

# HEBA ALZER



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## CAREER GOALS

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- To introduce a holistic, innovative and up to date method of thinking to the dental students, in which they learn problem solving, analyzing and behavioral skills and combine them with the theoretical science to reach the appropriate mindset of a descent dentist.
- To investigate the regenerative potentials of the oral tissues and to explore possible regenerative therapies for oral and dental tissues (i.e. dental pulp, dentin and bone regeneration) and supervise master and doctorate students interested to pursue a degree in these fields.

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## ACADEMIC POSTIONS - JU

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Associate professor 2020-now

Assistant professor 2015-2020

Teaching and research assistant 2010-2011

Internship 2009-2010

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## ADMINISTRATIVE POSITIONS

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- Director of the Alumni Office of the Jordan University, JU, 2021- 2022
- Editorial board member of the Jordan University newsletter, JU, 2021- 2022
- The Jordan University Counseling Board member, JU, 2021.
- Member of the scientific research and journaling committee, School of dentistry, JU, 2015-2016
- Member of the faculty sport committee, School of dentistry, JU, 2016-2017

- Member of the faculty social committee, School of dentistry, JU, 2017-2018
- **Reviewer** at multiple well recognized indexed journals as: The royal medical services journal, biomed research international journal, Jordan journal of biological sciences.
- Member of the administrative board of the Association of German universities and institutes graduates in Jordan.
- Member of the Three circles of women researcher institution in Jordan

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## EDUCATION

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- 2011-2015 PhD, University of Hamburg Medicine Faculty, Germany, *magna cum laude*, thesis: Enrichment and Characterization of Neural Crest-derived Stem cells from Human Dental Pulp
- 2004-2009 DDS, The Jordan University, **GPA 3.34**

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## TEACHING ACTIVITIES

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- Teaching basic dental sciences (**oral anatomy, histology, physiology and occlusion**) theoretical and practical courses for preclinical 2<sup>nd</sup> year dental students.
- Course coordinator for basic dental sciences (**oral anatomy, histology, physiology and occlusion**) theoretical courses for preclinical 2<sup>nd</sup> year dental students.
- Teaching **Introduction into clinical dentistry** theoretical and clinical courses for clinical 3<sup>rd</sup> year dental students.
- Teaching **principles of clinical oral diagnoses** theoretical and practical courses for clinical 4<sup>th</sup> year dental students.

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## RESEARCH PROJECTS AND GRANTS

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- Principal investigator of the following research projects:
  - ⇒ The supplemental implementation of YouTube video demonstrations enhances the achievements of dental students in tooth carving. 2020. **completed**.
  - ⇒ Recruiting artificial intelligence for the evaluation and grading of carved teeth in dental anatomy practical courses, 2020 – **ongoing**.
  - ⇒ The effect of culture conditions on different stem cell populations in the human adult dental pulp, 2015-2017, **completed**. 24,000 JOD funded by the deanship of

scientific research, JU.

- ⇒ A study of the root and crown traits in the Jordanian population by cone beam. 2017- **ongoing**.
- ⇒ Localization of different stem cell populations in the adult human dental Pulp 2016- **ongoing**. **28,000** JOD funded by the deanship of scientific research, JU.
- Co-investigator of the following research projects:
  - ⇒ Effect of triple antibiotic pasted medicament used in endodontic regeneration on human dental pulp stem cells survival and odontogenic potentials, 2017- **ongoing**. **5,000** JOD funded by the deanship of scientific research, JU.
  - ⇒ The efficiency of using oleogels and biogels in treating periodontitis in an in vitro host-parasite interaction model. 2021- **ongoing**. **Funded** by the scientific research supports fund of the Ministry of higher education. Jordan.

