

**PERSONAL DETAILS**

Name: **Spahr, Axel**

Date and place of birth: 1<sup>st</sup> of April 1967, Heidenheim on the Brenz, Germany

Titles: Clinical Associate Professor, University of Sydney,  
Head of Periodontics Sydney Dental Hospital, Sydney, Australia  
Head, Discipline of Periodontics, University of Sydney  
Priv.-Doz. (Associate Professor) University of Ulm, Germany  
Dr. Med. Dent. (PhD)  
Dentist (DMD)

**CITIZENSHIPS**

German (by birth)

Australian (acquired 17<sup>th</sup> August 2016)

**EDUCATION****Gymnasium (High School and College)**

1977-1986 Hellenstein-Gymnasium, Heidenheim, Germany (Abitur).

**Army**

1987-1989 armoured pioneer (Sergeant)

**University**

1994 Degree in Dentistry (equivalent to a D.M.D./D.D.S. from an accredited university in the United States)

1989-1994 Study of dentistry at the University of Ulm, Ulm, Germany

**ACADEMIC APPOINTMENTS and EMPLOYMENT HISTORY**

2014- Present Course Coordinator DClinDent-Perio, University of Sydney, Sydney, Australia

2011 Admitted as a member of the Royal Australasian College of Dental Surgeons in the Special Field of Periodontics. MRACDS (Perio)

2011- Present Head, Discipline of Periodontics, University of Sydney, Sydney, Australia

2010- Present Head, Department of Periodontics, Sydney Dental Hospital (SDH), Sydney, Australia  
Clinical Associate Professor, University of Sydney, Sydney, Australia

2007-2010 Associate Professor (life tenure) at the Department of Conservative Dentistry and Periodontology, University of Ulm, Ulm, Germany

2007 Habilitation (highest academic qualification in Germany, qualifies for a Full Professorship)

2005-2010 Head, Oral Biology Research Laboratory (molecular biology, microbiology, cell biology and histology).

1999-2010	Deputy Medical Director (life tenure), Department of Conservative Dentistry and Periodontology, University of Ulm, Ulm, Germany
1998-2010	Head, Discipline of Periodontics, Department of Conservative Dentistry and Periodontology, University of Ulm, Ulm, Germany
1997	Dr. med. dent. with the grade "magna cum laude" from the University of Ulm, Ulm, Germany (equivalent to a Ph.D. in one of the Oral and Dental Sciences offered by an accredited university in the United States). Thesis: Total mercury burden of people measured in scalp hair in relation to the number or surface of amalgam fillings.
1994-1997	Assistant Professor, Department of Conservative Dentistry and Periodontology, University of Ulm, Ulm, Germany

## **REGISTRATIONS in AUSTRALIA**

Board registered General Dental Practitioner (AHPRA: DEN0001624448)  
(Australian Dental Council Exam, 2012)

Board registered Periodontal Specialist (AHPRA, 2012)

## **SUMMARY of SKILLS**

### **Clinical expertise**

#### Periodontology:

- Treatment of aggressive periodontitis:  
microbial analysis, antimicrobial periodontal therapy
- Treatment of periodontitis patients with systemic diseases
- Interdisciplinary treatment of periodontitis patients
- Resective periodontal surgery and treatment of furcation defects
- Periodontal regeneration:  
enamel matrix proteins, membranes
- Soft tissue plastic surgery:  
pedicle soft tissue grafts, free soft tissue grafts, additive treatments

#### Implantology / Oral Surgery:

- Bone regeneration/augmentation:  
autologous bone grafts, corticocancellous block bone grafts,  
bone substitutes, membranes, bone splitting
- Sinus lift surgery:  
lateral window approach, osteotome/transcrestal approach
- Implant Dentistry:  
placing of conventional implants and mini implants, dental implant  
prosthetics, treatment of moderate and advanced peri-implantitis
- Tooth extraction

#### Conservative / Operative Dentistry:

- Dental tooth fillings (amalgam, composite), adhesive techniques
- Inlays (gold, ceramic)

#### Endodontology:

- Root canal treatment, root canal posts
- Apicoectomy / retrograde filling, root resection

#### Prosthetic Dentistry:

- Fixed prosthetics:  
Partial crowns, single crowns, short and long span bridges

Postgraduate education, clinical courses

- Numerous courses in periodontology
- Numerous courses in periodontal surgery
- National and international courses in periodontal regeneration
- National and international courses in soft tissue plastic surgery
- National and international courses in bone regeneration/augmentation
- The use of bone substitutes in periodontal therapy/bone regeneration
- The use of enamel matrix proteins in periodontal therapy
- Periodontal microsurgery
- National and international courses in implant dentistry
- Soft and hard tissue management
- Sinus lift surgery
- Bone splitting, bone spreading
- Dental and oral radiography, digital volume tomography (DVT)
- Dental and intra-oral photography
- Psychosomatic dental diseases
- Pain management / pain therapy
- Aesthetics in dentistry
- Ceramics in dentistry
- Emergency medicine training courses
- Doctor's bills

### Research expertise

- Clinical research
- Basic science research:  
Molecular biology, microbiology, histology, animal research, cell culture studies

### Postgraduate education, research courses

- Techniques in molecular biology in practice, School for Medical-Technical Assistants, University of Ulm (certified technician).
- Further training in molecular biology and histology, Karolinska Institute, Stockholm, Sweden.
- Microbiological training, Institute for Microbiology and Immunology, University of Ulm, Ulm, Germany.
- Safety in genetic technology (Sicherheit in der Gentechnik). Prerequisite for project leader position according to German law.
- Experimental animal handling course (Versuchstierkundlicher Blockkurs). Prerequisite for animal research according to EU guidelines.
- Science and research management in dentistry, Sozial- und Arbeitsmedizinische Akademie Baden-Württemberg eV (SAMA).

### Main research fields, research experience

- **Regeneration of oral hard- and soft tissues:**  
(Periodontal regeneration, bone regeneration / augmentation)
  - Investigation of enamel matrix proteins.
  - Investigation of / search for new bioactive proteins/peptides for periodontal regeneration.
  - Investigation of / search for new osteoinductive/ osteopromotive proteins/peptides for bone regeneration.
  - Regeneration achieved through biomimicry of natural developmental processes.
  - Investigation of / search for new carrier systems for the application of bioactive proteins/peptides.
  - Investigation of new bone substitutes.

