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Curriculum Vitae

NAME: Christine Knabe-Ducheyne, DMD, Prof. Dr. med. dent.

OFFICE : Department of Experimental Orofacial Medicine
Philipps University Marburg
School of Dental Medicine
3 Georg-Voigt-Str.
D-35039 Marburg, Germany

Direct Dial: 49-6421 58 6-36 00
Fax: 49-6421 58 6-36 06
E-mail: knabec@med.uni-marburg.de
URL: http://www.uni-marburg.de/fb20/experioromed

PERSONAL: Place of Birth: Berlin, Germany

EDUCATION:

1982	Secondary school: Latin humanities, Berlin, Germany, Gymnasium Steglitz
1988	DDS, Georg August University, Göttingen, Germany
1990	Doctor's degree (Dr. med. dent.), Institute of Pathology (Prof. Dr. U. Gross), University Hospital Steglitz, Free University of Berlin, Berlin, Germany Thesis: „Tissue response of the marginal skin around percutaneous devices."
1991-1992	Resident on a fellowship sponsored by the German Research Foundation Dept. of Oral Surgery and Periodontology and Special Research Centre for Implant Dentistry (SFB 175), Dental School, Eberhard-Karls-University Tübingen, Germany
1993	Visiting Scientist at the Centre for Biomaterials, University of Toronto, Canada (Head: Prof. Dr. J. E. Davies)
1994	Visiting Clinical Fellow at the Department of Fixed Prosthodontics, University of Geneva, Geneva, Switzerland (Head: Prof. Dr. U. Belser)
1995	Visiting Scientist, Bone Biomaterial Unit (Head: Prof. Dr. C. R. Howlett), Bone Biomaterial Unit, School of Pathology, University of New South Wales, Sydney, Australia
2005	Habilitation degree (Privat-Dozent, Venia legendi for Dentistry and Oral Medicine), Charité University Medical Center Berlin, Berlin, Germany

POSITIONS HELD:

1989-1990	Associate dentist in private practice in Berlin, Germany
1990-1991	Associate dentist in private practice in Hannover, Germany
1992-1996	Lecturer, Department of Prosthetic Dentistry II, University Hospital Benjamin Franklin, Free University of Berlin, Berlin, Germany (Head: Prof. Dr. G. K. Siebert)
1996-1997	Lecturer, clinical instructor, Department of Restorative Dentistry and Periodontology, Division of Periodontology, University Hospital Benjamin Franklin, Free University of Berlin, Berlin, Germany
1997-2005	Senior lecturer, Assistant Professor, Department of Experimental Dentistry (Research Division Dental Materials and Biomaterials), University Hospital Benjamin Franklin, Free University of Berlin, Berlin, Germany (Head: Prof. Dr. R. J. Radlanski)
1999-2000	Honorary Visiting Fellow at the Bone Biomaterial Unit (head: Prof. C. R. Howlett), School of Pathology, University of New South Wales, Sydney, Australia
2005-2010	Privat-Dozent (Associate Professor), Department of Experimental Dentistry (Research Division of Dental Materials and Biomaterials), Campus Benjamin Franklin, Charité University Medical Center Berlin, Berlin, Germany

02/2007-	Visiting Associate Professor Division of Orthopaedic Research, Thomas Jefferson University, Philadelphia, USA (Director: Prof. I. M. Shapiro)
01/2009-2011	Visiting Scholar University of Pennsylvania, Dept. of Bioengineering
January 2011-	University Professor (W3) of Experimental Orofacial Medicine, Philipps-University, Marburg, Germany

HONOURS:

May 2010	Offer University W2-Professor of Experimental Dentistry and Prosthodontics, Technical University Dresden, Dresden, Germany
October 2016	28th Annual Meeting of the International Society for Ceramics in Medicine 2016 ISCM-Excellence award in recognition of Outstanding Service to the Field of Bioceramics
September 2020	BIH Visiting Professor, Charité Foundation, Charité University Medical Center Berlin
September 2022	Member of the Executive Committee of the ISCM (International Society for Ceramics in Medicine)

MEMBERSHIPS IN SCIENTIFIC AND PROFESSIONAL SOCIETIES:

Society for Biomaterials, U.S.A
German Society for Biomaterials
German Society for Oral Implantology (DGI – Deutsche Gesellschaft für Implantologie)
German Society for Prosthodontics and Dental Materials (DGZPW - Deutsche Gesellschaft für Zahnärztliche Prothetik und Werkstoffkunde)
German Society of Dentistry and Oral Medicine (Deutsche Gesellschaft für Zahn-, Mund- und Kieferheilkunde DGZMK)
German Dental Association

RESEARCH EXPERIENCE AND DIRECTION:

- Bone tissue engineering for craniomaxillofacial and orthopedic applications
- In vitro and in vivo studies of the molecular mechanisms of bone tissue - biomaterial interfacial reactions with focus on osteogenesis and angiogenesis
- Preclinical large animal studies dealing with bone regeneration and repair
- Clinical studies on bone regeneration including histological analysis of biopsies
- osteoblast cell cultures, 3D perfusion cell culture in 3D printed scaffolds
- calcium phosphate-based bone grafting materials
- dental & orthopedic implant surfaces, calcium phosphate coatings
- rapidly resorbable bone substitutes
- calcium phosphate-based bone substitute cements
- three-dimensional printed scaffolds for bone tissue engineering
- preclinical studies on the prevention of infection in the treatment of fractures
- Biomaterials with controlled release of antibiotics, bactericides, growth factors, analgesics and osteoclast inhibitors
- Biomaterials for fracture fixation with controlled release of antibiotics and bactericides
- immunohistochemical detection of osteogenic, angiogenic, inflammatory and bacterial markers in undecalcified resin embedded sections of bone
- characterization of cell adhesion and intracellular signal transduction mechanisms of osteoblasts cultured on bioactive bone grafting materials
- in vitro and in vivo studies of percutaneous devices
- growth factor expression in distraction osteogenesis
- ceramo-metal titanium restorations
- implant-supported titanium prostheses