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## **PUBLICATIONS**

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- **Alzer, H., et al.** The supplemental implementation of YouTube video demonstrations enhances the achievements of dental students in tooth carving. under review.
- **Alzer, H., et al.** Age of the donor affect the nature of *in-vitro* cultured Human Dental Pulp Stem Cells, Saudi Dental Journal. <https://doi.org/10.1016/j.sdentj.2020.09.003>.
- **Alzer, H., et al.** Culture methods affect the nature of *in-vitro* cultured Human Dental Pulp Stem Cells, in editing.
- **Alzer, H., et al.** Unexpectedly low levels of dental morphological asymmetry suggesting developmental resilience amongst living Jordanians: A cone beam computed tomography study. Journal of Comparative Human Biology [10.1127/homo/2019/1029](https://doi.org/10.1127/homo/2019/1029)
- **Alhadidi, A., et al.** Assessment of the dental morphological pattern of living Jordanian Arabs suggesting a genetic drift from the Western-Eurasia pattern: A cone beam computed tomography study. Anthropologischer Anzeiger. [10.1127/anthranz/2020/1074](https://doi.org/10.1127/anthranz/2020/1074)
- **Alzer, H., et al.** Neural and neural crest-derived stem cells distribution in the adult human dental pulp. in editing.
- **Alzer, H., et al.** Expression of transcription factors c-Myc, Sox2 and klf4 in the adult human dental pulp. in editing.
- **Alzer, H., et al.** Odontoblasts or odontocytes, expression of stem cells markers and differentiation markers among human adult odontoblasts. in editing.

- Alzer, H., et al. Localization of mesenchymal stem cells populations in the adult human dental pulp. in editing.
- Sabrah, A., et al. The Discoloration Effect of Diluted Minocycline Containing Triple Antibiotic Gel used in revascularization. Journal of Dental Sciences. <https://doi.org/10.1016/j.jds.2019.06.005>.
- Sabrah, A., et al. Effect of Diluted Minocycline Containing Triple Antibiotic powder on dental pulp stem cells survival and osteogenic differentiation. in editing.
- Alzer, H., et al. Enrichment and Schwann Cell Differentiation of Neural Crest-derived Dental Pulp Stem Cells. In Vivo. <https://www.ncbi.nlm.nih.gov/pubmed/25977377>
- Alzer, H., et al. Dental pulp stem cells-derived Schwann cells for peripheral nerve injury regeneration. Neural regeneration research. [10.4103/1673-5374.172309](https://doi.org/10.4103/1673-5374.172309)
- Alsoleihat, F., et al. Age Prediction in the adult based on the pulp to tooth ratio in lower third molars: a cone beam CT study. International Journal of morphology. [10.1016/j.sdentj.2020.04.006](https://doi.org/10.1016/j.sdentj.2020.04.006)
- Alsalem, M., et al. Role of PPAR $\alpha$  and PPAR $\gamma$  in Mediating the Analgesic Properties of Ibuprofen *in vivo* and the Effects of Dual PPAR $\alpha$ / $\gamma$  Activation in Inflammatory Pain Model in the Rat. International Journal of pharmacology. [10.3923/ijp.2016.812.820](https://doi.org/10.3923/ijp.2016.812.820)
- Alsoleihat, F., et al. Racial diagnosis based on non-metric traits including root traits. in editing.

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## RESEARCH INTERESTS

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- Artificial intelligence in dental education
- Scaffolds manufacturing and testing
- Bone regeneration
- Tooth hard and soft tissues regeneration
- Peripheral nerves regeneration
- Oral and dental stem cells
- Biomaterials utilized for tissue regeneration

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## KNOWLEDGE AND EXPERIENCE IN TECHNIQUES AND EQUIPMENTS

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- Cell culture by different techniques (i.e enzymatic digestion, explant growth, sphere growth)
- Primary cell culture and characterization of multiple types of oral stem cells (i.e dental pulp stem cells, dental follicle stem cells, gingival stem cells, periodontal ligament stem cells).
- Differentiation of dental stem cells into multiple lineages (i.e osteogenic, neurogenic, glial, melanocytic).
- Fluorescence activated cell sorting.
- Magnetic activated cell sorting.
- Immunohistochemistry
- Immunocytochemistry and immunofluorescence cytochemistry
- Preparation of feeder layer from fibroblasts
- Primary culture of oral squamous cell carcinoma tumors
- Primary culture of Schwann cells and Schwannoma tumors.
- Histology and anatomy of oral tissues
- Gene sequencing
- DNA and RNA extraction
- Gel electrophoresis
- Testing biocompatibility of scaffolds with stem cells
- Freezing and thawing dental stem cells
- Laboratory animals handling for simple procedures
- Light and fluorescence microscopy

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## CONFERENCES AND LECTURES

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- Reimagine education conference, online conference, QS organization, 2021, UK.
- Young engineers conference of the Jordanian association of engineers (new job opportunities), as the Alumni office director, 2022, Jordan.
- Dental basic sciences preparation course for part 1 Jordanian board advocates, 2021, Jordan.
- The Eleventh Annual Conference of The School of Dentistry, JU, 2018, [lecture: 3d bioprinting in regenerative dentistry](#), Jordan.
- Second International Conference on 3D bioprinting in Medicine, 2017, Germany.

