CURRICULUM VITAE

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Personal

Date of Birth	:	10 October 1972
Place of Birth	:	Davos, GR, Switzerland
Citizenship	:	Swiss
Marital Status	:	divorced, two children
Languages	:	German (mother tongue), English (fluent), French (basic knowledge)

Academic Profiles: ORCID orcid.org/0000-0002-9005-0655, Researchgate, publons.com/a/1224668/

Education and Academic Career

2019-now	Group head Tissue Engineering & Mechanobiology (TOM group), Department for BioMedical Research (DBMR), Medical Faculty, University of Bern
2015	Associated Professor of Medical Faculty
2012 - 2019	Group head Tissue & Organ Mechanobiology (TOM group), Institute of Surgical Technology & Biomechanics, Medical Faculty, University of Bern
2011	*Venia docendi* (Privatdozent) in Biomedical Engineering, Medical Faculty, University of Bern
2008 - 2012	Assistant Professor, ARTORG Research Center, Medical Faculty, University of Bern
	Head of Tissue Mechano-Biology Group
2004 - 2008	Research Associate, AO Research Institute
	Head of Intervertebral Disc Group, Head of Mechano-Biology Laboratory
2002 - 2004	Postdoctoral fellow at the Genetics Department, University of Cambridge, UK Postdoctoral fellow on evidence for recombination in mitochondrial DNA
2001 - 2004	Marie Curie postdoctoral fellow at the ICAPB, Ashworth Laboratories, University of Edinburgh, UK
	Postdoctoral fellow on nuclear evolutionary rates
2001	CMPG (Computational and Molecular Population Genetics) Laboratory, Zoological Institute, University of Bern / Natural History Museum of Bern
	Research Associate at University of Bern
1998 - 2000	PhD at the University of Bern, supervised by Prof. A. Scholl, W. Nentwig Phylogeographic analyses on scorpions from the Mediterranean area. Head of allozyme laboratory.
1996 - 1997	Master of Science degree in Biology, University of Bern
	The genetic differentiation in the genus *Euscorpius* (Scorpiones, Chactidae)

1993 - 1996	Bachelor of Science / Zoology, University of Bern
1988 – 1993	Schweizerische Alpine Mittelschule Davos (SAMD), Matura E (Economy)
1986 – 1988	Sekundarschule Davos-Platz

Research Experience

2018-current	University of Bern, Department for BioMedical Research (DBMR), Medical Faculty, Bern, Switzerland Associated Professor, head of Orthopaedic Research
2012 - 2018	University of Bern, Institute for Surgical Technology and Biomechanics, Tissue and Organ Mechanobiology, Medical Faculty, Bern, Switzerland PD since 2011 and associated Professor since 2015
2008 - 2012	University of Bern, ARTORG Center for Biomedical Engineering, Medical Faculty, Bern, Switzerland Assistant Professor, Head of Spine Center
2004 - 2008	AO Research Institute, Davos, Switzerland Head of Intervertebral Disc Group (K. Ito), Head of Mechano-Biology Laboratory
2002 - 2004	University of Cambridge, Genetics Department, UK Marie Curie (IHP substitute) Postdoctoral fellow
2001 - 2004	University of Edinburgh, Ashworth Laboratories, Edinburgh, UK Marie Curie (IHP substitute) postdoctoral fellow at the ICAPB
2001	University of Bern, CMPG (Computational and Molecular Population Genetics) Laboratory, Zoological Institute, University of Bern / Natural History Museum of Bern 100% Research Assistant at University of Bern
1998 - 2000	University of Bern, Zoological Institute Bern, Switzerland 100% Research Assistant
1996 - 1997	University of Bern, Zoological Institute, Bern, Switzerland 40% Research Assistant

Industrial Experience

none.

Teaching Experience

2020-present	Guest lecture, "Mechanobiology, Bioreactors and Mechanical Forces", Biomedical Engineering Program, University of Basel.
2016-2019	Lecturer: "Lehrauftrag" 2h Lecture "Regenerative Medicine", Université de Fribourg, Faculté de Sciences, Medical Students, MH.4904, 1.5 ETCS.
2012/13	Lecturer: "Biological Principles of Human Medicine", (3 ECTS; 60 students, Biomedical Engineering Master Course), together with Profs R.-P. Charles, C. Albrecht, J. Stoyanov
2011-13	Guest Lecture: "Mechanobiology: Implications for Development, Regeneration & Tissue Engineering", ETH Zürich
2011-present	Lecturer: "Tissue Engineering - Practical Course" (2 weeks practical course, M.Sc. Level: 2 ECTS) ; 8 students, individual supervision

2010-2011	Lecturer: "W6261 Genetik I - Population Genetics" (phil. nat. faculty, B.Sc. in Biology, 3 ECTS) ~200 students
2009-present	"Elective Module" in Master of Biomedical Sciences, Institute of Physiology, University of Bern, "Co-Culture of notochordal and nucleus pulposus cells", 2 students, individual teaching, 2 students
2009-present	Lecturer: "W4105 Tissue Engineering" (Mandatory for Biomedical Master Students in 2nd year M.Sc. Level: 3 ECTS.) Special course Musculoskeletal System / Locomotory System ~20 students
2008-2009	Spine Biomechanics (W4099), 2 guest lectures on IVD Biology, ~30 students
1996-2001	Lecturing as 100% assistant in Zoology at University of Bern -Invertebrate Biology / Systematics / Phylogeography (2nd year of bachelor of Biology) -Population Genetics (2nd year of bachelor of Biology students) -Marine Biology (advanced block course in 2nd and 3rd study year) -Hymenoptera (specialized course within Insect course)

Supervisory Activities - Ph.D. and Post-Doc

* = P.I. supervision

2023-2027*	**Leon Schlagenhof**, PhD candidate, Graduate School for Biomedical Sciences, University of Bern, Swiss Bridge-Discovery Project.
2021-2024*	**Katherine Crump**, PhD candidate, Graduate School for Biomedical Sciences, University of Bern, ITN, "disc4all" early stage researcher candidate
2021-2024*	**Paola Bermudez Lekerika**, PhD candidate, Graduate School for Biomedical Sciences, University of Bern, ITN, "disc4all" early stage researcher candidate.
2021-2024*	**Shuimu Chen**, MD-PhD candidate, Graduate School for Biomedical Sciences, University of Bern, China Council Fellowship
2020-2023*	**Andreas S. Croft**, PhD candidate, Graduate School for Biomedical Sciences, University of Bern, Swiss National science Foundation Project.
2019-2021*	**Julien Guerrero**, PhD, Post-Doc, H2020-funded Project, iPSpine.
2017-2021	**Xingshuo (Alice) Zhang**, Stem Cell Therapy for the Intervertebral Disc using Nucleus Pulposus Progenitor Cells (NPPC), Graduate School for Biomedical Sciences, University of Bern, China Council Scholarship.
2017-2021*	**Martina Caliò**, PhD candidate, main supervisor Dr. Marcel Egli, Hochschule Luzern - Technik & Architektur, Aerospace Biomedical Science & Technology, Hergiswil and University of Bern.
2017	**Gladys Filliat,** External Referee: "The Role of Serine Protease HTRA1 in Bone Formation and Regeneration", Mathematisch-naturwissenschaftlichen Fakultät, University of Zürich, Zürich. Promotions-Komitee: Prof. Dr. François Verrey (Vorsitz), PD Dr. Peter J. Richards (Leitung der Dissertation), Prof. Dr. Franz Weber, PD Dr. Paolo Cinelli, Dr. Jérôme Laffont.
2017	**Melanie Generali**, "Reprogramming of Human PBMCs into iPSCs for the i*n-vitro* Manufacture of Engineered Vascular Grafts Based on Biodegradable Synthetic Polymers", Co-Examinator of PhD thesis, Mathematisch-naturwissenschaftlichen Fakultät, University of Zürich, Zürich.
2016	**Olga Krupkova**, PhD candidate, Co-examinator of her thesis entitled: "Activity and controlled delivery of epigallocatechin 3-gallate in the treatment of degenerative disc disease" Institute for Biomechanics, ETH D-HEIST, Zürich, 8 September.
2016	**Syeda Masooma Naqvi,** PhD candidate, external reviewer and expert of her thesis entitled "Towards Stem Cell Regeneration of the Nucleus Pulposus of the Intervertebral Disc", Trinity College, Dublin, 6 June.
2016	**Li (Olivia) Hong Yi,** PhD candidate, external reviewer and expert on her thesis entitled "Development of 3D Culture Systems for Nucleus Pulposus Cells", The University of Hong Kong, HK, China, 13 June.
2015-2019*	**Rahel May**, PhD candidate, Hans Jörg Wyss & Hans Jörg Wyss Medical, US funded project on "Secretion of BMP Antagonists by Intervertebral Disc Cells".
2014-2016*	**Adel Tekari**, PhD, Post-Doc, SNF-funded project on "Exploring the mechanism of torsion-compression induced intervertebral disc degeneration and herniation in organ culture".

2014-2018*	**Simon Wüest**, PhD candidate, main supervisor Dr. Marcel Egli, Hochschule Luzern - Technik & Architektur, Aerospace Biomedical Science & Technology, Hergiswil and University of Bern.
2014-2018*	**Daniela Frauchiger**, PhD candidate, Gebert-Rüf Foundation "Silk-o-Disc - Differentiation of Mesenchymal Stem Cells towards Intervertebral-Disc-like Precursor Cells using genetically engineered *Bombyx mori*-Silk exposing growth and differentiation factor 5 (GDF-5)". University of Bern, Switzerland.
2013 (6 months)	**Azadeh Kabiri**, visiting PhD student, Exchange Program. "3D dextran cell culture model and mechanical stimulation of mesenchymal stem cells under different RGD concentrations" on Department of Anatomical Sciences and Molecular Biology, Faculty of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran.
2009-2012*	**Samantha Chan**, PhD candidate, 3rd party money funded project, "Evolution of in vitro Intervertebral Disc Culture Systems: Two Degrees of Freedom Loading (Axial Compression and Torsion) to Study Region-Specific and Synergistic Degenerative Processes". University of Bern, Medical Faculty.
2004-2010	**Svenja Jünger**, PhD candidate, SNF project "Effect of limited nutrition and cyclic compression on intervertebral disc degeneration. University of Bern, Switzerland.