*Objective: development of new bioactive therapeutics for regeneration of periodontal tissues and bone*
- **Periodontitis and systemic diseases:**
  - Association between periodontitis and coronary heart disease.
  - Effects of the periodontal pathogens / the periodontal infection
  - Effects of the inflammatory reaction / the host response

*Objective: development of an interdisciplinary diagnostic and therapeutic approach. Immunomodulation*

- **Development of new types of local antimicrobials to treat oral/periodontal infections and investigation of immune modulation.:**
  - Investigation of new biological/natural substrates with antimicrobial properties against oral/periodontal pathogens
  - Investigation of carrier systems with suitable properties for the development of a new local delivery device to apply the new local antimicrobials into periodontal pockets, allowing a sustained slow release of the antimicrobials
  - investigation of different approaches of immune modulation to improve the outcome of periodontal therapy and decrease disease progression

*Objective: development of new antimicrobials to treat oral/periodontal diseases without the side effects/risks associated with antibiotics and improvement of periodontal treatment outcomes by immune modulation*

Research support (for the last 24 years):

**Total amount: 1,486,792 Australian Dollar (AUD)**

2018-2019:

Sydney Local Health District (SLHD), "The Pitch", Sydney Innovation and Research Symposium: Digital Dental Workflow. Grant to introduce, establish and develop the complete digital workflow in dentistry at the departments of Periodontics and Prosthodontics, Sydney Dental Hospital. This involves intra- and extraoral scanning, computer guided/supported treatment planning using three-dimensional radiographical and clinical data, guided surgery using 3D-printed surgical guides, provisionalization using 3D-printed intermediate restorations and finally restoration using milled high-precision restorations. Total amount **47,752 AUD**. Responsibilities: Project Leader

2017-2018:

Australian Dental Research Foundation (ADRF): Methacrylated bone extracellular matrix protein extract hydrogel for craniofacial tissue engineering, stage three. The aim of this study is to investigate the suitability of the BMPE/PEGDA IPN hybrid hydrogel as a carrier system for the controlled and sustained release of bioactive growth/differentiation factors and to investigate *in vivo* the regenerative potential and bone forming capacity. Total amount: **17,000 AUD**. Responsibilities: Supervisor

2016-2017:

Australian Dental Research Foundation (ADRF): Methacrylated bone extracellular matrix protein extract hydrogel for craniofacial tissue engineering, stage two. The aim of this study is to develop a new bioactive bone substitute, based on the extracellular bone matrix. Total amount: **13,559 AUD**. Responsibilities: Supervisor.

2015-2016:

Australian Dental Research Foundation (ADRF): Methacrylated bone extracellular matrix protein extract hydrogel for craniofacial tissue engineering, stage one. The aim of this study is to develop a new bioactive bone substitute, based on the extracellular bone matrix. Total amount: **10,000 AUD**. Responsibilities: Supervisor

2015-2016:

Australian Periodontology Research Foundation (APRF): "The effect of piezocision on periodontal parameters: A randomized controlled clinical split mouth study". The aim of this study is to investigate the effect of piezocision, conducted during a minimal invasive surgery to accelerate orthodontic tooth movement, on the periodontal parameters of the affected and the neighbouring teeth. Total amount: **3,876 AUD**. Responsibilities: Supervisor.

2015-2016:

Dental Faculty University of Sydney Research Committee Funding: "New bone extracellular matrix derived hydrogel as a scaffold for tissue engineering". The aim of this study is to fabricate and assess a new bone hybrid hydrogel, using a combination of different fabrication techniques and bioprint a scaffold to evaluate the potential of bone formation. Total amount: **10,000.00 AUD**. Responsibilities: Supervisor.

2014-2016:

Australian Periodontology Research Foundation (APRF): "Adjunct use of Photodynamic therapy in periodontitis patients with persisting pockets, bleeding on probing and ongoing attachment loss". The aim of this study is to investigate whether the adjunctive use of Photodynamic therapy provides any benefit in SPT patients compared to SRP alone. Total amount: **2,998.00 AUD**. Responsibilities: Project leader.

2013-2014:

Australian Periodontology Research Foundation (APRF): "Comparative study of a genuine resorbable collagen matrix (Mucograft) with enamel matrix protein and an autogenous subepithelial connective tissue graft in the treatment of human gingival recessions". The aim of this study was to investigate whether autogenous connective tissue grafts from the palate of the patient could be replaced by the combination of a commercially available xenogenic connective tissue graft and a commercially available enamel matrix derivative for periodontal regeneration. Total amount: **2,000.00 AUD**. Responsibilities: Project leader

2013-2014:

Australian Periodontology Research Foundation (APRF): "The long-term stability of soft and hard tissues surrounding Brånemark dental implants". The aim of this retrospective cohort study was to examine the outcomes of implant treatment in fully and partially edentulous patients with respect to clinical peri-implant parameters, including marginal bone level changes in patients with dental implants after at least 20 years. Total amount: **2,000.00 AUD**. Responsibilities: Project leader

2006-2007:

ITI Foundation, Project: 424\_2006 (EMAB): "Enamel matrix proteins as novel biotherapeutics for biomimetic induction of bone formation". The aim of this application was to investigate whether PEG hydrogels constitute an appropriate carrier system for the controlled release of osteoinductive/osteopromotive proteins and to evaluate if a combination of C5kD and a formulation of PEG can be used as a novel bioactive approach for bone regeneration/augmentation. For this purpose, different formulations of PEG as well as combinations of PEG and C5kD or the synthetic peptide P-C5kD were tested. Total amount: **208,653.00 AUD**. Responsibilities: Project leader.

2001-2005:

EU-Research project "Matrix" (QLK3-CT-2001-00090): „Stable extracellular matrices as novel biotherapeutics for biomimetic induction of hard tissue growth (Matrix)". A European multicenter study. Total Amount: **907,077.00 AUD**. The aim of this project was to identify stable extracellular matrix components suitable as biotherapeutics for hard tissue growth. Protein fractions of different sources were screened for their capability to induce hard tissue formation. Responsibilities: Project leader of the University of Ulm (biological validation, efficacy assessment, animal experiments, histology, molecular diagnostics).