- Advances in Stem Cells and Regenerative Medicine Conference, 2017, Germany.
- The Ninth Annual Conference of The School of Dentistry, JU, 2016, **lecture: Regenerative medicine in dentistry**, Jordan.
- The Fifth International Conference on Tissue Engineering and Regenerative Medicine, 2016, **lecture: Dental Pulp Stem Cells for Peripheral Nerve Injury Regeneration**, Germany.
- Die 66 Jahrestagung der Arbeitsgemeinschaft für kieferchirurgie, 2015, **lecture: Alzer, H. et al. Die Humane Zahnpulpa als Quelle für stammzellen der Neuralleiste (DP-NCSC) für das Nervale Tissue Engineering**, Lecturer: Prof. Ralf Smeets. Germany.
- 22 Congress of the European Association for Cranio- Maxillo- Facial Surgery, 2014, **lecture: Alzer, H. et al, Neural Crest Stem Cells in Human Dental Pulp (DP-NCSC) as a Cell Source for Nerve Tissue Engineering**, Lecturer: Prof. Ralf Smeets. The Czech Republic.
- Stem Cells in Cancer and Regenerative Medicine, 2012, Germany.
- Second annual congress of faculty of dentistry, JU, 2009, Jordan.
- First annual congress of faculty of dentistry, JU, 2008, Jordan.

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## **COURSES AND TRAINING**

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- Basic and advanced botox, fillers and threads for dentists, The British royal college of maxillofacial surgeons, 2022, Istanbul.
- Advanced clinical laminate veneers course, Middle east dental school, 2022, Egypt.
- Frontiers in Dentin hypersensitivity, Center for advanced professional practices UAE, 2022, online.
- Ridge preservation, osteology foundation, 2022, online.
- Infection control course, Association of Jordanian dentists, 2022, Jordan.
- Shaping for cleaning the root canals: A clinical-based strategy, Association of Jordanian dentists, 2022, Jordan.
- Basic life support, Association of Jordanian dentists, 2022, Jordan.
- Understanding the facial maturation for dental injection Junction, Association of Jordanian dentists, 2022, Jordan.
- Dental implant prosthetics, Association of Jordanian dentists, 2022, Jordan.
- Temporomandibular disorder, orofacial pain, and sleep breathing disorders: diagnosis and management hands-on workshop, JCOPD and Association of Jordanian dentists, 2022, Jordan.
- Dental implants basics hands-on workshop, Association of Jordanian dentists, 2022, Jordan.
- Cyber security, Accreditation and quality assurance center, JU, 2019, Jordan.

- Basic statistical analysis using SPSS, Accreditation and quality assurance center, JU, 2017, Jordan.
- Online teaching and exam building using zoom and Microsoft teams, Accreditation and quality assurance center, JU, 2020, Jordan.
- An introductory course into a higher education teaching strategy, methods and beyond, Accreditation and quality assurance center, JU, 2015, Jordan.
- Writing Skills for Science and Research, Career Center, University of Hamburg, 2013, Germany.
- 1st UKE light microscopy symposium. UKE microscopic imaging facility, University of Hamburg educational hospital, 2013, Germany.
- Course on laboratory animals, animal experiment and alternatives. Berliner kompaktkurse, 2013, Germany.
- Histological analysis of mouse tissue –from antigen retrieval to stereological evaluation, Neuropathology Department, University of Hamburg educational hospital, 2013, Germany.
- Advanced Imaging Methods workshop, UKE microscopic imaging facility, University of Hamburg, educational hospital, 2013, Germany.
- Animal experimentation with the mouse 1. Animal Facility, University of Hamburg educational hospital, Hamburg, 2012, Germany.
- Advances in oral medicine course, Center for Educational Development, JU, 2008, Jordan.
- NITI rotary instrumentation course. Center for Educational Development, JU, 2009, Jordan.

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## **LANGUAGES**

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- Arabic, native
- English
- German

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## **COMPUTER SKILLS**

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- Microsoft office (Power Point, Excel, Word)
- Image J
- Photoshop
- SPSS
- Endnote
- Mendeley

- Windows and IOS
- Microsoft teams
- LMS system



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