Supervisory Activities - M.Sc. & Diploma

2023	**Silvan Rüttimann** "Exploring a novel Spheroid 3D cell culture system for Tie2+ Nucleus Pulposus Cells of the Intervertebral Disc", Master in Biomedical Engineering Medical Faculty, University of Bern.
2023	**Janine Fuhrer** "Creating an Artificial Intervertebral Disc using functionalized Silk fibroin and human Mesenchymal Stromal Cells", Master of Science in Biomedical Sciences, Medical Faculty, University of Bern.
2022	**Remo S. Tarreghetta**, "Development of a Novel Bioreactor for the Mechanobiological Study of the Rotator Cuff Enthesis", Master in Biomedical Engineering Medical Faculty, University of Bern.
2021	**Ysaline Roth**, "In Situ Cell Signalling of the Hippo-YAP/TAZ Pathway in Reaction to Complex Dynamic Loading in an Intervertebral Disc Organ Culture", Master of Medicine (M med), Medical Faculty, University of Bern.
2021	**Muriel Bischof**, "Role of Angiopoietin-1 and Angiopoietin-2 on IVD progenitor cells", Master of Science in Biomedical Sciences, Medical Faculty, University of Bern.
2020	**Selianne Graf,** "The Secretion of BMP Antagonists by Human Intervertebral Disc Cells and their Relevance for Successful Spinal Fusion", Biomedical Sciences, Medical Faculty, University of Bern.
2020	**Andreas Shaun Croft,** "Trilineage Potency of Human Nucleus Pulposus Cells before and after Cryo-Preservation", Biomedical Sciences, Medical Faculty, University of Bern.
2018	**Emina Džafo**, "Pushing Mesenchymal Stem Cells for improved Quality and reduced Senescence by Manipulation of their Mitochondrial Activity" Molecular Sciences, Phil nat. faculty, University of Bern.
2017	**Marie Ann Larraillet**, "Evaluation of Novel Fixable Cell Viability Methods for Tissue Engineering in Anterior Cruciate Ligament and Intervertebral disc tissue" Biomedical Engineering, Medical Faculty, University of Bern.
2017	**Karin Tschanz**, The importance of plasmin in synovial fluid for the healing of ACL ruptures, Biomedical Engineering, Medical Faculty, University of Bern.
2016	**Silvan Heeb**, "Differentiation of Human Mesenchymal Stem Cells on BMP-incorporated Silk-Membrane Fleeces for Regeneration of the Intervertebral Disc" Biomedical Sciences, Medical Faculty, University of Bern.
2016	**Alessandro Marazza**, "Inhibition of ERK Pathway Restores the Discogenic Phenotype of Inflamed Intervertebral Disc Cells", Biomedical Sciences, Medical Faculty, University of Bern
2015	**Rahel Deborah May**, "Non-Viral Gene Therapy to Bone-Marrow Stromal Cells and Cells of the Intervertebral Disc", Biomedical Sciences, Medical Faculty, University of Bern.

2015	**Romina Cabra**, "Biological induction in the healing of the anterior cruciate ligament", Biomedical Sciences, Medical Faculty, University of Bern
2015	**Barbara Esch**, "Biological evaluation of a long term Esophageal ECG Encoder", Medical Faculty, Berner Fachhochschule, University of Bern.
2014	**Christian Geissberger,** Designing and Building a Low Cost Strain-Controlled Dynamic Mechanical Stimulation Bioreactor, Master Student, Medical Faculty, University of Bern.
2014	**Thomas Studer**, Master Student, "Investigation of Silk Fiber electro-Spinning for Intervertebral Disc Engineering", Medical Faculty, University of Bern.
2013	**Rachel Horovitz**, Master Student, "Investigation into the Suitability of Collagen Scaffolds for Anterior Cruciate Ligament Repair", Medical Faculty, University of Bern.
2013	**Christian Bucher**, Master Student, "Development of a non-viral gene transfer system to activate human mesenchymal stem cells with growth and differentiation factor-5 (GDF-5)" Medical Faculty, University of Bern.
2012	**Tina Frühauf**, Master Student, "Development of enzyme-induced intervertebral disc degeneration models", Medical Faculty, University of Bern.
2012	**Cherry Malonzo**, Master Student, "Thermo-Reversible Hydrogel-Injection for Nucleus Pulposus Replacement: Feasibility under Diurnal Loading in a mild Papain-induced Disc Degeneration Model", Medical Faculty, University of Bern.
2011	**Stefan Guggisberg**, Master Student, "Interaction of PolyEthyleneGlycol (PEG)-based hydrogel, Growth Factors and Mechanical Loading" Medical Faculty, University of Bern.
2011	**Angelina Hofstetter**, Master Student, "Differentiation of human MSCs towards the "Intervertebral Disc-like" Phenotype in a Microfluidic Device" Medical Faculty, University of Bern.
2010	**Thomas Steiner,** Master Student, "Comparing Stochastic Loading versus Cyclic Loading Regimes in vitro using Rabbit Tendons", Medical Faculty, University of Bern.
2006-2007	**Samantha Chan**, Master of Science Student, Raetia fellowship, 1yr exchange, "Frozen Intervertebral Discs as a scaffold for Mesenchymal Stem Cells". University of Hong Kong, China.
2005-2006	**Claudia Haas**, Master of Science, "Mechano-regulation of Mesenchymal Stem Cell Differentiation in a Uniaxial Compression Bioreactor – Validation of a Finite Element Model.", ETH Zürich, Switzerland.
2002-2003	**Alain Jacob,** Master of Science , Biology, "Male Genitalia (Spermatophores; Hemispermatophores) in the Genus *Euscorpius* (Scorpiones: Euscorpiidae)", University of Bern, in coll. with the Natural History Museum of Bern.
2002-2003	**Gavin Eustace**, Honours student, "A Morphometric Investigation of the *Buthus occitanus* complex from the Iberian Peninsula and Morocco" , ICAPB, University of Edinburgh, UK.
2002-2003	**Rachel Griffiths,** Honours student, Genetics Department, University of Edinburgh, UK.
2001-2002	**Damien O'Neil**, Honours student, Genetics Department, University of Edinburgh, UK.
1997-1998	**Beatrice Lüscher**, Master of Science, Biology "Genetische Differenzierung der Erdkröten (*Bufo bufo*) im Alpenraum.", University of Bern, Switzerland.
1999-2000	**Franziska Herger**, Master of Science, Biology "Assessment of natural and artificial propagation of the white-clawed crayfish (*Austropotamobius pallipes* species complex) in the Alpine region with nuclear and mitochondrial markers.", University of Bern, Switzerland.
1997-1998	**Judith Zbinden**, Master of Science, Biology, "Isolation and characterization of polymorphic microsatellite loci in the European bullhead *Cottus gobio* L. (Osteichthyes) and their applicability to related taxa.", University of Bern, Switzerland.

Co-Examinator/Mentor Graduate School Activities, Biomedical Engineering

Nov 2009	**Alexander Bürki**, Master of Biomedical Engineering, "Development and Design of a Test Stand to Investigate Orthopaedic Saw Blades - Supervisor Dr. Stephen Ferguson, Co-Examinator Prof. Dr. B. Gantenbein

Feb 2009	**Daniela Ortiz Franyuti,** T-cells and substrate rigidity: Possible roles of integrins b1 and b2 and b3 in T-cell adhesion and distal pole complex formation. Prof. Dr. Viola Vogel, Co-Examinator Prof. Dr. B. Gantenbein
Jan 2010	**Ali Mirsaidi**, differentiation of mesenchymal stem cells on elastic matrices, Willy Hostetter, Rainer Egli, Co-Examinator Prof. Dr. B. Gantenbein
Nov 2011	**Giath Al-Dayri,** Three dimensional mesenchymal stem cell micro cultures for direct expansion and chondrogenic differentiation Nov 2011 Supervisor Dr. Jivko Stoyanov, Co-Examinator Prof. Dr. Benjamin Gantenbein
April 2012	**Stephan Georg Häfner**, Effects of Hypoxia on Three Dimensional Mesenchymal Stem Cell Microcarriers for Intervertebral Disc Repair April 2012, Co-Examinator Prof. Dr. B. Gantenbein
Sept 2012	**Nina Ruef**, Master of Biomedical Engineering, "Engineering of Structured Scaffolds for Cartilage Regeneration" Dr. Reto Luginbühl, RMS Foundation, Co-Examinator Prof. Dr. B. Gantenbein
Dec 2012	**Adel Tekari,** 2nd year exam, Graduate School of University of Bern, Bone Biology Group, DKF, University of Bern
Dec 2012	**Fanny Oliveira Arcolino** "Crosslinking of Collagen Microcarriers for Expansion and Chondrogenic Differentiation of Mesenchymal Stem Cells. Supervision Dr. Jivko Stoyanov, Examinator Prof. Dr. B. Gantenbein
Jan 2013	**Simon Wüst**, Master of Biomedical Engineering, "Myoblast Differentiation under Simulated Microgravity: Long Term Cell Culture on Random Positioning Machines" Dr. Marcel Egli, ETH Zürich, Space Biology Group, Co-Examinator Prof. Dr. B. Gantenbein
Feb 2013	**Clément Huguenin-Dumittan** "Characterization of Human Mesenchymal Stem Cell Clones for Intervertebral Disc Regeneration." Examinator PD Dr. B. Gantenbein, Supervision and Co-Examinator Dr. Jivko Stoyanov
May 2013	**Eric Schoenholzer**, "Development of an S100 protein-based assay for assessment of human articular chondrocytes re-differentiation in monolayer", Supervisor PD Dr. Dobrila Nesic, Cartilage Regeneration Group, DKF, University of Bern, Co-Examinator PD Dr. B. Gantenbein
Aug 2013	**Diana Cathérine Peña Bello**, "Based Coating for Sustained Delivery of Antimicrobial Active Compounds in Orthopedic Device Associated Infection Therapies." Supervisor, Dr. Jorge Sague, RMS Foundation, first-examinator PD Dr. B. Gantenbein, co-Examinator: PD Dr. Reto Luginbühl, RMS Foundation
Dec 2014	**Marco Christian Gruber**, "Female Turbo Cells: During *in vitro* Differentiation, Female IVD Cells of Degenerated Discs Produce Faster Proteoglycans." Examinator PD Dr. B. Gantenbein, Supervision and Co-Examinator Dr. Jivko Stoyanov

Supervision of high school Students (Gymansium Kirchfeld, Bern)

6.11.2016	**Ysaline Roth**, "outstanding work" - herausragende Matura-Arbeit" of her Matura thesis entitled "Attracting Mesenchymal Stem Cells with a Silk Scaffold", Portfolio Gymnasium Kirchenfeld, Abt. Mathematik und Naturwissenschaften.

