

# **CURRICULUM VITAE**

## **PROF. DR. KARIN WUERTZ-KOZAK**

### **Current Position**

Kate Gleason Endowed Full Professor  
Rochester Institute of Technology (RIT)  
Rochester NY (USA)

### **CONTENT**

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*Last up-dated November 1<sup>st</sup> 2019*

# A. RESUME

## Personal Information

Name: Prof. Dr. Karin Wuertz-Kozak

Date of Birth: 9.4.1978

Place of Birth: Ingolstadt, Germany

Marital Status: Married

Current Position: Kate Gleason Endowed Full Professor

Work Details: Department of Biomedical Engineering  
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+1 585 455 6970  
[www.karin.wuertz.com](http://www.karin.wuertz.com)

Scientific Profiles: Researcher ID: G-3144-2012  
<https://scholar.google.ch/citations?user=Z8aCEDUAAAAJ&hl=de>

## Education and Training

- 11/2016 Good Clinical Practice Training  
Clinical Trial Center Zurich, Switzerland  
**GCP Modules 1-3** (Basic Modules + Advanced Course for Sponsor-Investigators)
- 10/2015 – 07/2016 Habilitation  
ETH Zurich, Switzerland  
**Venia Legendi** (Pathophysiology & Molecular/Regenerative Medicine)
- 10/2013 – 10/2015 Master of Business Administration in Leadership and Sustainability  
University of Cambria, UK  
**MBA** (with distinction)
- 03/2014 Qualification as Director for Animal Experimentation (**FELASA C**)
- 07/2003 – 01/2006 Doctoral Studies, Institute for Biomechanics  
University of Ulm, Germany  
**Ph.D.** (Hum Biol), awarded 27.01.2006 (magna cum laude)
- 09/1997 – 06/2003 Bachelor & Master Studies in Pharmaceutical Sciences (“Pharmazie”)  
University of Regensburg, Germany  
Registered Pharmacist (**Approbation, R. Ph.**)

## Professional History

Since 10/2019	Kate Gleason Endowed Full Professor Department of Biomedical Engineering Kate Gleason College of Engineering Rochester Institute of Technology (RIT), USA
07/2016 – 09/2019	Assistant Professor for Immunoengineering & Regenerative Medicine Institute for Biomechanics Department of Health Sciences and Technology ETH Zurich, Switzerland
Since 07/2016	Head of Science Office Spine Scientific Consultancy Schön Clinic Group, Germany
Since 02/2016	Co-Founder and Member of the Executive Board WWR Invest & Consult GmbH, Switzerland
Since 01/2016	Guest Professor Department of Sport and Health Sciences University of Potsdam, Germany
07/2012 – 06/2016	Senior Research Associate Group Leader and Lecturer Institute for Biomechanics, D-HEST ETH Zurich, Switzerland
11/2011 – 06/2012	Shared Position as Senior Research Associate Group Leader and Lecturer University of Zurich and ETH Zurich, Switzerland
05/2009 – 10/2011	Senior Research Associate Group Leader CABMM, University of Zurich, Switzerland
09/2007 – 04/2009	Senior Research Associate Deputy Group Leader CABMM, University of Zurich, Switzerland
11/2006 – 07/2007	Research Associate Deputy Group Leader Department of Bioengineering University of Vermont, USA
02/2006 – 10/2006	Postdoctoral Fellow Department of Bioengineering University of Vermont, USA
10/2003 – 01/2006	Part-time Pharmacist Apotheke im Blautalcenter, Ulm, Germany
07/2003 – 01/2006	PhD Student Institute of Orthopaedic Research and Biomechanics University of Ulm, Germany

## **Editorial Activities**

2019/2020	Guest Editor for the International Journal of Molecular Sciences, Topic “Intervertebral Disc Disease: From Pathophysiology to Novel Therapies”
2018/2019	Guest Editor for the Journal Current Opinion in Biomedical Engineering, Topic “The role of the extracellular matrix in tissue regeneration”
Since 2018	Member of the Neurospine Editorial Board
Since 2017	Member of the eCM International Review Panel
Since 2017	Member of the JOR Spine Advisory Review Board
Since 2015	Member of the Editorial Board: Frontiers Veterinary Science
Since 2012	Member of the Advisory Board: Spine
Since 2012	Member of the Editorial Board: Advances in Stem Cells

## **Professional Memberships**

Since 2016	Member of the ORS Spine Section
Since 2016	Member of the ETH Women Professors Forum
Since 2016	Member of the German Spine Society
Since 2010	Member of the International Society for the Study of the Lumbar Spine
Since 2010	Member of the Spine Society of Europe
2008 - 2016	Member of AOSpine
Since 2006	Member of the Orthopedic Research Society
2007 – 2015	Member of the German Society for Biomechanics

## **Service to the Academic Community**

Since 2019	Member of the German Spine Society Research Grant Committee
Since 2017	Member of the Eurospine Task Force Research
Since 2017	Member of the Eurospine Nomination Committee
Since 2017	Member of the German Spine Society Program Committee
Since 2017	Examiner FPH Offizin Education Program
2017	Accreditation Reviewer of Continuous Education Program “Pharmacy Practice/Dispensing Pharmacist” of Pharmasuisse
2014 – 2016	Member of the Task Force <i>Regenerative Medicine</i> Swiss Society for Biomaterials & Regenerative Medicine
2013 – 2016	Member of the Pharmasuisse Exam Commission (FPH Offizin)

2012 – 2016 Member of the Eurospine Program Committee

## **Organization of Events, Conferences and Exchange Programs**

2018/2019 Faculty Member of the 7th International Congress on Biotechnologies for Spinal Surgery (Biospine 7)

2017 Committee Member for the AOSpine Masters Symposium “Novel and Emerging Technologies in Translational Medicine” in Bern, Switzerland

2016 Organization of the ETH Biotechnology Day  
Workshop of the TEDD Competence Center

2015 Organization of Lab and Networking Event  
Swiss Society for Biomaterials & Regenerative Medicine, Switzerland

2014 Organization of Lab Event for the National Future Day, Switzerland

2012 Organization of Exhibition Booth at the Scientifica, Switzerland

Since 2011 Organization of an Exchange Program with the Fukushima Medical University, Japan

Since 2008 Organization of biannual Swiss-Japanese Symposium on Disc/Spine Research

## **University-Related Services**

2018 Member of ETH MSc Student Medal Committee  
Department of Health Sciences & Technology, ETH Zurich, Switzerland

2017 Member of ETH Doctoral Student Medal Committee  
Department of Health Sciences & Technology, ETH Zurich, Switzerland

Since 2015 Deputy Director for Animal Experiments  
Institute for Biomechanics, ETH Zurich, Switzerland

Since 2015 Biosafety Officer  
Institute for Biomechanics (HPP Labs), ETH Zurich, Switzerland

2015 - 2018 Member of the Teaching Commission  
Department of Health Sciences & Technology, ETH Zurich, Switzerland

## **Reviewing Activities**

### **Journals**

European Spine Journal, Journal of Orthopedic Research, European Cells and Materials, Spine, Journal of Visualized Experiments, British Journal of Clinical Pharmacology, The Spine Journal, Arthritis Research & Therapy, Swiss Medical Weekly, Cells, Journal of Tissue Engineering & Regenerative Medicine, Advances in Stem Cells, International Immunopharmacology, African Journal of Pharmacy & Pharmacology, Arthritis & Rheumatism,

Global Spine Journal, Tissue Engineering, International Journal of Molecular Sciences, Current Stem Cell Research & Therapy, Cellular Physiology and Biochemistry, PLOS ONE, Molecules, Frontiers in Veterinary Science, Ageing Research Reviews, Scientific Reports Nature, JBJS, Nutrients, Molecular and Cellular Endocrinology, NPJ Regenerative Medicine, Frontiers in Veterinary Science, JOR Spine, RSC Advances

### Grants/Fellowships

AO Research Grants, German-Israeli Foundation for Scientific Research and Development, National Science Center Poland, Medical Research Council UK, Health and Medical Research Fund Hong Kong, SSSTC Programme, ARTHRITIS Fondation COURTIN France, NSERC Canada, Cancer Research UK, Research Council UK

### Conferences

Orthopedic Research Society (ORS), Spine Society of Europe (SSE), International Society for the Study of the Lumbar Spine (ISSLS), Global Spine Congress/World Forum for Spine Research, German Spine Society, AOSpine Masters Symposium, Biospine