- Clinical studies on the effect of bone grafting materials as well as host factors on craniofacial bone regeneration including histologic and immunohistochemical analysis of biomaterial containing biopsies.
- Evaluation of inflammatory and immunological aspects of the host tissue response to urethral bulking agents as well as polymeric biomaterials.
- Biological evaluation of antibacterial and anti-inflammatory zirconia dental implant surfaces

TEACHING EXPERIENCE:

- Introduction to Prosthodontics, Lecture, DDS program,1st year (5 hours per semester)
- Prosthodontics, Lecture II, DDS program, 3rd year (5 hours per semester)
- Mandibular Movements and Functional Occlusion Seminar, DDS program, 3rd year (5 hours per semester)
- Periodontics Lecture, DDS program, 3rd year, (6 hours per semester)
- Periodontology Treatment Planning and Diagnosis Seminar, DDS program, 5th year (9 hours per semester)
- Periodontics Seminar, DDS program, 5th year, (18 hours per semester)
- Dental Materials Lecture I, DDS program, 1st year (5 hours per semester)
- Oral Biology and Biomaterials Lecture II, DDS program, 3rd year (6 hours per semester)
- Seminar for doctoral students: Design and analysis in research (6 hours per semester)
- Prosthodontics Laboratory I , DDS program, 1st year (195 hours per semester)
- Prosthodontics Laboratory II (Complete Dentures), DDS program, 2nd year (90 hours per semester)
- Prosthodontics Laboratory III (Fixed Prosthetics), DDS program, 3rd year (160 hours per semester)
- Periodontics Clinic I, DDS program, 3rd year (52 hours per semester)
- Periodontics Clinic II, DDS program, 5th year (52 hours per semester)
- Oral Surgery Clinic I, DDS program, 4th year (26 hours per semester)
- Oral Biology and Biomaterials Laboratory, DDS program, 3rd year (36 hours per semester)
- Implant Prosthodontics using the ITI system, postdoctoral level (weekend course)
- Biomaterials in Implant Dentistry, postdoctoral education in implant dentistry curriculum, 1st year
- Tissue Integration of Dental Implants: Histology of physiological and pathological reactions, postdoctoral education in implant dentistry curriculum, 1st year
- Implant Surfaces and Immediate Loading, postdoctoral education in implant dentistry curriculum, 2nd year
- Bone substitute materials and tissue regeneration techniques in implant dentistry, postdoctoral education in implant dentistry curriculum, 2nd year

GRANT SUPPORT:

- German Research Foundation (KN 377/2-1), P.I.: Dr. C. Knabe, Free University of Berlin, February 1999, 1 year, $35,000, In vitro investigation of novel calcium phosphate bone substitutes and endosseous implant materials using osteogenic cultures and in situ hybridization.
- Corporate Sponsor (Friadent), $3,500, June 2000, In vitro investigation of titanium and hydroxyapatite dental implant surfaces using a rat bone marrow stromal cell culture system.
- Corporate Sponsor (Altatec), $5,000, May 2000, Growth factor expression and implant integration following intra-alveolar distraction osteogenesis.
- Society for Innovative Dentistry, $14,000, 2000, cell culture laboratory equipment.
- Medical Research Council, Free University of Berlin, $50,000, December 2001, Mechanical testing of dental materials.
- Corporate Sponsor (Harvard), $1,050, February 2002, Biocompatibility testing of novel zinc phosphate cements.
- European Community Research Grant, group grant, Prof. H. Schubert, Prof. U. Gross, Dr. C. Knabe, Prof. R.J. Radlanski, - 125.964 Euro, September 2002, Foundation of collaborative research network “Bioactive surfaces”
- NHMRC (National Health and Medical Research Council, Australia), $60,000 AUD, December 2002, 2 years, In vivo testing of novel resorbable and non-resorbable bioactive calcium phosphate coatings - plasma-sprayed on titanium implants - in the sheep femur. (PI: H. Zreiqat)
- German Academic Exchange Service, $6,000, January 2003, 4 months research fellowship – Dr. Zreiqat (Dept. of Pathology, UNSW, Sydney Australia), Mechanisms of Tissue Interaction with Dental and Orthopaedic Implants.