Elective Modules (3 weeks) Institute for Physiology, Biomedical Sciences

12.-30.4.2010	**Pauline Sallin & Natalie Charrièrre**, "A co-culture system of bovine Nucleus pulposus cells with porcine Notochordal Cells".
16.4.-4.5.2012	**Christian Bucher**, "Tracking of cell cycle synchronized Mesenchymal Stem Cells".
13.-31.5.2013	**Ramona Reinhart**, "Intervertebral disc extracted matrix as a biological scaffold for IVD tissue engineering".
14.4.-2.5.2014	**Franziska Wildhaber & Romina Cabra,** "Comparison of the relative gene expression in human anterior and posterior cruciate ligament".
5.5.-23.5.2014	**Rahel May & Vera Formankowski** "SEM analyses on Silk scaffolds".
20.4.-8.5.2015	**Gierin Thomi**, "Organ Culture of Anterior Cruciate Ligament under Strain-Controlled Dynamic Loading".

11.5.-27.5.2015	**Valérie Lutz**, "Determining Cytocompatibility of a hydrogel in 3D Culture for Intervertebral Disc Repair".
11.5.-27.5.2015	**Silvan Heeb**, "Evaluation cyto-compatibility of of silk fibers covalently linked with cytokines".
19.2.-9.3.2018	**Elisa Rodrigues Sousa,** "Stimulation of SAOS-2 cells with conditioned medium from human primary intervertebral disc cells".
19.2.-9.3.2018	**Joel Werren**, "Plasmin as player in the healing of ACL ruptures".
18.2.-8.3.2019	**Andreas Croft**, "Effects of BMPs on intervertebral disc cell culture".
17.2.-6.3.2020	**Jasmin Meier,** "Eflect of BMPs on intervertebral disc cell culture / Effect of BMP2, Noggin and TNF-alpha on osteoblasts".
9.3.-27.3.2020	**Karin Farah Rechberge**r, "Mimicking the Intervertebral Disc Microenvironment for Expansion of Nucleus Pulposus Progenitor Cells in a Context of Cell Therapy".

Funding ID (CHF)

Year	Source	Type	Project	Total (CHF)
2023	Alfred und Annelise Sutter-Stöttner Stiftung	PI	"Revisiting the Importance of Catabolism Shifts for Intervertebral Disc Degeneration in experimental 3D cell and ex vivo organ culture systems"	168'000
2023-27	SNF Bridge Discovery 40B2-0_211510 / 1	PI	"SORTHODISC" Label-free Electrical Impedance Cell Sorting validated on the Clinical Application for Sorting Rare Progenitor Cells from Human Intervertebral Disc Tissue for Development of Cell Therapy	1'300'000
2022	University of Bern, Medical Faculty, Ressources	PI	Replacement Faxitron Compai truevue 100 System	170'000
2021-24	Disc4All, 955735	PR	*Disc4All" Marie Skłodowska-Curie Innovative Training Networks	601'340
2020-23	Swiss National Science Foundation (SNF) DACH Funding	PI, PR	Fibre-based 3D implants from regenerated silk fibroin for intervertebral disc regeneration	355'852
2020	SNF	PI, PR	International Exchange for the Support of the Swiss Stem Cell Meeting	3'100
2020	Center for Applied Biotechnology and Molecular Medicine (CABMM)	PI, PR	Analysing the Transcriptome of Cells of Intervertebral Discs with Modic Changes and its Relevance for Spinal Fusion	40'000
2019-2023	iPSpine, H2020	CA, PR	Induced pluripotent stem cell-based therapy for spinal regeneration - Task 1 – Develop SOP for Tie2+ cell isolation and expansion	500'000
2018-2019	CTU Grant, Inselgruppe AG, University of Bern	CA	Secretion of BMP Antagonists by Intervertebral Disc Cells and their Relevance for Successful SpinalS Fusion	80'000
2018-19	Mäxi Foundation, Center for Applied Biotechnology and Molecular Medicine (CABMM)	CA, PR	The Role of Fibronectin Fragments in Immune Modulation and Inflammaging during Canine Disc Disease	19'700
2017-18	Swiss Society of Orthopedics	PR	Secretion of BMP Antagonists by Intervertebral Disc Cells and their Relevance for Successful Spinal Fusion	20'000
2017-18	Mäxi Foundation, Center for Applied Biotechnology and Molecular Medicine (CABMM)	PI, PR	"The importance of plasmin in synovial fluid for the healing of ACL ruptures"	30'500
2016	Direct Support	PA	Insel Grant to Sandro Kohl und Dr. Sufian Ahmad	25'000
2016	Mäxi Foundation, Center for Applied Biotechnology and Molecular Medicine (CABMM)	PI, CA	Comparative proteomic and functional analysis of the secretome of different human mesenchymal stem cell sources	38'400

Year	Source	Type	Project	Total (CHF)
2016	Direct Support	PA	Financial Support of Orthopedic Department	20'000
2016-18	Hans Jörg Wyss & Hans Jörg Wyss Medical, US	PI	Secretion of BMP Antagonists by Intervertebral Disc Cells	240'000
2015-16	Lindenhofgruppe Stiftung Fonds "Lehre & Forschung" 15-05-F	PI, PR	Secretion of BMP Antagonists by Intervertebral Disc Cells	138'000
2015	University of Bern, Medical Faculty	PI	real-time RT-qPCR Cycler	44'500
2014	University of Bern, Medical Faculty	PI	-150°C freezer Panasonic	40'000
2014-15	Lindenhofgruppe Stiftung Fonds "Lehre & Forschung" 14-03-F	PI, PR	Pro-Bone, An in vitro investigation into bone inhibition in non-unions caused by intervertebral disc cells	72'000
2014-16	Swiss National Science Foundation (SNF) Project based Funding	PI, PR	Exploring the mechanism of torsion-compression induced intervertebral disc degeneration and herniation in organ culture 310030_153411	311'000
2014-15	Lindenhofgruppe Stiftung Fonds "Lehre & Forschung" 13-02-F	PI, PR	*Ex vivo* Regeneration of Papain-Degenerated Intervertebral Discs using GDF-5 transfected human Mesenchymal Stem Cells under Complex Mechanical Loading	100'000
2014-17	Gebert-Rüf Foundation, Project Silk-o-Disc	PI, PR	Differentiation of Mesenchymal Stem Cells towards Intervertebral-Disc-like Precursor Cells using genetically engineered *Bombyx mori*-Silk exposing growth and differentiation factor 5 (GDF-5)	297'000
2013	Mäxi Foundation, Center for Applied Biotechnology and Molecular Medicine (CABMM)	PR	Expression, regulation and relevance of hyaluronidase in the intervertebral disc	32'000
2013	AO Spine International, Scientific Research Network Award	PI, PR	Annulus plug tested in an *in vitro* bioreactor	8'000
2013	Private Donation	PA	Prof. Dr. Paul Heini, direct financial support	70'000
2013	Direct Support	PA	Financial Support of Orthopedic Department	50'000
2013	Swiss National Science Foundation (SNF) Project based Funding	CA	"Biomechanical evaluation of the degenerating intervertebral disc using MRI-based finite element analysis"	270'000

Year	Source	Type	Project	Total (CHF)
2012	Mäxi Foundation, Center for Applied Biotechnology and Molecular Medicine (CABMM)	PI, PR	"Investigation of the Regenerative Effects of porcine Notochordal Cells onto bovine Intervertebral Disc Cells under Co-culture"	35'000
2011	AOSpine Hans Jörg Wyss Start-up grant	PI, PR	"Biological Response of Mesenchymal Stem Cells seeded in Thermo-Reversible HA-Hydrogel implanted in Intervertebral Disc Organ Culture under Twisting Motion"	30'000
2010-13	Swiss National Science Foundation (SNF) Project based Funding	PI, PR	"Evolution of in vitro intervertebral disc culture systems; Two degrees of freedom loading (axial compression and torsion) to study region-specific and synergistic degenerative processes." 310030_127586 / 1	250'000
2009	ERC Proposal Writing Support	PI, PR	Stem Cell Shape	5'000
2009	University of Bern, Medical Faculty	PI	Equipment Grant of Medical Faculty, University of Bern. Tissue culture lab.	19'900
2008-11	3rd party funding ARTORG	PI	ARTORG Funding, Department of Orthopedic Surgery & Traumatology, Insel University Hospital	400'000
2005-08	Swiss National Science Foundation (SNF) Project based Funding	CA (2nd), PR	31003A-109722	250'000
2002-04	IHP fellowship (Marie Curie Substitute) for 2 years	PI, PR	83EU065528	130'000
2001-04	The Royal Society consumables grant	PI, PR	R-36579	25'000
2002	Swiss Academy of Natural Sciences (SANW) grant	PI	Field and Travel Expenses	2'000
2001	Swiss National Science Foundation (SNF) Fellowship for young scientists	PI	81-64218.00/2	34'500
Sum of acquired competitive 3rd party funding				6'225'792

PI = Principle Investigator, CA = Co-Applicant, PR = Peer-Reviewed

Membership in Professional Societies

2012-now Member of the "Mittelbauvereinigung" (MVUB) of the University of Bern
2011-now Member AO Spine Research Network (SRN)
2011-now Member of Swiss Society for Biomaterials and Regenerative Medicine (SSB+RM) (www.ssbrm.ch)
2010-now Member of TERMIS-EU (www.termis.org)
2010-now Member of the Swiss Stem Cell Network (SSCN)
2009-now Member of the International Society of the Lumbar Spine (www.ISSLS.org)
2009-now Member AO Spine (www.aospine.org)
2008-now Member of the Biomedical Engineering Club (BMEclub), Alumni, University of Bern
2005-now Member of the Swiss Society for Biomedical Engineering (www.SSBE.ch)
2004-now Active member of American Orthopedic Research Society (www.ORS.org)

Awards and Honours

2021 **Best Poster Award presented at Deutsche Wirbelsäulengesellschaft (DWG):** Oswald KAC, Bigdon SF, Croft AS, Bermudez-Lekerika P, Gantenbein B, Albers CE. (2021) BEST POSTER AWARD: Verbesserung der spinalen Fusion mittels BMP2 und L51P in einem spinalen Fusionsmodell der Ratte in vivo. Deutsche Wirbelsäulengesellschaft (DWG). Münster, Germany..

2019 **Poster award at the TERMIS-EU chapter** meeting in Rhodes, Greece, 27-31 May.

2017 **Two posters nominated for finalists of best poster award** (36 out of 292 posters):
1. May RD, Tekari A, Chan SCW, Frauchiger DA, Benneker LM, Gantenbein B. (2017) The Natural Expression of BMP Antagonists in Intervertebral Disc Cells. Proceedings of the ORS. 19-22 March, San Diego.
2. Frauchiger D, Heeb S, Tekari A, Wöltje M, Benneker LM, Gantenbein B. (2017) Intervertebral Disc Repair By A Combination Of Genipin-enhanced Fibrin Hydrogel And Growth Factor-enriched Silk-fleece. Proceedings of the ORS. San Diego, 19-22 March.