2003-2004:

Grant for specific advancement of biotechnological research of the state of Baden-Württemberg, Germany: "Clinical and molecular investigation of different virulence factors of periodontal pathogens" (VIPER). In cooperation with "Hain Lifescience GmbH". Total Amount: **142,461.00 AUD**. The purpose of this project was to investigate the presence of virulent genotypes of two relevant periodontal pathogens, *Aggregatibacter actinomycetemcomitans* and *Porphyromonas gingivalis*, in subgingival plaque samples of periodontitis patients using PCR analysis. Based on our findings, the industrial partner has developed a molecularbiological test of the particular virulence factors which will be commercially available next year. Responsibilities: Project leader, periodontal/clinical supervisor, molecular and microbiological diagnostics.



2002-2004:

Grant of the Else Kröner-Fresenius-Foundation and GlaxoSmithKline consumer Healthcare GmbH & Co.KG: "Periodontal Infections and Coronary Heart Disease: Role of Periodontal Bacteria and Importance of Total Pathogen Burden. The Coronary Event and Periodontal Disease (CORODONT) Study". Total Amount: **85,895.50 AUD**. The aim of this study was to investigate the possible association between periodontal infections and coronary heart disease. Responsibilities: Project leader periodontology, clinical and microbiological diagnostics.

1998-2002:

BIORA AB: *In vivo* study in humans. "Use of EMDOGAIN for covering recession type defects". Multicenter study, split-mouth-design. Total Amount: **33,520.20 AUD**. The aim of this study was to evaluate a comparison of coronally advanced flap procedure with or without the use of enamel matrix proteins in the treatment of recession defects. Responsibilities: Project leader of the University of Ulm, periodontal surgery.

### Research visits

- Center for Oral Biology, Karolinska Institute, Stockholm, Sweden
- Department of Biomaterials, Institute of Clinical Dentistry, University of Oslo, Norway
- Straumann, Basel, Switzerland
- Medunsa University, Animal Research Center, Pretoria, South Africa
- BIORA AB, Malmö, Sweden
- Animal Research Center, Malmö, Sweden
- Tigerberghospital, University of Stellenbosch, Cape Town, South Africa

### Research collaborations

- Prof. Petter Lyngstadaas, Department of Biomaterials, University of Oslo, Oslo, Norway. "Periodontal regeneration, bone regeneration, enamel matrix proteins, cell culture studies".
- Prof. Lars Hammarström and Prof. Ivan Slaby, Center for Oral Biology, Karolinska Institute, Stockholm, Sweden. "Enamel matrix proteins, expression and function".
- Prof. Colin Robinson, Prof. Jennifer Kirkham and Dr. Steven Brookes, Division of Oral Biology, University of Leeds, Leeds, United Kingdom. "Matrix proteins, extraction of matrix macromolecule fractions, photodynamic therapy (PDT) in periodontal treatment".
- Prof. Jan Eirik Ellingsen, Oral Research Laboratory, University of Oslo, Oslo, Norway. "Enamel matrix proteins in implant therapy".
- Prof. Dan Deutsch, Department of Oral Biology, the Hebrew University of Jerusalem, Jerusalem, Israel. "Recombinant production of matrix proteins".
- Prof. Janne Reseland, Department of Biomaterials, University of Oslo, Oslo, Norway. "Adipokines in bone formation/regeneration".
- Institut Straumann AG, Department of Fundamental Research, Basel, Switzerland. "Carrier systems for the controlled release of osteoinductive/osteopromotive proteins".
- Straumann Malmö (BIORA), Malmö, Sweden. "Enamel matrix proteins for periodontal regeneration, bone regeneration".
- Prof. Wolfgang König, Department of Internal Medicine II – Cardiology, University of Ulm, Ulm, Germany. "Periodontal infections and coronary heart disease".
- Prof. Stephan Haase, Clinic of Oral and Maxillofacial Surgery of the University of Ulm, Ulm, Germany. "Periodontal treatment in patients with bisphosphate therapy (Osteoporosis)".
- Prof. Steffen Stenger, Department of Medical Microbiology and Hospital Hygiene, University of Ulm, Ulm, Germany. "Periodontal pathogens, virulence factors".
- Dr. Jiri Vondrasek, Institute of Organic Chemistry and Biochemistry, Center for Complex Molecular Systems and Biomolecules, Prague, Czech Republic. "Enamel matrix proteins, bioinformatics and biochemical analyses".
- Prof. S. Renvert, University of Kristianstad, Dept. of Oral Health Sciences and Research. "Periimplantitis and bone regeneration".
- Prof. A. Pilloni, University of Rome, Dept. of Periodontology. "Periimplantitis and bone regeneration".

#### Membership in professional organizations

- International Association of Dental Research (IADR)
- International Team for Implantology (ITI)
- Australian and New Zealand Academy of Periodontists (ANZAP)
- Royal Australasian College of Dental Surgeons (RACDS)
- International College of Dentists (ICD)
- German Society of Periodontology (DGP)
- European Federation of Periodontology (EFP)
- German Society of Dental Implantology (DGZI)

#### Fellowships

- International College of Dentists (ICD)
- International Team for Implantology (ITI)

#### Scientific peer reviews

- Journal of Periodontology
- Clinical Oral Investigations
- Journal of Materials Science: Materials in Medicine

#### Involvement in the Australian Dental Council ADC (accreditation specialist programs)

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|------|---|
| 2014 | Appointed as ADC assessor of the ADC/DC(NZ) for the review of specialist dental practitioner programs             |
| 2015 | Assessment of the DClinDent-Periodontics program of the Griffith University, Queensland                           |
| 2016 | Assessment of the of the DClinDent-Periodontics program of the University of Queensland, Queensland               |
| 2019 | Appointed in the ADC assessment team for the accreditation of the BOH (TAFE) program in Adelaide, South Australia |

Involvement Australian & New Zealand Academy of Periodontists ANZAP

Member of the ANZAP team to establish recommendations to the ADC regarding  
“Essential Competencies for Periodontists”

Membership in Advisory Boards

International Academy of Periodontology IAP: Delegate working group C: Periodontal  
regeneration. World Conclave 31.05 – 01.06.2014, Bangkok, Thailand.

