Curriculum vitae

Name:
Dr. Sepehr Talebian
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EDUCATION

- **PhD in Chemistry** **2016-2020**
  University of Wollongong, Australia
  Thesis Title: "Coaxial hydrogel structures for drug delivery to tumors"
- **M.S. in Material Engineering** **2012-2014**
  University Malaya, Kuala Lumpur, Malaysia
  Thesis Title: "Fabrication of Chitosan/Bioglass Nanofibers as Scaffolds for Bone Cell Regeneration"
  Accumulated GPA: 3.87/4
- **B.S. in Polymer Engineering** **2006-2011**
  Azad University (Science and Research Branch), Tehran, Iran
  Thesis Title: "Fabrication of Silica Nanofibers Via Electrospinning/Post thermal Treatment"
  Accumulated GPA: 3.7/4

RESEARCH EXPERIENCE

University of Sydney, Australia **2021-2022**

Multilayer biopolymeric particles for colon delivery

- Design of pH-responsive polymers
- Developing organoids to mimic intestinal barrier

University of Wollongong, Australia **2016-2021**

Hydrogels for drug delivery

- Synthesizing novel hydrogels to maximize drug encapsulation efficiency
- Developing coaxial hydrogel structures as implantable drug delivery systems using 3D printing, fiber spinning, and microparticles
- Carrying out *in vitro* cell studies to assess the performance of hydrogel systems

Hydrogels for tissue engineering applications

- Synthesizing UV cross-linkable hydrogels from polysaccharides
- 3D printing coaxial hydrogel structures for cell encapsulation

University Malaya, Malaysia **2013-2016**

Electrospun fibers for tissue engineering applications

- Fabrication of chitosan(PEO)composite nanofibers for bone tissue engineering

- Fabrication of PLLA/HA/Col, PLLA/HA, and PLLA/Col for bone tissue engineering

Electrospun fibers for water filtration applications

- Fabrication of chitosan (PVA) nanofibers for removal of Fe (III) and Cr (VI) ions
- Fabrication of chitosan (PEO)/activated carbon composite fibers for removal of Cr(VI), Fe(III), Cu(II), Zn(II), and Pb(II) ions

Synthesis of bio-ceramics for tissue engineering applications

- Developing bioglass ceramic powders using a sol-gel method
- Developing calcium-silicate nanomaterials using a hydrothermal method

Azad University-Science & Research branch, Iran **2010-2011**

Ceramic nanofibers for various applications

- Fabrication of ceramic nanofibers via electrospinning/post-thermal treatment

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WORK EXPERIENCE

Post-doctoral Researcher, The University of Sydney, Prof. Dehghani **July 2021-July 2022**

- Development of microcapsules for probiotic delivery
- Development of scaffolds for cell regeneration

Post-doctoral Researcher, UOW, Prof. Wallace **Oct 2020-July 2021**

- 3D printing aesthetic prosthesis
- Developing drug delivery systems

Intern Researcher, Apiam Animal Health, Hugo Dunlop **Dec 2019-May 2020**

- Improving the solubility of anti-biotics in water
- Developing an edible anti-biotic containing paste for cattle

Research assistant, University Malaya, Dr. Metselaar **Sep 2015-Feb 2016**

- Synthesis of bioceramics for biomedical applications
- Synthesis of biopolymeric scaffolds for bone tissue engineering

Research assistant, University Malaya, Dr. Amalina **Dec 2013-Sep 2015**

- Fabrication and characterization of novel water filtration systems

R&D employee, Sima-Mehr Co., Mr. Vali Eslami **Feb 2010-Feb 2011**

- Optimizing oil and gas analyzer systems

SELECTED AWARDS AND RECOGNITIONS

- ***Australian Postgraduate Research (APR) internship,*** *Improving Solubility of Antibiotic Formulations for use in Animals, Apaim Animal Health, 2020.*
- ***Self-Healing Hydrogels: The Next Paradigm Shift in Tissue Engineering (200 $),*** *Publication of the month by Illawarra Health and Medical Research Institute (IHMRI), University of Wollongong, 2019.*
- ***Biopolymers for anti-tumor implantable drug delivery systems (3000 $),*** *Publication of the year by Illawarra Health and Medical Research Institute (IHMRI), University of Wollongong, 2018.*
- ***UOW international student postgraduate tuition award****, Australia, 2016.*
- ***UOW university postgraduate award,*** *Australia, 2016.*