2016 **Nominated for best poster award:** Tekari A, Chan SCW, Wuertz K, Sakai D, Benneker LM, Grad S, Gantenbein B. (2016) "Tie2+ Cells from the Bovine Coccygeal Discs are Multipotent Cells Capable of Differentiating into Osteogenic, Adipogenic and Chondrogenic Lineages." Proceedings of the ORS Annual Meeting. Orlando, FL, 2-5 March.

2015 **Best Poster Award:** SCW Chan, LM Benneker, P Heini P, B Gantenbein B. (2015) "Nucleus pulposus Cells inhibit Osteogenesis of Mesenchymal Stem Cells." Proceedings of the 42nd ISSLS Congress, special emphasis poster. San Francisco, CA, 8-12 June.

2015 **Best Poster Award:** "Annulus Fibrosus Repair with the help of a novel Silk membrane-fleece and Genipin-enhanced Fibrin Hydrogel" DA Frauchiger, SCW Chan, LM Benneker, B Gantenbein, Presented at Swiss Society for Biomaterials and Regenerative Medicine, Lausanne 9-10 June.

2015 **Associated Professor** of Medical Faculty

2013 **AO Spine International, Scientific Research Network Award** (together with B Chan, UHK, China)

2012 **Best Poster Award at "Deutscher Wirbelsäulenkongress**" 2012, Stuttgart, Germany

2011 **Venia docendi** (Privatdozent), Biomedical Engineering, Medical Faculty.

2011 **Winner of AOSpine HansJörg Wyss Award Start-up Grant** "Biological Response of Mesenchymal Stem Cells seeded in Thermo-Reversible HA-Hydrogel implanted in Intervertebral Disc Organ Culture under Twisting Motion", received at Global Spine Congress, Barcelona, Spain, 23-26 March 2011.

2010	**Best Poster Award:** SCW Chan, SJ Ferguson, K Wuertz, B Gantenbein-Ritter, "Effect of short term torsion to the intervertebral disc: An organ culture study" Proceedings of ECM XI, Davos, 2010.
2009	**Special Emphasis Poster** presented at the ISSLS Meeting, Miami, Florida, 3-8 May 2009.
2006	**Nominated for Novel Investigator Recognition Award (NIRA)** at Annual Meeting Chicago of the Orthopedic Research Society (www.ors.org), selected for 40 finalists (out of 513).

Review Activities for Institutions

AO Foundation and AO Spine, Switzerland	- funding grant applications	http://aospine.org
Austrian Research Promotion Agency (FFG)	- funding grant applications	http://ecall.ffg.at
Netherlands Organisation for Scientific Research	- funding grant applications	http://www.nwo.nl
NMHB, Medical Research Council, London, UK	- funding grant applications	http://www.mrc.ac.uk
Inserm, CNRS, young Investigator Awards, France	- funding grant applications	http://www.cnrs.fr
German-Israeli Foundation for Scientific Research & Development (GIF)	- funding grant applications	http://www.gif.org.il
Ministry of Science Technology & Space, Isreal	- funding grant applications	http://most.gov.il
Swiss National Science Foundation (SNF)	- funding grant applications	www.snf.ch

Review Activities for Journals

Please, see publons.com/a/1224668/ profile for an updated statistics.

1)	**Advanced Drug Delivery Systems**	- reviewer
2)	Apoptosis	- reviewer
3)	**Acta Biomaterialia**	- reviewer
4)	**Biomaterials**	- reviewer
5)	**BMC Arthritis Research & Therapy**	- reviewer
6)	BMC Evolution	- reviewer
7)	Cell Proliferation	- reviewer
8)	**eCells and Materials (ECMJournal)**	- **advisory board** / reviewer
9)	**European Spine Journal**	- **advisory board** / reviewer
10)	Evidence-based Spine-Care Journal (EBSJ)	- reviewer
11)	**Global Spine Journal**	- **advisory board** / reviewer
12)	International Journal of Medicine Science	- reviewer
13)	Journal of Biogeography	- reviewer
14)	The Journal of Bone & Joint Surgery	- reviewer
15)	Journal of Orthopeadic Research	- reviewer
16)	**Journal of Orthopeadic Research Spine**	- **advisory board** / reviewer
17)	Molecular Ecology	- reviewer
18)	Molecular Phylogenetics and Evolution	- reviewer
19)	**Nature Scientific Reports**	- **advisory board** / reviewer
20)	**Spine**	- reviewer
21)	**Tissue Engineering part A, B and part C**	- reviewer
22)	The FEBS Journal	- reviewer
23)	Journal of Tissue Engineering and Regenerative Medicine	- reviewer
24)	Journal of the Association for Laboratory Automation	- reviewer
25)	**Ostheoarthritis and Cartilage**	- reviewer
26)	World Journal of Orthopeadic Research	- **advisory board** / reviewer

Other Professional Activities

2017-present	Member of steering committee of the stem cells platform of the University of Bern (www.stemcellsbern.ch)
2014-present	Member of Graduate School Committee "Biomedical Sciences", PhD Programme in Cellular and Biomedical Sciences (www.GCB.unibe.ch), Biomedical Engineering, Bern
2013-2014	Elected Scientific Officer, AOSpine Switzerland, www.aospine.org.

4-6-/4/2011	Member of the Organising Committee of the 6th International Conference on Microtechnologies in Medicine and Biology (MMB 2011), Lucerne.
4-6-/4/2011	Session Chair, Keynote Lecture, Per-Åke Albertsson: Nobel Prize Winner: Aqueous polymer phase systems properites and applications, at 6th International Conference on Microtechnologies in Medicine and Biology (MMB 2011), Lucerne.
3/9/2010	Organisation of Seminar at DKF on Synthetic 3D matrices (Q-Gel), University of Bern
2008-present	Examinator and Co-Examinator of Master of Science Projects at University of Bern, Medical Faculty.
2008-present	Member of "Studienausschuss", Master Course of Biomedical Engineering, Medical Faculty, University of Bern.

Media

2020	Magazine Article by Universimed: Gantenbein B, Guerrero J (2020) "Promoting biological therapy in orthopaedic research." Leading Opinions in Orthopädie & Rheumatologie 1: 10-13
2019	Magazine Article: Gantenbein B, Guerrero J (2019) At the Interface of Biomaterials, Cells and Specialised Organ Culture Bioreactors. SciTech Europa quaterly 32: 200-201
2019	Magazine Article: by Tomczak A (2019) Mit Schlachtabfällen zur Bandscheibenrevolution. UniPress 178: 29-31.
2017	Nacht der Forschung, Die "Knochenbar" together with Bone Biology, ISTB, Orthopaedic Department, 16 September 2017.
2016	Newsletter contribution: Frauchiger D, Deml M, Gantenbein B:, "Kann Hightech-Seide kombiniert mit Genipin-verstärktem Fibrinhydrogel Bandscheiben kitten?" *Orthopädische Nachrichten*, 11/2016, Special Issue "Rückenschmerzen".
2015	Webinar, Orthopedic Research Section, ORS Spine Section http://www.ors.org/webinars/ 28.10.2015, recorded lecture available as youtube video.
2015	Radio Interview Berlin auf www.deutschlandradiokultur.de am 16.10 in der Sendung „Zeitfragen" ab 19.07 Uhr
2014	H2020, TOMorrow people, newsletter contribution in H2020 Magazine http://horizon2020projects.com/il-biotechnology-profile/tomorrow-people/
2014	Uni-Aktuell,"Bandscheiben mit Seide reparieren", 13.2.2014
2014	Article in "20min.com" -Wissen: "Keine Spinnerei: Mit Seide gegen Rückenschmerzen" 7.2.2014
2011	Nacht der Forschung, Booth, 23.9.2011
2011	Solothurner Zeitung, "Mit dem Bioreaktor dem Schmerz auf der Spur" 9.5.2011 AZ.
2011	Article in Schweizerischen Ärztemagazin, "Bandscheiben-verursachte Rückenschmerzen und Bandscheibenvorfälle verstehen lernen"
2009	Graphical Figures for Scientific Magazines: e.g. Horizonte, Issue September 2009, p.21 "Tödlicher Countdown"

Patent Applications

none.

Articles in Peer-Reviewed Journals

- 78 articles, 7 reviews, 7 book chapters, 2 edited books

Google Scholar report as of Thursday, 11 May 2023
- 3,941 total citations (1,421since 2016)
- Hirsch's h-index 37, i10-index 75
-

Web of Science report of Thursday, 11 May 2023
- 2,152 total citations (without self-citations)
- Hirsch's h-index 27, Average citations per item: 22.19

The six most important publications are *highlighted in blue*.

1. ***Bermudez-Lekerika P, Crump KB, Tseranidou S, Nüesch A, Kanelis E, Alminnawi A, Baumgartner L, Muñoz-Moya E, Compte R, Gualdi F, Alexopoulos LG, Geris L, Wuertz-Kozak K, Le Maitre CL, Noailly J,

Gantenbein B (2022) Immuno-Modulatory Effects of Intervertebral Disc Cells. Front Cell Dev Biol 10: https://doi.org/10.3389/fcell.2022.924692