Member of the Scientific Advisory Board of TIGRAN. (Bone regeneration / Peri-implantitis)

Dentsply Research Fund – Judging Panel

## Publications

### *Peer-reviewed Publications*

Ethan Ng, Roy Byun, **Axel Spahr**, Tihana Divnic-Resnik (2018) The efficacy of air polishing devices in supportive periodontal therapy – a systematic review and meta-analysis. Quint Int **accepted for publication**

Memmert S, Nogueira A, Damanaki A, Nokhbehsaim M, Eick S, Divnic-Resnik T, **Spahr A**, Rath-Deschner B, Till A, Götz W, Cirelli JA, Jäger A, Deschner J (2018) Damage-Regulated Autophagy Modulator 1 in Oral Inflammation and Infection. Clin Oral Invest **accepted for publication**

Patterson BM, Dalci O, Papadopoulou AK, Madukuri S, Mahon J, Petocz P, **Spahr A**, Darendeliler A (2017) Effect of piezocision on root resorption associated with orthodontic force: A microcomputed tomography study. Am J Orthod Dentofacial Orthop 151: 53-62.

Divnic-Resnik T, **Spahr A**, O'Neill J (2015) Antiseptic mouthrinses – Recent evidence for clinical use in prevention and treatment of periodontal diseases. Periodontology 33: 5-21.

Bracher AK, Hofmann C, Bornstedt A, Boujraf S, Hell E, Ulrici J, **Spahr A**, Haller B, Rasche V (2011) Feasibility of ultra-short echo time (UTE) magnetic resonance imaging for identification of carious lesions. Magn Reson Med 66:538-545.

Tamburstuen MV, Reseland JE, **Spahr A**, Brookes SJ, Kvalheim G, Slaby I, Snead ML, Lyngstadaas SP (2011) Ameloblastin expression and putative autoregulation in mesenchymal cells suggest a role in early bone formation and repair. Bone 48: 406-413.

Tamburstuen MV, Reppe S, **Spahr A**, Sabertrasekh R, Kvalheim G, Slaby I, Syversen U, Lyngstadaas SP, Reseland JE (2010) Ameloblastin promotes bone growth by enhancing proliferation of progenitor cells and stimulating immunoregulators. Eur J Oral Sci 118: 451-459.

Vymetal J, Slaby I, **Spahr A**, Lyngstadaas SP, Vondrasek J (2008) Bioinformatic analysis and molecular modelling of human Ameloblastin suggest an  $\alpha$ -folded two-domain internally unstructured (IUP) calcium binding protein. Eur J Oral Sci 116:124-134

**Spahr A**, Lyngstadaas SP, Slaby I, Pezeshki G (2006) Ameloblastin expression during craniofacial bone formation in rats. Eur J Oral Sci 114: 504-511

**Spahr A**, Klein E, Khuseyinova N, Boeckh C, Muche R, Kunze M, Rothenbacher D, Pezeshki G, Hoffmeister A, Koenig W (2006) Periodontal infections and coronary heart disease: role of periodontal bacteria and importance of total pathogen burden in the coronary event and periodontal disease (corodont) study. Arch Intern Med 166: 554-559

Nakamura Y, Slaby I, **Spahr A**, Pezeshki G, Matsumoto K, Lyngstadaas SP (2006) Ameloblastin fusion protein enhances pulpal healing and dentin formation in porcine teeth. Calcif Tissue Int 78: 278-284

**Spahr A**, Hägewald S, Tsoulfidou F, Rompola E, Heijl L, Bernimoulin J-P, Ring C, Sander S, Haller B (2005) Coverage of Miller Class I and II recession defects using enamel matrix proteins versus coronally advanced flap technique. A 2-year report. J Periodontol 76: 1871-1880

Berner HS, Lyngstadaas SP, **Spahr A**, Monjo M, Thommesen L, Drevon CA, Syversen U, Reseland JE (2004) Adiponectin and its receptors are expressed in bone-forming cells. Bone 35: 842-849

**Spahr A**, Frehse H, Haller B (2003) Komposithaftung an Inlays und Inserts aus Glaskeramik: Einfluß des Haftvermittlers. Dtsch Zahnärztl Z 58: 83-87

Podbielski A, **Spahr A**, Haller B (2003) Additive antimicrobial activity of calcium hydroxide and chlorhexidine on common endodontic bacterial pathogens. J Endod 29: 340-345

**Spahr A**, Lyngstadaas SP, Slaby I, Haller B, Boeckh C, Tsoulfidou F, Hammarström L (2002) Expression of Amelin and trauma-induced dentin formation. Clin Oral Invest 6: 51-57

**Spahr A**, Lyngstadaas SP, Boeckh C, Andersson C, Podbielski A, Haller B (2002) Effect of the enamel matrix derivative Emdogain on the growth of periodontal pathogens *in vitro*. J Clin Periodontol 29: 62-72

Hägewald S, **Spahr A**, Rempola E, Haller B, Heijl L, Bernimoulin J-P (2002) Comparative study of Emdogain and coronally advanced flap technique in the treatment of human gingival recessions. A prospective controlled clinical study. J Clin Periodontol 29: 35-41

**Spahr A**, Schön F, Haller B (2000) Effect of gingival fluid on marginal adaptation of Class II resin composite restorations *in vitro*. Am J Dent 13: 261-266

Song Q, Lange T, **Spahr A**, Adler G, Bode G (2000) Characteristic distribution pattern of *Helicobacter pylori* in dental plaque and saliva detected with nested PCR. J Med Microbiol 49: 349-353

Song Q, **Spahr A**, Schmid R M, Adler G, Bode G (2000) *Helicobacter pylori* in the oral cavity: high prevalence and great DNA diversity. Dig Dis Sci 45: 2162-2167

**Spahr A**, Hammarström L (1999) Response of dental follicular cells to the exposure of denuded enamel matrix in rat molars. Eur J Oral Sci 107: 360-367