### Selected Invited Talks

- |         |   |
|---------|---|
| 10/2019 | Research Meeting of the Japanese Orthopaedic Association<br>Yokohama, Japan<br><i>«New horizons in degenerative disc disease»</i><br>Keynote Talk                                   |
| 10/2019 | Eurospine EuSAAB Pre-day Course<br>Helsinki, Finland<br><i>«Inflammatory mediators in disc degeneration: Are they of clinical importance?»</i><br>Keynote Talk                      |
| 06/2019 | International Spine Summit<br>Madrid, Spain<br><i>«Stem cells in spinal therapy»</i><br>Keynote Talk  |
| 04/2019 | BioSpine7<br>Rome, Italy<br><i>«Mechano-Immunosensing and disc degeneration»</i><br>Keynote Talk  |
| 03/2019 | Annual Meeting of the German Society for Matrix Biology<br>Regensburg, Germany<br><i>«Career Planning»</i><br>Leader of Mentorship Session during the Young Investigator Submeeting |
| 02/2019 | Rochester Institute of Technology (RIT)<br>Rochester, USA<br><i>«Engineering therapeutic approaches to modulating inflammation»</i><br>Institutional Lecture                        |

- 02/2019 EMPA  
St-Gallen, Switzerland  
«*Nanofiber technology: Designing the next generation of 3D skin models*»  
Institutional Lecture
- 06/2018 Spine Academy 2018: Current concepts, controversies and future developments in spine surgery  
«*Current research concepts*»  
Keynote Talk
- 03/2018 Neurospine Meeting  
Bern, Switzerland  
«*Inflammaging: Molecular Pathology of Aging*»  
Keynote Talk
- 02/2018 SWISS SCC Winter Seminar  
Davos, Switzerland  
«*3D Hautmodelle: Gegenwart und Zukunft*»  
(*The Present and Future 3D Skin Models*)  
Keynote Talk
- 01/2018 Swiss Orthopaedics Education Day  
Bern, Switzerland  
«*Biomechanics and Biology of the Spine*»  
Keynote Talk
- 07/2017 Fukushima Medical University  
Fukushima, Japan  
«*Biology and Regen. Medicine Aspects of the Intervertebral Disc*»  
Institutional Lecture
- 07/2017 Conference on Neurology and Neurosurgery  
Paris, France  
«*Biology and Regen. Medicine Aspects of the Intervertebral Disc*»  
Keynote Talk
- 06/2017 Wissen-schaf(f)t Wissen Series of the ZIHP  
Zurich, Switzerland  
«*Das Kreuz mit dem Kreuz*»  
(*The problem of back pain*)  
Keynote Talk
- 10/2016 Eurospine Precourse "Future of Spinal Surgery"  
Berlin, Germany  
«*Current status and future of tissue engineering and stem cells*»  
Keynote Talk
- 09/2016 ETH Postdoc Day  
Zurich, Switzerland  
«*How to succeed in academia (maybe)*»  
Keynote Talk

- 06/2016 Fix the Leaky Pipeline - A career building program for women in science  
Bern, Switzerland  
«*Academic Careers*»  
Keynote Talk
- 05/2016 National University of Singapore  
Singapore  
«*Molecular Therapies for Degenerative Disc Disease*»  
Institutional Lecture
- 05/2016 Virtual Physiological Human Research Summer School  
Barcelona, Spain  
«*Intervertebral Disc Pathophysiology*»  
Keynote Talk
- 02/2016 Medical Department of the Charité Berlin  
Berlin, Germany  
«*Molecular Mechanisms of Back Pain*»  
Institutional Lecture
- 02/2016 Symposium of the Association of Young Scientists in the Biomedical Field in Switzerland  
Zurich, Switzerland  
«*How to succeed in academia*»  
Keynote Talk
- 07/2015 AO Research Institute  
Davos, Switzerland  
«*From molecular pathophysiology to regenerative medicine: Is this possible for degenerative disc disease?*»  
Institutional Lecture
- 01/2013 Unfallkrankenhaus Berlin  
Berlin, Germany  
«*Molekulare und genetische Ursachen von bandscheibenbedingten Rückenschmerzen*»  
(*Molecular and genetic causes of discogenic back pain*)  
Institutional Lecture
- 11/2011 School of Biomedical Sciences, University of Hong Kong  
Hong Kong  
«*The molecular mechanisms of back pain*»  
Institutional Lecture
- 09/2009 AOSpine Masterclass in Technological & Biological Innovations in Spine Surgery  
Düsseldorf, Germany  
«*Pathomorphology of disc and facet joints*»  
Keynote Talk
- 08/2008 3<sup>rd</sup> Int. Summer School in Advanced Biotechnology Palermo, Italy  
«*Tissue engineering of the intervertebral disc*»  
Keynote Talk



## Public Outreach and Press

- 2019 Informationsdienst Wissenschaft, published in e.g. MTA Dialog, Ärztezeitung and Gesund-aktiv-älter-werden  
«*Stress macht morsche Knochen – Studie zeigt, dass sich psychische Belastungen negativ auf den Knochenstoffwechsel auswirken*»
- 2018 Conference of the Teaching Commission, ETH Zurich  
“*KITE (Key Innovation in Teaching) Award: Nominierte Projekte 2018*”
- 2017 *Public Talk at Wissen-schaf(f)t Wissen*  
«*Das Kreuz mit dem Kreuz*»
- 2017 Portal – Das Potsdamer Universitätsmagazin  
«*Morsche Knochen*»
- 2017 Simplifyd ETH Student Podcast  
«*Explain your Research*»
- 2016 ETH Zurich Education Specialist Blog  
«*An outstanding lab course*»
- 2016 UZH News  
«*Brücken vom Hunde- zum Menschenrücken*»
- 2011 Researcher Portrait at the Annual Report of the Competence Center for Applied Biotechnology and Molecular Medicine (CABMM)
- 2011 ZIHP Magazin  
«*Ramponierte Stossdämpfer*»

## Own Distinctions and Awards

- 2018 Nominee for the Key Innovation in Teaching (KITE) Award  
ETH Zurich
- 2017 Award for the Best Scientific Work presented at DVG-Vet-Congress  
German Society for Veterinary Medicine (DVG)
- 2016 SNF Professorship Award  
Swiss National Science Foundation
- 2015 Nominee for the Key Innovation in Teaching (KITE) Award  
ETH Zurich
- 2011 Best Podium Presentation Award  
Spine Society of Europe
- 2011 Travel Fellowship  
German Society for Biomechanics
- 2011 Medtronic Best Poster Award  
International Society for the Study of the Lumbar Spine

2010	Travel Fellowship AOSpine
2010	Best Poster Award European Cells and Materials
2009	Finalist Best Paper Award German Spine Society
2008	Finalist Best Paper Award German Spine Society
2008	Travel Fellowship German Society for Biomechanics
2007	Finalist New Investigator Recognition Award Orthopedic Research Society
2006	Travel Fellowship German Society for Biomechanics
2005	Best Basic Science Poster Award Spine Society of Europe

### **Distinctions, Awards and Faculty Appointments of Team Members**

2019	O. Krupkova ISSLS Research Award
2019	E. Cambria SNF Exchange Fellowship Grant
2018	E. Cambria Eurospine Travel Grant from Eurospine for Biomechanics Course Um
2017	E. Cambria Winner of the SBMS Travel Award
2017	O. Krupkova Winner of the IBSA Research Grant
2016	M. Hakozaiki Associate Professorship at Fukushima Medical University
2014	O. Krupkova Winner of the Robert Mathys Foundation Presentation Award at the ECM Meeting 2014 in Davos, Switzerland
2013	O. Krupkova AO SRN Travel Grant to McGill University in Canada

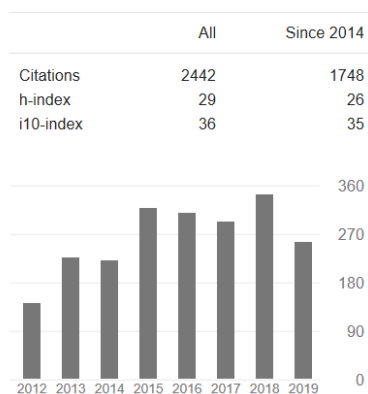
## B. LIST OF PUBLICATIONS

Researcher ID: G-3144-2012

<https://scholar.google.ch/citations?user=Z8aCEDUAAAAJ&hl=de>

<b>Number of Publications</b> (peer-reviewed)		<b>61</b>
<b>Google Scholar</b>	H-Index	<b>29</b>
	i10-Index	<b>36</b>
	Number of Citations	<b>&gt; 2400</b>
<b>Researcher ID</b>	H-Index	<b>24</b>
	Number of Citations	<b>&gt; 1400</b>