2. Wöltje M, Künzelmann L, Belgücan B, Croft AS, Voumard B, Bracher S, Zysset P, **Gantenbein B**, Cherif C, Aibibu D (2023) Textile Design of an Intervertebral Disc Replacement Device from Silk Yarn. Biomimetics (Basel) 8(2): https://doi.org/10.3390/biomimetics8020152
3. Salzer E, Schmitz TC, Mouser VH, Vernengo A, **Gantenbein B,** Jansen JU, Neidlinger-Wilke C, Wilke HJ, Grad S, CL LM, Tryfonidou MA, Ito K (2023) Ex vivo intervertebral disc cultures: degeneration-induction methods and their implications for clinical translation. Eur Cell Mater 45: 88-112 https://doi.org/10.22203/eCM.v045a07
4. G**antenbein B**, Sun Z, Liu Z, Samartzis D (2023) Editorial: Immunological imbalance: What is its role in intervertebral disc degeneration? Front Cell Dev Biol 11: https://doi.org/10.3389/fcell.2023.1196377
5. Basatvat S, Bach FC, Barcellona MN, Binch AL, Buckley CT, Bueno B, Chahine NO, Chee A, Creemers LB, Dudli S, Fearing B, Ferguson SJ, Gansau J, **Gantenbein B**, Gawri R, Glaeser JD, Grad S, Guerrero J, Haglund L, Hernandez PA, Hoyland JA, Huang C, Iatridis JC, Illien-Junger S, Jing L, Kraus P, Laagland LT, Lang G, Leung V, Li Z, Lufkin T, van Maanen JC, McDonnell EE, Panebianco CJ, Presciutti SM, Rao S, Richardson SM, Romereim S, Schmitz TC, Schol J, Setton L, Sheyn D, Snuggs JW, Sun Y, Tan X, Tryfonidou MA, Vo N, Wang D, Williams B, Williams R, Yoon ST, Le Maitre CL (2023) Harmonization and standardization of nucleus pulposus cell extraction and culture methods. JOR Spine e1238. https://doi.org/https://doi.org/10.1002/jsp2.1238
6. Croft AS, Ćorluka S, Fuhrer J, Wöltje M, Silva-Correia J, Oliveira JM, Erbach GF, Reis RL, **Gantenbein B** (2023) Repairing Annulus Fibrosus Fissures Using Methacrylated Gellan Gum Combined with Novel Silk. Materials (Basel) 16(8): https://doi.org/10.3390/ma16083173
7. Croft AS, Spessot E, Bhattacharjee P, Yang Y, Motta A, Wöltje M, **Gantenbein B** (2022) Biomedical applications of silk and its role for intervertebral disc repair. JOR Spine :e1225. https://doi.org/https://doi.org/10.1002/jsp2.1225
8. Tekari A, Marazza A, Crump K, Bermudez-Lekerika P, **Gantenbein B** (2022) Inhibition of the extracellular signal-regulated kinase pathway reduces the inflammatory component in nucleus pulposus cells. J Orthop Res : https://doi.org/10.1002/jor.25273
9. Herger N, Bermudez-Lekerika P, Farshad M, Albers CE, Distler O, **Gantenbein B**, Dudli S (2022) Should Degenerated Intervertebral Discs of Patients with Modic Type 1 Changes Be Treated with Mesenchymal Stem Cells? Int J Mol Sci 23(5): https://doi.org/10.3390/ijms23052721
10. Oswald KAC, Bigdon SF, Croft AS, Bermudez-Lekerika P, Bergadano A, **Gantenbein B**, Albers CE (2021) Establishment of a Novel Method for Spinal Discectomy Surgery in Elderly Rats in an In Vivo Spinal Fusion Model. Methods and Protocols 4(4): https://doi.org/10.3390/mps4040079
11. **Gantenbein B** (2021) New Frontiers towards Regeneration of the Intervertebral Disc: On Progenitor Cells, Growth Factors and Biomaterials. Applied Sciences 11(24): https://doi.org/10.3390/app112411913
12. Croft AS, Roth Y, Oswald KAC, Ćorluka S, Bermudez-Lekerika P, **Gantenbein B** (2021) In Situ Cell Signalling of the Hippo-YAP/TAZ Pathway in Reaction to Complex Dynamic Loading in an Intervertebral Disc Organ Culture. Int J Mol Sci 22(24):13641. https://doi.org/10.3390/ijms222413641
13. Bischof MC, Häckel S, Oberli A, Croft AS, Oswald KAC, Albers CE, **Gantenbein B**, Guerrero J (2021) Influence of Angiopoietin Treatment with Hypoxia and Normoxia on Human Intervertebral Disc Progenitor Cell's Proliferation, Metabolic Activity, and Phenotype. **Applied Sciences** 11(15): https://doi.org/10.3390/app11157144.
14. Calió M, **Gantenbein B**, Egli M, Poveda L, Ille F (2021) The Cellular Composition of Bovine Coccygeal Intervertebral Discs: A Comprehensive Single-Cell RNAseq Analysis. Int J Mol Sci 22(9): https://doi.org/10.3390/ijms22094917
15. **Gantenbein B**, May RD, Bermudez-Lekerika P, Oswald KAC, Benneker LM, Albers CE (2021) EGR2, IGF1 and IL6 Expression Are Elevated in the Intervertebral Disc of Patients Suffering from Diffuse Idiopathic Skeletal Hyperostosis (DISH) Compared to Degenerative or Trauma Discs. **Applied Sciences** 11(9): https://doi.org/10.3390/app11094072
16. Croft AS, Guerrero J, Oswald KAC, Häckel S, Albers CE, **Gantenbein B** (2021) Effect of different cryopreservation media on human nucleus pulposus cells' viability and trilineage potential. **JOR Spine** e1140: https://doi.org/https://doi.org/10.1002/jsp2.1140
17. Zhang X, Guerrero J, Croft AS, Oswald KA, Albers CE, Häckel S, **Gantenbein B** (2021) Towards Tissue-Specific Stem Cell Therapy for the Intervertebral Disc: PPARδ Agonist Increases the Yield of Human Nucleus Pulposus Progenitor Cells in Expansion. **Surgerie**s 2(1):92-104 https://doi.org/10.3390/surgeries2010008

18. Zhang X, Guerrero J, Croft AS, Albers CE, Häckel S, **Gantenbein B** (2020) Spheroid-Like Cultures for Expanding Angiopoietin Receptor-1 (aka. Tie2) Positive Cells from the Human Intervertebral Disc. **Int. J. Mol.** Sci 21: 9423. https://doi.org/10.3390/ijms21249423
19. Guerrero J, Häckel S, Croft AS, Albers CE, **Gantenbein B** (2020) The effects of 3D culture on the expansion and maintenance of nucleus pulposus progenitor cell multipotency. JOR Spine):e1131. https://doi.org/10.1002/jsp2.1131
20. Schmidli MR, Sadowska A, Cvitas I, **Gantenbein B**, Lischer HEL, Forterre S, Hitzl W, Forterre F, Wuertz-Kozak K (2020) Fibronectin Fragments and Inflammation During Canine Intervertebral Disc Disease. Front Vet Sci 7: 942. https://doi.org/10.3389/fvets.2020.547644
21. Bakirci E, Tschan K, May RD, Ahmad SS, Kleer B**, Gantenbein B** (2020) The importance of plasmin for the healing of the anterior cruciate ligament. Bone Joint Res 9(9):543-553 https://doi.org/10.1302/2046-3758.99.BJR-2020-0048.R1
22. May RD, Frauchiger DA, Albers CE, Hofstetter W, **Gantenbein B** (2020) Exogenous stimulation of human intervertebral disc cells in 3D alginate bead culture with BMP2 and L51P: Cyto-compatibility and effects on cell phenotype. Neurospine, 2020;17:77-87 https://doi.org//10.14245/ns.2040002.001.
23. ***Frauchiger DA, Tekari A, May RD, Džafo E, Chan SCW, Stoyanov J, Bertolo A, Zhang X, Guerrero J, Sakai D, Schol J, Grad S, Tryfonidou M, Benneker LM, **Gantenbein B** (2019) FACS is more potent to fish intervertebral disc progenitor cells than magnetic and bead-based methods. **Tissue Engineering part C, 10.1089/ten.TEC.2018.0375**
24. Kehl D, Generali M, Mallone A, Heller M, Uldry A-C, Cheng P, **Gantenbein B**, Hoerstrup SP, Weber B (2019) Proteomic analysis of human mesenchymal stromal cell secretomes: a systematic comparison of the angiogenic potential. **NPJ Regen Med** 4(1):8.
25. Sakai D, Schol J, Bach FC, Tekari A, Sagawa N, Nakamura Y, Chan SCW, Nakai T, Creemers LB, Frauchiger DA, May RD, Grad S, Tryfonidou MA, **Gantenbein B** (2018) Successful fishing for nucleus pulposus progenitor cells of the intervertebral disc across species. **JOR Spine** 2018, 2018e.
26. Frauchiger DA, May RD, Bakirci E, Tekari A, Chan SCW, Wöltje M, Benneker LM, **Gantenbein B** (2018) Genipin-Enhanced Fibrin Hydrogel and Novel Silk for Intervertebral Disc Repair in a Loaded Bovine Organ Culture Model. **J Funct Biomater** 2018, **9**(3):40.
27. Frauchiger DA, Chan SCW, Benneker LM, **Gantenbein B** (in press) Intervertebral disc damage models in organ culture – A comparison of annulus fibrosus cross incision versus punch model under complex loading. **Eur Spine J.** doi:10.1007/s00586-018-5638-5.
28. May RD, Frauchiger DA, Albers CE, Benneker LM, Kohl S, **Gantenbein B** (2018) Inhibitory Effects of Human Primary Intervertebral Disc Cells on Human Primary Osteoblasts in a Co-Culture System. **Int J Mol Sci** 19(4).doi: 10.3390/ijms19041195
29. Wuest SL, G**antenbein B**, Ille F, Egli M (2018) Electrophysiological experiments in microgravity: lessons learned and future challenges. **NPJ Microgravity** 4, 7. doi: 10.1038/s41526-018-0042-3
30. Tekari A, May RD, Frauchiger DA, Chan SCW, Benneker LM, **Gantenbein B** (2017) The BMP2 variant L51P restores the osteogenic differentiation of human mesenchymal stromal cells in the presence of intervertebral disc cells. **eCMjournal** 33: 197-210. doi: 10.22203/eCM.v033a15
31. Frauchiger DA, Heeb SR, May RD, Wöltje M, Benneker LM, **Gantenbein B**. Differentiation of MSC and annulus fibrosus cells on genetically-engineered silk fleece-membrane-composites enriched for GDF-6 or TGF-β3. **J Orthop Res**. Available from: http://doi.wiley.com/10.1002/jor.23778**.**
32. Tekari A, May RD, Frauchiger DA, Chan SCW, Benneker LM, **Gantenbein B** (2017) The BMP2 variant L51P restores the osteogenic differentiation of human mesenchymal stromal cells in the presence of intervertebral disc cells. **eCMjournal.**
33. Krismer AM, Cabra RS, May RD, Frauchiger DA, Kohl S, Ahmad SS, **Gantenbein B** (2017) The biologic response of human anterior cruciate ligamentocytes on collagen-patches to platelet-rich plasma formulations with and without leucocytes. **J Orthop Res** doi: 10.1002/jor.23599
34. ***Tekari A, May RD, Frauchiger DA, Chan SCW, Benneker LM, **Gantenbein B** (2017) The BMP2 variant L51P restores the osteogenic differentiation of human mesenchymal stromal cells in the presence of intervertebral disc cells. **eCMjournal** 33: 197-210. doi: 10.22203/eCM.v033a15
35. ***May RD, Tekari A, Frauchiger DA, Krismer A, Benneker LM, **Gantenbein B** (2017) Efficient non-viral transfection of primary intervertebral disc cells by electroporation for tissue engineering application. **Tissue Eng Part C Methods.** doi: 10.1089/ten.TEC.2016.0355
36. ***Chooi W-H, Chan SCW, **Gantenbein B**, Chan BP (2016) Loading-Induced Heat-Shock Response in Bovine Intervertebral Disc Organ Culture. **Plos One** 11(8):e0161615.