**Spahr A**, Mayer R (1999) Gesamtquecksilberbelastung von beruflich nicht exponierten Personen gemessen im Kopfhaar. Dissertation. Dtsch Zahnärztl Z 54: 451-454

#### *Other Publications*

**Spahr A**, Tsoulfidou F, Boeckh C, Podbielski A, Haller B (1999) Mikrobiologische Testverfahren in der Parodontologie. ZWP - Zahnarzt-Wirtschaft-Praxis 6: 73-80

**Spahr A** (1998) Klinische Anwendung von Emdogain. Ein Leitfaden. ZWR - Das Deutsche Zahnärzteblatt 4: 206-213

Hirsch M, Jöchle W, **Spahr A** (1997) Quecksilbervergiftung durch Merbromin. MMW – Münchner Medizinische Wochenschrift 46: 39-40

**Spahr A**, Haller B (1997) Regenerative Therapieverfahren in der Parodontologie – ein Überblick. 1. Teil: Grundlagen, Transplantate und Implantate. ZMK - Zeitschrift für Zahnheilkunde, Management und Kultur 3: 6-16

**Spahr A**, Haller B (1997) Regenerative Therapieverfahren in der Parodontologie – ein Überblick. 2. Teil: Grundlagen, Gesteuerte Geweberegeneration, Wachstums- und Differenzierungsfaktoren, Schmelzmatrixproteine. ZMK - Zeitschrift für Zahnheilkunde, Management und Kultur 11/12: 6-14

### Chapters in Books

**Spahr A**, Lang H (2010) Parodontalpathogene Bakterien (Periodontal Pathogens). In: Podbielski A, Berger A, Dommerich S, Donat M, Frickmann H, Hampl W, Hermann M, Lang H, Luckhaupt H, Riffelmann M, Sing A, **Spahr A**, Vogel U, Wirsing von Koenig C. MIQ Infektionen des Mundes und der oberen Atemwege, Teil II (Infections of the mouth and the upper respiratory tract, part II). 2<sup>nd</sup> edition. Munich, ELSEVIER, 120-126

Lyngstadaas SP, Ellingsen JE, **Spahr A**, Slaby I (2003) Inducing bone growth using extracellular matrix proteins. In: Ellingsen JE, Lyngstadaas SP. Bio-implant interface. Improving biomaterials and tissue reactions. 1<sup>st</sup> edition. Boca Raton, London, New York, Washington DC. CRC Press LLC, 261-281

### Congress contributions (Abstracts), Scientific Lectures

Obregon-Miano F., Wang Y., Dheghani F., **Spahr A**. Bone Matrix Extract-PEGDA Hydrogel for Regeneration: *In Vivo Study*. International Association of Dental Research IADR, General Session and Exhibition 2018, 22-25.07.2018, London, UK **accepted for presentation**

Shahidi S, Divnic-Resnik T, Badgery-Parker T, **Spahr A**. Efficacy of Subgingival Air-Flow Therapy Using Erythritol Powder in Periodontitis Patients During Supportive Periodontal Therapy. Europerio 9, 20-23.06.2018, Amsterdam, Netherlands

Nova O, Divnic-Resnik T, **Spahr A**. The plaque and gingivitis inhibiting capacity of commercially available mouthwashes: A parallel randomised placebo controlled double-blind clinical study. Europerio 9, 20-23.06.2018, Amsterdam, Netherlands

Madukuri S., Mahon J., Patterson B., Darendeliler A., Badgery-Parker T. and **Spahr A**., Effect of Orthodontic Piezocision on Periodontal Tissues and Parameters. International Association of Dental Research IADR, General Session and Exhibition 2017, 22-25.03.2017, San Francisco, USA

**Spahr A**., Non-surgical therapy – Is there a better way to debride? Australian and New Zealand Academy of Periodontists, 18<sup>th</sup> ANZAP scientific meeting, 08-11.03.2017, Perth, Australia

Vo J., Carey H., Gao J., Ng L., D'Souza M., **Spahr A**. Adjunctive Effect of Photodynamic Therapy in Residual Pockets during SPT? International Association of Dental Research IADR, General Session and Exhibition 2016, 22-25.06.2016, Seoul, Republic of Korea

**Spahr A**., Guenter T, Dreyhaupt J, Meisohle D, Haller B, Kurasch M. Benefits of a Local Antibiotic in Residual Pockets during SPT? International Association of Dental Research IADR, General Session and Exhibition 2015, 11-14.03.2015, Boston, USA

**Spahr A**. Adjunctive Effect of Photodynamic Therapy in Residual Pockets during SPT? International Association of Dental Research IADR, General Session and Exhibition 2014, 25-28.06.2014, Cape Town, South Africa

**Spahr A**. Endo/Perio lesions – pathology, prognosis, treatment. Australian and New Zealand Academy of Periodontists ANZAP one day biennial scientific meeting and AGM 2014, 30.05.2014, Canberra, Australia

**Spahr A**. Clinical Efficacy of Antiseptic Mouthrinses and Local Anti-microbials. Australian Society of Periodontology ASP conference 2014, 20-22.02.2014, Sydney, Australia



**Spahr A.** Periodontal regeneration. Australian Society of Periodontology-South Australia. 14.08.2013, Adelaide, Australia

**Spahr A.** Periodontitis - does it affect my health? & When are implants better than teeth? Periodontal Disease Day - Continuing Education in Dentistry, University of Sydney, 19.07.2013, Sydney, Australia

**Spahr A.** Periodontitis & Peri-implantitis: Who to Blame – Dentist or Patient? Japanese Dental Association, 12.05.2013, Tokyo, Japan.

**Spahr A.** Periodontitis & Peri-implantitis: Who to Blame – Dentist or Patient? Philippine Dental Association, 12.04.2013, Manila, Philippines.

**Spahr A.** Periodontal care and management of the ageing population. 3<sup>rd</sup> annual Dental Health Reform Summit, 25/26.03.2013, Sydney, Australia.

**Spahr A.** Endo/Perio Lesions - are implants the better choice? Eastern Suburbs Dental Group (ESDG), 18.03.2013, Sydney, Australia.