### Google Scholar Metrics



### Researcher ID Metrics

Karin Wuertz-Kozak

Web of Science ResearcherID<sup>®</sup>  
G-3144-2012

Researcher (Academic) - ETH Zurich

PUBLICATIONS	TOTAL TIMES CITED	H-INDEX
60	1'431	24 <sup>®</sup>

### Peer-Reviewed Publications

▲ shared first/last authorship

- 61 Wippert P M, Block A, Mansuy I M, Peters E M J, Rose M, Rapp M A, Huppertz A, **Wuertz-Kozak K**  
Alterations in bone homeostasis and microstructure related to depression and allostatic load  
Psychotherapy and Psychosomatics, **2019** epub ahead
- 60 Loepfe M, Duss A, Zafeiropoulou K A, Björgvinsdóttir O, D'Este M, Eglin D, Fortunato G, Klasen J, Ferguson S J, **Wuertz-Kozak K▲**, Krupkova O▲  
Electrospray-based microencapsulation of epigallocatechin 3-gallate for local delivery into the intervertebral disc  
Pharmaceutics, **2019** Sept, 11 (9) 435
- 59 Santschi M, Vernengo A, Eglin D, D'Este M▲, **Wuertz-Kozak K▲**  
Decellularized matrix as a building block in bioprinting and electrospinning  
Current Opinion in Biomedical Engineering, **2019** May 28, epub ahead
- 58 Pehlivanoglu T, **Wuertz-Kozak K**, Heider F, Hitzl W, Sauer D, Wanke-Jellinek L, Mayer M, , Mehren C  
Clinical and radiographic outcome of patients with cervical spondylotic myelopathy undergoing total disc replacement  
Spine, **2019** Oct 15, 44 (20) 1403-1411

- 57 Mehren C, **Wuertz-Kozak K**, Sauer M, Hitzl W, Pehlivanoglu T, Heider F  
Implant design and the anchoring mechanism influence the incidence of  
heterotopic ossification in cervical total disc replacement at 2-year follow-up  
Spine, **2019** Nov 1;44 (21): 1471-1480
- 56 Kameda T, Zvick J, Vuk M, Sadowska A, Tam WK, Leung V, Bölcskei K, Helyes Z,  
Applegate LA, Hausmann O, Klasen J, Krupkova O ▲, **Wuertz-Kozak K ▲**  
Expression and activity of TRPA1 and TRPV1 in the intervertebral disc: association  
with inflammation and matrix remodeling  
Int J Mol Sci, **2019** Apr 10;20(7)
- 55 Mouser VHM, Arkesteijn ITM, van Dijk BGM, **Wuertz-Kozak K**, Ito K  
Hypotonicity differentially affects inflammatory marker production by nucleus  
pulposus tissue in simulated disc degeneration versus herniation  
J Orthop Res, **2019** May;37(5):1110-1116
- 54 Loibl M ▲, **Wuertz-Kozak K ▲**, Vadala G, Fairbanks J, Lang S, Urban J  
Controversies in Regenerative Medicine: Should intervertebral disc degeneration be  
treated with mesenchymal stem cells?  
Journal of Orthopedic Research Spine, **2019** e1043
- 53 Egan P, Wang X, Greutert H, Shea K, **Wuertz-Kozak K**, Ferguson SJ  
Mechanical and biological characterization of 3D printed lattices  
3D Printing and Additive Manufacturing Journal, **2019**; 6 (2) 73-81
- 52 Mehren C, Heider F, Hitzl W, Sauer D, Korge A, Kothe R, **Wuertz-Kozak K**  
Clinical and Radiological Outcome of a new Total Cervical Disc Replacement Design  
Spine (Phila Pa 1976). 25 February **2019**; 44 (4) 202-2010
- 51 **Wuertz-Kozak K**, Bleisch D, Nadi N, Prömmel P, Hitzl W, Kessler T, Gautschi O,  
Hausmann ON  
Sexual and urinary function following anterior lumbar surgery in females  
Neurourology and Urodynamics, **2019** Feb, 38 (2) 632-636
- 50 Sadowska A, Kameda T, Krupkova O ▲, **Wuertz-Kozak K ▲**  
Osmosensing, osmosignaling and inflammation: How intervertebral disc cells  
respond to altered osmolarity  
European Cells and Materials, **2018** Nov; 36: 231-250
- 49 Randall M, Riemann M, Jüngel A, **Wuertz-Kozak K**  
Advances in the Biofabrication of 3D Skin in vitro: Healthy and Pathological Models  
Frontiers Bioengineering, **2018**; 6: 154
- 48 Krupkova O, Sadowska A, Kameda T, Hausmann O, Klasen J, **Wuertz-Kozak K**  
p38 MAPK facilitates crosstalk between endoplasmic reticulum stress and IL-6  
release in the intervertebral disc  
Frontiers in Immunology, 17 August **2018** Aug 17;9:1706
- 47 Franco-Obregón A, Cambria E, Greutert H, Wernas T, Egli M, Sekiguchi M, Boos N,  
Hausmann ON, Ferguson SJ, Kobayashi H ▲, **Wuertz-Kozak K ▲**  
TRPC6 in simulated microgravity of intervertebral disc cells  
Eur Spine J. **2018** Oct;27(10):2621-2630

- 46 Krupkova O, Smolders L, **Wuertz-Kozak K**, Cook JL, Pozzi A  
The pathobiology of the meniscus: a comparison between the human and dog  
Frontiers Veterinary Science, **2018** Apr 16;5:73
- 45 O. Krupkova, E. Cambia, L. Besse, A. Besse, R. Bowles, **K. Wuertz-Kozak**  
The Potential of CRISPR/Cas9 Genome Editing for the Study and Treatment of  
Intervertebral Disc Pathologies  
JOR Spine, **2018**, 1 (1), e1003
- 44 A. Sadowska, O. Hausmann, **K. Wuertz-Kozak**  
Inflammaging in the intervertebral disc  
Clinical and Translational Neuroscience, **2018**, 2 (1)
- 43 Sadowska A, Touli E, Hitzl W, Greutert H, Ferguson SJ, **Wuertz-Kozak K<sup>▲</sup>**,  
Hausmann ON<sup>▲</sup>  
Inflammaging in cervical and lumbar degenerated intervertebral discs: Analysis of  
proinflammatory cytokine and TRP channel expression  
Eur Spine J. **2018** Mar;27(3):564-577
- 42 Monchaux M, Forterre S, Spreng D, Karol A, Forterre F<sup>▲</sup>, **Wuertz-Kozak K<sup>▲</sup>**  
Inflammatory processes associated with canine intervertebral disc herniation  
Frontiers in Immunology, **2017** Dec 4;8:1681 (eCollection 2017)
- 41 Wu Y, Stoddart MJ, **Wuertz-Kozak K**, Grad S, Alini M, Ferguson SJ  
Hyaluronan supplementation as a mechanical regulator of cartilage tissue  
development under joint-kinematic-mimicking loading.  
J R Soc Interface, **2017** Aug;14(133)
- 40 Kang MS, Lim HS, Oh JS, Lim YJ, **Wuertz-Kozak K**, Harro JM, Shirtliff ME,  
Achermann Y  
Antimicrobial activity of Lactobacillus salivarius and Lactobacillus fermentum against  
Staphylococcus aureus.  
Pathog Dis., **2017** Mar 1;75(2)
- 39 Krupkova O, Zvick J, **Wuertz-Kozak K**  
The role of TRP channels in joint diseases  
Eur Cell Mater, **2017** Oct 10;34:180-201
- 38 Wippert PM, Rector M, Kuhn G, **Wuertz-Kozak K**  
Stress and Alterations in Bones: An Interdisciplinary Perspective  
Frontiers in Endocrinology, **2017** May 1;8:96
- 37 Krupkova O, Hlavna M, Tahmasseb JA, Zvick J, Kunz D, Ito K, Ferguson SJ, **Wuertz-  
Kozak K**  
An Inflammatory Nucleus Pulposus Tissue Culture Model to Test Molecular  
Regenerative Therapies: Validation with Epigallocatechin 3-Gallate  
Int. J. Mol. Sci., **2016**, 17(10), 1640
- 36 Krupkova O, Ferguson SJ, **Wuertz-Kozak K**  
Stability of (-) epigallocatechin gallate and its activity in liquid formulations and  
delivery systems