37. Tekari A, Chan SCW, Sakai D, Grad S, **Gantenbein B** (2016) Tie2+ cells from the nucleus pulposus are progenitor-like cells able to differentiate into osteogenic, adipogenic and chondrogenic lineages. **Stem Cell Res & Ther 18**(1):29
38. Liu ZH, Huo JL, Wu ZG, Sun Z, Bai F, Samartzis D, **Gantenbein B**, Fan SD, Wang HQ (2015) RASSF7 expression and its regulatory roles on apoptosis in human intervertebral disc degeneration. **Int J Clin Exp Pathol** 8(12):16097-16103
39. Schmocker AM, Khoushabi A, Frauchiger DA, **Gantenbein B**, Schizas C, Moser C, Bourban P-E, Pioletti D (2016) A photopolymerized Poly-Ethlyene-Glycol composite hydrogel and surgical implanting tool for a nucleus pulposus replacement. **Biomaterials** 88110-119 doi: 10.1016/j.biomaterials.2016.02.015
40. Chan SCW, Tekari A, Benneker LM, Heini PF, **Gantenbein B** (2016) Osteogenic differentiation of bone marrow stromal cells is hindered by the presence of intervertebral disc cells. Arthritis Research & Therapy 18:29.
41. Evangelopoulos DS, Kohl S, Schwienbacher S, **Gantenbein B**, Exadaktylos A, Ahmad SS (2015) Collagen application reduces complication rates of mid-substance ACL tears treated with dynamic intraligamentary stabilization. **Knee Surg Sports Traumatol Arthrosc** : doi: 10.1007/s00167-015-3838-
42. Malonzo C, Chan SCW, Eglin D, Grad S, Bonél HM, Benneker LM, **Gantenbein-Ritter B** (2015) A Papain-induced Disc Degeneration Model for the Assessment of Thermo-Reversible Hydrogel-Cell Therapeutic Approach. **Journal of Tissue Engineering and Regenerative Medicine**, 9(12):E167-E176.
43. Chan SC, Walser J, Ferguson SJ, **Gantenbein B** (2015) Duration-dependent influence of dynamic torsion on the intervertebral disc: an intact disc organ culture study. **Eur Spine J, 24**(11):2402-2410. doi: 10.1007/s00586-015-4140-6
44. Guggisberg S, Benneker LM, Keel MJ, **Gantenbein B** (2015) Mechanical Loading Promoted Discogenic Differentiation of Human Mesenchymal Stem Cells Incorporated in 3D-PEG Scaffolds with RhGDF5 and RGD. **Int J Stem Cell Res Ther** 2(006):006.
45. Hoppe S, Emin A, **Gantenbein B,** Boger A, Benneker LM (2015) Reduction of cement leakage by sequential PMMA injection in a vertebroplasty model. **Europ Spine J** [epub ahead of print].
46. **Gantenbein B**, Chan S, Kohl S, Ahmad S (2015) Investigation into the Suitability of Collagen Scaffolds for Anterior Cruciate Ligament Repair. **World Journal of Stem Cells.** 7(2):537-550.
47. **Gantenbein B,** Calandriello E, Wuertz-Kozak K, Benneker LM, Keel MJ, Chan SCW (2014) Co-Culture of porcine Notochordal Cells in 3D with bovine nucleus pulposus Cells. **BMC Muskuloskeletal Disorders** 15:422.
48. Seiler, C, Gazdhar, A, Reyes, M, Geiser, T, **Gantenbein-Ritter B** (2014) Quantifying cell shape changes of human mesenchymal stem cells undergoing differentiation. **Journal of Tissue Engineering and Regenerative Medicine**. 8(9):737-746.
49. Bertolo A, Gemperli A, Gruber M, **Gantenbein B**, Baur M, Pötzel T, Stoyanov J (2014) In Vitro Cell Motility as a Potential Mesenchymal Stem Cell Marker for Multipotency. **Stem Cells Transl Med** [epub ahead of print]
50. Bucher C, Gazdhar A, **Gantenbein-Ritter B** (2013) Non-viral gene transfer of growth and differentiation factor 5 (GDF5) to primary human mesenchymal stem cells - a path to regenerate the intervertebral disc? **Stem Cells Int**: 326828.
51. Chan SC, Walser J, Käppeli P, Shamsollahi M, Ferguson SJ, **Gantenbein-Ritter B** Region specific response of the intervertebral disc cells to complex dynamic loading (2013) An organ culture study using a bi-axial loading bioreactor. **PLoS One** 2013; 8:e72489.
52. Furtwängler T, Chan SC, Bahrenberg G, Richards PJ, **Gantenbein-Ritter B** (2013) Assessment of the Matrix Degenerative Effects of MMP-3, ADAMTS-4 and HTRA1 injected into a bovine Intervertebral Disc Organ Culture Model. **Spine** 2013, **38**(22):E1377-E1387.
53. Chan SCW, Benneker L, Bonél HM, **Gantenbein-Ritter B** (2013) Papain-induced *In-vitro* Disc Degeneration Model for the Study of Injectable Nucleus Pulposus Therapy. **The Spine Journal** 2013, **13**(3):273-283.
54. Steiner T, Bürki A, Ferguson S, **Gantenbein-Ritter B** (2013) Stochastic amplitude-modulated Stretching of Rabbit *flexor digitorum profundus* tendons reduces stiffness compared to cyclic loading but does not affect tenocyte metabolism. **BMC Musculoskeletal Disorders.**
55. Chan SCW, **Gantenbein-Ritter B** (2012) Harvesting Technique to Prepare Intact Bovine Tail Intervertebral Discs for Organ Culture Including the Endplates and partial Vertebrae. **Journal of Visualized Experiments,** 60: 3490.

56. **Gantenbein-Ritter B**, Chan SCW (2011) The evolutionary importance of cell ratio between notochordal and nucleus pulposus cells - An experimental 3D co-culture study. **Eur Spine J**, 21 Suppl 6819-825.

57. Stoyanov J, **Gantenbein-Ritter B,** Aebli N, Baur M, Alini M, Grad S (2011) Role of hypoxia, GDF5 and TGF-beta on differentiation of human mesenchymal stem cells towards intervertebral nucleus pulposus-like cells. **European Cells and Materials 21,** 533-47.

58. Chan SCW, Ferguson SJ, **Gantenbein-Ritter B** (2011) The effects of cyclic uni-axial compression onto the Intervertebral Disc. **Eur Spine J 20**(11):1796-1812.

59. **Gantenbein-Ritter, B**, Benneker, L, Alini, M, Grad, S. (2011) Committing human Bone Marrow-derived Stromal Cells to the „Disc-like" Phenotype by Coculture with Nucleus Pulposus Cells and GDF-5. **Eur Spine J**. 20, 962-971.

60. Chan SCW, Ferguson SJ, Wuertz K, **Gantenbein-Ritter B** (2011) Biological Response of the Intervertebral Disc to Repetitive Short Term Cyclic Torsion. **Spine**, 36(24):2021-2030.

61. Ilien-Jünger, S, **Gantenbein-Ritter, B**, Grad, S, Lezuo P, Ferguson SJ, Alini M, Ito K (2010) The Combined Effects of Limited Nutrition and High Frequency Loading on Intervertebral Discs with Endplates. **Spine**. 34, 1264-1271.

62. Chan, S., **Gantenbein-Ritter, B**, Lezuo, P, Cheung, K., Ito, K (2010) The fate of mesenchymal stem cells injected into bovine whole organ disc culture. **Spine J** 10(6)486-496.

63. Jünger, S., **Gantenbein-Ritter, B**, Lezuo, P, Ferguson SJ, Alini, M, Ito, K (2009) The effect of limited nutrition on disc cells in situ in a organ disc culture system. **Spine** 34(12):1264-1271.

64. **Gantenbein-Ritter, B**, Potier, E, Zeiter, S, Van der Werf M, Sprecher, C. M, Ito K. (2008) Accuracy of three techniques to determine cell viability in 3D tissues or scaffolds tissue. **Tissue Engineering part C** 14(4): 353-358

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159. Jünger, S., **Gantenbein, B.**, Lezuo, P., Ferguson, S.J. and Ito, K., "Effect of limited nutrition on intervertebral disc cells under cyclic loading in a whole organ culture", World Forum for Spine Research – The Intervertebral Disc, Kyoto, Japan, 2008.

160. Jünger, S., **Gantenbein, B.**, Lezuo, P., Ferguson, S.J. and Ito, K., "Effect of limited nutrition on in situ intervertebral disc cells under 'physiological' loading", Proceedings of the 34th Annual Meeting of the International Society for the Study of the Lumbar Spine, Hong Kong, 2007.

161. **Gantenbein-Ritter B**, Jünger S, Chan S C W, Alini M, Ito K (2007) Whole disc organ culture: analyzing possible causes of disc degeneration and regenerative approaches. Eur Spine J 16: 1712, 2007.

162. **Gantenbein B,** Jünger S, Grünhagen T, Lee C R, Van Donkelaar C C, Alini M, Ito K Effect of limited nutrition on intervertebral disc health: an in vitro investigation on whole organ disc explants with endplates. J Biomech 39(26-27):Suppl 1, 2006.

163. **Gantenbein B,** Lee CR, Van Donkelaar CC, Alini M, Ito K. (2006) Culturing of ovine caudal intervertebral disc explants with endplates: A feasibility study. Conference Proceedings of ISSLS Norway. Bergen, Norway, 2006.

164. **Gantenbein B**, Lee CR, Alini M, Ito K An in vitro tissue culture system for ovine caudal intervertebral discs with endplates - Oral Presentation. Eur Cell Mater 10(Suppl. 3):37-37, 2005.

165. **Gantenbein, B.** & Keightley, P. D. Of tiny scorpions, the Mediterranean region and the evolutionary rate in proteins. Invited population genetics seminar, at the CMPG institute, December 2003, Bern, 2003.

166. **Gantenbein, B.** Phylogeography of Mediterranean scorpions. Population genetics seminar, at the Institute of Cell, Animal, and Population Biology, Edinburgh, March 2003.

167. **Gantenbein, B.** & Largiadèr, C. R. The phylogeographic importance of the Strait of Gibraltar as a gene flow barrier in terrestrial arthropods: A case study with the scorpion *Buthus occitanus* as model organism. Phylogeography in southern European Refugia, 11-15 March 2002 Vairão, Portugal, 2002.