**Spahr A.** Investigation of the role of enamel matrix proteins/peptides in development and regeneration of oral hard tissues. Tohoku Symposium, 18.01.2013, Sydney, Australia.

**Spahr A.** Periodontal Regeneration and the Possibilities for Endodontics. Australian and New Zealand Academy of Endodontists (NSW), 12.12.2012, Sydney, Australia.

**Spahr A.** Basics in Periodontology: Oral Hygiene a Relic of the past? Oral Health Conference of the Western NSW Local Health District - Oral Health Services. 13.-14.11.2012, Dubbo, Australia.

**Spahr A.** Endo/Perio Lesions - are implants the better choice? 3<sup>rd</sup> TransTasman Endodontic Conference, 21.-23.06.2012, Gold Coast, Australia.

**Spahr A.** Does titanium beats nature? - or - Why preserving natural teeth since we have implants these days? Australian Society of Endodontology (NSW), 16.05.2012, Sydney, Australia.

**Spahr A.** Regeneration in Periodontology. Australian Society of Periodontology, 03.05.2012, Sydney, Australia.

**Spahr A.** Emdogain / Enamel Matrix Proteins and their effect on hard- and soft tissues. Congress ITI-International Team for Implantology, 27.-28.04.2012, Cologne, Germany.

**Spahr A.** Periodontal regeneration: current concepts – future prospects? Australian and New Zealand Academy of Periodontists, 15<sup>th</sup> Scientific Meeting, 6.- 9.04.2011, Queenstown, New Zealand.

**Spahr A.** The periodontal profile: infection control and regeneration. 50<sup>th</sup> *Karlsruher Conference*, 2010, Karlsruhe, Germany.

**Spahr A, Molenberg A, Pezeshki G.** PEG-hydrogels, suitable carriers for application of proteins in bony defects? 86<sup>th</sup> *General Session of the International Association of Dental Research*, 2008, Toronto, Canada.

Khuseyinova N, Du W, Baumert J, **Spahr A**, Schneider M, Koenig W. Functional SNPs within the P2X7 gene and measures of periodontitis in patients with stable CHD and healthy controls: The Coronary Event and Periodontal Disease (CORODONT) study. 48<sup>th</sup> Cardiovascular Disease Epidemiology and Prevention Conference, and Nutrition, Physical Activity and Metabolism Conference. 13.03-15.03.2008, Colorado Springs, Colorado, USA. *Circulation* 2008;117:e260 (P236).



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**Spahr A**, Khuseyinova N, Klein E, Boeckh C, Muche R, Rothenbacher D, Hoffmeister A, Koenig W. Periodontal infections and coronary heart disease: role of periodontal bacteria and importance of total pathogen Burden. The coronary event and periodontal disease (CORODONT) study. *World Congress of Cardiology*, 2006, Barcelona, Spain.

**Spahr A**, Khuseyinova N, Klein E, Boeckh C, Muche R, Rothenbacher D, Hoffmeister A, Koenig W. Periodontal infections and coronary heart disease: role of periodontal bacteria and importance of total pathogen burden. The coronary event and periodontal disease (CORODONT) study. *72. Jahrestagung der Deutschen Gesellschaft für Kardiologie – Herz- und Kreislaufforschung*, 2006, Mannheim, Germany.

**Spahr A**, Khuseyinova N, Klein E, Boeckh C, Pezeshki G, Muche R, Hoffmeister A, Kunze M, Rothenbacher D, Koenig W. Periodontal infections and coronary heart disease: role of periodontal bacteria and importance of total pathogen burden. The coronary event and periodontal disease (CORODONT) study. *American Heart Association 2005 Scientific Sessions*, 2005, Dallas, USA.

**Spahr A**, Klein E, Khuseyinova N, Boeckh C, Pezeshki G, Muche R, Kunze M, Rothenbacher D, Hoffmeister A, Koenig W. Parodontitis und koronare Herzkrankheit: eine 1:2 gematchte Fall-Kontrollstudie (Corodont). *Gemeinsame Jahrestagung Deutsche Gesellschaft für Informatik Biometrie und Epidemiologie und der Deutschen Arbeitsgemeinschaft für Epidemiologie*, 2005, Freiburg, Germany.

**Spahr A**, Slaby I, Pezeshki G, Lyngstadaas SP. Ameloblastin expression during craniofacial bone formation in rats. *Enamel VII*, 2005, Boston, USA.

Boeckh C, Ehrlich M, Tsoulfidou F, **Spahr A**. Prävalenz virulenter Genotypen von *P. gingivalis* und *A. actinomycetemcomitans* bei parodontalen Erkrankungen. Pilotstudie. *37. Jahrestagung der Arbeitsgemeinschaft für Grundlagenforschung*, 2005, Mainz, Germany.

**Spahr A**, Klein E, Haller B, König W. Parodontitis, parodontalpathogene Erreger und koronare Herzerkrankung. *37. Jahrestagung der Arbeitsgemeinschaft für Grundlagenforschung*, 2005, Mainz, Germany.

**Spahr A**, Hägewald S, Tsoulfidou F, Heijl L, Bernimoulin J-P, Haller B. Root coverage using enamel matrix proteins versus coronally advanced flap technique. A 2-year report. *82<sup>nd</sup> General Session of the International Association of Dental Research*, 2004, Honolulu, USA.

**Spahr A**, Slaby I, Hammarström L, Haller B, Lyngstadaas SP. Expression of amelin in odontoblasts during experimentally induced reparative dentine formation. *79th General Session of the International Association of Dental Research*, 2001, Chiba, Japan.

**Spahr A**, Hammarström L. Kollagen-RNA-Expression in Zahnfollikelzellen bei Kontakt mit exponierter Schmelzmatrix. *Jahrestagung der Deutschen Gesellschaft für Parodontologie*, 1999, Dresden, Germany.

**Spahr A**, Frehse H, Haller B. Komposithaftung an Inlays und Inserts aus Glaskeramik: Einfluß des Haftvermittlers. *122. Jahrestagung der Deutschen Gesellschaft für Zahn-, Mund- und Kieferheilkunde*, 1998, Bremen, Germany.