GRANTS

- ***Discolouration in Pastilles ($50,000),*** *Accepted Innovation connect grant by CSIRO (Australia), 2022.*
- ***Mussel-Inspired Nanocomposite Hydrogel Fibers for Synergistic Chemo-Photothermal Therapy (5000 $),*** *Accepted travel grant by Australian Nanotechnology Network (ANN), 2019.*
- ***Fabrication of Chitosan/Bioglass Nanofibers as Scaffolds for Bone Cell Regeneration (2000 $),*** *Accepted grant proposal by Postgraduate Research Grant (PPP) Malaysia, 2013*

PROFESSIONAL ACTIVITIES

- ***Guest Editor of special issue in Nanomaterials Journal (Nanotechnology-Enabled Approaches For Detecting and Combating COVID-19)***
- ***Guest Editor of special issue in Micromachines Journal (Nano-Enabled Biosensors)***
- ***Guest Editor of special issue in POLYMERS JOURNAL (polymers for energy conversion and storage)***
- ***Peer reviewer of ISI journals such as:***

- *RSC Advances*
- *ACS applied materials & interfaces*
- *Journal of Tissue Engineering and Regenerative Medicine*
- *Measurement*
- *Diamond & related materials*
- *International Journal of Biological Macromolecules*
- *Composites Science and Technology*
- *Journal of Drug Delivery Science and Technology*
- *International Journal of Pharmaceutics*
- *Carbohydrate Polymers*

PATENT

- ***An implantable device and a method for implanting said device in a subject*** *(EP3852733A1-2021)*
- ***An implantable device*** *(WO2021222974A1-2021)*

RESEARCH AND TEACHING INTERESTS

- *Biopolymer based systems for tissue engineering and drug delivery applications*
- *Stem cell biology*
- *Bioceramics*
- *Advanced materials*

SKILLS

- *Materials characterization techniques: FTIR, XRD, SEM, RAMAN, AFM, UV, etc.,*
- *Mechanical and thermal analysis of composites: Tensile/Compression tests, DSC, TGA*
- *Polymer melt/solution rheometry*
- *Polymer & ceramic synthesis*
- *Fabrication technologies e.g. electrospinning, wet-spinning, 3D printing*
- *In vitro cell culture and cell imaging*

OVERVIEW OF PUBLICATIONS

- *Total No of citations: 1934*
- *No of publications: 41*
- *Papers published since 2016: 32*
- *Scopus h-Index: 19*
- *Google scholar h-Index: 20*

LIST OF ISI Publications

1. **Biopolymer-based Multilayer Microparticles for Probiotic Delivery to Colon.** Sepehr Talebian, Timothy Schofield, Peter Valtchev, Aaron Schindeler, John M. Kavanagh, Fariba Dehghani. **(Advanced Healthcare Materials)** **(IF: 9.93)**

2. **Facts and figures on materials science and nanotechnology progress and investment.** Sepehr Talebian, Tiago Rodrigues, José das Neves, Bruno Sarmento, Robert Langer, and João Conde **(ACS nano)** **(IF: 15.8)**

3. **3D-Printed Coaxial Hydrogel Patches with Mussel-Inspired Elements for Prolonged Release of Gemcitabine.** Sepehr Talebian, In Kyong Shim, Javad Foroughi, Gorka Orive, Kara L Vine, Song Cheol Kim, Gordon G Wallace **(Polymers)** **(IF: 4.32)**

4. **Synthesis, properties, and biomedical applications of alginate methacrylate (ALMA)-based hydrogels: Current advances and challenges.** Masoud Hasany, Sepehr Talebian, Seyedmostafa Sadat, Navid Ranjbar, Mohammad Mehrali, Gordon G.Wallace, Mehdi Mehrali. **(Applied Materials Today)** **(IF: 10.0)**