168. Towler, W. I., Ponce Saavedra, J., **Gantenbein, B.** & V. Fet. Genetic divergence in Central Mexican *Centruroides limpidus* (Karsch, 1879) and *C. infamatus* (C. L. Koch, 1844) (Scorpiones: Buthidae) as revealed by 16S mitochondrial DNA. American Arachnological Society 25th Annual Meeting, Keene State College, New Hampshire, USA, July 2001.

169. **Gantenbein, B.**, M. E. Soleglad & Fet, V. *Euscorpius balearicus* Caporiacco, 1950, stat. nov.: molecular (allozymes and mtDNA) and morphological data support the existence of an endemic scorpion species on the Balearic Islands (Scorpiones: Euscorpiidae). American Arachnological Society 25th Annual Meeting, Keene State College, New Hampshire, USA, July 2001.

170. **Gantenbein, B.**, Largiadèr C. R. & Scholl, A. *Mesobuthus gibbosus* (Scorpiones: Buthidae) on the island of Rhodes — Invasion of Ulysses‘ stowaways? Presented at a meeting on 'phylogeography, hybridisation and speciation' in Assois, France, 18-22 April, 2000.

171. Fet, V., Barker, M. & **Gantenbein, B.** Species-level variation of the mitochondrial 16S rRNA gene sequence: use in molecular systematics and biogeography. Poster presented at the Annual Meeting of the Academy, West Virginia, April 10, 1999, Shepherd College, Shepherdstown, West Virginia, USA, 1999.

172. **Gantenbein, B.**, Largiadèr, C. R., Fet, V. & Scholl, A. Nuclear and mitochondrial markers result in controversial phylogenies in *Buthus occitanus* subspecies (Scorpiones: Buthidae). Presented at the seventh congress of the European Society for Evolutionary Biology (ESEB), Barcelona, Spain, 23-28 August, 1999.

173. **Gantenbein, B.**, Largiadèr, C. R. & Scholl, A. Nuclear and mitochondrial gene variation among populations of *Buthus occitanus* (Amoreux, 1789) across the Strait of Gibraltar, presented at the Zoologia & Botanica, ETH, Zurich, 18-19 February, ‘genes, populations and politicians: issues in conservation biology’, 1999.

174. **Gantenbein, B.**, Braunwalder, M. E. & Scholl, A. Allozyme studies on scorpions from the Aegean Region and from Morocco, presented at the 15th International Congress of Arachnology, Chicago, 1998.

175. **Gantenbein, B.** & Scholl, A. Allozymes show an unusually high genetic differentiation of *Euscorpius germanus* (Scorpiones: Chactidae) populations. Presented at the Zoologia & Botanica 98, Geneva 1998, 19-20 February, ‘from gene genealogy to organismal history, 1998’.

176. **Gantenbein, B**., Büchi, L., Braunwalder, M. E. & Scholl, A. The genetic population structure of *Euscorpius germanus* (C. L. Koch) (Scorpiones: Chactidae) in Switzerland. In: Selden, P. A. (ed.). Presented at the 17th European Colloquium of Arachnology, Edinburgh 1997, 14-18 July, 1998.

Non-peer-reviewed Scientific Presentations

177. Guerrero J, Häckel S, Croft AS, G**antenbein B.** (2020) Mimicking the Intervertebral Disc Microenvironment for Expansion of Nucleus Pulposus Progenitor Cells in a Context of Cell Therapy. DBMR Research Day of the Department for BioMedical Research (DBMR), University of Bern, 4 Nov.

178. Croft AS, Guerrero J, Häckel S, Oswald AC, Albers CE, **Gantenbein B.** (2020) Trilineage Potency of Human Nucleus Pulposus Cells before and after Cryopreservation. Swiss Stem Cell Network: 15th Annual Meeting. Bern, 11 Dec.

179. Croft AS, Wöltje, M, Oswald K, Oberli A, **Gantenbein B.** (2020) Cyto-Compatibility and Bioactivity of Silk Fibroin on Human Intervertebral Disc Cells and Mesenchymal Stromal Cells. DBMR Research Day of the Department for BioMedical Research (DBMR), University of Bern, 4 Nov.

180. Zhang X, Guerrero J, Oberli A, Benneker LM, **Gantenbein B**. (2019) Spheroid-like Culture System for Cell Expansion of the Angiopoietin Receptor-1(aka Tie2) positive Cells from the Intervertebral Disc. DBMR Research Day. 13 Nov, Bern.

181. Croft AS, Guerrero J, Oberli A, Zhang X, Benneker LM, **Gantenbein B**. (2019) Effect of Expansion and Cryo-Preservation on the Differentiation Potential of Human Angiopoetin-1 Receptor Positive Cells from the Intervertebral Disc. DBMR Research Day. 13 Nov, Bern.

182. Graf S, Siegrist M, Croft A, May RD, Guerrero J, Oberli A, Klenke F, Albers CE, Benneker LM, Hofstetter W, **Gantenbein B**. (2019) The secretion of BMP antagonists of human intervertebral disc cells and their relevance for successful spinal fusion. DBMR Research Day. 13 Nov, Bern.

183. Guerrero J, Croft AS, Graf S, Oberli A, Zhang X, Benneker LM, **Gantenbein B**. (2019) Mimicking the Intervertebral Disc Microenvironment for Expansion of Nucleus Pulposus Progenitor Cells in a Context of Cell Therapy. DBMR Research Day. 13 Nov, Bern.

184. May RD, Frauchiger DA, Tekari A, Benneker LM, Kohl S, **Gantenbein B**. (2016) Ossification of human primary osteoblasts and mesenchymal stem cells is inhibited in presence of intervertebral disc cells or tissue. Clinical Day of Research 2016.

185. Frauchiger DA, Heeb S, Tekari A, Benneker L, Wöltje MM, **Gantenbein B**. (2016) Using silk and genipin-enhanced fibrin hydrogel for intervertebral disc repair. Day of Clinical Research 2016. Bern.

186. Frauchiger D, Chan S, Roth E, **Gantenbein B**. (November 4, 2015) Intervertebral Disc Repair using Fleece-Membrane Composite Silk Material and Genipin-enhanced Fibrin Hydrogel. Day of Clinical Research 2015, Department of Clinical Research (DCR). Bern.

187. **Gantenbein B,** Chan SCW, Frauchiger DA, Benneker LM, Heini PF, Tekari A. (November 4, 2015) In vitro analysis of osteogenic inhibition in non-union spinal fusion caused by intervertebral disc cells. Day of Clinical Research 2015, Department of Clinical Research (DCR). Bern.

188. Marazza A, Tekari A, Roth E, Benneker LM, **Gantenbein B**. (November 4, 2015) Investigation into ERK, JNK and p38 downstream Signaling Pathways: an Anti-Inflammatory Approach against the Intervertebral Disc Degeneration. Day of Clinical Research 2015, Department of Clinical Research. Bern.

189. Heeb S, Frauchiger DA, Roth E, **Gantenbein B.** Investigation of Fibrin-Hydrogel-Silk Scaffolds for Restoration of the Intervertebral Disc . DKF Research Conference. Bern.

190. Heeb S, Frauchiger DA, Roth E, **Gantenbein B.** (November 4, 2015) Investigation of Fibrin-Hydrogel-Silk Scaffolds for Restoration of the Intervertebral Disc. Day of Clinical Research 2015, Department of Clinical Research (DCR). Bern.

191. Krismer AMM, Cabra R, Ahmad SS, Kohl S, **Gantenbein B**. (November 4, 2015) The effect of PRP on the anterior cruciate ligament. Day of Clinical Research 2015, Department of Clinical Research (DCR). Bern

192. Tekari A, Chan SCW, Wuertz-Kozak K, Sakai D, Benneker LM, Grad S, **Gantenbein B**. (November 4, 2015) Bovine coccygeal intervertebral discs contain multipotent Tie2+ cells which can differentiate into osteogenic adipogenic and chondrogenic lineages. Day of Clinical Research 2015, Department of Clinical Research (DCR). Bern.

193. Cabra R, Ahmad S, Geissberger C, Kohl S, **Gantenbein B.** (2014) Advancing Anterior Cruciate Ligament Repair using a mechano-biological Organ Culture approach. DKF Research Conference, 5 Nov. Bern.

194. Chan SCW, Frauchiger D, Tekari A, **Gantenbein B.** (2014) Torsion increases glycosaminoglycans to collagen ratio of the intervertebral disc - an organ culture study. DKF Research Conference, 5 Nov. Bern.

195. Chan SCW, **Gantenbein B** (2014) Hyperosmotic condition reduces nucleus pulposus growth in monolayer culture. Poster contribution DKF Researcher Day 5 Nov. Bern.

196. Ebneter YWS, Chan CW, **Gantenbein B** (2014) Segmental variation of cell density in bovine intervertebral discs. DKF Research Conference, 5 Nov. Bern.

197. Frauchiger D, Chan SCW, Roth E, Benneker LM, **Gantenbein B** (2014) Silk membrane-fleece in combination with Genipin-enhanced Fibrin Hydrogel for Intervertebral Disc Repair. DKF Research Conference, 5 Nov. Bern.

198. May R, Frauchiger D, Gazdhar A, Geiser T, Benneker LM, **Gantenbein B** (2014) Non-Viral Gene Delivery of Growth and Differentiation Factor 6 (GDF6 = BMP13) to primary Mesenchymal Stem Cells for Differentiation into Intervertebral Disc Progenitor Cells. DKF Research Conference, 5 Nov. Bern.

199. Guggisberg S, Chan SCW, **Gantenbein-Ritter B** (2012) Discogenic pre-conditioning of human mesenchymal stem cells in synthetic MMP-degradable poly-ethylene-glycol (PEG) hydrogels under load and rhGDF-5. Dechema 3D Cell Culture, Zurich, Technopark 14-15 March 2012.

200. Chan SCW, **Gantenbein-Ritter B** (2011) Intervertebral Discs of Notochordal and Non-notochordal Type: What's in it?. Research Conference of the Department of Clinical Research (DKF).

201. Guggisberg S, Chan SCW, Benneker LM, **Gantenbein-Ritter B** (2011) Driving Mesenchymal Stem Cells towards Intervertebral-Disc-like Cells using rhGDF-5 under Mechanical Loading in Artificial PEG Microenvironments. Research Conference of the Department of Clinical Research (DKF). Bern.

202. Malonzo C, Chan SCW, Eglin D, Bonél HM, Benneker LM, **Gantenbein-Ritter B** (2011) Thermo-Reversible Hydrogel for Nucleus Pulposus Replacement: Feasibility under Static Loading in a mild Papain-induced Disc Degeneration Model. Research Conference of the Department of Clinical Research (DKF). Bern.

