

Rashed Almousa

EDUCATION

Weldon School of Biomedical Engineering, Purdue University, West Lafayette, IN

Doctor of Philosophy in Biomedical Engineering

Aug 2019-May 2023

GPA: 3.98/4.00

Purdue School of Engineering & Technology, Indiana University-Purdue University, Indianapolis, IN

Master of Science in Biomedical Engineering

Aug 2017-May 2019

GPA: 4.00/4.00

Purdue School of Engineering & Technology, Indiana University-Purdue University, Indianapolis, IN

Bachelor of Science in Biomedical Engineering, Minor in Mathematics

May 2011-May 2015

GPA: 3.70/4.00

CORE COMPETENCIES

Programs: Microsoft Suite, Simulink, Creo, ANSYS, MATLAB, and Illustrator

Laboratory Skills: Surface Modification, Polymer Synthesis, FT-IR, Cell Culture, Bacterial Viability and Adhesion Assay

Languages: English (Fluent), Arabic (Native)

EXPERIENCES

PROFESSIONAL

College of Applied Medical Sciences at Majmaah University

Lecturer

Mar 2017-Aug 2017

- ❖ Assisted the chair of Biomedical Equipment Technology department in launching the master's program
- ❖ Participated in the organization of different events and workshops

Prince Naif Health Research Center at King Saud University

Researcher Assistant

Feb 2016-Mar 2017

- ❖ Assisted the director in the establishment of Molecular and Cell Biology Laboratory at King Saud School of Dentistry
- ❖ Participated in founding a cell culture unit with the proper materials and protocols
- ❖ Engaged in the meetings with different researchers at the university to smoothen the research procedures

RESEARCH

Purdue School of Engineering and Technology, Indianapolis, IN

Research Assistant

Aug 2017- May 2023

- ❖ Synthesize novel polymers with antifouling and antibacterial properties
- ❖ Modify the surface of different polymeric biomaterials with the novel polymers to enhance their biocompatibility
- ❖ Characterize and test the modified surfaces with different techniques such as FT-IR and contact angle goniometer
- ❖ Analyze the design and parameters of biomaterials to reduce cytotoxicity and increase biocompatibility

Indiana University School of Dentistry, Indianapolis, IN

Research Assistant

May 2014- May 2015

- ❖ Modeled cranial stem-cell reimbursed allografts that are applicable for cranioplasty
- ❖ Analyzed osteoblast cells and their metabolic activity
- ❖ Investigated different methodologies for bone demineralization
- ❖ Examined proper porosity and demineralization level using micro-hardness and diametral tensile testers

Indiana University School of Dentistry, Indianapolis, IN

Research Assistant

May 2014- Feb 2015

- ❖ Analyzed the effect of Magnesium on Dicalcium Phosphate Dihydrate (DCPD) cement
- ❖ Obtained stiff cement with a better pH balance and improve cell proliferation in DCPD cement
- ❖ Performed different testing for the phase composition of the cements including X-ray diffraction

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ACTIVITIES & AWARDS

❖ Majmaah University Fellowship	Aug 2017- May 2023
❖ Tau Beta Pi Engineering Honor Society, Member	Feb 2014-Current
❖ Biomedical Engineering Society, Member	Feb 2013-Current
❖ Saudi Student Club, Member	Aug 2017- May 2023
❖ Methodist Hospital, Student Volunteer Ambassador	Feb 2015-May 2015
❖ King Abdullah Scholarship	Apr 2010-May 2015
❖ University College Dean's List	Fall 2011-Spring 2012
❖ Purdue Engineering and Technology Dean's List	Fall 2014-Spring 2015