- 35 Krupkova O, Handa J, Hlavna M, Klasen J, Ospelt C, Ferguson SJ, **Wuertz-Kozak K**  
The natural polyphenol epigallocatechin 3-gallate protects intervertebral disc cells from oxidative stress  
Oxid Med Cell Longev., **2016**;2016:7031397
- 34 Spaas JH, Broeckx SY, Chiers K, Ferguson SJ, Casarosa M, Van Bruaene N, Forsyth R, Duchateau L, Franco-Obregón A<sup>▲</sup>, **Wuertz K<sup>▲</sup>**  
Chondrogenic priming at reduced cell density enhances cartilage adhesion of equine allogeneic MSCs - a loading sensitive phenomenon in an organ culture study with 180 explants  
Cell Phys Biochem, **2015** Sep 8;37(2):651-665
- 33 Kurth F, Franco-Obregón A, Casarosa M, Küster SK, **Wuertz-Kozak K**, Dittrich PS  
TRPV2-mediated shear-stress responses in C2C12 myoblasts are regulated by serum and extracellular matrix  
FASEB J, **2015** Jul 23 pii: fj.15-275396
- 32 Gantenbein B, Calandriello E, **Wuertz-Kozak K**, Benneker LM, Keel, MJ, Chan SCW  
Activation of intervertebral disc cells by co-culture with notochordal cells, conditioned medium and hypoxia.  
BMC Musculoskelet Disord **2014** Dec 11;15(1):422
- 32 Krupkova O, Sekiguchi M, Klasen J, Hausmann O, Konno S, Ferguson SJ, **Wuertz-Kozak K**  
Epigallocatechin 3-gallate supresses interleukin-1 $\beta$ -induced inflammatory responses in intervertebral disc cells in vitro and reduces radiculopathic pain in rats.  
Eur Cell Material, **2014** Nov 25;28:372-86
- 30 Broeckx S, Suls M, Beerts C, Vandenberghe A, Seys B, **Wuertz-Kozak K**, Duchateau L, Spaas JH  
Allogenic mesenchymal stem cells as a treatment for equine degenerative joint disease: a pilot study.  
Curr Stem Cell Res Ther, **2014** ;9(6):497-503
- 29 Klawitter M, Hakozaki M, Kobayashi H, Quero L, Krupkova O, Ospelt C, Gay S, Hausmann O, Liebscher T, Meier U, Sekiguchi M, Konno S, Boos N, Ferguson SJ, **Wuertz K**  
Expression and regulation of Toll-like receptors (TLRs) in human intervertebral disc cells.  
Eur Spine Journal, **2014** Sep;23(9):1878-91
- 28 Broeckx S, Zimmerman M, Crocetti S, Suls M, Mariën T, Ferguson SJ, Chiers K, Duchateau L, Franco-Obregón A, **Wuertz K<sup>▲</sup>**, Spaas JH<sup>▲</sup>  
Regenerative therapies for equine degenerative joint disease: a preliminary study.  
PLoS One. **2014** Jan 20;9(1):e85917
- 27 Quero L, Klawitter M, Schmaus A, Rothley M, Sleeman J, Tiaden NA, Klasen J, Boos N, Hottiger MO, **Wuertz K<sup>▲</sup>**, Richards JP<sup>▲</sup>

Hyaluronic acid fragments enhance the inflammatory and catabolic response in human intervertebral disc cells through modulation of toll-like receptor 2 signaling pathways.  
Arthritis Res Ther, **2013** Aug 22;15(4):R94

- 26 **Wuertz K**, Haglund L  
Inflammatory mediators in intervertebral disc degeneration and discogenic pain.  
Global Spine Journal, **2013** June 15;3:175-184
- 25 Klawitter M, Quero L, Klasen J, Gloess AN, Klopprogge B, Nerlich A, Hausmann O, Boos N, **Wuertz K**  
Curcuma DMSO extracts and curcumin exhibit an anti-inflammatory and anti-catabolic effect on human intervertebral disc cells, possibly by influencing TLR2 expression and JNK activity.  
J of Inflammation, **2012** Aug 21;9(1):29
- 24 Tiaden A, Klawitter M, Mirsaidi A, Bahrenberg G, Glanz S, Quero L, Liebscher T, **Wuertz K**, Ehrmann M, Richards PJ  
Detrimental role for human high temperature requirement serine protease A1 (HTRA1) in the pathogenesis of intervertebral (IVD) degeneration  
J Biol Chem. **2012** J Jun 15;287(25):21335-45
- 23 Weiler C, Schietzsch M, Kirchner T, Nerlich AG, Boos N, **Wuertz K**  
Age-related changes in human cervical, thoracal and lumbar intervertebral disc exhibit a strong intra-individual correlation.  
Eur Spine J. **2012** Aug;21 Suppl 6:S810-8
- 22 Klawitter M, Quero L, Klasen J, Liebscher T, Nerlich A, Boos N, **Wuertz K**  
Triptolide exhibits anti-inflammatory, anti-catabolic as well as anabolic effects and suppresses TLR expression and MAPK activity in IL-1 $\beta$  treated human intervertebral disc cells.  
Eur Spine J. **2012** Aug;21 Suppl 6:S850-9
- 21 **Wuertz K**, Vo N, Kletsas D, Boos N  
Inflammatory and catabolic signalling in intervertebral discs: The roles of NF-kB and MAP Kinases.  
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## Book Chapters and Monographs

Rückenschmerz und Lendenwirbelsäule: Interdisziplinäres Praxisbuch

**Chapter: „Die Wirbelsäule im Alterungsprozess“ (Wuertz K, Boos N, Nerlich AG)**

Editors: Hildebrandt, Pfungsten (Urban & Fischer Verlag/Elsevier GmbH)

4. Oktober 2011; ISBN-10: 3437232517; ISBN-13: 978-3437232510

### **Wuertz-Kozak K**

Degenerative Disc Disease: From Pathobiology to Molecular Therapy (**2016**)

Habilitation thesis (Venia Legendi), ETH Zurich, Switzerland

### **Wuertz-Kozak K**

Implementation of Lean Management in Swiss Hospitals: A Multi-Case Study on the Effects of Staff Information and Training on Adoption and Utilization of Lean (**2015**)  
MBA thesis (with distinction), University of Cumbria, UK

**Wuertz K**

Einfluss mechanischer Reize auf humane und bovine Bandscheibenzellen (**2006**)  
PhD thesis (magna cum laude), University of Ulm, Germany

## C. FUNDING ACQUISITION

Principal Investigator: **bold**

Co-Applicant: normal font

### Peer-Reviewed Funding

Funding Agency	Duration	Applicants	Title	Amount
ISSLS Research Award	07/2019 – 06/2020	<b>Krupkova</b> Wuertz-Kozak	Cell-based delivery of GDF-5 for regeneration of the IVD using CRISPR	11'000 CHF
SNF Project Grant	05/2019 – 04/2023	<b>Wuertz-Kozak</b>	Functional role of TLR-associated microRNAs in intervertebral disc pathophysiology	407'463 CHF
SNF Travel Grant	03/2019 – 09/2019	<b>Wuertz-Kozak</b> <b>Cambria</b>	Disc-on-a-chip with application of compressive forces	10'000 CHF
Horizon 2020 MSCA-ITN	01/2019 -12/2022	<b>Persson</b> + Consortium Ferguson & Wuertz-Kozak <i>Et al.</i>	NU-SPINE Training innovative future leaders in research and development of materials and implants for the spine	4'274'478 € total 843'830 € ETH = 980'100 CHF**
Heel	07/2018-06/2020	<b>Forterre</b> <b>Wuertz-Kozak</b>	The Role of Fibronectin Fragments in Immune Modulation and Inflammation during Canine Disc Disease	101'305 € = 117'700 CHF
CABMM Start-up	12/2017-11/2018	<b>Pozzi</b> <b>Krupkova</b> Wuertz-Kozak	Canine spontaneous meniscal pathology: A suitable model for translational medicine?	30'000 CHF (39'000 CHF total)
CABMM Start-up	01/2018 – 12/2019	<b>Wuertz-Kozak</b> <b>Haschtmann</b> <b>Fekete</b> <b>Salzmann</b>	Pseudarthrosis or successful spinal fusion – do predictive serum biomarkers exist?	32'100 CHF (32'100 CHF total)
CABMM Start-up	12/2017 – 11/2019	<b>Stoyanov</b> <b>Krupkova</b> Wuertz-Kozak	Erythrocyte-based nanotechnology for personalized delivery of naturally derived anti-inflammatory drugs	14'644 CHF (33'650 CHF total)
CTI	04/2017 – 03/2019	<b>Dudler</b> Lüder Wuertz-Kozak Zinn	Novel anti-aging cosmetic products based on extracts of microalgae	270'000 CHF (1'166'000 CHF total)
CABMM Start-up	02/2017 – 01/2018	<b>Wuertz-Kozak</b> <b>Achermann</b>	The role of <i>Propionibacterium acnes</i> infection in intervertebral disc inflammation	18'000 CHF (28'000 CHF total)
Vontobel Foundation	01/2017-12/2017	<b>Wuertz-Kozak</b>	Entwicklung einer neuartigen Wundauflage zur verbesserten Behandlung diabetischer Fuß-Ulzera	19'000 CHF (19'000 CHF total)
Eurospine	07/2016-06/2020	<b>Wuertz-Kozak</b> Ferguson Franco-Obregon	TRP channels in IVDs: Where load, inflammation & pain meet	80'000 € = 86'500 CHF (86'500 CHF total)