- Presidency of the Free University of Berlin, $1,600, August 2003, 3 months, Characterization of cell adhesion and intracellular signal transduction mechanisms of osteoblasts grown on surface modified titanium implant materials.
- German Research Foundation, group grant: Dr. W. Oesterle, Federal Institute for Materials Research and Testing, Dr. C. Knabe, Prof. Dr. U Gross, Free University of Berlin. 58,300 Euro, December 2003, 18 months. Tribological and biological evaluation of wear particles from different metal-ceramic sytems for THR (total hip replacement) endoprotheses.
- German Research Foundation (KN 377/3-1): P.I.: Dr. C. Knabe, Free University of Berlin, May 2004 172,933 Euro, 34 months. "Effect of rapidly resorbable bone substitute materials on osteoblast differentiation *in vivo*." Dr. G. Berger, Federal Institute for Materials Research and Testing, 66.148 Euro, 24 months.
- German Research Foundation (KN 377/4-2):, group grant: P.I.: Dr. W. Oesterle, Federal Institute for Materials Research and Testing, P.I.: Priv.-Doz. Dr. C. Knabe, Prof. Dr. U Gross, Charité Univerity Medical Center - Berlin. 88,035 Euro, February 2006, 12 months. Tribological and biological evaluation of wear particles from different metal-ceramic sytems for THR (total hip replacement) endoprotheses.
- Osteology Foundation Grant: P.I.: Priv.-Doz. Dr. C. Knabe, Charité University Medical Center - Berlin. $56,388 (USD), March 2006, 42 months. Cell adhesion and intracellular signal transduction events leading to stimulation of osteogenesis by bioactive bone substitute materials for implant dentistry. (Only 2 out of 49 applications were granted in this funding cycle).
- German Research Foundation (KN 377/5-1) research fellowship, P.I.: Priv.-Doz. Dr. C. Knabe, 43,966,- Euro, August 2006, 36 months: “Solution mediated surface reactions of bioactive rapidly resorbable bone substitute materials and their effect on osteoblastic cell adhesion, intracellular signal transduction mechanisms and apoptosis.”
- European Community Research Grant (EFRE), PI: Priv.-Doz. Dr. C. Knabe, Priv.-Doz. Dr. Müller-Mai, Priv.-Doz. Dr. Dr. Stiller, awarded January 2006, 183,839 Euro, 20 months-effective, February 2007. “Development of resorbable calcium phosphate cements for their application in implant dentistry, maxillofacial surgery and traumatology - effect of these cements on osteoblast differentiation and bone formation in vivo.”
- Corporate Sponsor (Curasan), 5,000 Euro, April 2007, 36 months "Effect of rapidly resorbable bone substitute materials on bone formation and osteoblast differentiation *in vivo*."
- DoD (Department of Defense, USA), AFIRM - Armed Forces Institute for Regenerative Medicine, group grant: Rutgers U (Prof. J. Kohn, Dr. D. Devore), MIT (Prof. R. Langer u.a.), Harvard, Dartmouth U (Prof. Dr. J. Rosen), University of Pennsylvania (Prof. P. Ducheyne), SUNY Stony Brook, Cleveland Clinic (Dr. G. Muschler), Carnegie Mellon U (Prof. J. Hollinger), Vanderbilt U, Mayo Clinic (Prof. M. Yaszemski), Co-PI: PD Dr. C. Knabe, awarded March 2008, $18,000, effective March 2008 (14 months). “Near and Longer-term Therapies for the Sequelae of Compartment Syndrome.”
- Federal Ministry for Research and Technology grant (Germany), PIs: Priv.-Doz. Dr. Müller-Mai, Priv.-Doz. Dr. C. Knabe, awarded April 2008, 185,000 Euro, effective, April 2009 (24 months). “BioMin - Biofunctionalized calcium phosphate surfaces: Adsorption mechanisms of bone morphogenetic proteins to the surfaces of calcium phosphate bone grafting materials.”
- Mathys Foundation grant, PIs: Priv.-Doz. Dr. Dr. Stiller, Priv.-Doz. Dr. C. Knabe, 19,000 Euro, September 2008 (60 months), “The effect of hormone status on bone regeneration after sinus floor augmentation with porous tricalcium phosphate particles.”
- Corporate Sponsor (BLS Preclinical Services), PIs: Priv.-Doz. Dr. C. Knabe, Priv.-Doz. Dr. Ch. Große-Siestrup, awarded January 2009, 23,500 Euro, effective, April 2009 (24 months). "Effect of porous polymer scaffolds seeded with bone marrow stromal cells on osteoblast differentiation and bone regeneration *in vivo*."
- European Community Research Grant (MOZET), PIs: Priv.-Doz. Dr. C. Knabe, Priv.-Doz. Dr. Dr. Stiller, awarded January 2009, 248,839 Euro, effective, April 2009 (33 months). “Development of moldable calcium phosphate bone substitute cements with tailored biodegradability: effect of these cements on osteogenesis and bone formation in vivo after augmentation of contour defects.”
- University Science Center QED program, University of Pennsylvania, awarded October 2009, $100,000, effective, October 15 2009 (12 months). “Nanostructured bactericidal sol sol-gel thin films on percutaneous orthopaedic external fixator pins.”, P.I. Prof. Paul Ducheyne, Dept. of Bioengineering, University of Pennsylvania, Co-PIs. Dr. Jonathan Garino, Dept. of Orthopaedic Surgery, University of Pennsylvania, PD Dr. Christine Knabe.
- Corporate Sponsor (Curasan), 44,520 Euro, January 2010, 24 months "Effect of calcium phosphate-based bone substitute materials on osteogenesis *in vivo*."
- German Research Foundation (KN 377/8-1): P.I.: Prof. Dr. C. Knabe, Philipps University Marburg, July 2012 307,737 Euro, 48 months. "Rapidly resorbable calcium alkali orthophosphate scaffolds for bone

tissue engineering." & Dr. G. Berger, P. I. Federal Institute for Materials Research and Testing, 171,700 Euro, 48 months.

- Corporate Sponsor (Curasan), 41,400 Euro, April 2012, 48 months. PI: Prof. Dr. Knabe. "Effect of tricalcium phosphate-collagen composite bone grafting materials on osteogenesis *in vivo*."
- Corporate Sponsor (BLS Preclinical Services), PIs: Prof. Dr. Knabe, Priv.-Doz. Dr. Ch. Große-Siestrup, 21,500 Euro, effective, January 2011 (24 months). "Effect of silk-based periodontal membranes on guided bone regeneration".
- Federal Ministry for Research and Technology grant (Germany), PIs: Priv.-Doz. Dr. Müller-Mai, Prof. Dr. Knabe, 20,375 Euro, effective April 2011, (24 months). "BioMin II - Biofunctionalized tricalcium phosphate surfaces: Adsorption mechanisms of bone morphogenetic proteins to the surfaces of calcium phosphate bone grafting materials." Part IV Histologic evaluation.
- Federal Ministry for Research and Technology grant (Germany), PIs: Priv.-Doz. Dr. Müller-Mai, Prof. Dr. Knabe, awarded September 2011, 40,188 Euro, effective, September 2012 (48 months). "BioMimetic Bone II - Biofunctionalized calcium phosphate scaffolds for fracture repair - Histologic evaluation.
- Mathys Foundation grant, PIs: Prof. Dr. Knabe, Priv.-Doz. Dr. Dr. Stiller, 6,000 Euro, September 2012 (24 months), "The effect of "The effect of tricalcium phosphate ceramic particles and a tricalcium phosphate hyaluronic acid-based putty bone grafting material on bone regeneration after sinus floor augmentation using a split mouth design."
- Corporate Sponsor (Zimmer), 8,012 Euro, April 2014, 24 months. PIs: Prof. Dr. Knabe, PD Dr. Dr. Stiller. "Effect of a silica containing calcium alkali orthophosphate ceramic as compared to silicon doped tricalcium phosphate on bone formation and osteogenic marker expression after sinus floor augmentation in humans."
- Applied Research and Technology Development Award (ARATDA), Defense Medical Research and Development Program (DMRDP), DoD, Infected Fractures - Treatment and Mitigation of Biofilm Formation, March 1, 2011, 5 years, $1,452,250 (total cost) P.I. : P. Ducheyne, Co-investigator: C. Knabe.
- Corporate Sponsor (Curasan), 28,450 Euro, December 2015, 60 months. PIs: Prof. Dr. Knabe, PD Dr. Dr. Stiller. "Effect of a silica containing calcium alkali orthophosphate ceramic as compared to tricalcium phosphate on bone formation and osteogenic marker expression in vivo."
- Channel system Egyptian Government February 2015, effective May 2015, 24 months scholarship support for Ph.D. Student Dooa Adel Khattab (MSc.)
- August 2017, Libyan government, 24 months scholarship support (effective January 2018) for Ph.D. student Hana Ensir (MSc.).
- Corporate Sponsor (Botiss), 7.000 Euro, January 2018, 12 months. PI: Prof. Dr. Knabe "Histologic characterization of the effect of a tricalciumphosphate/hydroxyapatite collagen biomaterial on macrophage polarization in vivo.
- October 2018 Erasmus plus program with Ain Shams University Cairo, Dept. of Periodontology.12 months Research Fellowship Mohamed Rezk (MSc.).
- August 2019 German Academic Exchange Service 48 months scholarship support (effective October 2019) for Ph.D. student Mohamed Rezk (MSc.).
- April 2020, Federal Ministry for Research and Technology group grant (Germany), PIs: Prof. Dr. A Dörner Reisel, Dr. J. Moje, Prof. Dr. Knabe, Prof. Dr. U. Ritter, Dr. M. Mallah, awarded April 2020, 270,000 Euro (Prof. Dr. Knabe, Philipps University), effective, May 2020 (48 months). "Full-micro-patt. Micro-textured zirconia dental implant surfaces with fullerene functionalization (Contract grant No. 13GW0401) Biological characterization of the osteogenic, antibacterial and anti-inflammatory properties of micro-textured zirconia dental implant surfaces with fullerene functionalization." German-Chinese Collaboration in the Field of Biomaterials. *(Deutsch-Chinesische Kooperationen in industriegeführten Verbundprojekten nach dem 2+2-Modell im Bereich Biomaterialien Teilvorhaben: Biologische Charakterisierung der osteogenen, antibakteriellen und antiinflammatorischen Eigenschaften der mit Fullerenen funktionalisierten Zirkonoxiddentalimplantatoberflächen.")*
- September 2020 Charité Foundation, 66.000 Euro (36 months) minipig pilot study, bone tissue engineering for reconstruction of segmental mandibular defects utilizing 3D printed bioceramic scaffolds, perfusion culture of mesenchymal stem cells prior to in vivo implantation in combination with a microvascular approach, and initiation of multicenter study entitled: Effect of obesity and type II diabetes on craniofacial bone regeneration entailing immunohistochemical characterization of osteogenesis and angiogenesis in human biopsies.

EDITORIAL ACTIVITY:

- Guest Editor Journal of Functional Biomaterials, MDPI AG, Basel, Switzerland, special issue on "Biodegradable Scaffolds", July 2017
- Editorial Board “Bioengineering,” MDPI Publishers, Basel, Switzerland

PEER REVIEW ACTIVITY:

A Research Programs

- German Research Foundation (DFG)
- German Federal Ministry for Research and Education (BMBF)
- German Israeli Foundation for Scientific Research & Development
- International Scientific Advisory Committee: 19th International Symposium on Ceramics in Medicine, the 2006 Annual Meeting of the International Society for Ceramics in Medicine (ISCM)
- Organizing Committee: 26th and 28th International Symposium on Ceramics in Medicine, the 2014 and 2016 Annual Meeting of the International Society for Ceramics in Medicine (ISCM)

B Journals

- Biomaterials, Elsevier, Oxford, England (IF: 10.273)
- Journal of Biomedical Materials Research Part A, Wiley, USA (IF: 2.743)
- Journal of Biomedical Materials Research Part B – Applied Biomaterials, Wiley, USA (IF 3.373)
- Acta Biomaterialia, Elsevier, Oxford, England (IF: 8.319)
- The International Journal of Oral & Maxillofacial Implants, Quintessence, U.S.A. (IF: 1.705)
- Clinical Oral Implants Research, Wiley, UK.
- „Journal of Materials Science. Materials in Medicine“, Springer, Berlin, New York, Tokyo, (IF: 1.58)
- Tissue Engineering”, Mary Ann Liebert, Inc. Publishers, New Rochelle, NY, USA (IF: 4.699)
- International Journal of Nanomedicine, Dove Medical Press Ltd, Macclesfield, UK
- Histology and Histopathology, Blackwell Publishing Ltd, UK (IF: 2.182)
- “Journal of the American Ceramic Society”, Wiley, Hoboken, New Jersey, USA (IF: 1.396)
- Journal of the Royal Society Interface (IF: 3.3002)

CONSULTANCY ACTIVITY:

- Curasan Inc., Frankfurt, Germany
- BLS Preclinical Services, Berlin, Germany
- Zimmer Inc. (Zimmer Dental), Carlsbad, CA.
- Friadent GmbH/ DENTSPLY International Inc., Mannheim, Germany

PUBLISHED PAPERS – REFEREED JOURNALS:

1. C. Knabe, C. Große-Siestrup, H. Becker, A. Pustelnik, G. Gahl. „A new method to evaluate the CAPD-catheter-exit and other percutaneous devices,“ Int. J. Artif. Organs 1991; 14: 83-6.
2. C. Knabe. „The use of an electronic probe for recording periimplant pocket depth. Part I,“ „Zur Messung der periimplantären Sulkustiefe mit einer elektronischen Parodontalsonde - Vorläufige Mitteilung“ „Deutsche Zahnärztliche Zeitschrift“ German Dental Journal 1997; 52: 33-35.
3. C. Knabe, K. U. Schendel, G. K. Siebert. „Rehabilitation of patients with craniomandibular disorders using implant-supported titanium prostheses- A clinical concept. „Rehabilitation des funktionsgestörten Patienten mit implantatgetragenem Zahnersatz aus Titan - Ein klinisches Konzept „Zeitschrift für Zahnärztliche Implantologie“ German Journal of Oral Implantology 1997; 13: 27-38.
4. C. Knabe, K.U. Schendel, “The use of implant-supported titanium prostheses for treatment of periodontally compromised patients including functional and orthodontic therapy - A report of two cases.” Clinical Oral Implants Research 1997; 8: 332-338.
5. C. Knabe. “The use of an electronic probe for recording periimplant pockt depth. Part II.” “Einsatz einer computergesteuerten Parodontalsonde zur Messung der periimplantären Sulkustiefe - Erster Erfahrungsbericht.” Zahnärztliche Welt Reform 1998; Nr. 1/2, 14-19.
6. C. Knabe, P. Kram. “Dental care for institutionalized geriatric patients in Germany.” Journal of Oral Rehabilitation 1997; 24: 909-912.

7. C. Knabe, C. Große-Siestrup, A. Hunder, A. Ziemann. “A computer assisted in vitro biomaterial test for percutaneous devices using human keratinocyte-cultures.” Journal of Material Science. Materials in Medicine 8 (1997) 577-582.
8. C. Knabe, W. Ostapowicz, R. Radlanski, R. Gildenhaar, G. Berger, R. Fitzner, U. Gross. “Morphological evaluation of osteoblasts cultured on different calcium phosphates.” Biomaterials 18 (1997), 1112-1120.
9. C. Knabe, B. Hoffmeister. “The use of implant-supported ceramo-metal titanium prostheses for restorative treatment following sinus-lift and augmentation procedures.” International Journal of Oral & Maxillofacial Implants 13 (1998), 102-108.
10. C. Knabe, R. Gildenhaar, G. Berger, W. Ostapowicz, R. Fitzner, R. Radlanski, U. Gross. “In vitro investigation of novel calcium phosphates using osteogenic cultures.” Journal of Materials Science. Materials in Medicine 9, Number 6 (1998), 337-345 (Front cover photograph).
11. C. Knabe, C. Grosse-Siestrup, U. Gross. “Histologic evaluation of a natural permanent percutaneous structure and clinical percutaneous devices.” Biomaterials. 1999; 20(6):503-10.
12. C. Knabe, F.C.M. Driessens, J.A. Planell, R. Gildenhaar, G. Berger, D. Reif, R. Fitzner, R.J. Radlanski, U. Gross. “Evaluation of calcium phosphates and experimental calcium phosphate bone cements using osteogenic cultures.” J Biomed Mater Res. 2000;52(3):498-508.
13. A. Moormann, L. Wehnert, W.B. Freesmeyer, C. Knabe, R.J. Radlanski. “Bond strength of titanium-ceramic bonding after thermocyling: the effect of cycling frequency.” “Haftfestigkeitsverhalten des konventionellen Titan-Keramik-Verbunds in Abhängigkeit von der Anzahl der Temperaturwechseln im Thermocyclingverfahren”, German Dental Journal „Dtsch Zahnärztl Z“ 55 (2000) 34-37.
14. C. Knabe, F. Klar, R. Fitzner, R.J. Radlanski, U. Gross. “In vitro investigation of titanium and hydroxyapatite dental implant surfaces using osteogenic cultures.” Biomaterials, 2002,23(15):3235-45.
15. H. Zreiqat, C.R. Howlett , A. Zannettino, P. Evans, G. Schulze-Tanzil, C. Knabe, M. Shakibaei. “Mechanisms of magnesium-stimulated adhesion of osteoblastic cells to commonly used orthopaedic implants.” J Biomed Mater Res. 2002 Nov. 62(2):175-84.
16. C. Knabe, B. Hoffmeister. “Implant-supported titanium prostheses following augmentation procedures. A clinical report.” Australian Dental Journal 2003, 48: 55-60.
17. C. Knabe, G. Berger, R. Gildenhaar, C.R. Howlett, B. Markovic, H. Zreiqat. “The Functional Expression of Human Bone-derived Cells Grown on Rapidly Resorbable Calcium Phosphate Ceramics.” Biomaterials 2004, 25;335-344.
18. C. Knabe, G. Berger, R. Gildenhaar, J. Meyer, C.R. Howlett, B. Markovic, H. Zreiqat. “The Effect of Rapidly Resorbable Calcium Phosphates and a Calcium Phosphate Bone Cement on the Expression of Bone-Related Genes and Proteins in vitro.” J Biomed Mater Res 2004;69A:145-154.
19. C. Knabe, G. Berger, R. Gildenhaar, F. Klar, H. Zreiqat. The Modulation of Osteogenesis in Vitro by Calcium Titanium Phosphate Coatings. Biomaterials 2004, Special Issue: 7th World Biomaterials Congress (invited publication): Biomaterials 2004;25:4911-4919.
20. M. Vogel, Ch. Voigt, C. Knabe, R.J. Radlanski, U.M. Gross, C.M. Müller-Mai. “The role of multinuclear giant cells in the degradation of Bioglass particles in rabbits.” J Biomed Mater Res. 2004;70A:370-379.
21. C. Knabe, C.R. Howlett, F. Klar, H. Zreiqat.“ The effect of different titanium and hydroxyapatite-coated dental implant surfaces on phenotypic expression of human bone-derived cells” J Biomed Mater Res. 2004;71A: 98–107.
22. C. Knabe, M. Stiller, G. Berger, D. Reif, R. Gildenhaar, C.R. Howlett, H. Zreiqat. “The Effect of Bioactive Glass Ceramics on the Expression of Bone-Related Genes and Proteins in vitro.” Clinical Oral Implants Research 2005;16:119-27.
23. H. Zreiqat, S.M Valenzuela, B.B. Ben Nissan, R. Roest, C. Knabe, R.J. Radlanski, H. Renz, P.J. Evans. “The effect of surface chemistry modification of titanium alloy on signalling pathways in human osteoblasts.” Biomaterials 2005;26:7579-86.
24. C. Knabe, S. Nicklin, W. Yan, W.R. Walsh, R.J. Radlanski, U. Gross, B. Hoffmeister. “Growth Factor Expression Following Clinical Mandibular Distraction Osteogenesis in Humans and its comparison with existing animal studies.” J Craniomaxillofac Surg. 2005;33:361-369.
25. C. Knabe, B. Kraska, Ch. Koch, U. Gross, H. Zreiqat, M. Stiller. „A novel method for immunohistochemical detection of osteogenic markers in undecalcified sawed sections of bone.” Biotech Histochem 2006, 81:31-39.
26. R. Zehbe, U. Gross. C. Knabe, R.J. Radlanski, H. Schubert. „ Anodic cell-protein deposition on inverse inkjet printed micro structured gold surfaces.” Biosens Bioelectron 2007;22:1493-500.
27. R. Gildenhaar, G. Berger, E. Lehmann, M. Stiller, Ch. Koch, P. Ducheyne, A. Rack, H. Seligmann, S. Jonscher, C. Knabe. “A comparative study of the biogradability of calcium-alkali-orthophosphate ceramics in vitro and in vivo.” Key Engineering Materials 2007;330-332:63-66.
28. C. Knabe, A. Houshmand, G. Berger, P. Ducheyne, R. Gildenhaar, M. Stiller. “Effect of rapidly resorbable bone substitute materials on the temporal expression of the osteoblastic phenotype in vitro.” J Biomed Mater Res A. 2008 Mar 15;84(4):856-68.

29. W. Österle, D. Klaffke, M. Griepentrog, U. Gross, I. Kranz, Ch. Knabe. „ Potential of wear resistant coatings on Ti–6Al–4V for artificial hip joint bearing surfaces.“ Wear 2008;264:505–517.
30. R. Gildenhaar, G. Berger, E. Lehmann, C. Knabe. Development of Alkali Containing Calcium Phosphate Cements. Key Engineering Materials 2008;361-363:331-334.
31. C. Knabe, Ch. Koch, A. Rack, M. Stiller. Effect of β-tricalcium phosphate particles with varying porosity on osteogenesis after sinus floor augmentation in humans. Biomaterials 2008 May;29(14):2249-2258.
32. D. Jörn D, R. Gildenhaar, G. Berger, M. Stiller, C. Knabe. Behaviour of calcium alkali orthophosphate cements under simulated implantation conditions. Key Engineering Materials 2009, Volumes 396 – 398, p 213-216.
33. M. Stiller, A. Rack, S. Zabler, J. Goebbels, O. Dalügge, S. Jonscher, C. Knabe. Quantification of bone tissue regeneration employing β-tricalcium phosphate by three-dimensional non-invasive synchrotron micro-tomography – a comparative examination with histomorphometry” Bone 2009; 44:619-628.
34. Rack A, Stiller M, Dalügge O, Knabe C. Quantitative Evaluation of Histomorphometry. Imaging & Microscopy 2009; 11:32-34.
35. Gemeinert M, Dörfel I, Griepentrog M, Gross U, Klaffke D, Knabe C, Kranz I, Oesterle W. Biological Response to Micron- and Nanometer-sized Particles Known as Potential Wear Products from Artificial Hip Joints Part 1: Selection and Characterization of Model Particles. J Biomed Mater Res A. 2009; 89:379-389.
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4. **Knabe C**, Ducheyne P. Bioactivity – mechanisms. In: "Comprehensive Biomaterials", Volume 1, Chapter 1.114. P. Ducheyne, K. Healy, D. Hutmacher, D.W. Grainger, J.P. Kirkpatrick, editors. Elsevier, Oxford, UK, 2011, p. 245-258.
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10. **Knabe C**, Adel-Khattab D, Müller-Mai, Ch. Chapter 4.1 Biological performance of biomaterials and biomedical devices. In: Heimann RP, editor. Materials for Medical Applications, De Gruyter Berlin, Boston, Beijing 2020.

REFEREED CONFERENCE PROCEEDINGS:

1. C. Knabe, R. Gildenhaar, G. Berger, W. Ostapowicz, R. Fitzner, R., R.J. Radlanski, G.K. Siebert, U. Gross. „In vitro investigation of novel calcium phosphate ceramics using osteoblast cultures." „Untersuchung unterschiedlicher Kalziumphosphatkeramiken unter Verwendung von Osteoblastenkulturen" In: Biomedical Engineering, U. Boenick, M. Schaldach, eds., Schiele&Schoen, Berlin 1995, Vol. 40, Suppl. 1, p.135-136.
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8. A. Rack, S. Zabler, H. Riesemeier, G. Weidemann, B. Müller, L. Helfen, M. Stiller, C. Knabe, J. Goebbels, J. Banhart. Nondestructive 3d insights into foamy metals and bioregenerative ceramics. 26th BESSY Users' Meeting, December 3-4, 2007, Berlin, Germany. In: Noble Traces, BESSY Highlights 2007, p.34-35.
9. D. Jörn, R. Gildenhaar, G. Berger, M. Stiller², C. Knabe, S. Schlau. Influence of specimen preparation and particle size on the properties of calcium alkali orthophosphate cements. Biomaterialien 9, (3/4), 2008, p 178.
10. C. Knabe, G. Berger, R. Gildenhaar, Ch. Koch, I. Axmann, S. Jonscher, A. Rack, P. Ducheyne, M. Stiller. **"**Effect of rapidly resorbable calcium-alkali-orthophosphate bone grafting materials on osteogenesis after sinus floor augmentation in sheep." Transactions 35th Annual Meeting of the Society for Biomaterials U.S.A., April 22-25, 2009, San Antonio, Texas, USA, p. 29.
11. C. Knabe, J. Kim, C. Chen, V. Meausoone, S. Radin, P. Ducheyne. "In vitro surface reactions underlying bone bioactivity of calcium-alkali-orthophosphate bone grafting materials." Transactions 35th Annual Meeting of the Society for Biomaterials U.S.A., April 22-25, 2009, San Antonio, Texas, USA, p. 529.
12. C. Knabe. "Rapidly resorbable bioactive grafting materials for craniofacial bone regeneration - translational research in regenerative medicine and implant dentistry." BIOMED2009, Proceedings 15th International Biomedical Science and Technology Symposium, August 16-19, 2009, Güzelyurt, Turkey, p. 30.
13. C. Knabe, G Berger, R. Gildenhaar, A. Houshmand, Ch. Müller-Mai, A. Bednarek, Ch. Koch, D. Jörn and M. Stiller: Effect of resorbable calcium-alkali-orthophosphate bone substitute cements on osteogenesis after implantation in the rabbit femur. Transactions 36th Annual Meeting of the Society for Biomaterials U.S.A., April 21-24, 2009, Seattle, Washington, USA, p. 10.
14. J. Kim, G. Berger, R. Gildenhaar, I. Shapiro, P. Ducheyne and C. Knabe: Survival and apoptosis in vitro of osteoblastic cells in contact with synthetic bone grafts Transactions 36th Annual Meeting of the Society for Biomaterials U.S.A., April 21-24, 2009, Seattle, Washington, USA, p. 830
15. C. Knabe. Novel, rapidly resorbable bioceramic bone grafts produce a major osteogenic effect - the pre-clinical evidence. Proceedings CIMTEC 2010 - 12th INTERNATIONAL CERAMICS CONGRESS & 5th FORUM ON NEW MATERIALS, June 13-18, 2010 p17.

INVITED LECTURES/ CONFERENCE INVITATIONS:

1995

1. C. Knabe „In vitro test for bone substitutes and percutaneous devices", Sydney, seminar, School of Bioengineering, University of New South Wales, Sydney, Australia, February 13, 1995.
2. C. Knabe „Oral Implantology: Surgical aspects and evaluation of bone volume"
   „Aspekte zur Bewertung des Knochenangebotes und zum chirurgischen Vorgehen", Czech Symposium on Implant Dentistry, Bruijn, November 24th, 1995.

1996

3. C. Knabe „Oral implantology: Surgical techniques and implant prosthodontics" „Implantatversorgungen: Chirurgisches Vorgehen und Anfertigung von Suprakonstruktionen" Monthly workshop of the Berlin Society for Prosthodontics.", April 18th, 1996, Berlin, Germany.

1997

4. C. Knabe „Osseointegration - the basis for Oral Implantology" „Osseointegration - Grundlagen der Implantation." Annual Wilmersdorf Symposium, Berlin, Germany, June 7th, 1997.

1998

5. C. Knabe „Bone Substitution in Oral Implantology" „Grundlagen des Knochenersatzes für zahnärztliche Indikationen." Monthly lectures for practitioners in Berlin and Brandenburg at the Philipp-Pfaff Institute, Berlin, Germany, November 3rd, 1998.
6. C. Knabe „Implant-supported prostheses following augmentation procedures" "Implantatprothetik nach Alveolarfortsatzrekonstruktion". Annual Steglitz Symposium on Maxillofacial Surgery, entitled*: „Dental implants in combination with bone grafting procedures for augmenting alveolar ridges." Kombination von Implantat und Transplantat zum Aufbau des Alveolarfortsatzes"*, December 5th, 1998, Berlin, Germany.

1999

7. C. Knabe „In vitro investigation of novel calcium phosphate bone substitutes and various dental implant surfaces using osteogenic cultures“, CSIRO Australia, Division of Molecular Science, North Ryde, Sydney, October 12th,1999.

2000

8. C. Knabe „Implant-supported titanium prostheses following augmentation procedures“, The University of Sydney, Faculty of Dentistry, January 27th, 2000, Sydney, Australia.
9. C. Knabe „In vitro investigation of novel calcium phosphate bone substitutes and various dental implant surfaces using osteogenic cultures“, School of Pathology, University of New South Wales, Sydney, NSW, February 21st, 2000.

2001

10. C. Knabe „In vitro investigation of bone substitute materials and various dental implant surfaces“ „In vitro Untersuchungen von Knochenersatzmaterialien und Implantatoberflächen“. Research seminars: German Research Foundation Postgraduate Research Center for Periodontology (head: Prof. J.P. Bernimoulin), Berlin, Germany, February 16th, 2001.

2002

11. C. Knabe, U. Gross „Can biologically functional implant surfaces enhance tissue integration of dental implants? – novel techniques for surface modifications and bone regeneration.“ “Verbessern biologisch funktionalisierte Oberflächen die Einheilung von Implantaten? - Ein Ausblick auf neue Techniken und Verfahren.“ 6th Annual Meeting of the Berlin Brandenburg Society of Dental Implantology, March 9th, 2002, Berlin, Germany.
12. C. Knabe Osseointegration - implant surface modifications and tissue regeneration techniques. Past, present and future. Annual Wilmersdorf Symposium, June 29th, 2002, Berlin, Germany.
13. C. Knabe „Novel developments regarding dental implant surface modifications and tissue regeneration techniques.“ Monthly Meeting of the Berlin Division of the German Association of Oral Implantologists, October 16th, 2002, Berlin, Germany.
14. C. Knabe „Biologically functional implant surfaces“. Seminar, Friadent Dentsply Inc., November 7th, 2002, Mannheim, Germany.

2003

15. C. Knabe "Rapidly resorbable bone substitute materials for alveolar ridge augmentation - Clinical need and fundamental studies." New York University College of Dentistry, Department of Biomaterials and Biomimetics, April 28, 2003, New York, U.S.A.