5. **Calcium-Silicate-Incorporated Gellan-Chitosan Induced Osteogenic Differentiation in Mesenchymal Stromal Cells.** Krishnamurithy Genasan, Mohammad Mehrali,Tarini Veerappan, Sepehr Talebian ,Murali Malliga Raman ,Simmrat Singh ,Sasikumar Swamiappan, Mehdi Mehrali, Tunku Kamarul, Hanumantha Rao Balaji Raghavendran. **(Polymers)** **(IF: 4.3)**

6. **Implantable coaxial nanocomposite biofibers for local chemo-photothermal combinational cancer therapy.** Hanghang Liu, Sepehr Talebian, Kara L. Vine, Zhen Li, Javad Foroughi. **(Nano select)**

7. **Why going NANO on COVID-19 pandemic?** Sepehr Talebian, João Conde **(Matter-Cell Press)**

8. **Nanotechnology-based disinfectants and sensors for SARS-CoV-2,** Sepehr Talebian, Gordon G. Wallace, Avi Schroeder, Francesco Stellacci, João Conde **(Nature Nanotechnology) (IF: 33.4)**

9. **Dual Delivery of Gemcitabine and Paclitaxel by Wet-Spun Coaxial Fibers Induces Pancreatic Ductal Adenocarcinoma Cell Death, Reduces Tumor Volume, and Sensitizes Cells to Radiation,** Samantha J Wade, Zeliha Sahin, Ann-Katrin Piper, Sepehr Talebian, Morteza Aghmesheh, Javad Foroughi, Gordon G Wallace, Simon E Moulton, Kara L Vine **(Advanced Healthcare materials) (IF: 9.93)**

10. **3D printing of highly flexible, cytocompatible nanocomposites for thermal management,** Hadis Khakbaz, Kalani Ruberu, Lingzhi Kang, Sepehr Talebian, Sepidar Sayyar, Benjamin Filippi, Mehdi Khatamifar, Stephen Beirne, Peter C. Innis **(Materials for life sciences) (IF: 3.55)**

11. **Sulfated polysaccharide-based scaffolds for orthopaedic tissue engineering.** Dinoro, Jeremy, Malachy Maher, Sepehr Talebian, Mahboubeh Jarfarkhani, Mehdi Mehrali, Gorka Orive, Javad Foroughi, Megan S. Lord, and Alireza Dolatshahi-Pirouz. **(Biomaterials) (IF: 10.27)**

12. **Sheath-Run Artificial Muscles,** Jiuke Mu , Mônica Jung de Andrade, Shaoli Fang , Xuemin Wang, Enlai Gao , Na Li , Shi Hyeong Kim , Hongzhi Wang , Chengyi Hou , Qinghong Zhang , Meifang Zhu , Dong Qian , Hongbing Lu , Dharshika Kongahage , Sepehr Talebian , Javad Foroughi , Geoffrey Spinks , Hyun Kim , Taylor H. Ware , Hyeon Jun Sim , Dong Yeop Lee, Yongwoo Jang , Seon Jeong Kim,RayH.Baughman. **(Science) (IF: 37.20)**

13. **Self-healable hydrogels: The next paradigm shift in tissue engineering?,** Sepehr Talebian, Mehdi Mehrali, Nayere Taebnia, Cristian Pablo Pennisi, Firoz Babu Kadumudi, Javad Foroughi, Masoud Hasany, Mehdi Nikkhah, Mohsen Akbari, Gorka Orive, Alireza Dolatshahi-Pirouz **(Advanced Science) (IF: 15.80)**

14. **Biopolymers for anti-tumor implantable drug delivery systems: Recent advances and future outlook,** Sepehr Talebian, Javad Foroughi, Samantha J Wade, Kara L. Vine, Alireza Dolatshahi-pirouz, Mehdi Mehrali, João Conde, Gordon G. Wallace **(Advanced materials) (IF: 25.80)**

15. **Nanoreinforced Hydrogels for Tissue Engineering: Biomaterials that are Compatible with Load-Bearing and Electroactive Tissues,** Mehdi Mehrali Ashish Thakur Christian Pablo Pennisi Sepehr Talebian Ayyoob Arpanaei Mehdi Nikkhah Alireza Dolatshahi-Pirouz **(Advanced Materials) (IF: 25.80)**