**Spahr A**, Schön F, Haller B. Gingival fluid contamination: Effect on enamel margins of class II composites. *76th General Session of the International Association of Dental Research*, 1998, Nice, France.

**Spahr A**, Mayer R. Gesamtquecksilberbelastung von beruflich nicht exponierten Personen gemessen im Kopfhair. *11. Jahrestagung der Deutschen Gesellschaft für Zahnerhaltung e V*, 1997, Freiburg, Germany.

#### Roles in Scientific/Academic Organisations

- |            |  |
|------------|--|
| 2014-2015: | Secretary of the Periodontal Research Group,<br>International Association of Dental Research (IADR)                |
| 2015-2016  | President-elect of the Periodontal Research Group, International<br>Association of Dental Research (IADR)          |
| 2016-2017  | President of the Periodontal Research Group, International<br>Association of Dental Research (IADR)                |
| 2017-2018  | Immediate Past President of the Periodontal Research Group,<br>International Association of Dental Research (IADR) |

#### Established Awards

- |               |   |
|---------------|---|
| Starting 2018 | IADR Periodontal Research Group Award - "Innovative approaches to<br>prevention and non-surgical treatment of periodontal and peri-implant<br>diseases." Supported by E.M.S. Electro Medical Systems S.A. |
|---------------|---|

#### Conference organisation

- |      |  |
|------|--|
| 2018 | Scientific Chairman and organiser of the 1 <sup>st</sup> SUMMER DENTAL CONFERENCE<br>in Sydney |
|------|--|

### **Teaching expertise**

- Extensive experience in teaching at both the predoctoral and postdoctoral levels
- Experience in the use of E-learning tools and strategies

### Postgraduate education, teaching courses

- Numerous courses in presentation techniques, didactics and rhetoric
- Further training courses in E-learning: tools, strategies and development (Moodle)

### Teaching activities at the Universities

2014 – Present

- 60% of all lectures of the Sydney DClinDent-Periodontics postgraduate program (including seminars, tutorials and SIM-clinic sessions)
- Marking of all exam papers and essays of the DClinDent-Periodontics postgraduate program
- Supervisor of all research projects of the DClinDent-Periodontics postgraduate program
- Reviewer of all theses of the of the DClinDent-Periodontics postgraduate program

2010 - Present

- Clinical supervision and clinical teaching of the students of the DClinDent-Periodontics postgraduate program (periodontal surgeries, guided tissue regeneration surgeries, bone augmentation surgeries, mucoplastic surgeries, implant surgeries)

2010 – Present

- 70% of all lectures in Periodontology at the University of Sydney DMD undergraduate program (including seminars, tutorials and SIM-clinic sessions)

1998 – 2010

- All lectures in Periodontology at the University of Ulm (2 main lectures, 2 seminars per week).
- Periodontal treatment courses (2 treatment courses per week, beginners and advanced).
- Hands-on courses in periodontal surgery (4 courses per year).
- Examination of the students (all examinations in periodontology including the final exams).

1994 – 2010

- Toxicity of tooth filling materials (2 lectures per year).

1994-1997

- Responsible for the phantom course (SIM-clinic). Teaching of the first steps in conservative dentistry and periodontology including lectures, practical training courses (using phantom heads) and examinations.

Structural Developments at the University of Sydney – Discipline of Periodontics

2018	Development of the new Units of Study of the DClinDent-Periodontics postgraduate program
2016	Development and publication of 2 comprehensive SIM-clinic Handbooks for DMD1 & 2. Detailed and illustrated instructions of periodontal instrumentation
2015	Preparing and conducting the ADC- re-Accreditation of the DClinDent-Periodontics postgraduate program
2015	Development of the new Curriculum of the DClinDent-Periodontics postgraduate program
2011	Development of the new Curriculum & Units of Study of the DMD Periodontics undergraduate program (transition to the DMD program after termination of the previous BDent program)

Extra mural teaching activities

- Lecturing at the school for dental hygienists.
- Further training for dental assistants for the local dental federation (prophylaxis in dentistry; 1-2 courses per year including lectures, practical training courses and examinations).
- Lectures in periodontology, periodontal surgery and periodontal regeneration for national dental federations as well as for various dental companies in Germany and Europe (15-20 per year).
- Hands-on courses in periodontal surgery and periodontal regeneration for national dental federations as well as for various dental companies in Germany and Europe.
- Specialist training: Master of Sciences in Periodontology. "Institute for Continuing Professional Development in Dentistry, Karlsruhe".
- Lectures and hands-on courses in periodontology, periodontal surgery, periodontal regeneration, and soft tissue plastic surgery at the "Institute for Continuing Professional Development in Dentistry, Karlsruhe" ([http: Lectures and hands-on courses in periodontology, periodontal surgery, periodontal regeneration, and soft tissue plastic surgery //www.za-karlsruhe.de](http://www.za-karlsruhe.de)).
- Lectures and hands-on courses in periodontal regeneration and mucogingival surgery for the "ITI International Team for Implantology" (<http://www.iti.org>).

Evaluation of teaching (by the students):

- Excellent quality (highest level) of all of my teaching activities certified by the annual evaluation.

Dissertation Students (Supervisor for Dissertation):

- Sascha Hartschuh: release of monomers from dental resin composites, measured by HPLC and GC/MS.
- Fotini Lange: reaction of non-dental fibroblasts in contact with freshly exposed enamel matrix.
- Elena Klein: Periodontal infections and coronary heart disease: role of periodontal bacteria and importance of total pathogen burden.
- Tobias Guenther: use of photodynamic therapy (PDT) for reduction of periodontal pathogens in periodontal pockets.
- Manuel Kurasch: use of a new local antibiotic for reduction of periodontal pathogens in periodontal pockets.