SNF Professorship	07/2016 – 06/2020	<b>Wuertz-Kozak</b> Ferguson Franco-Obregon	Unlocking the mechanisms of mechanotransduction in degenerative disc disease	1'595'000 CHF (1'595'000 CHF total)
CABMM Start-up	01/2016-12/2016	<b>Wuertz-Kozak</b> <b>Smolders</b>	Identification of inflammatory and pain markers in degenerative spinal disease	38'000 CHF (38'000 CHF total*)
OPO Foundation	01/2016-12/2016	<b>Wuertz-Kozak</b> <b>Smolders</b>	Identification of inflammatory and pain markers in degenerative spinal disease	49'000 CHF (49'000 CHF total*)
ETH Equipment > 50'000	2015	<b>Wuertz-Kozak</b> Ferguson Zenobi-Wong	Electrospinning/3D Printing	125'000 CHF (125'000 CHF total)
CABMM Start-up	01/2015 - 12/2015	<b>Wuertz-Kozak</b> Bode Ferguson Hausmann	Development and characterization of a pH sensitive slow release system to reduce inflammatory processes in the degenerated intervertebral disc	31'300 CHF (31'300 CHF total)
Sciex	10/2014-09/2015	<b>Wuertz-Kozak</b> <b>Hlawna</b>	Development of a novel tissue culture model for degenerative disc disease	104'000 CHF (104'000 CHF total)
Hochschulmedizin Zurich	08/2014-07/2017	<b>Falk / Mazza</b> In total 20 research groups, including Ferguson Wuertz-Kozak	Zurich Heart Project (Subproject: Hybrid Membrane)	132'000 CHF** (total > 1.5 million CHF)
Eurospine	07/2014-06/2015	<b>Wuertz-Kozak</b> Ferguson Bode	PH-sensitive slow release systems to reduce disc inflammation	10'000 € = 12'150 CHF (12'500 CHF total)
German Spine Society	12/2013-11/2015	<b>Liebscher</b> <b>Wuertz-Kozak</b>	Diagnostik und Therapie molekularer und genetischer Veränderungen von bandscheibenbedingten Rückenschmerzen	7'000 € = 8'500 CHF (11'000 CHF total)
Herzog-Egli Foundation	12/2013-11/2014	<b>Wuertz-Kozak</b> Ospelt	Investigating the anti-inflammatory, anti-catabolic, anti-apoptotic and anti-senescence properties of Epigallocatechin gallate (EGCG) in human intervertebral disc cells	10'000 CHF (10'000 CHF total)
CABMM Start-up	09/2013-08/2014	<b>Forterre</b> <b>Wuertz-Kozak</b> Spreng	Investigation of the inflammatory processes associated with canine IVD herniation	37'900 CHF (37'900 CHF total)
CABMM Start-up	09/2013-08/2014	<b>Wuertz-Kozak</b> Gantenbein	Expression, regulation and relevance of hyaluronidases in the intervertebral disc	29'800 CHF (29'800 CHF total)
AO Research Foundation	06/2013-05/2016	<b>Ferguson</b> Wuertz-Kozak (consortium project)	Annulus Fibrosus Repair	309'400 CHF** (total > 2 million CHF)

CABMM Start-up	09/2012-08/2013	<b>Franco-Obregón</b> <b>Wuertz-Kozak</b> Hausmann	Mechanisms of Mechano-transduction in Human IVD Cells upon Stimulation with PEMF or Strain	37'500 CHF (37'500 CHF total)
Eurospine	09/2012-08/2013	<b>Wuertz-Kozak</b> Franco-Obregon Ferguson Boos	In vitro investigation of PEMF to treat IVD degeneration	20'000 € = 24'000 CHF (24'000 CHF total)
CABMM Start-up	10/2011-09/2012	<b>Wuertz-Kozak</b> Hausmann Gay	Investigating the role of Toll-like receptor 2 in intervertebral disc degeneration and inflammation	35'000 CHF (35'000 CHF total)
SNF	10/2010-12/2012	<b>Wuertz-Kozak</b> Boos	Accumulation of N-(carboxymethyl)-lysine and hyaluronic acid fragments in the ageing intervertebral disc – a potential trigger of disco-genic back pain	160'000 CHF (160'000 CHF total)
Swisslife	06/2009-06/2011	<b>Wuertz-Kozak</b>	MSC treatment in the disc	30'000 CHF (30'000 CHF total)
Herzog Egli Foundation	03/2009-04/2010	<b>Wuertz-Kozak</b> Ospelt	Toll-like receptors in the intervertebral disc	10'000 CHF (10'000 CHF total)
CTI	06/2008-12/2009	<b>Graf-Hauser</b> <b>Durner</b> Patocchi-Tenzer Boos Wuertz-Kozak	Automation of tissue culture processes for regenerative medicine applications	50'000 CHF (total 1'071'000 CHF)
Holcim	05/2008-04/2007	<b>Wuertz-Kozak</b>	Stem-cell based intervertebral disc regeneration	80'000 CHF (80'000 CHF total)
<b>Total in CHF</b>				<b>4'905'012 CHF</b> <b>~ 4.9 million USD</b>

\* Funding transferred to account of collaborators, but research fully conducted in the lab of Wuertz-Kozak

\*\* Funds transferred to account Prof. Ferguson and then used together (Ferguson/Wuertz-Kozak as project team)

## Peer-Reviewed Funding without Cash Flow (Collaborations)

Novartis	09/2018-08/2019	<b>Jüngel</b> Wuertz-Kozak	Development of a standardized humanized 3D skin model for Systemic sclerosis (SSc) using double-layered, nanofibrous polycaprolactone scaffolds	57'546 CHF For Dr. Jüngel
CABMM Start-up	03/2013-02/2014	<b>Born</b> <b>Zenobi-Wong</b> Wuertz-Kozak	NEMO and IKK $\beta$ : Identifying potential targets for treatment of early osteoarthritis using shRNA technology	39'400 CHF For Prof. Zenobi-Wong

CABMM Start-up	08/2012-07/2013	<b>Gantenbein</b> Wuertz-Kozak	Investigation of the Regenerative Effects of porcine Notochordal Cells onto bovine Intervertebral Disc Cells under Co-culture	35'000 CHF For Prof. Gantenbein
CABMM Start-up	01/2011-12/2011	<b>Richards</b> <b>Wuertz-Kozak</b>	Role of serine protease HtrA1 in spinal disc degeneration	24'100 CHF For Dr. Richards
SNF	01/2010-12/2012	<b>Gantenbein</b> Wuertz-Kozak	Evolution of in vitro Intervertebral Disc Culture Systems: Two Degrees of Freedom Loading to Study Region-Specific and Synergistic Degenerative Processes	252'000 CHF For Prof. Gantenbein

## Not Peer-Reviewed Funding

Funding Agency	Duration	Applicants	Title	Amount
ETH Equipment < 50'000	2018	<b>Wuertz-Kozak</b>	Cold Storage	21'582 CHF
ETH Equipment < 50'000	2016	<b>Wuertz-Kozak</b>	Automated Patch-Clamp	42'500 CHF
Enabel Stiftung	2015	<b>Wuertz-Kozak</b>	Young Scientist Network Event Support	400 CHF
ETH Equipment < 50'000	2014	<b>Wuertz-Kozak</b> Ferguson	Autoclave	32'000 CHF
SAMW	2013	<b>Wuertz-Kozak</b>	Symposium Support	1'500 CHF
Global Stem Cell Technology	12/2013-11/2014	<b>Wuertz-Kozak</b>	Equine stem cells for cartilage repair	15'000 € (16'250 CHF)
SAMW	2010	<b>Wuertz-Kozak</b>	Symposium Support	1'000 CHF
ZUNIV	2010	<b>Wuertz-Kozak</b>	Symposium Support	1'150 CHF
Hermann Klaus Foundation	2009	<b>Wuertz-Kozak</b>	Liquid Nitrogen Storage Tank	1'800 CHF
<b>Total in CHF</b>				<b>118'182 CHF</b> <b>= 118'000 USD</b>

## D. TEACHING AND SUPERVISION

### 1. TEACHING EXPERIENCE

#### Teaching at ETH Zurich

- Since 2018                      Practical Methods in Biofabrication  
ETH Zurich, Zurich, Switzerland  
ETH Master Students  
*5 ECTS (Spring Semester), 4 weekly contact hours, 25% work load*
- Since 2016                      Colloquium in Biomechanics  
ETH Zurich, Switzerland  
ETH PhD and Master Students  
*2 ECTS (Both Semesters), 2 weekly contact hours, 10% work load*
- Since 2013                      Mechanobiology: Implications for Development, Regeneration and  
Tissue Engineering  
ETH Zurich, Switzerland  
ETH Master Students  
*2 ECTS (Spring Semester), 2 weekly contact hours, 20% work load*
- Since 2015                      Practical Methods in Tissue Engineering  
ETH Zurich, Zurich, Switzerland  
ETH Master Students  
*5 ECTS (Fall Semester), 4 weekly contact hours, 40% work load*
- Since 2013                      Bone Biology and Consequences for Human Health  
ETH Zurich, Zurich Switzerland  
ETH Master Students  
*2 ECTS (Spring Semester), Co-Lecturer with 2 contact hours*