16. **Revisiting gene delivery to the brain: silencing and editing,** João Conniot, Sepehr Talebian, Susana MN Simoes, Lino Ferreira, João Conde **(Biomaterials Science) (IF:6.18)**

17. **Coaxial mussel-inspired biofibers: Making of a robust and efficacious depot for cancer drug delivery,** Sepehr Talebian, In Kyoung Shim, Kara Vine, Song Cheol Kim, and Geoffrey M. Spinks, Javad Foroughi **(Materials Chemistry B)** **(IF: 5.04)**

18. **An innovative and eco-friendly modality for synthesis of highly fluorinated graphene by an acidic ionic liquid: Making of an efficacious vehicle for anti-cancer drug delivery,** Mohammadjavad Jahanshahi, Elaheh Kowsari, Vahid Haddadi-Asl, Mehdi Khoobi, Behrouz Bazri, Meysam Aryafard, Jong Hyun Lee, Firoz Babu Kadumudi, Sepehr Talebian, Nazila Kamaly, Mehdi Mehrali, Alireza Dolatshahi-Pirouz **(Applied surface science)** **(IF: 5.15)**

19. **Fabrication of Aligned Biomimetic Gellan Gum-Chitosan Microstructures Through 3D Printed Microfluidic Channels and Multiple In-Situ Crosslinking Mechanisms,** Thomas M Robinson, Sepehr Talebian, Javad Foroughi, Zhilian Yue, Cormac Fay, Gordon G Wallace **(ACS biomaterials science and engineering)** **(IF: 4.51)**

20. **Sericin Grafted Multifunctional Curcumin Loaded Fluorinated Graphene Oxide Nanomedicines with Charge Switching Properties for Effective Cancer Cell Targeting,** Mohammadjavad Jahanshahi, Elaheh Kowsari, Vahid Haddadi-Asl, Mehdi Khoobi, Jong Hyun Lee, Firoz Babu Kadumudi, Sepehr Talebian, Nazila Kamaly, Mehdi Mehrali (**International journal of pharmaceutics**) **(IF: 4.213)**

21. **An innovative and eco-friendly modality for synthesis of highly fluorinated graphene by an acidic ionic liquid: Making of an efficacious vehicle for anti-cancer drug delivery,** Mohammadjavad Jahanshahi, Elaheh Kowsari, Vahid Haddadi-Asl, Mehdi Khoobi, Behrouz Bazri, Meysam Aryafard, Jong Hyun Lee, Firoz Babu Kadumudi, Sepehr Talebian, Nazila Kamaly, Mehdi Mehrali, Alireza Dolatshahi-Pirouz (**Applied Surface Science**) **(IF: 5.155)**

22. **Electrically Conducting Hydrogel Graphene Nanocomposite Biofibers for Biomedical Applications,** Sepehr Talebian, Mehdi Mehrali, Raad Raad, Farzad Safaei, Jiangtao Xi, Zhoufeng Liu, Javad Foroughi (**Frontiers in chemistry**) **(IF: 3.782)**

23. **Intelligent drug delivery systems,** Sepehr Talebian, Javad Foroughi (**Engineering Drug Delivery Systems**, **book chapter**)

24. **Incorporation of Human-Platelet-Derived Growth Factor-BB Encapsulated Poly(lactic-co-glycolic acid) Microspheres into 3D CORAGRAF Enhances Osteogenic Differentiation of Mesenchymal Stromal Cells,** Saktiswaren Mohan, Hanumantharao Balaji Raghavendran , Puvanan Karunanithi, Malliga Raman Murali, Sangeetha Vasudevaraj Naveen, Sepehr Talebian, Mohammad Mehrali, Mehdi Mehrali, Elango Natarajan, Chee Ken Chan, and Tunku Kamarul **(ACS Applied materials and Interfaces)** **(IF: 8.45)**

25. **Preparation and in vitro assessment of wet-spun gemcitabine-loaded polymeric fibers: Towards localized drug delivery for the treatment of pancreatic cancer,** Samantha J. Wade, Amanda Zuzic, Javad Foroughi, Sepehr Talebian, Morteza Aghmesheh, Simon E. Moulton, Kara L. **(Pancreatology) (IF: 3.24)**

26. **Incorporation of fucoidan in β-tricalcium phosphate-chitosan scaffold prompts the differentiation of human bone marrow stromal cells into osteogenic lineage,** Subramaniam Puvaneswary, Hanumantharao Balaji Raghavendran, Sepehr Talebian, Malliga Raman Murali, Suhaeb A Mahmod, Simmrat Singh & Tunku Kamarul **(Nature Scientific Report) (IF: 4.122)**

27. **Chitosan (PEO)/bioactive glass hybrid nanofibers for bone tissue engineering,** Sepehr Talebian ,Mehdi Mehrali1, Saktiswaren Mohan, Hanumantha rao Balaji raghavendran, Mohammad Mehrali, Hossien Mohammad Khanlou1, Tunku Kamarul, Amalina Muhammad Afifi, **(Journal of RSC advances) (IF: 3.84)**

28. **A comparative study on in vitro osteogenic priming potential of electron spun scaffold PLLA/HA/Col, PLLA/HA, and PLLA/Col for tissue engineering application,** hanumantha rao balaji raghavendran; Subramaniam Puvaneswary; Sepehr Talebian; Malliga Raman Murali; Sangeetha Vasudevaraj Naveen; G Krishnamurithy; Robert McKean; Tunku Kamarul, **(PLOS ONE) (IF: 3.53)**
29. **Fabrication and in vitro biological activity of βTCP-Chitosan-Fucoidan composite for bone tissue engineering**, Subramaniam Puvaneswary, Sepehr Talebian, Simmrat S, Hanumantharao Balaji raghavendran, Malliga Raman Murali, and Hayati Abd Kassi Tunku Kamarul, **(Journal of Carbohydrate-Polymers) (IF: 4.074)**

30. **Electrophoretic deposition of calcium silicate-reduced graphene oxide composites on titanium substrate,** Mehdi Mehrali, Amir Reza Akhiani, Sepehr Talebian, Mohammad mehrali, Sara Tahan Latibari, Hendrik Simon Cornelis Metselaar **(Journal of European Ceramic Society) (IF: 2.947)**

31. **Synergistic interaction of platelet derived growth factor (PDGF) with the surface of PLLA/HA/Col and PLLA/HA scaffolds produces rapid osteogenic differentiation,** Hanumantha Rao Balaji Raghavendran, Saktiswaren Mohan, Krishnamurithy Genasan, Malliga Raman Murali, Sangeetha Vasudevaraj Naveen, Sepehr Talebian, Robert McKean, Tunku Kamarul **(Colloids and Surfaces B: Biointerfaces) (IF: 4.152)**

32. **An ecofriendly graphene-based nanofluid for heat transfer applications,** Mohammad Mehrali, Emad Sadeghinezhad, Amir Reza Akhiani, Sara Tahan Latibari,

Sepehr Talebian, Alireza Dolatshahi-Pirouz, Hendrik Simon Cornelis Metselaar, Mehdi Mehrali **(Journal of Cleaner Production) (IF: 5.715)**

33. **Effect of deacetylation on property of electrospun chitosan/PVA nanofibrous membrane and removal of methyl orange, Fe (III) and Cr (VI) ions,** Umma Habiba, Tawsif A.Siddique, Sepehr Talebian, Jacky Jia Li Lee, Areisman Salleh, Bee Chin Ang, Amalina M.Afifia, **(Carbohydrate polymers) (IF: 4.818)**

34. **Preparation and characterisation of electrospun silica nanofibres,** S Talebian, AM Afifi, M Hatami, S Bazgir, HM Khanlou **(Materials Research Innovation) (IF: 0.3)**

35. **Adsorption capability of heavy metals by chitosan/poly(ethylene oxide)/activated carbon electrospun nanofibrous membrane,** M. I. Shariful S. Talebian M. Mehrali B. C. Ang M. A. Amal **(Applied Polymer Science) (IF: 1.9)**

