in establishing an international and multidisciplinary collaborative research with different disciplines and Industry partner at the University of Sydney (Engineering, Science, Medicine and agriculture) that involve 16 academics from University of Sydney (including academics from CPC), one international academic, at least 11 companies (10 national and one international). This initiative was successful and I have received over than $3.5 M in 2014 from ARC for a period of three years to launch a biotechnology and food processing training centre. This fund will provide opportunity to employ three postdoctoral fellow, 13 PhD students to conduct cutting edge research in a collaborative environment to solve real industry based problems, mainly in processing healthy food to prevent chronic diseases (cardiovascular, cancer, influenza and obesity).
- I have played a key role in establishing an agreement between University of Sydney and Dankook University in Korea for teaching and research. As part of this activity we organised so far two workshops (2012 and early 2014) and invited researchers from both Universities to present their research in the area of biomedical engineering and tissue regeneration. We have been successful in receiving $20 M fund in 2013 for a period of 7 years to establish a research centre: “BK21 Plus Program at Dankook University for Nanobiomedical Regenerative Medicine Global Research Center”. As part of this program Dankook University will fully fund postdoctoral fellows and postgraduate to conduct multidisciplinary research under my supervision and my colleagues (Prof. Weiss in School of Molecular Bioscience, Prof. Hak-Kim Chan and Dr Wojciech Chrazonwiski from Faculty of Pharmacy).
- I invited delegates from Beijing University of Chemical Technology to visit our Faculty in October 2012. After this visit they showed interest to sign a memorandum of understanding between the universities for education and research, which is underway.
- I organised a visit by a delegates from Far Eastern Federal University in 2012, one of the top Universities in Russia. The delegates were keen to establish collaborative research with our school in the area of biotechnology, particularly biomedicine and food engineering.
- I was one of the key speakers for China Expo in 2011 and act as a delegate from University of Sydney to promote Biomedical

Engineering in my Faculty. In yet another case, in 2008 I was one of the key members of delegates from our Faculty to promote our programs in different Universities in China. These visit led to attracting several students for postgraduates and undergraduate coursework in our school.