#### Teaching at University of Zurich

- Since 2017                      Regenerative Medicine and Applied Tissue Engineering  
University of Zurich, Zurich, Switzerland  
UZH Master Students  
*2 ECTS (Spring Semester), Co-Lecturer with 2 contact hours*
- 2015 - 2018                      Veterinary Medicine: Comparative morphology and pathophysiology  
University of Zurich, Zurich, Switzerland  
UZH Master Students  
*6 ECTS (Fall Semester), Co-Lecturer with 3 contact hours*

#### Teaching at University of Applied Sciences (Zurich, Bern)

- Since 2012                      Biomaterials and their interaction with cells and tissue  
Zurich University of Applied Sciences ZHAW, Wädenswil, Switzerland  
ZHAW Master Students  
*4 ECTS (Spring Semester), Co-Lecturer with 4 contact hours*

Since 2012	Biokompatible Materialien Zurich University of Applied Sciences ZHAW, Winterthur, Switzerland ZHAW Bachelor Students <i>3 ECTS (Spring Semester), Co-Lecturer with 6 contact hours</i>
2016 - 2017	Physiotherapy: Anatomie und Biomechanik des Bewegungssystems Bern University of Applied Sciences BFH, Bern, Switzerland BFH Master Students <i>3 ECTS (Fall Semester), Co-Lecturer with 4 contact hours</i>

## Other Teaching

Since 2017	Eurospine Task Force Research (TFR) Course International Spine Specialists
Since 2017	eccElearning Postgraduate Online Education Program International Spine Specialists

## 2. TEACHING QUALIFICATION

### Habilitation

10/2015 – 07/2016	Habilitation ETH Zurich, Switzerland <b>Venia Legendi</b> (Pathophysiology & Molecular/Regenerative Medicine)
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### Didactical Training

2016/2017	Teaching at ETH: Committed and skilled (Course 1) Lehrentwicklung und Technologie ETHZ, 4.5 days
2016	Critical thinking in higher education Center for University Teaching and Learning, 1 day
2016	Coaching for female lecturers Hochschuldidaktik, 3x 2.5 hours
2015	Multiple choice exams Hochschuldidaktik, 2x 4 hours
2015	Presenting with theater-based methods Hochschuldidaktik, 2 days
2015	Teaching and learning in laboratory practical classes Center for University Teaching and Learning, 1 day
2015	Research-related teaching and learning Hochschuldidaktik, 1 day
2009	Basic didactical course for habilitating personnel Medical Faculty of the University of Zurich, 2 days
2009	Teaching English in a non-English speaking environment Hochschuldidaktik, 1.5 days



### 3. TEACHING EVALUATIONS

Only courses as main lecturer or with personal evaluation are shown. More detailed evaluations can be provided.

#### Practical Methods in Tissue Engineering (376-1622-00L) (2015-2018)

**ETH zürich** Prof. Dr. Karin Würtz-Kozak  
 Practical Methods in Tissue Engineering (376-1622-00L-HS18) (376-1622-00L-HS18), HS18  
 Gesamtbericht, Erfasste Fragebögen = 14

-Globalwerte

Gesamtzufriedenheit und Kommentare

mw=4.8  
s=0.4

Dozent/in A: Karin Würtz-Kozak, Dozent/in B: Marcy Zenobi-Wong; Practical Methods in Tissue Engineering

**ETH zürich** Prof. Dr. Karin Würtz-Kozak  
 Practical Methods in Tissue Engineering (376-1622-00L-FS17) (376-1622-00L-FS17), FS17  
 Gesamtbericht, Erfasste Fragebögen = 11

-Globalwerte

Gesamtzufriedenheit

mw=4.7  
s=0.5

Dozent/in A: Karin Würtz-Kozak, Dozent/in B: Marcy Zenobi-Wong; Practical Methods in Tissue Engineering

**Prof. Dr. Karin Würtz-Kozak**  
 Practical Methods in Tissue Engineering (376-1622-00L-HS16), HS16  
 Erfasste Fragebögen = 8

**ETH**

Globalwerte

7. Gesamtzufriedenheit

mw=4.6  
s=0.5

Dr. Karin Würtz-Kozak, Practical Methods in Tissue Engineering

**Dr. Karin Würtz-Kozak**  
 Practical Methods in Tissue Engineering (376-1622-00L-FS15), FS15  
 Erfasste Fragebögen = 11

**ETH**

Globalwerte

Gesamtzufriedenheit

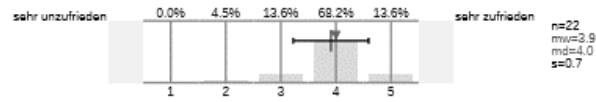
mw=4.9  
s=0.3

# Mechanobiology (376-1392-00L) (2015-2017)

Dozent/in A: Aldo Ferrari, Dozent/in B: Karin Würtz-Kozak, Dozent/in C: Marcy Zenobi-Wong  
 Mechanobiology: Implications for Development, Regeneration and Tissue Engineering (376-1392-00L-FS17)

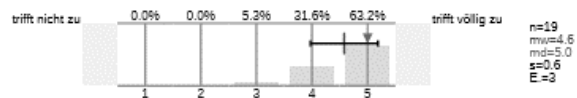
## 9. Gesamtzufriedenheit

9.1) Wie zufrieden waren Sie insgesamt mit der Lerneinheit?



## 3. Die Dozentin / der Dozent B... Prof. Dr. Karin Würtz-Kozak

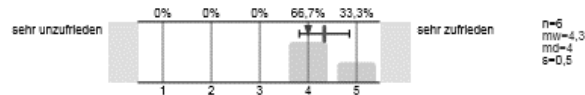
3.1) ...erklärte den Stoff verständlich und anschaulich.



Dozent/in A: Aldo Ferrari, Dozent/in B: Karin Würtz-Kozak, Dozent/in C: Marcy Zenobi-Wong; Mechanobiology: Implications for Development, Regeneration and Tissue

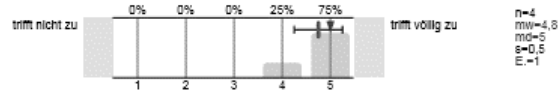
## Gesamtzufriedenheit

Wie zufrieden waren Sie insgesamt mit der Lerneinheit?



## Die Dozentin / der Dozent B... Dr. Karin Würtz-Kozak

...erklärte den Stoff verständlich und anschaulich



# WGS FBG MSc Physiotherapy (2018)

## 1. Evaluation der/des Dozierenden

1.1) Die/der Dozierende konnte das Themengebiet gut verständlich erklären.	trifft vollständig zu	trifft gar nicht zu	n=8	max=1,0	md=1,0	s=0,0
1.2) Die/der Dozierende arbeitete wichtige Themen und Inhalte klar heraus.	trifft vollständig zu	trifft gar nicht zu	n=8	max=1,3	md=1,0	s=0,5
1.3) Die/der Dozierende motivierte mich zur aktiven Mitarbeit.	trifft vollständig zu	trifft gar nicht zu	n=8	max=1,3	md=1,0	s=0,5
1.4) Die/der Dozierende hat verschiedene Lehr- und Lernformen (z.B. Gruppenarbeiten, Fallbeispiele) eingesetzt.	trifft vollständig zu	trifft gar nicht zu	n=7	max=1,1	md=1,0	s=0,4
1.5) Die/der Dozierende hat mir die Anforderungen und Bewertungsvorgaben für den Leistungsnachweis rechtzeitig mitgeteilt.	trifft vollständig zu	trifft gar nicht zu	n=2	max=1,5	md=1,5	s=0,7
1.6) Die zur Verfügung gestellten und empfohlenen Materialien (z.B. Skript, Handout, Lehrbuch) waren nützlich, um den Stoff zu verstehen und	trifft vollständig zu	trifft gar nicht zu	n=8	max=1,6	md=2,0	s=0,5

## 4. SUPERVISION

### Supervision Style

Over the past years, I have gained extensive experience in supervising master, bachelor and doctoral students as well as Postdocs in my laboratory. With the help of my MBA in Leadership and Sustainability, I have found my personal leadership style that is true to my personality and reflects my core values. This leadership style is commonly termed “enabling”, which in simple terms means that I try to enable the full potential of my team members while “having their backs”, showing respect and caring for them. Importantly, this approach ensures security, even in cases of failure, and fosters a positive error culture. I encourage taking ownership of results, thereby promoting accountability and commitment.

Administratively, I create a project plan with all students, independent of their level, and follow-up with them on a regular basis. I do this through regular group meetings on a small scale (only the group) and a larger scale (institute level), but also on a one-on-one basis. The frequency and structure of the latter depends the student’s personality and the student’s specific needs during different phases of the project. I practice an open door policy, i.e. when I am in the office and the door is open, all team members know that they can approach me at any time – although I may reschedule a discussion to later in the day if I am working on something important in that particular instance. Using this approach, students not only approach me in case of problems, but also with new exciting new results. This avoids micromanaging and creates room for autonomy, personal development and innovation – while providing a secure environment and certain boundaries.