Postdoctoral trainees:

- Axel Schubert: Oral Microbiology: Periodontal pathogens, virulence factors, diagnostics.
- Dominik Schilling: Oral Microbiology: Periodontal pathogens and biofilm formation
- Fotini Tsoulfidou: Doctorate: Effect of enamel matrix derivative on non-dental fibroblasts. *In vitro* study in rats
- Elena Klein: Periodontal infections and coronary heart disease: role of periodontal bacteria and importance of total pathogen burden
- Jessica O'Neill: DClindent Periodontics, University of Sydney
- Danny Ho: DClindent Periodontics, University of Sydney
- William Zhang: DClindent Periodontics, University of Sydney
- Robert Fell: DClindent Periodontics, University of Sydney
- Dang Tran: DClindent Periodontics, University of Sydney. Dental patient satisfaction with prosthesis and implant survival rates: A 20-year follow-up study.
- George Tsai: DClindent Periodontics, University of Sydney. Long-term survival of Branemark dental implants.
- Alex Kalos: DClindent Periodontics, University of Sydney.

- Leon Gershenfeld: DClinDent Periodontics, University of Sydney.
- Eugenia Kelloway: DClinDent Periodontics, University of Sydney.  
Comparative study of a genuine resorbable collagen matrix (Mucograft®) with enamel matrix protein and an autogenous subepithelial connective tissue graft in the treatment of human gingival recessions.
- Khai Nguyen: DClinDent Periodontics, University of Sydney.  
The long-term stability of soft and hard tissues surrounding Branemark dental implants.
- Jeremy Vo: DClinDent Periodontics, University of Sydney.  
Adjunct use of Photodynamic Therapy in periodontitis patients with persisting pockets, bleeding onp and ongoing attachment loss.
- Sal Sahidi: DClinDent Periodontics, University of Sydney. Efficacy of subgingival Air Polishing using Erythritol powder in periodontitis patients during supportive periodontal therapy (SPT)
- Olivia Nova: DClinDent Periodontics, University of Sydney.  
The plaque and gingivitis inhibiting capacity of commercially available mouthwashes: A parallel randomized placebo controlled single blind clinical study
- Suman Madukuri: DClinDent Periodontics, University of Sydney.  
The effects of Piezocision on root resorption, tooth movement and bone morphology
- Hugh Lennehan: DClinDent Periodontics, University of Sydney.  
The generation of new alveolar bone height following corticotomy cuts and osseous distraction of implants in the mandible of pigs
- Meredith Owen: DClinDent Periodontics, University of Sydney.  
Adjunctive Systemic Azithromycin versus Amoxycillin and Metronidazole in Non-Surgical Mechanical Therapy of Periodontitis
- Harold K. Pradhan: DClinDent Periodontics, University of Sydney. The use of subgingival Air Polishing using Erythritol Powder in Periodontitis patients during initial therapy (*final year student*)

PhD-students:

- Fabian Obregon Miano "Development of a new bone derived extracellular matrix methacrylate hydrogel, an assisted scaffold for tissue engineering"

Diplomates:

- Angela Schorer: prevalence of specific genotypes of *Porphyromonas gingivalis* and *Aggregatibacter actinomycetemcomitans* in patients with chronic or aggressive periodontitis.

Examination external students

- 2013 External examiner Final Exam DClinDent-Periodontics students University of Melbourne, Victoria, Australia
- 2015 External examiner Final Exam DClinDent-Periodontics students Griffith University, Queensland, Australia
- 2016 External Examiner Final Exam PhD students Department of Biomaterials, University of Oslo, Norway
- 2017 External examiner Final Exam DClinDent-Periodontics students Griffith University, Queensland, Australia
- 2018 **Request:** External Examiner Final Exam PhD students Department of Biomaterials, University Oslo, Norway

**Awards**

2000

- Education-Award of the University of Ulm for extraordinary performance in teaching and education.

2009

- Walther Engel Award. Award of the Dental Academy of Karlsruhe and the dental federation of Baden-Württemberg for extraordinary achievements in dental research and dental education.



### **Administration**

- Extensive experience in administration and management in the healthcare system
- Head of the division of “Periodontology and Oral Biology”, University of Ulm, Germany
- Head of the laboratory of “Molecular Biology and Microbiology”, University of Ulm, Germany
- Head of the laboratory of “Histology and Cell Biology”, University of Ulm, Germany
- Project leader of numerous research projects (EMAB, Matrix, VIPER, CORODONT), University of Ulm, Germany
- Quality management representative (QMR), University of Ulm, Germany
- Member of the board of examiners, University of Ulm, Germany
- Member of the advisory board of study affairs, University of Ulm, Germany
- Member of the committee on the modernisation of the Dental Hospital of the University of Ulm, Germany.
- Head of Dental Hygienists courses, University of Ulm, Germany

### Postgraduate education in administration: Administration at Universities and Hospitals

- *Degree:* Quality management in the healthcare system. Sozial- und Arbeitsmedizinische Akademie Baden-Württemberg eV (SAMA).
- *Degree:* Medical interdisciplinary quality management, Sozial- und Arbeitsmedizinische Akademie Baden-Württemberg eV (SAMA).
- *Degree:* Leadership and management in the healthcare system (strategic planning, business management, controlling, communication, motivation, human resources development, capacity for teamwork). Sozial- und Arbeitsmedizinische Akademie Baden-Württemberg eV (SAMA).



### **Languages**

- German: native speaker
- English: fluent (written and spoken)
- French: intermediate

### **DEVELOPMENTS**

- Development of a new and innovative periosteal for papillas: Raspatorium Spahr (Product Code: PPSPAHR6, Hu-Friedy)  
<http://www.hu-friedy.de/typo3/index.php?id=63&subcat=PES&lang=de&show=all>
- Composition of a set of special instruments for periodontal surgery: Instrumentensatz Parodontalchirurgie (Basis-Instrumentensatz) Hu-Friedy.
- Composition of a set of special instruments for periodontal microsurgery: Instrumentensatz GTR/GBR (Mikrochirurgie) Hu-Friedy.
- Development of a new molecular biological test for periodontal pathogens: RTP PARO-Test 5 (Real time quantitative PCR). The test is commercially available at the Department of Conservative Dentistry and Periodontology, University of Ulm, Ulm, Germany. It is used for the detection of periodontal pathogens in patients of the university hospital and is sold to dentists in private practice, thus generating further income for the department (more than 100,000.00 € / 167,601.00 AUD per year).

### **HOBBIES**

- Different kinds of sports (Stand-Up Paddling, Surfing, Skiing, Biking, Gym)
- Nature
- Music
- Reading