36. **Estimation of mechanical property degradation of poly(lactic acid) and flax fibre reinforced poly(lactic acid) bio-composites during thermal processing,** Hossein Mohammad Khanlou, Peter Woodfield, John Summerscales, Gaston Francucci, Benjamin King, Sepehr Talebian, Javad Foroughi, Wayne Hall **(Measurement) (IF: 2.79)**

37. **Fabrication and characterisation of chitosan/poly vinyl alcohol nanofibres via electrospinning,** S Talebian, AM Afifi, HM Khanlou **(Materials research innovations) (IF: 0.5)**

38. **Mechanisms of interfacial bond in micro steel and polypropylene fiber reinforced geopolymer composites,** Navid Ranjbar, Sepehr Talebian, Mehdi Mehrali, Hendrik Simon Cornelis Metselaar **(Journal of Composite Science and Technology) (IF: 6.309)**

39. **Prediction and optimization of electrospinning parameters for polymethyl methacrylate nanofiber fabrication using response surface methodology and artificial neural networks,** Hossein Mohammad Khanlou, Ali Sadollah, BeeChin Ang,JoongHoon Kim, Sepehr Talebian, Azadeh Ghadimi **(Journal of Neural Computing and Applications) (IF: 4.66)**

40. **Electrospinning of polymethyl methacrylate nanofibers: optimization of processing parameters using the Taguchi design of experiments,** Hossein Mohammad Khanlou, Bee Chin Ang, Sepehr Talebian, Amalina Muhammad Afifi, Andri Andriyana **(Textile Research Journal) (IF: 1.54)**

41. **Multi-response analysis in the processing of poly (methyl methacrylate) nano-fibres membrane by electrospinning based on response surface methodology: Fibre diameter and bead formation**, HM Khanlou, BC Ang, S Talebian, MM Barzani, M Silakhori, H Fauzi **(Measurement) (IF: 2.79)**

42. **A systematic study of maghemite/PMMA nano-fibrous composite via an electrospinning process: synthesis and characterization,** Hossein Mohammad Khanlou, Bee Chin Ang, Sepehr Talebian, Mohsen Marani Barzani, Mahyar Silakhori, Hadi Fauzi **(Measurement) (IF: 2.79)**

43. **Prediction and characterization of surface roughness using sandblasting and acid etching process on new non-toxic titanium biomaterial: adaptive-network-based fuzzy inference System,** Hossein Mohammad Khanlou, Bee Chin Ang, Mohsen Marani Barzani, Mahyar Silakhori, Sepehr Talebian **(Journal of Neural Computing and Applications) (IF: 4.66)**

INTERNATIONAL CONFERENCES

- **Sepehr Talebian, Zhen Li, Javad Foroughi, "Mussel-inspired nanocomposite hydrogel fibers for synergistic chemo-photothermal therapy", 6th Nano Today Conference, Lisbon, Portugal, June (2019)**

- **Sepehr Talebian, Javad Foroughi, Kara Perrow, Gordon G Wallace, "Mussel-inspired coaxial hydrogel biofibers for anti-cancer drug delivery", 29th annual meeting of the European Society for Biomaterials, Maastricht, Netherlands, September (2018)**

- **Sepehr Talebian, Amalina M. Afifi, Hossien M. Khanlou, "Fabrication and Characterization of Chitosan/PVA nanofibers Via Electrospinning" , Icosem2013, Kuala lumpur, Malaysia, November (2013)**

- **Sepehr Talebian, Amalina M. Afifi , Maryam Hatami, Saeed Bazgir, Hossien M. Khanlou, "Preparation and Characterization of electrospun Silica Nanofibers", Icosem2013, Kuala lumpur, Malaysia, November (2013)**

- **Sepehr Talebian, Maryam Hatami, Saeed Bazgir, "Fabrication Of Silica Nanofibers Via Electrospinning/Post Thermal Treatments ", Polymer Processing Society-Asia/Australia Meeting , Kish Island , Iran , November (2011)**

Referee

Name	Prof. Gordon G. Wallace
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Department	Intelligent polymer research institute
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Address(Office)	IPRI, AIIM Building, University of Wollongong, 2500 NSW Australia

Name	Prof. Fariba Dehghani
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Department	Centre for advanced food engineering
Faculty	School of chemical and biomolecular engineering
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