### Supervision Training

2019	Symposium on Doctoral Supervision ETH Zurich, 2 days
2018	Supervising Doctoral Students ETH Leadership 4to7, 3 hours
2015	Supervising students – dealing with roles and relationships Center for University Teaching and Learning, 6 hours
2013 - 2015	MBA in Leadership and Sustainability University of Cumbria

### Supervised Postdoctoral Fellows

Since 2017	M. Randall, PhD <i>Novel anti-aging cosmetic products based on extracts of microalgae</i>
Since 2017	O. Krupkova, PhD <i>Inflammation Modulation in the intervertebral disc</i>
2017-2018	T. Kameda, MD/PhD <i>The role of Transient Receptor Potential Channels in IVD Inflammation</i> Now Medical Doctor at Fukushima Medical University

- 2017 J. Nadi, MD  
*The role of Propionibacterium acnes infection in intervertebral disc inflammation*  
Now Medical Resident at University Hospital of Zurich
- 2016 E. Touli, MD  
*Inflammaging in cervical and lumbar degenerated intervertebral discs: analysis of proinflammatory cytokine and TRP channel expression*  
Now Medical Resident at EOC
- 2015-2016 J. Handa, MD, PhD  
*TRPC1 and TRPC6 in simulated microgravity and senescence of intervertebral disc cells*  
Now Spine Surgeon at Fukushima Medical University
- 2014-2015 M. Hlavna, PhD  
*Development of an inflammatory nucleus pulposus tissue culture model*  
Current position unknown
- 2014 S. Crocetti, PhD  
*TRP expression and function in myoblasts*  
Now Regulatory Affairs Officer at El.En SpA
- 2013-2014 H. Kobayashi, MD/PhD  
*Expression and regulation of toll-like receptors (TLRs) in human IVD cells*  
Now Spine Surgeon at Fukushima Medical University
- 2012-2013 M. Hakozi, MD/PhD  
*Expression and regulation of toll-like receptors (TLRs) in human IVD cells*  
Now Associate Professor at Fukushima Medical University

## Supervised Med. Vet. Fellows

- Since 2018 Manuel Schmidli, VMD  
*Fibronectin Fragments in Canine Disc Disease: Induction of inflammatory responses in IVD cells and M1 macrophage polarization*
- 2017 - 2019 Andrea Faure Beaulieu, VMD candidate  
*Biological mechanisms of canine meniscal injury and degeneration*  
Now Veterinary Doctor at Animal Hospital Zurich
- 2016 M. Monchaux, VMD  
*Inflammatory Processes Associated With Canine Intervertebral Disc Herniation*  
Now Veterinary Surgeon at British Veterinary Hospital Dubai
- 2015-2016 T. Bitterli, VMD  
*Identification of inflammatory and pain markers in degenerative spinal disease*  
Now Medical Fellow at Vetsuisse Faculty Zurich

## Supervised Doctoral Dissertations

- Since 2019 P. Cazzanelli, ETH Zurich  
*Functional role of TLR-associated microRNAs in inter-vertebral disc pathophysiology*  
Co-supervision not yet determined
- Since 2016 E. Cambria, ETH Zurich  
*Mechanosensing in the intervertebral disc: Transient Receptor Potential Channels*  
Co-supervised by: Prof. Dr. Ferguson, Prof. Dr. Gantenbein
- Since 2016 A. Sadowska, ETH Zurich  
*TRP Channel expression patterns in the intervertebral disc and their role in osmosensing*  
Co-supervised by: Prof. Dr. Ferguson, PD Dr. Oliver Hausmann
- Since 2014 O. Björgvinsdottir, ETH Zurich  
*Electrospun membranes with anti-inflammatory properties for a biomimetic blood propulsion system*  
Co-supervised by: Prof. Dr. Ferguson, Prof. Dr. Mazza
- 2012 – 2016 O. Krupkova, ETH Zurich  
*Activity and controlled delivery of epigallocatechin 3-gallate in the treatment of degenerative disc disease*  
Co-supervised by: Prof. Dr. Ferguson, Prof. Dr. Gantenbein  
Now Postdoctoral Fellow at ETH Zurich
- 2009 – 2013 L. Quero, University of Zurich  
*Discogenic Back Pain – The Induction and Prevention of a Proinflammatory Cascade in Intervertebral Disc Cells in vitro*  
Co-supervised by: Prof. Dr. Hottiger, Prof. Dr. Wenger, Prof. Dr. Boos  
Now Senior Scientist at University of Basel

## Co-Supervised Doctoral Dissertations

- Since 2019 Adeel Ahmed, RIT  
*Fabrication of Interfaces Between Heterogenous Extracellular Matrix Constructs for Studying Cell Migration*
- Since 2019 Zahra Allahyari, RIT  
*Investigation of cell-substrate interaction on and through porous membranes*
- Since 2018 Jean Basile Schoeller, EMPA  
*Electrospinning for wound applications*
- 2012-2017 Yabin Wu, ETH Zurich  
*Joint lubrication: the influence of cartilage surface topology and synovial fluid viscosity*  
Now Project Manager at AO Research Institute
- 2010-2017 Jochen Walser, ETH Zurich  
*Cartilage tissue engineering for otorhinolaryngology (ORL) applications*  
Now Product Development Engineer at DePuy Synthes

- 2012-2015 Marco Casarosa, University of Florence / ETH Zurich  
*Tissue regeneration induced by Pulsed ElectroMagnetic Fields*  
Now Knowledge Transfer Manager at Presso Scuola Superiore Sant'Anna
- 2004-2008 Lucy Poveda, University of Zurich  
*Pathophysiological Pro-Inflammatory and Pain-Inducing Mechanisms in Degenerative Intervertebral Discs*  
Now Senior Scientist at Functional Genomics Centre, University of Zurich

## Supervised MSc Dissertations

- 2019 B. Altinay, .M.S. Health Sciences and Technology ETH Zurich  
*How do IVD cells sense and respond to osmotic changes?*
- M. Pühringer-Sturmayer, MSc Tissue Engineering and Regenerative Medicine Fachhochschule Technikum Wien  
*Electrospun organotypic 3D skin model*
- L. Calderari, MSc Health Sciences and Technology ETH Zurich  
(external thesis)  
*3D Modelling of Crystal Nephropathies*
- C. Wrapp, M.S. Biomedical Sciences  
*Secretome characterization of human mesenchymal stem cells stimulated with intervertebral disc conditioned medium – a proteomic based approach*
- S. Heusser, M.S. Biomedical Engineering FH Wien  
*TRPV4 in dynamic compression of bovine nucleus pulposus cells*
- 2018 M. Boos, M.S. Health Sciences and Technology ETH Zurich  
*Erythrocyte-based nanotechnology for personalized delivery of naturally derived anti-inflammatory drugs*
- G. Makris, M.S. Biomedical Engineering ETH Zurich  
*Effects of culture conditions on the TRP channels expression in cells seeded in a 3D system*
- I. Krizanovic-Grgic, M.S. Health Sciences and Technology ETH Zurich  
*Comparison of clinical characteristics and cumulative radiation exposure in atrial fibrillation patients undergoing first-time or redo catheter ablation procedure using radiofrequency or cyo-energy*
- M. Tschopp, M.S. Health Sciences and Technology ETH Zurich  
(external thesis)  
*Ex vivo biomechanical evaluation of different injury models and FibGen repair on bovine motion segments*
- M. Nussbaum, M.S. Health Sciences and Technology ETH Zurich  
*Modulation of inflammatory responses in vascular endothelium*
- S. Wandel, M.S. Health Sciences and Technology ETH Zurich  
*Role of MAPK and NF- $\kappa$ B in IVD cell responses to mechanical strain*
- Lorenzo Colombo, M.S. Health Sciences and Technology ETH Zurich  
(external thesis)

*The Role of Epstein Barr virus-induced APOBEC3 enzymes in Burkitt lymphoma*

Manuel Weber, M.S. Health Sciences and Technology ETH Zurich  
*IVD-on-a-chip*

Pablo Marty, M.S. Health Sciences and Technology ETH Zurich  
*Bilayered electrospun 3D skin models*

2017

S. Brunner, M.S. Health Sciences and Technology ETH Zurich  
*The expression of TRP channels in dynamic compression of IVD cells*

M. Löpfe, M.S. Biology ETH Zurich  
*Anti-inflammatory microparticles for the treatment of DDD*

N. Demarmels, M.S. Health Sciences and Technology ETH Zurich  
(external thesis)  
*Magnetic Blood Separation*

S. dela Rambelje, M.S. Biomedical Engineering ETH Zurich  
*Novel wound dressings to improve diabetic ulcer healing: Investigating the effect of resveratrol on fibroblast functionality*