2004

16. C. Knabe "Rapidly resorbable bone substitute materials for alveolar ridge augmentation - Clinical need and fundamental studies." Temple University School of Dentistry, Department of Restorative Dentistry, October 14, 2004, Philadelphia, U.S.A.

2005

17. C. Knabe. “Rapidly resorbable bone substitute materials for alveolar ridge augmentation – Cell signalling events driven by material surfaces.” Department of Biomedical Engineering, Carnegie Mellon University, March 2nd, 2005, Pittsburgh, U.S.A.
18. C. Knabe. "Current trends for bone regeneration in implant dentistry." Temple University School of Dentistry, Department of Restorative Dentistry, August 5th, 2005, Philadelphia, U.S.A.
19. C. Knabe. “Rapidly resorbable bone substitute materials for alveolar ridge augmentation –in vitro and in vivo studies.” Research seminars: German Research Foundation Postgraduate Research Center for Periodontology (head: Prof. J.P. Bernimoulin), December 9th, 2005, Berlin, Germany.

2006

20. C. Knabe "Rapidly resorbable bone substitute materials for alveolar ridge augmentation - Clinical need and fundamental studies." University of Bern, School of Dental Medicine, Department of Oral Surgery and Stomatology, March 23rd, 2006, Bern, Switzerland.
21. C. Knabe. "Rapidly resorbable bioactive ceramics materials for alveolar ridge augmentation – in vitro and in vivo studies.” 13th Symposium on Ceramics in Medicine, Federal Institute for Materials Research and Testing, May 9th, 2006, Berlin, Germany.
22. C. Knabe. “Effect of bioactive bone substitute materials on osteoblast differentiation and bone tissue formation in vitro and in vivo.” Symposium on Oral Biotechnology (search committee for W3 University Professorship “Oral Biotechnology”), School of Dental Medicine, University of Freiburg, Freiburg, Germany, December 19, 2006.
23. G. Berger, R. Gildenhaar, C. Knabe, “The use of calcium phosphate ceramics as resorbable bone substitute materials.” „Calciumphosphat-Keramik für den resorbierbaren Knochenersatz“, Annual Meeting of the German Society for Ceramics in Medicine (DKG), March 19-21, Dresden, Germany.
24. International Scientific Advisory Committee: 19th International Symposium on Ceramics in Medicine, the 2006 Annual Meeting of the International Society for Ceramics in Medicine (ISCM).

2007

25. C. Knabe, P. Ducheyne. ”Cellular response to materials for bone tissue engineering,” (opening - presentation) Transactions Annual Meeting of the Academy of Dental Materials (Proceedings of a Conference on “Tissue engineering Scaffolds”), October 22-24, 2007, Fort Lauderdale, Florida, USA, Volume 21, 2007, p. 6-7.
26. International Scientific Advisory Committee: 20th International Symposium on Ceramics in Medicine, the 2007 Annual Meeting of the International Society for Ceramics in Medicine (ISCM)

2008

27. C. Knabe. “Rapidly resorbable bone substitute materials in implant dentistry - clinical need and fundamental studies” University of Philadelphia, School of Dental Medicine, Department of Restorative Dentistry (chair: Professor M. Blatz), February 5, 2008, Philadelphia, USA.
28. International Scientific Advisory Committee: 21st International Symposium on Ceramics in Medicine, the 2008 Annual Meeting of the International Society for Ceramics in Medicine (ISCM)

2009

29. C. Knabe. „Bioactive bone substitute materials in implant dentistry - from fundamental studies to clinical application”. Berlin Society for Periodontology, March 19, 2009, Berlin.
30. C. Knabe. “Rapidly resorbable bioactive grafting materials for craniofacial bone regeneration - translational research in regenerative medicine and implant dentistry.” BIOMED2009, 15th International Biomedical Science and Technology Symposium, August 16-19, 2009, Güzelyurt, Turkey.
31. C. Knabe. Bioactive bone substitute materials in implant dentistry. Effect on osteogenesis *in vitro* and *in vivo.* From fundamental research to clinical application.“ „Bioaktive Knochenersatzmaterialien in der Zahnärztlichen Implantologie: „Einfluss auf die Osteogenese *in vitro* und in vivo. Von der Grundlagenforschung zur klinischen Anwendung.“ (search committee for W2 University Professorship for Experimental Dentistry and Prosthetic Dentistry), School of Dental Medicine, Technical University of Dresden, Dresden, Germany, October 13, 2009.
32. C. Knabe. Rapidly resorbable bioactive bone grafting materials for orofacial bone regeneration - from fundamental research to clinical application. (search committee for W3 University Professorship for Experimental Orofacial Medicine) School of Dental Medicine, Phillips-University-Marburg, December 9, 2009, Marburg, Germany.
33. International Scientific Advisory Committee: 22nd International Symposium on Ceramics in Medicine, the 2009 Annual Meeting of the International Society for Ceramics in Medicine (ISCM)

2010

34. C. Knabe. Novel, rapidly resorbable bioceramic bone grafts produce a major osteogenic effect - the pre-clinical evidence CIMTEC 2010 - 12th INTERNATIONAL CERAMICS CONGRESS & 5th FORUM ON NEW MATERIALS, June 13-18, 2010, Montecatini, Italy.
35. International Scientific Advisory Committee: 23rd International Symposium on Ceramics in Medicine, the 2010 Annual Meeting of the International Society for Ceramics in Medicine (ISCM)

2011

36. C. Knabe. Novel, rapidly resorbable bioceramic bone grafts produce a major osteogenic effect. 9th International Meeting of Pacific Rim Ceramic Societies, Cairns, Australia, July 10th - 14th 2011, p. S1.8.
37. C. Knabe. Rapidly resorbable bioactive bone grafting materials for craniofacial bone regeneration - translational research in regenerative medicine and implant dentistry. Workshop on Advanced Bioceramics, Dept, of Bioengineering (Prof. Dr. Min Wang) University of Hong Kong. July 18, 2011.

2012

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