PUBLICATIONS & CONFERENCES

- **Almousa R**, Wen X, Na S, Anderson G, Xie D. Hydrophilic polymer-coated PVC surface for reduced cell and bacterial adhesions. *Biosurface and Biotribology*. 2022; 8 (1), 34-43. (Published)
- Chen Y, Caneli G, **Almousa R**, Xie D A novel antibacterial zirconia-containing PMMA bone cement. 2022. *Journal of the Mechanical Behavior of Biomedical Materials*. 2022; 129, 105-135. (Published)
- **Almousa R**, Wen X, Anderson G, Xie D. PVP-coated PVC with triazoles for reduced cell adhesion and bacterial growth. *Polymers for Advanced Technologies*. 2021; 32 (10), 4126-4134. (Published)
- Wen X, **Almousa R**, Anderson G, Xie D. Polyurethane coated with polyvinylpyrrolidones via triazole links for enhanced surface fouling resistance. *Biosurface and Biotribology*. 2021; 7 (4), 219-227. (Published)
- Chen Y, Caneli G, **Almousa R**, Hill K, Na S, Anderson G, Xie D. A self-cured glass-ionomer cement with improved antibacterial function and hardness. *Polymers for Advanced Technologies*. 2020; 1-11. (Published)
- Howard L, **Almousa R**, Xie D. Polyurethane surface modified with a hydrophilic polymer containing quaternary ammonium bromide. *Emergent Materials*. 2020; 3, 637-648. (Published)
- Chen Y, Caneli G, **Almousa R**, Wen X, Anderson G, Xie D. An antibacterial dental light-cured glass-ionomer cement with improved hardness. *Journal of Biomaterials Science, Polymer Edition*. 2020; 31 (18), 2362-2380. (Published)
- Wen X, **Almousa R**, Anderson G, Xie D. Developing a novel antibacterial dental resin composite with improved properties. *Journal of Composite Materials*. 2019; 53 (22), 3085-3092. (Published)
- **Almousa R**, Wen X, Na S, Anderson G, Xie D. An improved dental composite with potent antibacterial function. *The Saudi Dental Journal*. 2019; 31 (3), 367-374. (Published)
- **Almousa R**, Wen X, Na S, Anderson G, Xie D. Polyvinylchloride surface with enhanced cell/bacterial adhesion-resistant and antibacterial functions. *Journal of Biomaterials Applications*. 2019; 33 (10), 1415-1426. (Published)
- **Almousa R**, Howard L, Xie D. A quaternary ammonium bromide-containing polymer for polyurethane surface modification. *Society for Biomaterials (SFB) Annual Meeting & Exposition*. April 3-6, 2019, Seattle, Washington, U.S.A. (Presented)
- Wen X, **Almousa R**, Anderson G, Na S, Xie D. Coating polyvinylchloride surface for improved antifouling property. *Journal of Biomaterials Science, Polymer Edition*. 2019; 30 (4), 322-336. (Published)
- **Almousa R**, Wen X, Na S, Anderson G, Xie D. A modified polyvinylchloride surface with antibacterial and antifouling functions. *Polymers for Advanced Technologies*. 2019; 30 (5), 1216-1225. (Published)
- Xie D, Howard L, **Almousa R**. Surface modification of polyurethane with a hydrophilic, antibacterial polymer for improved antifouling and antibacterial function. *Journal of Biomaterial Applications*. 2018; 33 (3), 340-51. (Published)
- Niaz A., **Almousa R**, Alghamdi H. Pre-clinical small molecules tested for bone regeneration. *Tissue Engineering and Regenerative Medicine International Society- Asia Pacific Meeting*, September 3-6, 2016, Taipei, Taiwan. (Presented)
- Arman H, **Almousa R**, Bhimirreddy N, Emmakah A, Musgrove S, Syed J, Tovar A, Wunderlin C, Chu TM. Partially demineralized macroporous allografts for cranial tissue engineering. *IUPUI Research Day*, April 17, 2015, Indianapolis, Indiana, U.S.A. (Presented)
- **Almousa R**, Chu TM, Tanataweethum N. In vitro degradation of magnesium/dicalcium phosphate dihydrate cement. *International Association for Dental Research Conference*, March 11-14, 2015, Boston, Massachusetts, U.S.A. (Presented)