M. Santschi, M.S. Biomedical Engineering ETH Zurich  
*Electrospun membranes for the treatment of diabetic ulcers*  
Now Doctoral Candidate at ETH Zurich

J. Zvick, M.S. Health Sciences and Technology ETH Zurich  
*The role of TRP channels in inflammation of intervertebral disc*  
Now Doctoral Candidate at ETH Zurich

2016

K. Zafeiropoulou, M.S. Biomedical Engineering Tech. Universiteit Delft  
*Controlled delivery of epigallocatechin 3-gallate for the treatment of degenerative disc disease*

S. Das, M.S. Biomedical Engineering ETH Zurich  
*A Structural, Mechanical and Biological Map of Human Humeral Heads with Rotator Cuff Arthropathy*  
Now Doctoral Candidate at University of Oxford

P. Moor, M.S. Health Sciences and Technology ETH Zurich  
*Composite Annulus Fibrosus Repair Membranes*  
Now Research Assistant at Uniklinik Balgrist

2015

S. Chablox, M.S. Health Sciences and Technology ETH Zurich  
*Investigating the anti-aging effects of resveratrol on IVD cells in vitro*  
Now Nutrition and Communication Manager at Coca Cola Company

S. Zollinger, M.S. Biomedical Engineering ETH Zurich  
*TRP channels as sensors of compressive stress in intervertebral disc cells*

2014

O. Björgvinsdottir, M.S. Biomedical Engineering Reykjavik University  
*Investigating the effects of pulsed electromagnetic fields (PEMFs) on bovine nucleus pulposus cells*  
Now Doctoral Candidate at ETH Zurich

A. Scheuren, M.S. Biomedical Engineering ETH Zurich  
*Ex vivo biological evaluation of trabecular bone response to injectable ceramic-based cements under mechanical loading*  
Now Doctoral Candidate at ETH Zurich

2012 A. Harrer, M.S. Life Science ZHAW  
*Neue Therapeutika für Wundheilung*

## Supervised BSc Dissertations

2017 M. Rüegg, B.S. Mechanical Engineering ETH Zurich  
*Absorbent nanofibrous membranes for the treatment of diabetic ulcers*

2016 A. Schneider, B.S. Mechanical Engineering ETH Zurich  
*Feasibility of using gelatin coatings for drug release in nanofibrous membranes*

2015 M. Franckfort, B.S. Biomedical Engineering TU Eindhoven  
The role of TRP channels in intervertebral disc osmosensing

2014 E. Gössinger, B.S. Mechanical Engineering ETH Zurich  
*Characterisation of Non-adhesive Electrospun Membranes for AF Repair*

2010 E. Stähli, B.S. Life Science ZHAW  
*Entwicklung eines Bandscheiben-Zellkultursystems zur Testung von Medikamenten*

## Supervised Interns (M.S., B.S.)

B. Altinay, C. Aubry, A. Beaulieu, S. Bergamin, A. Birsen, F. Bollinger, M. Boos, S. Brunner, S. Das, A. Duss, L. Furer, E. Gleissner, D. Greenfeld, I. Grgic, S. Heusser, J. Hu, R. Knell, R. Knecht, D. Kunz, M. Löpfle, O. Marti, R. Merluzzi, D. Michel, A. Müller, M. Nurdzane, T.T. Nguyen, M. Nussbaum, J. Pizorn, J. Schadow, A. Scheuren, M. Schmidli, A. Schneider, A. Sourlis, J. Tahmasseb, L. Thijssen, I. Tripa, M. Tschopp, E. van Haften, A. Vogt, M. Vuille, M. Vuk, S. Wandel, K. Zafeiropoulou

## Supervised Technicians

S. Brunner, H. Greutert, K. Godburn, M. Klawitter, A. Plewnia, M. Santschi

## Membership on Doctoral Defense Panels

Ongoing	A. Ahmed	RIT (Committee Member)
Ongoing	Z. Allahyari	RIT (Committee Member)
Ongoing	X. Zhang	University of Bern, Switzerland (Co-Examiner)



Ongoing	D. Pavlicek	University of Bern, Switzerland (Co-Examiner)
Ongoing	J. Schoeller	EMPA, Switzerland (Examiner)
2019	L. Braun	ETH Zurich, Switzerland (Chairmen)
2019	M. Wälti	ETH Zurich, Switzerland (Chairmen)
2019	O. Evrova	ETH Zurich, Switzerland (Chairmen)
2018	L. Weidenbacher	ETH Zurich, Switzerland (Chairmen)
2017	S. Arnoldini	ETH Zurich, Switzerland (Chairmen)
2017	Y. Wu	ETH Zurich, Switzerland (Examiner)
2017	E. Öztürk	ETH Zurich, Switzerland (Chairmen)
2016	O. Krupkova	ETH Zurich, Switzerland (Examiner)
2016	I. Arkesteijn	Technical University of Eindhoven, Netherlands (Co-Examiner)
2015	C.E. Ruiz Wills	Polytechnic University of Catalonia, Spain (Co-Examiner)
2015	L. Tsz Yan	University of Hong Kong, Hong Kong (Co-Examiner)

## E. CERTIFICATES

### 1. PROFESSORIAL APPOINTMENT AT ETH ZURICH

#### Der Rat der Eidgenössischen Technischen Hochschulen

beurkundet,

dass er, auf Antrag des Präsidenten der  
Eidgenössischen Technischen Hochschule Zürich  
und gestützt auf Artikel 14 Absatz 3 des Bundesgesetzes vom 4. Oktober 1991  
über die Eidgenössischen Technischen Hochschulen,

ernannt hat:

FRAU

**KARIN WÜRTZ**

Dr. biol. hum.  
zurzeit Gruppenleiterin und Lehrbeauftragte an der ETH Zurich

deutsche Staatsangehörige  
geboren am 9. April 1978

**zur Assistenzprofessorin für Immunoengineering  
und Regenerative Medizin  
an der Eidgenössischen Technischen Hochschule Zürich**

gemäss den beigelegten Anstellungsbedingungen

Zürich und Lausanne, 25./26. Mai 2016

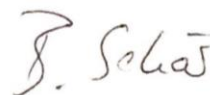
Rat der Eidgenössischen Technischen Hochschulen

Der Präsident



Fritz Schiesser, Dr. iur.

Die Protokollführerin



Barbara Schär, lic. iur.

DIE  
EIDGENÖSSISCHE  
TECHNISCHE  
HOCHSCHULE  
ZÜRICH

Verleiht Frau

**Karin Würtz-Kozak**

Dr. biol., hum.,  
geboren am 9. April 1978, aus Deutschland

die

**VENIA LEGENDI**

für das Lehrgebiet  
Pathophysiology and Molecular/Regenerative Medicine

am

Departement Gesundheitswissenschaften und Technologie

aufgrund ihrer Habilitationsschrift

Degenerative Disc Disease: From Pathology to Molecular Therapy

Zürich, 1. August 2016

Die Rektorin



Prof. Dr. Sarah M. Springman

### 3. MBA IN LEADERSHIP AND SUSTAINABILITY



University of Cumbria

*Karin Wuertz*

has been awarded

**Master of Business Administration**

**Pass with Distinction**

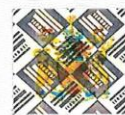
having successfully completed the requirements  
for an approved programme in

**Leadership and Sustainability**

Studied at Robert Kennedy College

Professor Peter Strike  
Vice Chancellor

20 October 2015  
1314228/1



00026107

## 4. PHD IN HUMAN BIOLOGY

# UNIVERSITÄT ULM

### DIE MEDIZINISCHE FAKULTÄT

verleiht unter dem Rektorat des  
Universitätsprofessors für Optoelektronik  
Dr. rer. nat. Karl Joachim Ebeling

und unter dem Dekanat des  
Universitätsprofessors für Kinder- und Jugendmedizin  
Dr. med. Klaus-Michael Debatin

Frau

**Karin Würtz**

geboren am 9. April 1978 in Ingoistadt

aufgrund der Abhandlung

### **Einfluss mechanischer Reize auf humane und bovine Bandscheibenzellen**

und der abgelegten mündlichen Prüfung

den akademischen Grad

**Doktor der Humanbiologie**

**Dr. biol. hum.**

mit dem Gesamturteil

**magna cum laude**

Ulm, den 27. Januar 2008

Der Rektor



Der Dekan



## 5. APPROBATION PHARMAZIE

REGIERUNG VON OBERBAYERN  
Landesprüfungsamt für  
Humanmedizin und Pharmazie

# ZEUGNIS

über die  
Pharmazeutische Prüfung

Frau Karin Würtz,  
geboren am 9.4.1978 in Ingolstadt,  
hat  
die Pharmazeutische Prüfung  
mit der Gesamtnote  
- gut (1,89) -  
bestanden.

München, den 3.7.2003

 *K. Gründl*  
Gründl

0173-7