203. **Gantenbein-Ritter B,** "Cell Therapy for Intervertebral Disc Degeneration from the Lab-Bench Perspective." Swiss-Japanese Minisymposium on Disc/Spine Research. Irchel University, Zürich, (September 6, 2010)

204. Chan SCW, Ferguson SJ, Wuertz K, **Gantenbein-Ritter B** (2010) Intervertebral disc and torsion. Swiss-Japanese Minisymposium on Disc/Spine Research. Irchel University, Zürich (September 6, 2010).

205. Chan, S.C.W., Ferguson, S.J., **Gantenbein-Ritter, B. (**2009) "Bovine intervertebral disc explant preparation with endplates for organ culture", Proceedings of the Annual Meeting of the Swiss Society for Biomedical Engineering, Bern, Switzerland, 2009.

206. Jünger, S, **Gantenbein-Ritter, B**, Grad, S, Lezuo, P, Ferguson, SJ, Alini, M and Ito, K, "The combined effects of high frequency loading and limited nutrition on intervertebral discs with endplates", Proceedings of the Annual Meeting of the Swiss Society for Biomedical Engineering, Bern, Switzerland, 2009.

207. Jünger, S, **Gantenbein-Ritter, B**, Alini, M, Ferguson, SJ and Ito, K, "The effect of limited nutrition in intervertebral discs: a 21 day in vitro culture", Proceedings of the Annual Meeting of the Swiss Society for Biomedical Engineering, Muttenz, Switzerland, 2008.

208. **Gantenbein B,** Lee CR, Alini M, Ito K. Culturing of ovine caudal intervertebral disc explants with endplates - Poster Presentation. SSBE 2005 - 2005 Annual Meeting Swiss Society for Biomedical Engineering, Sept. 1-2, 2005, EPFL Lausanne. EPFL Lausanne, 2005.

Invited Lectures from 2008-2023

1. **Invited Speaker:** Gantenbein B "What regeneration in orthopaedics might bring to an increasing elderly society", invited by Prof. Marie-Noelle Giraud and Prof. Carmen Gonelle, Regenerative Seminar series, University of Fribourg, 25 May, Online Seminar.
2. **Invited Keynote speaker:** Swiss Society for Biomaterials & Regenerative Medicine (SSB+RM) 2021 annual meeting will take place between **June 7th and 9th 2022** at the University Hospital Zurich, Switzerland**.**
3. **Invited Keynote speaker**: Gantenbein B Progenitor Cells of the Intervertebral Disc for Tissue Engineering – Fake or soon a Reality for the Clinics?, Symposium entitled, to be presented at the World Conference of Tissue Engineering in Maastricht 17 Nov 2021, invited by Prof. Dr. Jérôme Guicheux, Nantes, France and Dr. Barbara Chan, HK.
4. **Invited keynote speaker:** Gantenbein B "Tissue-specific progenitor cells for intervertebral disc repair – science fiction or a possible rescue for mildly degenerated intervertebral discs?", 29th Annual Meeting of the European Orthopaedic Society, Rome, Italy, 15-17 September, 2021. Invited by Gianluca Vadala (University of Rome, Italy).
5. **Invited keynote speaker:** Gantenbein B "Tissue-specific progenitor cells of the intervertebral disc - A possible cure to fight the pandemic of low back pain?" KSSCR 2021 Annual Meeting of Korean Society for Stem Cell Research, Aug 12-14 August, 2021, Busan, South Korea.

6. **Invited keynote speaker:** Gantenbein B "Degeneration of intervertebral discs - To regenerate or to fuse properly?" Presented at the 7th Summer School of the Swiss Bone and Mineral Society (SBMS), "Theme: The Osteochondral Interface", Interlaken, Switzerland, 16-17 May 2019.
7. **Invited keynote speaker:** Gantenbein B. "Nucleus Pulposus Progenitor Cells positive for Receptor Angiopoetin-1 alias Tie2 – Multipotent Cells of Specific Capabilities for Tissue Engineering?", TERMIS European Chapter Meeting, Tissue Engineering Therapies: From Concept to Clinical Translation & Commercialisation, Rhodes, Greece, 27th-31st May 2019.
8. **Invited keynote speaker:** Gantenbein B. "Exploring progenitor cell therapies for the intervertebral disc", 7th International Congress on Biotechnologies for Spinal Surgery, Rome, Italy, 3-7 April 2019.
9. **Invited keynote speaker:** Gantenbein B "Repair of the Intervertebral Disc using Biomaterials and Progenitor Cells". Biospine Asia-Pacific, the 1st Asia-Pacific International Congress on Biotechnologies for Spinal Surgery, Seoul, South Korea, 26-28 April 2018.
10. Mechano-Biologie der Bandscheibe" Gantenbein B (2017) Do-Mo Fortbildung, Orthopeadic Department, Insel Hospital, 31 Aug, 2017
11. **Invited keynote speaker:** Gantenbein B (2017) Bovine intervertebral disc organ culture under compressive and torsional loading, oral presentation presented in the Seminar "In vitro bioreactors in Intervertebral Disc Research - What is their role in evaluating disc regeneration? **TERMIS-EU Chapter Meeting, 26-30 June, Davos, Switzerland.**
12. "What cells and materials could be used for intervertebral disc repair and which better not", invited **keynote lecture** at the **BioSpine, 6th International Congress on Biotechnologies for Spinal Surgery, Langenbeck-Virchow-Haus, Berlin, April 26 – 28, 2017.**
13. "Can Mechano-Biology of the Intervertebral Disc lead the way for Regenerative Therapies?" **Trinity Centre for Bioengineering Seminar Series, Trinity College, Dublin, 4 June 2016**.
14. "Understanding Mechano-Biology to develop Regenerative Therapy for the Intervertebral Disc", Seminar series "Current topics in Pharmacology and Theranostics", **Institute for Pharmacology,** 20 April 2016.
15. "Organ Culture Bioreactors - Platforms to study intervertebral disc degeneration and regeneration", Invited Talk at Empa, St. Gallen, 23 Sept 2015.
16. "Laboratory Research", Combined GCP and AO Spine Europe Research Education Course, 12-14 December 2014 (13 December). Davos Congress Centre, Switzerland.
17. **Invited lecture:** "Mechano Biology of the Intervertebral Disk - Where do we stand?"(July 6, 2014). **7th World Congress of Biomechanics**, **Boston**, MA, 6-11 July 2014.
18. "A papain-induced disc degeneration model for the assessment of thermo-reversible hydrogel–cells therapeutic approach", 2nd Stem-Cell Kick-off Meeting, University of Bern, 13 December 2013.
19. "Investigation of the regenerative effects of porcine notochordal cell onto bovine intervertebral disc cells under co-culture", 4th CABMM Symposium, University of Zürich, 5 December 2013.
20. "Do notochordal cells have "magic power" or is it a myth?" Swiss-Japanese Symposium on Musculoskeletal Research, ETH Zürich and Schulthess Clinics, 25 November 2013.
21. "Updates from the Tissue and Organ Mechano-Biology Laboratory", ISTB Seminar, University of Bern, 4 November 2013.
22. "Mesenchymal Stem Cells in Orthopaedic Research - The in vitro trap", Stem Cell Lunch Seminar Meetings, University of Bern, 10 September 2013.
23. "Stem Cell therapy for the Intervertebral Disc - Fact or Fiction?", Biomedical Engineering Seminar Series, Zentrum für Zahnmedizin, University of Zürich, 8 November, 2012.
24. "Intervertebral Disc and Mesenchymal Stem Cell Research", Select Biosciences Conferences, Bioprocessing & Stem Cells Europe - Cell Culture Track, London, 27-28 June, 2012.
25. "Intervertebral disc Regeneration – Fact or Fiction?" Center for Applied Biotechnology and Molecular Medicine (CABMM), 17 November, 2011.
26. "Mechano-Biologie der Bandscheibe" Do-Mo Fortbildung, Orthopeadic Department, Insel Hospital, 10 Nov, 2011

27. "The Intervertebral Disc - Can we regenerate or repair it?" Seminar Series at Institute of Pharmacology, University of Bern, 2 November 2011.

28. "Regeneration of the Intervertebral Disc - Lessons from Mechano-Biology", Artificial Organs: Fact or Fiction? - Swiss MD-PhD Association (SMPA), Insel Hospital Bern, 14 October 2011.

29. "Bioreactors in Mechano Biology - The Missing Link", Masters in Biomedical Engineering, ETH Zürich, 12 May, 2011.

30. "Cell Therapy for Intervertebral Disc Repair - which Cells to take and which Disc to Rescue?" 7th Swiss Experimental Surgery Symbosium, University of Fribourg, Fribourg, Switzerland, 20 January, 2011.

31. "Cell Therapy for Intervertebral Disc Degeneration from the Lab-Bench Perspective." Swiss-Japanese Symposium on Disc/Spine Research. Irchel University of Zürich, Zürich, **Keynote presentation**, 6 September 2010.

32. "Bandscheiben aus dem Reagenzglas" Do-Mo Fortbildung, Orthopeadic Department, Insel Hospital, 6 June, 2009.

Higher Courses/Education

2019 LTK Module 2 Training for persons responsible for directing animal experiments, 11th to 15th of November, Novartis Campus, Basel

2016 AOSpine chairperson education program, 16-18 Nov, Prague.

2010 6th Annual Swiss Stem Cell Network (SSCN) Meeting, Pharmazentrum Basel

2009 Mitarbeitergespräch - Führen mit Zielen, University of Bern

2009 Management Seminar, University of Bern

2009 Basics der Hochschuldidaktik, Zentrum für Universitäre Weiterbildung, University of Bern

2008 Applied Biosystems, European RNA Symposium, Irchel, University of Zürich

2007 Scanning Electron Microscopy Course: Theory, AO Research Institute, Davos, in association with University of Aberystwyth, Wales, UK

2006 "RNA Expression Profiling Using DNA Microarrays"

Schweizerische Kommission für Molekularbiologie (SKMB) Course at University of Lausanne, Switzerland

2006 Laser Scanning Microscopy Course: LSM in Biomedical Applications, Carl Zeiss, Jena

2005 LTK Modul 1: An Introduction into Animals in Experimental Research: Mouse / Rat / Guinea Pigs / Hamster / Rabbits

2004 AO Spine Interactive Course 1 - Degenerative and Deformity

2000 Rhetoric Course, Zentrum für Universitäre Weiterbildung, University of Bern

1999 Scientific Writing Clinic, Zentrum für Universitäre Weiterbildung, University of Bern

Date: Bern, 31 January 2023

Signature: