

DEPARTMENT OF ANTHROPOLOGY · THE PENNSYLVANIA STATE UNIVERSITY  
409 CARPENTER BUILDING · UNIVERSITY PARK, PA · 16802 · USA  
TELEPHONE: (814) 863 0562 · FAX: 814 863 1474 · EMAIL: JTA10@PSU.EDU  
HTTP://GETAHEAD.LA.PSU.EDU

CURRICULUM VITAE  
**JOAN T. RICHTSMEIER**  
20 April 2023

EDUCATION

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- 1977 B.A. Saint Mary's College, Sociology/Anthropology.  
1980 M.A. University of Nebraska-Lincoln, Anthropology. Thesis: *Precipitation, temperature and maize agriculture: implications for prehistoric populations in the Middle Missouri subarea, A.D. 900-1675.*  
1985 PhD Northwestern University, Anthropology. Thesis: *A study of normal and pathological craniofacial morphology and growth using finite element methods.*

PROFESSIONAL APPOINTMENTS

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- 2014-present **Distinguished Professor**, Pennsylvania State University, University Park, PA  
2022 **Visiting Scholar**, Initiative of Excellence, Université de Bordeaux, Bordeaux, France  
2000-2014 **Professor**, Department of Anthropology, Pennsylvania State University, University Park, PA (with faculty appointments in the Graduate Programs in Genetics and in Bioinformatics and Genomics of the Huck Institutes of the Life Sciences and member of Center for Neural Engineering)  
2000-2015 **Professor** (Adjunct, part-time), Center for Functional Anatomy and Evolution, Johns Hopkins University School of Medicine, Baltimore.  
1999-2000 **Professor**, Department of Cell Biology and Anatomy, Johns Hopkins University, School of Medicine, Baltimore, joint appointment with Department of Plastic Surgery.  
1991-1999 **Associate Professor**, Department of Cell Biology and Anatomy, Johns Hopkins University, School of Medicine, Baltimore; joint appointment Department of Plastic Surgery, Johns Hopkins University, Baltimore.  
1987-1991 **Assistant Professor**, Department Cell Biology and Anatomy, Johns Hopkins University School of Medicine.  
1986-1987 **Instructor**, Department of Cell Biology and Anatomy, Johns Hopkins University, School of Medicine, Baltimore.  
1985-1986 **Lecturer** (post-doctoral appointment), Department of Anthropology, Northwestern University, Evanston.  
1983-1984 **Research Associate**, Center for Craniofacial Anomalies, University of Illinois, Chicago.  
1982-1983 **Technical Research Assistant II**, Cayo Santiago Caribbean Primate Research Center, Bioanthropology Laboratory, Department of Anthropology, Northwestern University.  
1978-1980 **Graduate Research Assistant**, H.P. Thomas Site Project, Division of Archeological Research, Department of Anthropology, University of Nebraska, Lincoln.

AREAS OF INTEREST

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Biological form and form change, quantitative morphology, craniofacial morphology and dysmorphology, evolutionary developmental biology, craniofacial development in primates, the relationship between ontogenetic mechanisms and phylogenetic change, sexual dimorphism of ontogeny and morphology, molecular basis of craniofacial development, genotype-phenotype correspondence in craniofacial phenotypes

PROFESSIONAL SOCIETIES AND ACTIVITIES

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**Member, Professional Development Committee**, American Association for Anatomy (2022-2024)  
**Member, Finance Committee**, American Association for Anatomy (2022-2024)  
**Member, Board of Directors**, American Association for Anatomy (2020-2023) [elected]  
**Co-chair, Program Committee**, American Association for Anatomy (2020-2024) [elected]  
**Member, Scientific Affairs Committee**, American Association for Anatomy (2020-2022)  
**Member, Educational Affairs Committee**, American Association for Anatomy (2020-2022)  
**Member, Board of Directors**, Federation of American Societies for Experimental Biology (FASEB) (2018-2020)  
**Chair (inaugural chair)**, Diversity, Equity, and Inclusion Committee, FASEB (2019-2020)  
**Member, Electorate Nominating Committee of the Section on Anthropology** [elected], American Association for the Advancement of Science (2019-2022)  
**Member, Diversity and Inclusion Strategy Task Force**, FASEB (2018-2019)  
**Member, Program Committee** American Association for Anatomy (2018-2020)  
**Member, Executive committee**, American Association of Biological Anthropologists (2014-2017) [elected]  
**Member, Medical Board**, BORN A HERO, 2016-present (FGFR syndrome Research Foundation)  
**Vice President** (2010-2012); **President** (2012-2014); **Past President** (2014-2016), Society for Craniofacial Genetics and Developmental Biology (member since 1990)  
**Member**, American Association for Anatomy (since 2011), Society for Developmental Biology (since 2012), American Association of Biological Anthropologists (life member), American Association for the Advancement of Science (since 2014)  
**Founding member**, Collaboration for Craniofacial Development & Disorders, Johns Hopkins University (1993 – present)  
**Member, Board of Directors** (2006-2013) Centre Safe, State College, PA and **volunteer** (2013-2018) providing confidential advocacy for victims of dating & domestic violence, sexual assault, and stalking

#### EDITORSHIPS:

Member, Editorial Board of Reviewers, *Developmental Dynamics* (2020-present)  
 Member, Board of Reviewers, *The Anatomical Record* (2017-present)  
 Review Editor, *Frontiers in Physiology: Craniofacial Biology* (2012-present)  
 Member, Editorial Board, *Journal of Anatomy* (June 2015-present)  
 Member, Editorial Board, *Collabra – Life and Biomedical Sciences* (2014-2016)  
 Associate Editor, *American Journal of Physical Anthropology* (January 2009-April 2014)

#### COMMITTEES AND REVIEW PANELS:

Member, Nominating Committee for Rohlf Medal for Excellence in Morphometric Methods and Applications (2023)  
 Chair, Non Tenure Track Promotion and Tenure Committee, Department of Anthropology, Penn State (2022)  
 Member, Diversity Committee, Department of Anthropology, Penn State University (2020-2021)  
 Member, By-laws Committee, Department of Anthropology, Penn State University (2020)  
 Chair, Promotion and Tenure Committee, Department of Anthropology, Penn State (2012- 2021)  
 Co-Chair, American Association for Anatomy Program Committee (2020-2024) [elected]  
 Chair, Professional Development Grants Review Committee, Amer Assoc of Phys Anthropol (2014-2017)  
 Chair, Early Career Executive Committee Mentoring Opportunity Committee, Amer Assoc of Phys Anthropol (2014-2017)  
 Member, American Association of Anatomists representative for FASEB's Capital Hill Day to deliver messages from scientists regarding funding for NIH and NSF (2016, 2019)  
 Field Safety Coordinator, Department of Anthropology, Penn State University (2015-2021)  
 Mentor, Pennsylvania State University, College of the Liberal Arts, Future Funded Faculty (F3) program (2016-present)  
 Member, Promotion and Tenure Committee, College of the Liberal Arts, Penn State (2003- 2006)

Member, Promotion and Tenure Committee, Department of Anthropology, Penn State (2000-present with years rotating off during sabbatical)

Member, Skeletal Biology development and disease study section, Center for Scientific Review, National Institute Dental Craniofacial Research, NIH (2011-2015)

Ad hoc member, Stage I review for Surgical Sciences, Biomedical Imaging and Bioengineering integrated review group, CSR, NIH (2016)

Ad hoc Member, IMST-F(40)P: Program Project: Statistical Genetics [ZRG1 IMST-R (40) P] review group, NIH (2016)

Ad hoc Member, Skeletal Biology development and disease study section, Center for Scientific Review, National Institute Dental Craniofacial Research, NIH (2016)

Ad hoc Member, IMST-F(40)P: Program Project: Statistical Genetics [ZRG1 IMST-R (40) P] review group, NIH (2017)

Ad hoc Member, Molecular, Special Emphasis Panel: Cellular and Biomechanical determinants of musculoskeletal biology ZRG1 MOSS-R(02) (2017)

Ad hoc Member, ZRG1 MOSS-D (82) A Musculoskeletal, Oral and Skin Sciences AREA R15 review group (2017)

Ad hoc Member, Developmental Biology Subcommittee, Center for Scientific Review, National Institute Child Health and Human Development, NIH (2017)

Ad hoc Member, IMST-F(40)P: Program Project: Statistical Genetics [ZRG1 IMST-R (40) P] review group, NIH (2017)

Ad hoc Member, Molecular, Special Emphasis Panel: Cellular and Biomechanical determinants of musculoskeletal biology ZRG1 MOSS-R(02) (2017)

Ad hoc Member, ZRG1 MOSS-D (82) A Musculoskeletal, Oral and Skin Sciences AREA R15 review group (2017)

Ad hoc Member, Developmental Biology Subcommittee, Center for Scientific Review, National Institute Child Health and Human Development, NIH (2017)

Ad hoc Member, ZRG1 MOSS-R (03) Special Emphasis Panel (2018)

Ad hoc Member, 05 ZDE1 GZ (14) NIDCR Secondary Data Analysis review group (2018)

Ad hoc Member, NIDCR Special Grants Review (DSR) for F, K, and R03 applications (2018)

Ad hoc Member, NIDCR DSR Standing Study Section, for F, K, and R03 applications (2018)

External reviewer, City of Paris Emergence program (2019)

External reviewer, Medical Research Council of the UK (2019)

Ad hoc member, NIDCR special grants review (DSR) (2019)

External reviewer, Biotechnology and Biological Sciences Research Council of the UK (2019)

Ad hoc member, NIDCR special grants review (DSR) and ZDE1 EP (09) (2020)

#### GRANTS, CONTRACTS, FELLOWSHIPS

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- 1979 Recipient, Happold Fund Grant, University of Nebraska, Lincoln
- 1980 Recipient, University Fellowship, the Graduate School, Northwestern University, Evanston, IL
- 1981 Recipient, Departmental Fellowship, Dept of Anthropology, Northwestern University, IL
- 1987-88 The Johns Hopkins University Biomedical Research Support grant, *Three-dimensional analysis of craniofacial dysmorphology by finite-element methods*.
- 1987-89 March of Dimes Birth Defects Foundation Basil O'Connor Research grant (#5-638) *Three-dimensional analysis of craniofacial dysmorphology by finite-element scaling methods*, (role: PI).
- 1988-91 The Whitaker Foundation Biomedical engineering research grant, *Finite element scaling analysis of the potential of developmental programs for the production of evolutionary change*, (role: PI).
- 1990-91 The Johns Hopkins University School of Medicine Biomedical Research Support grant, *Validation of the use of computed tomographic images in the study of craniofacial growth* (role: PI).
- 1991 National Science Foundation doctoral dissertation improvement grant (BCS- 9100684), *Growth of the human fetal craniofacial complex characterized in 3D*. Doctoral student: Hannah M. Grausz.
- 1991 Storz Instrument Company research grant, *A study of the effect of plating systems on the growing rabbit craniofacial skeleton*, (role: PI).

- 1992-97 NSF, *Understanding the evolution of ontogenies through growth trajectory analysis*, SBR-9209083, (role: PI).
- 1993 National Science Foundation Research Experience for Undergraduates (REU) Supplemental Award to "Understanding the evolution of ontogenies through growth trajectory analysis".
- 1993 Ungermann-Bass, Inc., *ATM network for image data base research*, equipment grant \, (role: PI).
- 1993 Synexus, Inc. research grant, *ATM network for image data base research*, (role: PI).
- 1994 Department of the Army, Rigid Skeletal Fixation of the immature craniofacial Skeleton in the Non-human primate, contract DADA15-94-P-5444, (role: co-PI).
- 1994-99 NIDCR/NIH, *Heterogeneity in craniosynostosis: subgroup determination by analysis of postnatal craniofacial growth* (role: PI of Project II of 1 P50 DE11131-01).
- 1995-96 NIH initiative for underrepresented minorities in Biomedical Research. Supplement to Project II of 1 P50 DE11131-01.
- 1996 National Science Foundation REU Supplemental Award to *Understanding the evolution of ontogenies through growth trajectory analysis*.
- 1997-98 The Johns Hopkins University School of Medicine Biomedical Research Support grant, *Posterior plagiocephaly: morphometric tools for subgroup identification*.
- 1997 Faculty sponsor for Christopher J. Valeri, recipient of the 1997 Provost's Undergraduate Research Award, The Johns Hopkins University.
- 1998-00 NIH National Research Service Award: senior fellowship, *Genetics of skull development in a Down syndrome mouse model*, 1F33DE/HD05706-01.
- 1998 Faculty sponsor for Christopher J. Valeri, recipient of the 1998 Provost's Undergraduate Research Award, The Johns Hopkins University.
- 1998 NSF doctoral dissertation improvement grant, *Three-dimensional comparisons of craniofacial growth patterns in modern humans and Neanderthals* (BCS-9801823), Doctoral student: Gail E. Krovitz.
- 1999-04 NIDCR/NIH, *Genotypic and phenotypic variability in the craniosynostoses*. Role: PI of Project VI of Center for Craniofacial Development and Disorders, 1 P60 DE13078.
- 1999 National Science Foundation SBER Instrumentation Grant, *Acquisition of the Reflex Microscope*,
- 2000 NSF doctoral dissertation improvement grant, *A three-dimensional analysis of age-related change in the adult craniofacial skeleton* (BCS-9911294), Doctoral student: Anita M. Lubensky.
- 2001-04 Faculty sponsor for Cheryl Hill, recipient: National Science Foundation pre-doctoral award.
- 2002 NSF doctoral dissertation improvement grant, *Craniofacial Asymmetry, Morphological Integration, and Developmental Instability in the Human Skull* (BCS-0234565), Doctoral student: V.B. DeLeon.
- 2004 NSF doctoral dissertation improvement grant: *Quantitative Analysis of Temporal Bone Pneumatization in Homininae* (BCS-0524939), Doctoral student: Cheryl Hill
- 2005-08 Faculty sponsor for Brenda Frazier, recipient: National Science Foundation pre-doctoral award.
- 2005-06 NSF, *Collaborative Research: Genetics of Craniofacial Variation and Human Origins*; co-PIs: Kenneth Weiss, Joan Richtsmeier, Alan Walker (BCS-0523637).
- 2007-10 NSF, *Developmental Genetic basis of primate craniofacial variation, and human origins* (role: co-PIs: Kenneth Weiss, Joan Richtsmeier, Alan Walker (BCS-0725227)).
- 2008-13 NIDCR/NIH, *Phenogenetics of skull and brain integration in craniosynostosis* (R01DE018500)
- 2008-11 Faculty sponsor for John Starbuck, recipient: National Science Foundation pre-doctoral award.
- 2008-11 NSF, *VOSS: HRCT scanning as glue: sociotechnical analysis and support of a loosely-coupled virtual organization of emergent distributed projects* (co-PI with Andrea Tapia[PI], Timothy Ryan, Rosalie Ocker, and Mary Beth Rosson) (OCI-0838400)
- 2008 NSF doctoral dissertation improvement grant: *Extant island dwarf mammals as models for insular dwarfing in Pleistocene hominids* (BCS-0824583), Doctoral student: Brenda Frazier
- 2009-11 NIDCR/NIH, competitive revision to *Phenogenetics of skull and brain integration in craniosynostosis* (role: PI; R01 DE018500-02S1).
- 2009-11 AGAUR, Generalitat de Catalunya, Spain (Program: Beatriu de Pinós (BP 2008). Modality A: Fellowships for research stays outside the Spanish country. *Genetic and developmental alterations associated with craniosynostosis*. Fellow: Nueves Martínez-Abadías

- 2011 NSF doctoral dissertation improvement grant: *The influence of angiogenesis on human cranial vault development and evolution* (BCS-1061554), Doctoral student: Christopher Percival.
- 2011 NSF doctoral dissertation improvement grant: *Understanding Gene Dosage Imbalance and Biological Mechanisms Responsible for Craniofacial Variability and Variation* (BCS-1061563), Doctoral student: John Starbuck.
- 2012-17 NIDCR/NIH, *Midface and upper airway in craniosynostosis* (R01 DE022988).
- 2013-14 Burroughs-Wellcome Fund 2013 Collaborative Research Travel Grant: *Seeing genes make morphology in 3D* (#1012723)
- 2013 Undergraduate Summer Discovery Grant *Seeing genes in action: Creating an online resource for visualizing craniofacial dysmorphology*. Awarded to undergraduate student Katherine Rhodes, College of the Liberal Arts, Penn State.
- 2014-20 NICHD/NIH *Craniosynostosis Network* P01HD078233 (MPIs: EW Jabs, I Peter, JT Richtsmeier). Roles: MPI of Project 1: *From skull shape to cell activity in coronal craniosynostosis*, with MPIs R. Kraft and P. Drew; MPI of Core B: *Molecular and Analytical Core B* with MPI I. Peter.
- 2015 Erickson Discovery Grant *Tempo of prenatal cranial development*. Awarded to undergraduate student Vivianne Mazzocco, College of the Liberal Arts, Penn State.
- 2017 NSF doctoral dissertation improvement grant: *Modeling developmental timing changes in human evolution* (BCS-1650824), Doctoral student: Kevin Flaherty.
- 2017 NSF doctoral dissertation improvement grant: *Dissecting the effects of encephalization on skull morphogenesis: an experimental study* (BCS-1731909), Doctoral student: Kate Lesciotto.
- 2018-23 NIDCR/NIH *The chondrocranium in craniofacial development and disease* R01DE027677
- 2019-22 Initiative of Excellence of the University of Bordeaux, Visiting Scholars campaign, Project title: *Developmental basis for human cranial evolution*. Awarded in 2019; visit delayed until 2022 due to Covid19.
- 2021-25 NIDCR/NIH *Genetic, tissue, and anatomical interactions in mandibulofacial dysmorphogenesis* R01DE029832 (MPIs: EW Jabs (contact), JT Richtsmeier).
- 2022-27 NIDCR/NIH *Cartilage and bone of the lower jaw in development and disease* R01DE031439 (MPIs: JT Richtsmeier (contact), EW Jabs).
- 2022-23 QED Therapeutics *Infigratinib as a treatment for syndromic craniosynostosis phenotypes* (PI: EW Jabs)

#### HONORS AND AWARDS

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- 1990 Maryland's Outstanding Young Scientist Award, Allan C. Davis Medal of the Maryland Academy of Sciences
- 1993 W. Barry Wood Award for outstanding preclinical teaching, Johns Hopkins University School of Medicine
- 2004 Distinguished Graduate Award, Edgewood Campus School, Madison, WI
- 2007 Dominican Award for Service to Humanity, Edgewood High School, Madison, WI
- 2009 Alumna Achievement Award, Saint Mary's College, Notre Dame, IN
- 2012 Distinction in the Life Sciences Award, College of the Liberal Arts, Pennsylvania State University
- 2014 Named Distinguished Professor, Pennsylvania State University
- 2014 Faculty Scholar Medal for Outstanding Achievement in the Life and Health Sciences, Pennsylvania State University
- 2015 Faculty Marshal, College of Liberal Arts, Spring Commencement, Pennsylvania State University
- 2016 College of the Liberal Arts Consecutive Years Funding Award, Pennsylvania State University
- 2018 Fellow, American Association of Anatomists
- 2018 Honorary Research Fellow, International Research Center Bioarchaeology, Jilin University, China
- 2019 College of the Liberal Arts 20<sup>th</sup> Grant at Penn State Award, Pennsylvania State University
- 2019 Henry Gray Scientific Achievement Award of the American Association for Anatomy
- 2019 David Bixler Excellence in Craniofacial Research Award of the Society for Craniofacial Genetics and Developmental Biology



- 2020 FASEB BioArt Scientific Image & Video Competition winner with Susan M Motch Perrine, Kazuhiko Kawasaki, Pennsylvania State Univ and Danny Chen, Hao Zheng, Univ of Notre Dame
- 2020 Fellow, American Association for the Advancement of Science (Section on Biological Sciences)
- 2021 Rohlf Medal for Excellence in Morphometric Methods and Applications
- 2023 College of the Liberal Arts 25<sup>th</sup> Grant at Penn State Award, Pennsylvania State University
- 2023 Member, American Academy of Arts and Sciences

#### INVITED LECTURES AND PRESENTATIONS

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- 1986 A finite element scaling analysis of morphological differences between normal individuals and those affected with Apert and Crouzon syndromes. Symposium: "Quantitative methods in the diagnosis and treatment of craniofacial anomalies", J. Kolar, organizer. Presented at the 55th Annual Meeting of the Amer. Assoc. of Physical Anthropologists, Albuquerque, NM.
- 1986 The study of biological form change. Presented to the Department of Cell Biology and Anatomy, The Johns Hopkins University School of Medicine, Baltimore, MD.
- 1989 The assessment of growth using finite element methods: a review. Presented at the National Computer Graphics Association conference, Philadelphia, April.
- 1989 Three-dimensional analysis of the cranial base in craniosynostosis using computed tomographic images. Symposium organized by Richard Ward. Presented at the annual meeting of the American Association of Physical Anthropologists, San Diego, April.
- 1989 The application of finite-element scaling analysis to the study of size and shape in biological objects. Presented to the symposium, 'Multi-dimensional methods in morphological analysis', organized by the Anatomical Society of Great Britain and Ireland in conjunction with the annual meeting of the Anatomical Society, Liverpool, July 1989.
- 1989 Applications of finite element scaling analysis in primatology. Presented at the *first Kartause Ittingen Symposium*, 'New quantitative developments in primatology and anthropology', organized by the Anthropologisches Institut, Universität Zurich-Irchel in conjunction with Karger Verlag, Zurich, September.
- 1989 The study of growth from data obtained from computed tomographic (CT) images. Presented as part of the Medical Image Processing Group seminar series, University of Pennsylvania, Philadelphia, December.
- 1990 The biological implications of varying element design in finite-element scaling analyses of growth. Presented in a session on "Segmentation and Quantitation", in the Tomographic Radiology tract of the 12th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. Philadelphia, PA, November.
- 1990 Quantitative analysis of three-dimensional data. Presented at SPIE's Symposium on *Biostereometrics Technology and Applications*. Boston, MA, November.
- 1991 Three-dimensional analysis of *Adapis* muzzle (with L. Lanèque). Presented in Montpellier, France, September.
- 1992 Precision and morphometric analysis of biological landmark data. Presented at the "Whole body 3D electronic imaging of the human body" workshop, Wright-Patterson Air Force Base, March.
- 1992 Analysis of growth in craniofacial anomalies. Presented at the Johns Hopkins Craniofacial Conference, The Johns Hopkins Cleft and Craniofacial Center, July.
- 1993 Three-dimensional facial morphology in a strain of dogs exhibiting cleft palate. Symposium organized by R. Ward and K. Kelly. Presented at the annual meeting of the American Association of Physical Anthropologists, Toronto, April.
- 1996 Facial growth patterns and phylogenetic affinities in anthropoids. Anthropologisches Kolloquium, Anthropologisches Institut, Universität Zurich-Irchel, Switzerland, June.
- 1996 Morphometrics: its use in the study of biological patterns. Carnegie Institution of Washington, Department of Embryology seminar series, September.

- 1998 Correspondence of craniofacial dysmorphology and development in Down Syndrome and Ts65Dn mice. "Toward a molecular understanding of craniofacial morphogenesis-An International Symposium", Bethesda.
- 1998 Phenotypes in craniosynostosis: how we measure, why we measure, what we learn. Presented at the Post Conference symposium, "Craniosynostosis: genome, treatment, outcome", of the American Cleft Palate-Craniofacial 56<sup>th</sup> annual meeting.
- 1999 Measuring phenotypes to study genotypes. Departmental of Anthropology seminar, The Pennsylvania State University.
- 1999 A bootstrap approach to detecting phylogenetic signals in morphometric data. The Systematics Association Biennial Conference, University of Glasgow, August (with TM Cole, III (presenter) and SR Lele).
- 1999 Phenotypic variability of craniofacial dysmorphology. Pediatric Grand Rounds. The Johns Hopkins University, Baltimore, October.
- 1998 The face of Down syndrome in man and mouse (Roger H. Reeves presenter), AAAS meeting, February, Washington, D.C.
- 2000 Normal human anatomy of the pelvis and perineum. A web-lecture given to first year medical students, The Johns Hopkins University Medical School, November, Baltimore, MD.
- 2001 The quantitative study of dysmorphology using clinically acquired images. A lecture given at the "State of the Science" workshop on disorders associated with Chromosome 18, the National Institutes of Child Health and Human Development, NIH, July, Bethesda, MD.
- 2001 The role of *Gscl* in the development of the craniofacial skeleton. Seminar presented at the Children's Hospital of Philadelphia, Department of Genetics, November.
- 2001 Gross anatomy of the pelvis and perineum. Lecture presented at the Johns Hopkins University School of Medicine, December, Baltimore, MD.
- 2002 Dysmorphology, asymmetry, growth: what we've learned from craniosynostosis. Presented to the faculty of the Center for Craniofacial Development and Disorders, the Johns Hopkins Hospital, Baltimore, March (with Valerie DeLeon and Kristina Aldridge).
- 2002 Studying asymmetry with Euclidean Distance Matrix Analysis (EDMA). Presented at a symposium entitled "Modern morphometrics in Physical Anthropology", Annual meeting of the American Association of Physical Anthropologists, Buffalo, NY, April. (with Theodore M. Cole, III, Erin Lindsay, Christopher D. Kreger, Valerie DeLeon, Kristina Aldridge, Subhash Lele).
- 2002 3D anatomy of the pelvis and perineum. Lecture presented at the Johns Hopkins University School of Medicine, December, Baltimore, MD.
- 2003 Genotypes and phenotypes in craniofacial anomalies: closing the gap. Lecture presented to the Department of Molecular Genetics, Indiana University-Purdue University at Indianapolis, February, Indianapolis.
- 2003 Developmental instability of the skull in aneuploidy. Presented in *Symposium 23: Morphological model systems in evolution and development*, 9<sup>th</sup> Congress of the European Society for Evolutionary Biology, Leeds, UK, August (with TM Cole, JM Leszl, CA Hill, JL Budd, RH Reeves).
- 2003 Morphological integration of the neural component in craniosynostosis. Presented at Advances in the modeling of form: clinical and computational interfaces: A Symposium in honor Professor Melvin L. Moss, Columbia University, New York, NY, October (with Kristina Aldridge).
- 2003 Grant writing in anthropology. Presented at the Graduate Student/Post Doc Workshop as part of the Professional Development Series. The Pennsylvania State University, October.
- 2003 Morphological integration of central nervous system and cranium in craniosynostosis. Presented at the Society for Craniofacial genetics 26<sup>th</sup> annual meeting, Los Angeles, CA.
- 2003 Probing the development of complex craniofacial traits using 3D imaging and quantitative models. Presented in the symposium, Frontiers of dysmorphology: craniofacial development and disorders, Amer Society of Human Genetics Annual meeting, November, Los Angeles, CA.
- 2004 Using imaging to describe, quantify and understand chromosomal abnormality phenotypes. Presented at the Inaugural World Congress on Chromosomal Abnormalities, June, San Antonio.

- 2004 Inferring developmental contributions to craniofacial variation from quantitative analysis of images. Presented in the symposium, 3D imaging in anthropological research, Annual meetings of the Canadian Association for Physical Anthropology, October, London, Ontario.
- 2006 L'intégration morphologique de le crâne et le cerveau. Département de Paléontologie et Anatomie Comparée, Museum National d'Histoire Naturelle, January, Paris.
- 2007 Quantitative study of form and change in form: mandibular growth. Presented in the workshop entitled, Techniques for quantification of growth and evolution of form, Université Paul Sabatier. EVAN Consortium Intensive Training Course, April, Toulouse, France.
- 2007 Developmental basis of morphological integration of brain and skull in craniosynostosis. Presented in the symposium "Morphological model systems in evolution and development", International Congress of Vertebrate Morphology 8, July, Paris.
- 2007 Skull shape in Down syndrome mouse models. Presented at the Expert Workshop on the Biology of Chromosome 21 Genes: Towards Gene-phenotype Correlations in Down Syndrome, Sept 28, Tysons Corner, VA.
- 2007 Primate models for understanding the contribution of genes, development and growth pattern to morphology. American Society for Craniofacial Genetics annual meeting, Oct 23, San Diego.
- 2007 Brain-skull relationships in the development of craniosynostosis. Neural imaging reading group, Pennsylvania State University.
- 2008 Interaction of brain and skull. Gordon Research Conference on Craniofacial morphogenesis and tissue regeneration. Feb 10-15, Lucca, Italy.
- 2008 Brain-skull relationships in craniofacial development, evolution and disease. Department of Genetics and Genomic Sciences, Mt. Sinai Medical Center, NY.
- 2008 Getting a head: lessons from development, disease and phenogenetics. Presented at a symposium on Developmental Biology and Tissue Regeneration at University of Southern California, May.
- 2008 Morphological integration of the cranial base after surgical intervention in the face and vault. Presented at the Conference on Biomedicine in Orthodontics: from tooth movement to facial Growth, Asilomar Conference Center, Monterey, CA.
- 2008 Morphological integration of the craniofacial complex in unilateral cleft lip and palate. American Society for Craniofacial Genetics annual meeting, Nov 11, Philadelphia.
- 2009 Developmental basis of morphological integration of brain and skull in craniosynostosis. American Association of Physical Anthropologist annual meeting, Chicago.
- 2009 Developmental origin of covariation between traits (with Kat Willmore, Jim Cheverud and Jane Buikstra) American Association of Physical Anthropologist annual meeting, Chicago.
- 2009 Of mice and men: variation in craniosynostosis phenotypes. Department of Genetics Grand Rounds, Emory University, Atlanta, November.
- 2010 Brain and skull phenotypes in craniosynostosis: how mouse models bring a human condition into view. Social, Life and Engineering Sciences Imaging Group colloquia, Penn State, February.
- 2010 The relationship between hard and soft tissue: lessons for reconstructing virtual endocasts. Annual meetings of the American Association of Physical Anthropologists, Albuquerque, April.
- 2010 How to get a head in human evolution. Presented at the 60<sup>th</sup> Alumni Institute faculty lecture series, Penn State University, June.
- 2010 An integrated systems approach to craniofacial development. (Collaborative project presented by Ken Weiss), European Evolutionary Development Society meetings, Paris, July.
- 2010 An integrated systems approach to craniofacial development (and craniosynostosis. 33<sup>rd</sup> Meeting of the Society for Craniofacial Genetics. Bethesda, MD, USA (abstract published *Amer J Med GenetPart A* 155:285)
- 2011 Biological complexity and the case of craniosynostosis. Department of Anatomy and Cell Biology noon lecture series. Temple University, Philadelphia, PA. February.
- 2011 Connective tissue growth factor (CTGF/CCN2) is required for normal intramembranous and endochondral ossification (co-authors: Lambi, Pankratz, Hendesi, Rzampour, Pixley, Barbe,



- Safadi and Popoff). Presented by Alex Lambi at the annual meeting of the International CCN Society, Vancouver, September.
- 2012 FGF/FGFR signaling in evolution, development and disease. Gordon Research Conference on Craniofacial morphogenesis and tissue regeneration. March 18-23, Ventura, CA
- 2012 Why the long face? Disease phenotypes as a window on evolutionary change. Speaker in symposium: *Finding our inner animal: understanding human evolutionary variation via experimental model systems*. Annual meeting of the AAPA, April, Portland, OR (abstract published *Amer J Phys Anthropol* 147, S54:249.)
- 2012 Making a head: diverse craniofacial outcomes in disease. Speaker in symposium entitled, *The Role of Variation during Morphogenesis in Evolution and Disease*, American Association of Anatomists meeting at Federation of American Societies for Experimental Biology 2012, San Diego, April.
- 2012 Genomic dissection of normal craniofacial variation. Radcliff Exploratory Seminar in Craniofacial Evolutionary Developmental Biology. Cambridge, MA. June
- 2012 Seeing the dysmorphology of craniosynostosis syndromes. Seminar presented to Systems Biology Unit, Centre for Genomic Regulation, Barcelona, Spain, November.
- 2012 To the closed suture and beyond! cell-to-cell signaling in FGFR-related craniosynostosis syndromes. Seminar presented to Department of Biology, Case Western Reserve University, Cleveland, OH, November.
- 2013 Effects of sonic hedgehog on craniofacial morphology: implications for patients with Down syndrome (co-authors Nandini Singh, Tara Dutka, Roger Reeves). Presented by Nandini Singh at *35th Meeting of the Society for Craniofacial Genetics*, Boston, MA, October.
- 2013 Opportunities for growth disguised as unsolvable problems. Closing Plenary Lecture, IV Center for Genomic Regulation Postdoctoral Symposium, Center for Genome Regulation, Barcelona, Spain, November.
- 2013 Systems within systems: craniofacial growth. Seminar presented to Systems Biology Unit, Centre for Genomic Regulation, Barcelona, Spain, November.
- 2014 Evolutionary developmental biology of FGF/FGFR signaling in craniosynostosis conditions. Physiology Seminar Series, Johns Hopkins University, Baltimore, January.
- 2014 Influence of angiogenesis on craniofacial bone morphology, with Percival C, Winkler A, Kawasaki K, Pankratz T, Jabs E, Wang L, presented by Chris Percival at the 82<sup>nd</sup> annual meeting of the American Assoc of Physical Anthropol., Calgary, Alberta (abstract published *Amer J Phys Anthropol*, S58 :219)
- 2014 The role of FGF/FGFR signaling in cranial integration: implications for primate evolution, with N Singh, Y Heuzé, K Flaherty, C Basilico, G Holmes, presented by Nandini Singh as part of “Evo-Devo studies in bio-physical anthropology” symposium, 83<sup>rd</sup> annual meeting of the American Association of Physical Anthropologists, Calgary, Alberta (abstract published *Amer J Phys Anthropol*, S58: 240)
- 2014 The chondrocranium with K Kawasaki, presented by K Kawasaki as part of the “Building Bones: Studies of Bone Growth in Anthropology” symposium, 83<sup>rd</sup> Annual meeting of the Amer Assoc of Physical Anthropol, Calgary, Alberta (abstract published *Amer J Phys Anthropol*, S58: 156).
- 2014 Advances in the study of intramembranous bone formation and growth. Presented by C Percival as part of “Building Bones: Studies of Bone Growth in Anthropology” symposium, 83<sup>rd</sup> Annual meeting Amer Assoc of Physical Anthropol, Calgary (abstract *Amer J Phys Anthropol*, S58: 206).
- 2014 Understanding human evolutionary variation using experimental model systems. Département de Paléontologie et Anatomie Comparée, Museum National d'Histoire Naturelle, June, Paris.
- 2014 Craniosynostosis Network. Presented at the National Institute of Child Health and Disease 10<sup>th</sup> Structural Birth Defects meeting, Rockville, MD, December (with EW Jabs and Inga Peter, co-investigators)
- 2015 Developmental context and the genotype-phenotype map. Speaker in symposium, *Anatomy and genetics: how phenomics informs our understanding of genomes*, American Association of Anatomists meeting at Federation of American Societies for Experimental Biology 2015, Boston, March.

- 2015 Developmental and evolutionary significance of the zygoma. Speaker in symposium entitled, *The zygomatic bone*, American Association of Anatomists meeting at Federation of American Societies for Experimental Biology 2015, Boston, March.
- 2015 Craniofacial dysmorphology as an evolutionary and developmental process. Eastman Institute for Oral Health, University of Rochester, Rochester, NY, April.
- 2016 Associations of the chondrocranium and dermatocranium in evolution, development and disease. Gordon Research Conference on Craniofacial morphogenesis and tissue regeneration. Ventura, CA, March 13-17.
- 2016 Chondrocranial and dermatocranial associations in evolution, development and disease. University of Tennessee Anatomy Lecture Series. Knoxville, April
- 2016 Neurodevelopmental disorders as models for developmental interactions between brain and skull in human evolution, with K Aldridge, JR Austin, CA Hill and presented by K Aldridge as part of the “Innovative approaches to human brain evolution: molecules to systems” symposium, 85th Annual meeting of the Amer Assoc of Physical Anthropol, Atlanta, GA (abstract published Amer J Phys Anthropol 159(S62): 77).
- 2016 Differing effects of Fgfr mutations on palate morphology in non-cleft mouse models, Presented by Neus Martínez-Abadías with S Motch Perrine, F Melkonian, T Pankratz, K Rhodes, Y Wang, X Zhou, EW Jabs International Congress of Vertebrate Morphology, Washington, D.C., July.
- 2016 Modeling associations of the chondrocranium and dermatocranium in evolution, development and disease. *Keynote Speaker*, Society for Craniofacial Genetics and Developmental Biology 39<sup>th</sup> annual meeting, Boston, MA, July.
- 2016 Cartilage, bone and brain interactions in modeling skull growth. Faculty Networking Seminar Series, Tulane University, New Orleans, LA, November.
- 2017 It's about time: evolution, disease and development. University of California-San Francisco Program in Craniofacial Biology Seminar Series, San Francisco, CA, January.
- 2017 Craniosynostosis Network Consortium. NICHD 11th Structural Birth Defects Meeting, Bethesda, Maryland, April (with Jabs, EW, R Kraft, P Drew, I Peter, P Romitti, I Lemishchka)
- 2017 Craniosynostosis Network: Providing the temporal context to embryological research with mice. NICHD 11th Structural Birth Defects Meeting, Bethesda, Maryland, April. (with Flaherty, K, M Musy, K Kawasaki, M Kawasaki, J Sharpe)
- 2018 Introduction of Ken Weiss, winner of the “Darwin Award”, the American Association of Physical Anthropologists Lifetime Achievement Award, Austin, TX, April.
- 2018 Keeping up with the Richtsmeier lab, Dept of Anthropology colloquium, University Park, PA.
- 2018 An evolutionary framework for studying craniofacial disorders, Keynote Lecture, 2018 Scientific Retreat, The Rolette and Berdon Lawrence Bone Disease Program, Baylor College of Medicine, University of Texas MD Anderson Cancer Center, and Health Science Center at Houston, April.
- 2018 Studying growth, development, and disorders of East Asian skeletal materials. Global History of Health Asia Organizational Conference, Jilin University, Changchun, China, May.
- 2019 From genotype to phenotype and back again. Keynote address, Société d'Anthropologie de Paris annual meeting, Musée de l'Homme, Paris, January.
- 2019 Discovering development in the genotype-phenotype gap. Henry Gray Scientific Award address, American Association of Anatomists annual meeting, Orlando, March.
- 2019 Dermatocranium-chondrocranium interaction in craniofacial development and evolution, with K Kawasaki, International Congress of Vertebrate Morphology 2019, Prague, July.
- 2019 Cranial cartilage and bone formation in development and disease, David Bixler Excellence in Craniofacial Research Award address, Society for Craniofacial Genetics and Developmental Biology annual meeting, Houston, October.
- 2019 Integration of brain and skull (lecture). Osteopathie Schule Deutschland annual conference, *Unlocking cranial mechanisms: modern insights*, Berlin, November.
- 2019 Interaction of brain, chondrocranium, and dermatocranium in development and disease (workshop). Osteopathie Schule Deutschland annual conference, *Unlocking cranial mechanisms: modern insights*, Berlin, November.

- 2020 How to get a head. Guest speaker, Medical Scientist Training Program (MSTP) Retreat, the Pennsylvania State University, University Park, April (postponed due to COVID19).
- 2020 Estimation of among-landmark covariances: not always, but sometimes (with Theodore Cole, Peter Solymos, and Subhash Lele), symposium in honor of Dennis Slice. Annual meeting of the Amer Association of Physical Anthropologists, Los Angeles, April (postponed due to COVID19).
- 2020 Phenotyping the brain, the face, and their genetic interaction over development (with N Martinez-Abadias, R Gonzalez, A RobertMoreno, J Swoger, SMM Perrine, K Kawasaki, and J Sharpe; presented by N Martinez-Abadias), symposium to honor Dennis Slice. Annual meeting of the Amer Assoc of Physical Anthropologists, Los Angeles, April (postponed due to COVID19).
- 2020 Cells, signals, and processes: Building dermal bones and sutures of the anterior cranial vault (co-authors: M. Kathleen Pitirri, Mizuho Kawasaki, Jordan N. Norwood, Kazuhiko Kawasaki, Joan T. Richtsmeier) Presented remotely by M. Kathleen Pitirri at the 48<sup>th</sup> annual meeting of the Society for Craniofacial Genetics and Developmental Biology.
- 2021 The chondrocranium: where cranial cartilage meets bone. Center for Craniofacial Regeneration research meeting, University of Pittsburgh (Presented remotely due to COVID19).
- 2021 Using morphometrics to understand developmental shifts underlying diversity. Inaugural Keynote address, smef2021 : SMEF 11 - Symposium of Morphometrics and Evolution of Shape, Montpellier, France (Presented remotely due to COVID19).
- 2021 Cartilage of the chondrocranium in craniosynostosis. 2nd annual meeting of *Advances in craniosynostosis: basic science to clinical practice*. University College London (presented remotely due to COVID 19).
- 2021 Morphology as mechanism. Provost lecture series, Rohlf Medal lecture, Stony Brook University, October.
- 2022 A career in Anthropology? Presented to the Undergraduate Research Society, Pennsylvania State University, March.
- 2022 Gifford-Mahany, JA, SN Kiemle, M Kawasaki, TB Tighe, K Kawasaki, JT Richtsmeier *Mechanical properties of embryonic mouse cartilage and bone*. Presented at the American Association of Biological Anthropology 91<sup>st</sup> annual meeting, Denver, CO in the symposium: The Weight of the Evidence: A Session to Honor the Legacy of Dr. Christopher Ruff.
- 2022 Perrine, SMM, K Kawasaki, EL Durham, H Zheng, DZ. Chen, EW Jabs, M Wu, JT Richtsmeier *The role of Meckel's cartilage in mandibular development*. Presented at the American Association of Biological Anthropology 91<sup>st</sup> annual meeting, Denver, CO in the symposium: Cartilage and craniofacial growth.
- 2022 Pitirri, MK, SMM Perrine, H Zheng, DZ Chen, K Kawasaki, JT Richtsmeier *Come together over me: The role of the chondrocranium in dermal bone formation of the vertebrate skull*. Presented at the American Association of Biological Anthropology 91<sup>st</sup> annual meeting, Denver, CO in the symposium: Cartilage and craniofacial growth.
- 2022 Development as a mechanism of the genotype-phenotype map. Reunion Scientifique de PACEA, University of Bordeaux, April.
- 2022 The role of cartilage in craniofacial dermal bone formation. Meeting of Neonatal-Perinatal Medicine at Penn State Health- Hershey, July.
- 2022 An unexpected role for cartilage in craniofacial disease. Symposium to honor the careers and contributions of Drs. Roger Reeves and Dan Raben. Johns Hopkins School of Medicine, October.
- 2022 An unappreciated partnership: embryonic cranial cartilage and dermal bone. Gordon Research Conference on Craniofacial morphogenesis and tissue regeneration. Ventura, CA, October

#### SYMPOSIA/WORKSHOPS/STUDY SESSIONS/MEETINGS ORGANIZED

- 1987 The use of morphometric techniques in the study of biological form change (symposium organized with JM Cheverud). 56th Annual Meeting Amer Assoc of Phys Anthropol, New York
- 1992 Anthropological perspectives on craniosynostosis (symposium organized with JC Kolar). 61st Annual meeting of the American Association of Physical Anthropologists, Las Vegas.

- 1994 Three-dimensional morphometrics. Workshop given at the Fourth International Congress of Vertebrate Morphology, Chicago.
- 1998 Analysis of morphology and morphological change using 2D or 3D data. Study session delivered at the annual meetings of the American Cleft Palate-Craniofacial Association, Baltimore.
- 2007 The genotype-phenotype map (symposium organized with Benedikt Hallgrímsson) International Congress of Vertebrate Morphology 8, Paris.
- 2010 Genetic and developmental basis of the evolution of complex traits (symposium organized with Chris Klingenberg), European Society for Evolutionary Developmental Biology, Paris.
- 2011 Society for Craniofacial Genetics and Developmental Biology 34<sup>th</sup> annual meeting, Montreal, Canada.
- 2012 Society for Craniofacial Genetics and Developmental Biology 35<sup>th</sup> annual meeting, San Francisco, CA.
- 2013 Society for Craniofacial Genetics and Developmental Biology 36<sup>th</sup> annual meeting, Boston, MA.
- 2014 Building Bones: Studies of bone growth in anthropology (with CJ Percival), symposium, 83rd Annual meeting of the Amer Assoc of Physical Anthropol, Calgary, Alberta, Canada.
- 2014 Society for Craniofacial Genetics and Developmental Biology 37<sup>th</sup> annual meeting, San Diego, CA.
- 2015 Chair, Career Development Panel; organized for the 84<sup>th</sup> Annual meeting of the Amer Assoc of Phys Anthropol, St. Louis, MO.
- 2015 Society for Craniofacial Genetics and Developmental Biology 38<sup>th</sup> annual meeting, Baltimore, MD.
- 2016 Chair, Career Development Panel; organized for the 85<sup>th</sup> Annual meeting of the Amer Assoc of Phys Anthropol, Atlanta, GA.
- 2016 Society for Craniofacial Genetics and Developmental Biology 39<sup>th</sup> annual meeting, Boston, MA.
- 2017 Chair, Career Development Panel; organized for the 86<sup>th</sup> Annual meeting of the Amer Assoc of Phys Anthropol, New Orleans, LA.
- 2017 Chair, Plenary session, Society for Craniofacial Genetics and Developmental Biology 40<sup>th</sup> annual meeting, Minneapolis, MN.
- 2018 Chair, Platform session: *Development and Disease Physiology*, American Association of Anatomists at Annual Meeting of Experimental Biology, Orlando, April.
- 2020 Chair, Platform session: *The fuel that allows common people to attain uncommon results: collaboration in science* American Association for Anatomy at Annual Meeting of Experimental Biology, San Diego, April (postponed due to COVID19).
- 2020-24 Co-Chair, Program Committee American Association for Anatomy responsible for planning annual meetings 2021-2024.

#### VOLUNTEERED PRESENTATIONS (INCLUDING POSTERS AND PUBLISHED ABSTRACTS)

- Richtsmeier, JT, JM Cheverud, and JE Buikstra 1983 Etiology of cranial nonmetric traits in the rhesus macaques of Cayo Santiago. *Amer J Phys Anthropol* 60(2).
- Richtsmeier, JT, JW McGrath, and JM Cheverud 1984 Heritability and etiology of cranial nonmetric traits in random bred mice. *Amer J Phys Anthropol* 63(2).
- Richtsmeier, JT 1985 A two-dimensional application of the finite element scaling method to growth of human crania. *Amer J Phys Anthropol* 66(2).
- Richtsmeier, JT 1985 A study of growth in normal individuals and Apert and Crouzon syndromes using the finite element scaling method. *Annals of Human Biology*, Montreal.
- Cheverud, JM and JT Richtsmeier 1985 A finite element scaling analysis of growth in rhesus monkeys. *Annals of Human Biology*, Montreal.
- McGrath, JW and JT Richtsmeier 1985 Heritability of nonmetric traits in randombred mice. Presented at the meeting of Society for the Study of Evolution and the American Society of Naturalists, Chicago.
- Richtsmeier, JT and JM Cheverud 1986 Sexual dimorphism of facial growth in *Macaca mulatta* and *M. fascicularis*. Presented at the International symposium on vertebrate morphology, Vienna.

- Richtsmeier, JT 1987 Ontogenetic scaling and sexual dimorphism in *Macaca* crania. *Amer J Phys Anthropol* 72(2) 247.
- Richtsmeier, JT 1988 Morphological similarities in *Aegyptopithecus* and *Afropithecus*. *Amer J Phys Anthropol* 75(2) 260-261.
- Richtsmeier, JT, JL Marsh, and ML Vannier 1988 Three-dimensional analysis of craniofacial morphology and growth in craniosynostosis. Program, Cleft Palate Association Meeting, Williamsburg, VA.
- Hallman, LA and JT Richtsmeier 1988 Craniofacial morphology of the trisomy 16 mouse. Program, International Association for Dental Research, April, Montreal, Quebec.
- Richtsmeier, JT, HM Grausz, JL Marsh, and MW Vannier 1989 Three-dimensional analysis of the cranial base in craniosynostosis. *Amer J Phys Anthropol* 78(2) 290.
- Grausz, HM, JT Richtsmeier, and SJ Danahey 1989 Growth in *Macaca fascicularis* and *Cebus apella* compared using finite-element scaling. *Amer J Phys Anthropol* 78(2) 231.
- Wong, L, CR Dufresne, PM Manson, and JT Richtsmeier 1989 The effect of rigid fixation on the growing craniofacial skeleton. Presented at the 34<sup>th</sup> Annual Meeting of the Plastic Surgery Research Council, April, Atlanta.
- Wong, L, CR Dufresne, JT Richtsmeier, and PM Manson 1989 The effect of rigid fixation on the growing craniofacial skeleton: periosteal elevation, coronal suture plating, and frontal bone plating. Presented at the Northeastern Plastic Surgery Society Conference, October.
- Wong, L, CR Dufresne, JT Richtsmeier, and PM Manson 1989 The effect of rigid fixation on the growing craniofacial skeleton: periosteal elevation, coronal suture plating, and frontal bone plating. *Proceedings of the American Society of Plastic and Reconstructive Surgery*. Presented at the annual meeting of the American Society for Plastic and Reconstructive Surgery, San Francisco, October.
- Corner, BD, JT Richtsmeier, and S Danahey 1990 Morphometric analysis of skull growth in *Cebus apella*. *Amer J Phys Anthropol* 81(2) 208.
- Richtsmeier, JT and SR Lele 1990 Analysis of morphological variation within neontological and paleontological species. *Amer J Phys Anthropol* 81(2) 286.
- Grausz, HM, JT Richtsmeier, and ML Oster-Granite 1991 Morphogenesis of the brain and craniofacial complex in trisomy 16 mice. Presented at the meeting of the National Down Syndrome Society, New York City, January.
- Richtsmeier, JT 1991 Implications of the use of varying element types in finite-element analysis of craniofacial growth. *Amer J Phys Anthropol*, Supplement 12:151.
- Dufresne, CR, BD Corner, and JT Richtsmeier 1991 Categorization of craniofacial dysmorphology for purposes of predicting surgical outcome. Presented at the IV Biannual meeting of the International Society of Craniomaxillofacial Surgery, Santiago de Compostela, Spain, June.
- Richtsmeier, JT, CR Dufresne 1992 The interaction of growth pattern and surgical outcome in craniosynostosis. *Amer J Phys Anthropol*, Supplement 14:138.
- Grausz, HM, JL Marsh, MW Vannier, JT Richtsmeier 1992 A three-dimensional study of basicranial growth in craniosynostosis as compared to normal growth patterns. *Amer J Phys Anthropol*, Supplement 14:83-84.
- Corner, BD, JT Richtsmeier 1992 Craniosynostosis in a collection of wild shot mantled howler monkeys (*Alouatta palliata*). *Amer J Phys Anthropol*, Supplement 14:63.
- Lele, S, JT Richtsmeier 1992 A statistical method for the comparison of growth patterns applied to sexual dimorphism of ontogeny in macaques. *Amer J Phys Anthropol*, Supplement 14:108.
- Dufresne, CR, H Grausz, JT Richtsmeier 1993 The effects of rigid fixation on the growing craniofacial skeleton. Presented at a symposium entitled, "Rigid fixation of the craniofacial skeleton" sponsored by the Tampa Bay Craniofacial Center, the University of Florida, and Howmedica.
- Lele, S, JT Richtsmeier 1993 Confidence intervals for growth and form difference based on Euclidean distance matrix analysis. *Amer J Phys Anthropol*, Supplement 16:133.
- Corner, BD, DJ Meldrum, JT Richtsmeier 1993 The relationship of *Cebus* and *Saimiri*: Synapomorphs and cranial form. *Amer. J. Phys. Anthropol.*, Supplement 16:74.
- Richtsmeier, JT, TM Cole, III, S Lele 1994 Euclidean distance matrix analysis: models for growth. Presented at the fourth International Congress of Vertebrate Morphology, Chicago, IL, July-August.

- Mayer, MH, R Ellenbogen, JO Hollinger, L Wong, JT Richtsmeier, JA Bley, D Yules, PN Manson 1994 Rigid skeletal fixation of the immature craniofacial skeleton in non-human primates. Presented at a symposium, "Resolving controversies in craniomaxillofacial surgery: the role of plate and screw fixation for craniofacial reconstruction in infants, children and young adults", Amer Soc Maxillofacial Surgeons, Sept, San Diego.
- Cole, TM III, JT Richtsmeier, S Lele 1995 Problems in the character analysis of morphometric data, with examples from the Atelinae. *Amer J Phys Anthropol*, Supplement 17.
- Kontis, TC, and JT Richtsmeier 1995 A longitudinal study of rabbit skull base growth using 3-dimensional CT analysis. Presented at the American Academy of Facial Plastic and Reconstructive Surgery, September, New Orleans.
- Dufresne, CR, R Ragavan, S Fang, P Pang, JT Richtsmeier 1995 Craniofacial surgical planning and dynamic skeletal modeling: new tools to predict growth following surgery. Presented at the VIth International Congress of Craniofacial Surgery, October, Saint Tropez.
- Mayer, MH, RG Ellenbogen, JO Hollinger, L Wong, TM Cole, JT Richtsmeier, J Manson, JA Bley, D. Yules, PN Manson 1995 Rigid skeletal fixation of the immature craniofacial skeleton in the non-human primate. Presented at the VIth International Congress of Craniofacial Surgery, October, Saint Tropez.
- Fang, S, R Raghavan, JT Richtsmeier 1996 Volume morphing methods for landmark based 3D image deformation. Presented at the *Society of Photo-Optical Instrumentation Engineers Conference (SPIE)*.
- Burrows, AM, MP Mooney, TD Smith, HW Loskin, MI Siegel, JT Richtsmeier 1996 Three-dimensional analysis of craniofacial growth in congenital coronal suture synostosed rabbits using Euclidean Distance Matrix Analysis. *Amer J Phys Anthropol*, Supplement 22: 77.
- Richtsmeier, JT, S Lele, TM Cole III 1996 Growth patterns and phylogenetic relationships among the anthropoids. *Amer J Phys Anthropol*, Supplement 22: 197-198.
- Raghavan, R, P Pang, S Fang, JT Richtsmeier 1996 Three dimensional morphing of anthropoid craniofacial morphology for the study of growth and evolution. *Amer J Phys Anthropol*, Supplement 22: 193.
- Kelly, D, D Hauser, T Kontis, J Richtsmeier 1996 Registration points for 3-D visualization of normal growth are found in the cranial base of the New Zealand White Rabbit. Presented at the Experimental Biology '96 Conference.
- Kelly, DK, T Kontis, D Hauser, JT Richtsmeier 1996 Registration points for 3-D visualization of normal growth in the cranial base of the New Zealand White Rabbit. Presented at the American Cleft Palate-Craniofacial Annual Meeting, April, San Diego.
- Richtsmeier, JT, J Ohman, C VanderKolk, B Carson, S Fang, R Raghavan, D Hauser 1996 3D Analysis and visualization of growth in craniosynostosis. Presented at the American Cleft Palate-Craniofacial Annual Meeting, April, San Diego.
- Richtsmeier, JT, J Ohman, C VanderKolk, B Carson, E Waks, H Said, P Elfert, T Cole, S Lele 1996 Heterogeneity in sagittal synostosis: morphology and etiology. Presented at the American Cleft Palate-Craniofacial Annual Meeting, April, San Diego.
- Ohman, JC, H Tan, C VanderKolk, JT Richtsmeier 1996 Craniosynostosis in mantled howler monkeys (*Alouatta palliata*) a new look with computed tomography. Presented at the American Cleft Palate-Craniofacial Annual Meeting, April, San Diego.
- Ardayfio, P. and JT Richtsmeier 1996 Morphology and growth in sagittal synostosis. Presented at the Argonne Symposium for Undergraduates in Science, Engineering and Mathematics, Argonne National Laboratory, November.
- Cole, TM III, JT Richtsmeier, I Horovitz, RDE MacPhee 1997 Morphometric affinities of *Paralouatta varonai*. *Amer J Phys Anthropol*, Supplement 24: 93-94.
- Krovitz, G, TM Cole, III, JT Richtsmeier 1997 Three-dimensional comparisons of craniofacial growth patterns in Neanderthals and modern humans. *Amer J Phys Anthropol*, Supplement 24: 147.
- Li, Y and JT Richtsmeier 1997 Morphometric analysis of the ontogeny of sexual dimorphism of the bony pelvis in the squirrel monkey (*Saimiri sciureus*, Cebidae). *Amer. J. Phys. Anthropol.*, Supplement 24: 155.
- Richtsmeier, JT, TM Cole III, C Valeri, GE Krovitz, S Lele 1997 Growth and morphology in sagittal synostosis. Presented at the American Cleft Palate-Craniofacial Annual Meeting, April, New Orleans.



- Cole, TM III, GE Krovitz, JT Richtsmeier 1997 Patterns of calvarial growth in unilateral lambdoid synostosis and posterior plagiocephaly without synostosis. Presented at the American Cleft Palate-Craniofacial Annual Meeting, April, New Orleans.
- Gersony, R and JT Richtsmeier 1997 Web-Lecture prototype, "Basics of the Pelvis and Perineum", using an anatomical digital art data base. Presented at a University-wide symposium, "From Vision to Reality: integrating learning technologies into Hopkins Education", The Johns Hopkins University, October.
- Long, L, JT Richtsmeier, A Lubensky, M Yo, M Abrams, A Patwardhan, A Reiss, RH Reeves 1997 Segmentally trisomic Ts65Dn mice show several morphological phenotypes of Down Syndrome. 7<sup>th</sup> International Workshop on Human Chromosome 21, Berlin, Germany.
- Valeri, CJ, TM Cole, S Lele, JT Richtsmeier 1998 Capturing data from three dimensional surfaces using fuzzy landmarks. *Amer J Phys Anthropol*, Supplement 26: 222.
- Cole, TM, III, MA O'Leary, JT Richtsmeier 1998 Morphometric modeling of evolutionary form change. *Amer J Phys Anthropol*, Supplement 26: 121-122.
- Zumpano, M and JT Richtsmeier 1998 A three dimensional morphological analysis of Trigonocephaly. American Cleft Palate-Craniofacial Association Program: page 70.
- Richtsmeier, JT, LL Baxter, RH Reeves 1998 Postcranial and cranial phenotypes of segmentally trisomic Ts65Dn mice are similar to those of Down Syndrome. Presented at a Conference celebrating the life and work of D'Arcy Wentworth Thompson, "On growth and Form: spatio-temporal patterning in biology", Dundee, Scotland.
- Cole, TM III, VB DeLeon, S Lele, JT Richtsmeier 1998 Recognition of shape-conservative landmark cliques in the morphometric study of form. Presented at a Conference celebrating D'Arcy Wentworth Thompson, "On growth and Form: spatio-temporal patterning in biology", Dundee, Scotland.
- Baxter, LL, M Abrams, JT Richtsmeier, A Reiss, RH Reeves 1998 Ts65Dn segmentally trisomic mice exhibit morphological changes in cerebellum similar to those in Down Syndrome. *Amer J Hum Genet*, 63 A 159.
- Richtsmeier, JT, K Aldridge, V DeLeon, CJ Valeri, MP Zumpano, JL Marsh, C VanderKolk, BS Carson 1999 Quantification of distinct craniofacial morphologies in isolated metopic, sagittal, and unicoronal synostosis and Crouzon syndrome, using a principal coordinates application of EDMA. Presented at the American Cleft Palate-Craniofacial Association meetings, Scottsdale, AZ.
- Zumpano, MP, VB DeLeon, BS Carson, CA VanderKolk, JT Richtsmeier 1999 A comparison of basicranial morphology between pre- and post-operative patients with sagittal synostosis. Presented at the American Cleft Palate-Craniofacial Annual Meeting, Scottsdale, AZ.
- DeLeon, VB, MP Zumpano, JT Richtsmeier 1999 Effects of neurocranial surgery on basicranial growth in isolated sagittal synostosis. *Amer J Phys Anthropol*, Supplement 28: 117.
- Aldridge, KA and JT Richtsmeier 1999 Patterns of craniofacial variability in three savanna baboon groups. *Amer J Phys Anthropol*, Supplement 28: 82-83.
- Lubensky, AM and JT Richtsmeier 1999 Craniofacial change in the mature and elderly: a three-dimensional comparison of sexual dimorphism in aging. *Amer J Phys Anthropol*, Supplement 28:187.
- Richtsmeier, JT, LL Baxter, RH Reeves 1999 Morphological characteristics and developmental processes of aneuploidy. *Amer J Phys Anthropol*, Supplement 28:232-233.
- Valeri, CJ, RH Reeves, CB Ruff, JT Richtsmeier 1999 The limits and possibilities of micro CT scanning. *Amer J Phys Anthropol*, Supplement 28:269-270.
- Baxter, LL, JT Richtsmeier, RH Reeves 1999 Completely penetrant phenotypes in Ts65Dn mice provide a key to defining mechanisms of gene action in Down syndrome. Presented at the International Conference on Down Syndrome, Israel.
- Valeri, CJ, TM Cole, II, S Lele, JT Richtsmeier 2000 Directional asymmetry in plagiocephaly without synostosis and unicoronal synostosis. *Amer J Phys Anthropol*, Supplement 30: 308.
- Aldridge, K, PE Barta, GD Pearlson, JT Richtsmeier 2000 Brain morphology, MRI data, and landmark-based analyses of form. *Amer J Phys Anthropol*, Supplement 30: 94.
- DeLeon, VB, TM Cole, III, S. Lele, JL Marsh, JT Richtsmeier 2000 Reversal of asymmetric growth in the cranial base following neurocranial surgery in unicoronal craniosynostosis. *Amer J Phys Anthropol*, Supplement 30: 136.

- Richtsmeier, JT, TM Cole, III, CJ Valeri, T Kontis 2000 Comparison of longitudinal, cross-sectional and mixed longitudinal data in growth analysis. *Amer J Phys Anthropol*, Supplement 30: 262-263.
- Richtsmeier, JT, CJ Epstein, A Zumwalt, E Carlson, RH Reeves 2000 Maldevelopment of the craniofacial skeleton in Ts1Cje mice parallels that in Ts65Dn mice. Molecular Biology of Chromosome 21 and Down Syndrome Workshop, Jackson Laboratory, Bar Harbor, ME.
- Aldridge, K.A., JL Marsh, CA Perlyn, JT Richtsmeier 2001 Quantification of central nervous system dysmorphology in isolated craniosynostoses. Presented at the American Cleft Palate-Craniofacial Annual Meeting, Minneapolis, MN.
- Cole, TM, III, JT Richtsmeier 2001 Morphometric assessment of craniofacial form in Apert and Crouzon syndromes: what, if anything, is "normal?" Presented at the American Cleft Palate-Craniofacial Annual Meeting, Minneapolis, MN. Presented at the American Cleft Palate-Craniofacial Annual Meeting, Minneapolis, MN.
- DeLeon, VB, K Dansey, AA Kane, TM Cole, III, S Lele, JL Marsh, CA VanderKolk, BS Carson, CA Perlyn, DP Govier, JT Richtsmeier 2001 Neurocranial surgery affects growth patterns in the osseous cranial base and soft tissues of the face and ear regions. Presented at the American Cleft Palate-Craniofacial Annual Meeting, Minneapolis, MN.
- Kane, AA, VB DeLeon, C Valeri, JT Richtsmeier, L-J Lo 2001 Preoperative osseous dysmorphology of unilateral complete cleft lip and palate: a Euclidean Distance Matrix Analysis of CT data. Presented at the American Cleft Palate-Craniofacial Annual Meeting, Minneapolis, MN.
- Richtsmeier, JT, A Zumwalt, CJ Epstein, EJ Carlson, RH Reeves 2001 Parallels of craniofacial development in two mouse models for Down Syndrome. Presented at the American Cleft Palate-Craniofacial Annual Meeting, Minneapolis, MN.
- Aldridge, KA, JL Marsh, AA Kane, CA Perlyn, JT Richtsmeier 2001 Quantification of the impact of isolated craniosynostoses on central nervous system morphology. Presented at the 9<sup>th</sup> International Congress on Cleft Palate and related Craniofacial Anomalies, Göteborg, Sweden.
- Richtsmeier, JT, CJ Valeri, FL Williams, T Kontis 2001 Comparison of longitudinal and cross-sectional data in growth analysis. Presented at the 9<sup>th</sup> International Congress on Cleft Palate and related Craniofacial Anomalies, Göteborg, Sweden.
- Kane, AA, VB DeLeon, C Valeri, JT Richtsmeier, L-J Lo 2001 The effects of growth and lip repair upon osseous facial morphology in unilateral complete cleft lip and palate: an analysis of longitudinal CT data. Presented at the 9<sup>th</sup> International Congress on Cleft Palate and related Craniofacial Anomalies, Göteborg, Sweden.
- Richtsmeier, JT, A Zumwalt, CJ Epstein, EJ Carlson, RH Reeves 2001 Maldevelopment of the craniofacial skeleton in two mouse models for Down syndrome. Presented at the 9<sup>th</sup> International Congress on Cleft Palate and related Craniofacial Anomalies, Göteborg, Sweden.
- Richtsmeier, JT, A Zumwalt, CJ Epstein, EJ Carlson, RH Reeves 2001 Parallels of maldevelopment of the craniofacial skeleton in Down syndrome and in two segmentally trisomic mouse models. Presented at the 6<sup>th</sup> International Congress of Vertebrate Morphology, Jene, Germany.
- Williams, FL, JT Richtsmeier 2001 Do cross-sectional craniofacial growth data underestimate longitudinal growth? Testing a hypothesis of Franz Boas. Presented in the symposium, "Plastic and Enduring: 100 Years of Studies of Past Lives and Past Histories", Amer. Assoc. of Anthropol. annual meetings, Washington, D.C.
- Cole, Theodore M., K Aldridge, V DeLeon, J Marsh, JT Richtsmeier 2002 Three-dimensional visualization of midsagittal plane distortions in cases of craniofacial asymmetry. Presented at the annual meetings of the American Cleft Palate-Craniofacial Association, Seattle.
- Richtsmeier, JT, J Lund, ES Lindsay, J Leszl, RH Reeves 2002 Mice homozygous for a null allele of *Gscl* show dysmorphology of the cranial base and face. Presented at the annual meetings of the American Cleft Palate-Craniofacial Association, Seattle.
- Aldridge K, Marsh JL, Perlyn C, Panchal, J, Richtsmeier JT (2002) Effects of neurocranial surgery on growth of the central nervous system in isolated sagittal craniosynostosis. Presented at the annual meeting of the American Cleft Palate-Craniofacial Association, Seattle.

- Richtsmeier, JT, TM Cole, III, J Leszl, CA Hill, V Aquino, R.H. Reeves (2002) Development of skull dysmorphology in Ts65Dn segmentally trisomic mice. Poster presented at the annual meetings of the American Society of Human Genetics, Baltimore. *Amer. J. Hum Genet* 71(4):280.
- Richtsmeier, JT, KJ Aldridge, TM Cole, III, VB DeLeon, D Govier, JL Marsh, AA Kane, J Panchal, C VanderKolk, BS Carson (2003) Integration of brain and bone in craniosynostosis. Presented at the annual meeting of the American Cleft Palate-Craniofacial Association, Asheville, NC.
- Hill, CA, RH Reeves, CJ Epstein, C Valeri, ES Lindsay, LA Baxter, TM Cole, JT Richtsmeier (2003) Developmental instability and skeletal phenotypes in Down syndrome. Presented at the annual meeting of the American Association of Physical Anthropology, Tempe, AZ. *Amer J Phys Anthropol* Suppl 36:114.
- Aldridge K, DeLeon VB, Richtsmeier, JT (2003) Developmental instability and isolated sagittal craniosynostosis. *American Journal of Human Genetics, Supplement* 73: 322.
- Leszl, J, R Reeves, L Olsen, JT Richtsmeier (2004) The 'critical region' is not sufficient to produce characteristic craniofacial phenotypes in a mouse model for Down syndrome. Presented at the 61<sup>st</sup> annual meeting of the American Cleft palate-craniofacial association, Chicago.
- Hill, C, A Zumwalt, J Leszl, C Epstein, R Reeves, TM Cole III, JT Richtsmeier (2004) Directional asymmetry in mouse models for craniofacial disorders. Presented at the 61<sup>st</sup> annual meeting of the American Cleft palate-craniofacial association, Chicago.
- Frazier, B, M. Mooney, B Losken, M Barbano, M Moursi, C Martin, M Siegel, P Yan, JT Richtsmeier (2004) Growth comparison via linear distance analysis of craniosynostotic rabbits treated with anti-TGF $\beta$  antibody at suturectomy site. Presented at the 61<sup>st</sup> annual meeting of the American Cleft palate-craniofacial association, Chicago.
- Richtsmeier, JT K Aldridge, TM Cole III, V DeLeon, P Yan, J Panchal, B Carson, C VanderKolk, J Marsh, D Govier, A Kane (2004) The relationship between skull and central nervous system phenotypes in craniosynostosis. Presented at the 61<sup>st</sup> annual meeting of the American Cleft palate-craniofacial association, Chicago.
- Cole, M, TM Cole, III, JT Richtsmeier 2004 Craniofacial morphology in human neonatal progeroid syndrome. Presented at the 61<sup>st</sup> annual meeting, Ameri Cleft palate-craniofacial association, Chicago.
- Richtsmeier, JT, CJ Epstein, RH Reeves 2004 A test of the "developmental instability" hypothesis in two mouse models for Down syndrome. Presented at the Expert Workshop on the Biology of Chromosome 21 Genes, Washington, D.C.
- Olson, LE, J Leszl, JT Richtsmeier, RH Reeves 2004 The DSCR is not critical for Down syndrome. Presented at the Expert Workshop on the Biology of Chromosome 21 Genes, Washington, D.C.
- Aldridge K, Boyd SAB, Capone G, DeLeon VB, Richtsmeier JT 2004 Anthropometric landmarks from 3dMD surface images: a study of accuracy and repeatability. Fifty-fourth annual meeting of the American Society of Human Genetics. Toronto, Canada. Abstract.
- Richtsmeier, JT, K Aldridge, AA Kane, JL Marsh, J Panchal, VB DeLeon 2005 Phenotypic integration of brain and skull. Presented at the annual meeting of the American Association of Physical Anthropology, Milwaukee, WI. *Amer J Phys Anthropol* Suppl 40:176.
- Hill, CA, RH Reeves, JT Richtsmeier 2005 Mandibular changes in a mouse model for craniofacial disorders. Presented at the annual meeting of the American Association of Physical Anthropology, Milwaukee, WI. *Amer J Phys Anthropol* Suppl 40:115-116.
- Frazier, B, K Aldridge, JT Richtsmeier 2005 Sexual dimorphism and morphological integration in baboons. Presented at the annual meeting of the American Association of Physical Anthropology, Milwaukee, WI. *Amer J Phys Anthropol* Suppl 40:103.
- Aldridge, KA, RH Reeves, LL Baxter, LE. Olson, JT Richtsmeier 2005 Distinct brain phenotypes in three aneuploid mouse models with implications for Down syndrome brain phenotypes. Presented at Crossover 2005, University Park, PA.
- Cole, TM III, S Lele, JT Richtsmeier 2006 Model-based estimation of variance-covariance structure in landmark data, with a consideration of morphological integration in the *Macaca fascicularis* cranium. Presented at the annual meeting of the American Association of Physical Anthropology, Anchorage, AK. *Amer J Phys Anthropol* 129, Suppl 42:76.

- Miller, W, HA Lawson, A Nekrutenko, C Addo-quaye, A Buchanan, JT Richtsmeier, KM Weiss and the rhesus macaque genome sequencing consortium 2006 An analysis of human / chimpanzee / macaque orthologs. Presented at the annual meeting of the American Association of Physical Anthropology, Anchorage, AK. *Amer J Phys Anthropol* 129, Suppl 42:45.
- Richtsmeier JT, Weiss KM, Buchanan A, Walker A, Jablonski N, Frazier BC, Willmore KE, Lawson H, Yan P, Hill CA, Roseman CC, Cheverud JM, Falk D, Hildebolt CF, and Rogers J. Developmental genetic basis of primate craniofacial variation and human origins. 2007 *Amer J Phys Anthropol* 132(S44):198.
- Roseman CC, Willmore KE, Richtsmeier JT, Rogers J, Weiss KM, Walker A, Hildebolt CF, and Cheverud JM. The genetic basis of phenotypic integration in baboon and mouse craniomandibular morphology with implications for human cranial evolution. 2007 *Amer J Phys Anthropol* 132(S44):199.
- Willmore KE, Roseman CC, Cheverud JM, Frazier BC, Rogers J, Weiss KM, Walker A, Hildebolt CF, and Richtsmeier JT 2007. Genetic and phenotypic variation in craniofacial dimorphism in baboons. *Amer J Phys Anthropol* 132(S44):251.
- Liberton, DK, McEvoy B, Bauchet M, Hill CA, Richtsmeier JT, Frudakis T, Shriver MD 2007 Variation in facial features among European populations measured from 3D photographs. *Amer J Phys Anthropol* (S44):156.
- Willmore KE, HA Lawson, CC Roseman, JM Cheverud, JT Richtsmeier 2008 Comparison of phenotypic and genetic integration between mouse and baboon. *Amer J Phys Anthropol* (S46) :224.
- Starbuck, J, K Willmore, RH Reeves, JT Richtsmeier 2008 Quantitative comparison of midface morphology in Down syndrome individuals and unaffected siblings. *Amer J Phys Anthropol* (S46) :200.
- Frazier, B, KE Willmore, JT Richtsmeier 2008 Characterizing neurocranial shape in microcephalic children. *Amer J Phys Anthropol* (S46): 99.
- Percival, C, CA Hill, M Sun, Y Wang, EW Jabs, JT Richtsmeier 2008 Phenotypic variation within and between 'genetically homogeneous' mouse litters. *Amer J Phys Anthropol* (S46) : 170.
- Percival C, M Chimera, K Kim, J Kenney-Hunt, A Conley, C O'Connor, C Roseman, J Cheverud, J Richtsmeier. 2009 A study of 2D landmark data accuracy in representing 3D mouse skull form. *American Journal of Physical Anthropology* (S48):209.
- Frazier BC, JT Richtsmeier 2009. Craniofacial shape and allometry in sister taxa of disparate body sizes: Nasalis larvatus and Simias concolor. Presented at the 78th annual meetings of the American Association of Physical Anthropologists, Chicago, IL. *Amer J Phys Anthropol* Suppl 48:129.
- Starbuck J, RH Reeves, JT Richtsmeier 2009 Morphological Integration of the Down Syndrome Face. *Amer J Phys Anthropol* Suppl 48: 246.
- Rogers, J, JM Cheverud, J Joganic, K Willmore, JT Richtsmeier, C Roseman 2009 Quantitative genetic analysis of primate cranial morphology: Cayo Santiago and beyond. *Amer J Phys Anthropol* 138(S48):316.
- Percival, C, K Willmore, S. Sirivunnabood, J Rogers, J Cherverud, A Buchanan, K Weiss, J Richtsmeier 2010 Morphological changes associated with tooth loss and alveolar resorption in male baboons. *Amer J Phys Anthropol* S50: 187-188.
- Hill, CA, JR Austin, JT Richtsmeier, Y Wang, EW Jabs, K Aldridge 2010 Patterns of morphological integration in the newborn brain. *Amer J. Phys. Anthropol* S50: 128.
- Héuzé, Y, SA Boyadjiev, JT Richtsmeier 2010 The premature closure of the sagittal suture and its consequences on human skull shape: new findings and hypotheses. *Amer J Phys Anthropol* S50:127.
- Aldridge, KA, Y Héuzé, C Percival, J Stella, LG Howell, I George, JL Marsh, A Kane, TM Ryan, JT Richtsmeier 2010 The relationship between hard and soft tissue: lessons for reconstructing virtual endocasts. *Amer J Phys Anthropol* S50:53.
- Neuberger, T, KA Aldridge, CA Hill, JR Austin, TM Ryan, C Percival, N Martinez-Abadias, Y Wang, EW Jabs, AG Webb, JT Richtsmeier 2010 Magnetic Resonance Microscopy and Micro Computed Tomography of Brain Phenotypes of Two FGFR2 Mouse Models for Apert Syndrome. 2364, Proc. 18<sup>th</sup> ISMRM, Stockholm, Sweden.
- Richtsmeier, JT, N Martínez-Abadias, C Percival, T Ryan, T Neuberger, K Aldridge, C Hill, Y Wang, E Wang Jabs 2010 Morphological variance and invariance in the heads of Fgfr+/S252W and

- Fgfr2+/P253R Apert syndrome mice. Gordon Research Conference on Craniofacial morphogenesis and tissue regeneration. April, Lucca, Italy
- Martínez-Abadías, N, C Percival, K Aldridge, C Hill, T Ryan, Y Wang, M Sun, V Ulhorn, EW Jabs, JT Richtsmeier 2010 From genetic mutation to a range of phenotypic variation: craniofacial shape in Apert syndrome mouse models. Gordon Research Conference on Craniofacial morphogenesis and tissue regeneration. Apr 14-16, Lucca, Italy
- Richtsmeier, JT, Neus Martínez-Abadías, Kristina Aldridge-Christopher Percival, Timothy Ryan, Thomas Neuberger, Yingli Wang, Ethylin Wang Jabs 2010 Phenotypic variance, invariance and integration in the heads of Apert syndrome mouse models. European Evolutionary Development Society, Paris, July.
- Martínez-Abadías, N, P Mitteroecker, T Parsons, E Mireia, T Sjøvold, C Rolian, JT Richtsmeier, B Hallgrímsson 2010 Correspondence of developmentally determined craniofacial variation in human and mice. European Evolutionary Development Society, Paris, July.
- Richtsmeier, JT, N Martínez-Abadías, K Aldridge, C.A. Hill, A Buchanan, K Weiss, C J Percival, T Ryan, T Neuberger, Y Wang, EW Jabs 2010 Morphological variance, invariance and integration in the heads of *Fgfr2<sup>+/S252W</sup>* and *Fgfr2<sup>+/P253R</sup>* Apert syndrome mice. European Evolutionary Development Society, Paris, July.
- Martínez-Abadías N, Y Wang, EW Jabs, T Ryan, JT Richtsmeier 2010. Effect of FGFR2 mutations on patterns of morphological integration in the skulls of Apert syndrome mouse models. 33<sup>rd</sup> Meeting of the Society for Craniofacial Genetics. Bethesda, MD. (abstract: *Amer J Med Genet Part A* 155:284)
- Heuzé Y, Martínez-Abadías N, Stella JM, Boyadjiev SA, Richtsmeier JT. 2011. Do left and right unilateral coronal craniosynostoses result from the same biological processes? 33<sup>rd</sup> Meeting of the Society for Craniofacial Genetics. Bethesda, MD. (abstract published *Amer J Med Genet Part A* 155:282)
- Wang, Y., X Zhou, K Oberoi, J Friedenth, CJ Percival, DL Huso, JT Richtsmeier and EW Jabs 2010 Characterization and treatment of Beare Stevenson syndrome *Fgfr2* +/Y394C mouse model. Society for Craniofacial Genetics. (abstract: *Amer J Med Genet Part A* 155:283)
- Heuzé Y, N Martínez-Abadías, JT Richtsmeier 2011 Morphological integration and modularity of the skull: lessons from craniosynostosis. *Annual Meeting the Anthropological Society of Paris, Paris, France*.
- Starbuck, J, R. Reeves, J. Richtsmeier 2011 Morphological integration of the face in Down syndrome individuals and siblings. *Amer J Phys Anthropol* S52:283.
- Sol, K, E Gioan, G Subsol, Y Heuzé, J Richtsmeier, J Braga, F Thackeray 2011 A new 3D morphometric method based on a combinatorial encoding of 3D point configurations: application to skull anatomy for clinical research and physical anthropology. *Amer J Phys Anthropol* S52:280.
- Lambi, AG, TL Pankratz, H Hendesi, R Razmpour, RA Pixley, MF Barbe, JT Richtsmeier, FS Safadi, SN Popoff 2011 Connective tissue growth factor (CTGF/CCN2) is required for normal intramembranous and endochondral ossification. International CCN Society annual meeting, Vancouver, September.
- Lambi, AG, TL Pankratz, H Hendesi, R Razmpour, RA Pixley, MF Barbe, JT Richtsmeier, FS Safadi, SN Popoff 2011 Connective tissue growth factor (CTGF/CCN2) is required for normal intramembranous and endochondral ossification. Orthopedic Research Society annual meeting, San Francisco, CA.
- Ye, X, A Guilmatre, EW Jabs, Y Heuzé, JT Richtsmeier, CM Druschel, PA Romitti 2011 Candidate genes analysis of nonsyndromic sagittal craniosynostosis. 34<sup>th</sup> Meeting of the Society for Craniofacial Genetics. (abstract published *Amer J Med Genet Part A*).
- Motch, S, N Martínez-Abadías, T Pankratz, Y Wang, K Aldridge, EW Jabs, T Neuberger, TM Ryan, JT Richtsmeier 2011 Reading between the lines: the development of negative spaces in a Crouzon syndrome mouse model at birth. 34<sup>th</sup> Meeting of the Society for Craniofacial Genetics. (abstract published *Amer J Med Genet Part A*).
- Hill, CA, JR Austin, JT Richtsmeier, S Motch, N Martínez-Abadías, Y Wang, EW Jabs, K Aldridge 2011 Growth of the skull and brain in a mouse model for Apert syndrome. 34<sup>th</sup> Meeting of the Society for Craniofacial Genetics. (abstract published *Amer J Med Genet Part A*).
- Percival, C, Y Wang, X Zhou, EW Jabs, JT Richtsmeier 2011 Alterations in postnatal craniofacial bone mineral density and volume in the *Fgfr2*Y394C/+ Beare-Stevenson cutis gyrata syndrome mouse model. 34<sup>th</sup> Meeting of the Society for Craniofacial Genetics. (*Amer J Med Genet Part A*).
- Martínez-Abadías, N, Y Heuzé, Y Wang, S Motch, T Pankratz, JM Stella, G García Fructuoso, M Alamar, F Di Rocco, C Collet, L-J Lo, SA Boyadjiev, EW Jabs, JT Richtsmeier 2011 Phenotypic continuum in FGFR

- syndromic craniosynostosis? Evidence from human patients and mouse models. *34th Meeting of the Society for Craniofacial Genetics*. (abstract published *Amer J Med Genet Part A*).
- Heuzé, Y, N Martínez-Abadías, JM Stella, F Di Rocco, C Collet, G García Fructuoso, M Alamar, L-J Lo, SA Boyadjiev, JT Richtsmeier 2011 Is the craniofacial phenotype sufficient to characterize FGFR-related craniosynostosis syndromes? *34th Meeting of the Society for Craniofacial Genetics*. (abstract published *Amer J Med Genet Part A*).
- Aldridge, K JR Austin, E Smallmon, R Desai, LG Howell, M Brandon, Y Wang, EW Jabs, S Motch, JT Richtsmeier, PhD 2012 Brain phenotypes in the FGFR2 C342Y mouse model for syndromic craniosynostosis. Presented at the 69<sup>th</sup> Annual meeting of the American Cleft Palate-Craniofacial Association, San Jose, CA.
- Joganic, JL, KE Willmore, JT Richtsmeier, J Rogers, JM Cheverud 2012 Ligers and tigers and pizzlies, oh my!: the morphological consequences of intergenic hybridization in the cranium of a rheboon (*Macaca mulatta* x *Papio hamadryas*). *Amer J Phys Anthropol* 147, S54 :175
- Smallmon, EN, JR Austin, RJ Desai, LG Howell, KK Cole, ID George, JL Marsh, AA Kane, J Panchal, JT Richtsmeier, K Aldridge 2012 Developmental instability and fluctuating asymmetry in the infant brain. 81<sup>st</sup> annual meeting of AAPA, Portland, OR; abstract: *Amer J Phys Anthropol* 147, S54 :271-272
- Desai, RJ, JR Austin, EN Smallmon, LG Howell, KK Cole, ID George, JL Marsh, AA Kane, J Panchal, JT Richtsmeier, K Aldridge 2012 Patterns of morphological integration in the brain in infants with craniosynostosis. 81<sup>st</sup> annual meeting of AAPA, Portland, OR; abst: *Amer J Phys Anthropol* 147, S54 : 129
- Howell, LG, JR Austin, RJ Desai, KK Cole, EN Smallmon, CA Hill, ID George, JT Richtsmeier, JL Marsh, AA Kane, J Panchal, K Aldridge 2012 Congruence of brain and skull in endocast reconstruction of the infant brain. 81<sup>st</sup> annual meeting of AAPA, Portland, OR; abstract: *Amer J Phys Anthropol* 147, S54 : 169
- Starbuck, JM, RH Reeves, TM Cole, III, JT Richtsmeier 2012 Developmental instability in the Down syndrome face. 81<sup>st</sup> annual meeting AAPA, Portland, OR; abstract: *Amer J Phys Anthropol* 147, S54 :277.
- Heuzé, Y, N Martínez-Abadías, JM Stella, F DiRocco, C Collet, G García Fructuoso, M Alamar, L Lo, SA Boyadjiev, JT Richtsmeier 2012 Craniofacial phenotypic variation in craniosynostosis syndromes: the face makes the difference. 81<sup>st</sup> annual meeting of AAPA, Portland, OR; abstract: *Amer J Phys Anthropol* 147, S54 :165.
- Motch, S, T Neuberger, N Martínez-Abadías, T Pankratz, Y Wang, K Aldridge, EW Jabs, TM Ryan, JT Richtsmeier 2012 Quantitative examination of negative spaces in a Crouzon/Pfeiffer mouse model at birth using multimodal imaging. Presented at the International Society for Magnetic Resonance in Medicine, Melbourne, Australia, May.
- Lambi, A, C Mundy, TL Pankratz, JT Richtsmeier, S Popoff 2012 Defective craniofacial development and bone formation in CTGF knockout mice. Presented at the annual meetings of the American Society for Bone and Mineral Research, Minneapolis, October.
- Percival, C, K Kawasaki, T Pankratz, EW Jabs, K Weiss, JT Richtsmeier 2012 The influence of endothelial expression of an Apert syndrome mutation on craniofacial bone development. Presented at the 25<sup>th</sup> Annual Mouse Molecular Genetics Conference, Asilomar, CA, October.
- Justice, CM, G Yagnik, Y Kim, I Peter, EW Jabs, M Erazo, X Ye, L Shi, M L Cunningham, V Kimonis, T Roscioli, SA Wall, AOM Wilkie, J Stoler, JT Richtsmeier, Y Heuzé, PA Sanchez-Lara, MF Buckley, CM Druschel, JL Mills, M Caggana, PA Romitti, DM Kay, C Senders, PJ Taub, OD Klein, J Boggan, M Zwienenberg-Lee, C Naydenov, J Kim, AF Wilson, SA Boyadjiev 2012 A genome-wide association study identifies risk loci for non-syndromic sagittal craniosynostosis on chromosomes 20 and 7. Presented at David Smith's meeting, Lake Lanier, GA
- Justice, CM, G Yagnik, Y Kim, I Peter, EW Jabs, M Erazo, X Ye, L Shi, M L Cunningham, V Kimonis, T Roscioli, SA Wall, AOM Wilkie, J Stoler, JT Richtsmeier, Y Heuzé, PA Sanchez-Lara, MF Buckley, CM Druschel, JL Mills, M Caggana, PA Romitti, DM Kay, C Senders, PJ Taub, OD Klein, J Boggan, M Zwienenberg-Lee, C Naydenov, J Kim, AF Wilson, SA Boyadjiev 2012 A genome-wide association study identifies risk loci for non-syndromic sagittal craniosynostosis on chromosomes 20 and 7. Presented at the European Society for Genetics annual meeting.



- Percival C, A Winkler, K Kawasaki, T Pankratz, EW Jabs, JT Richtsmeier 2013 Influence of angiogenesis on craniofacial bone morphology. 82<sup>nd</sup> annual meeting of the American Association of Physical Anthropologists, Knoxville.
- Percival CJ, T Pankratz, Y Huang, X Zhou, EW Jabs, R Li, JT Richtsmeier 2013 Early craniofacial bone growth and maturation of Fgfr2<sup>+</sup>/P253R mice and littermates. American Association of Anatomists meeting at Experimental Biology 2012, San Diego, April. Abstract #963.10
- Aldridge, K, JR Austin, SM Motch, T Neuberger, EW Jabs, JT Richtsmeier 2013 Late prenatal brain growth patterns differ in two mouse models for Apert syndrome. Presented at the 12<sup>th</sup> International Congress on Cleft Lip/Palate and Related Craniofacial Anomalies, Orlando, FL.
- Richtsmeier, JT, K Aldridge, SM Motch, CJ Percival, N Martínez-Abadías, Y Heuzé, C Hill, Y Wang, G Holmes, EW Jabs 2013 Craniofacial phenotypes in the FGFR-related craniosynostosis syndromes. Presented at the 12<sup>th</sup> International Congress on Cleft Lip/Palate and Related Craniofacial Anomalies, Orlando, FL.
- Reeves, RH et al. 2013 DS360: Establishing a comprehensive genotype – phenotype study of Down syndrome. Workshop on Cognition in Down Syndrome - Molecular, Cellular and Behavioral Features and the Promise of Pharmacotherapies, Washington, D.C., April (Richtsmeier's role is team leader of the DS Face Project).
- Motch Perrine, S, T Pankratz, EW Jabs, JT Richtsmeier 2013 Effects of FGF-FGFR signaling on mandibular variation in four craniosynostosis models. 35<sup>th</sup> Meeting of the Society for Craniofacial Genetics, Boston, MA. (abstract published *Amer J Med Genet Part A*).
- Dutka, T, N Singh, JT Richtsmeier, R Reeves 2013 Effects of up-regulation of the SHH pathway on Ts65Dn, a mouse model of Down syndrome (2648F). Presented at the 63<sup>rd</sup> Annual Meeting of The American Society of Human Genetics, October 25, 2013 in Boston, MA.
- Lee, C, RH Kraft, JT Richtsmeier 2014 A multiscale computational model for the growth of the cranial vault in craniosynostosis. ASME, Barcelona, Spain.
- Sastre, J, L Russo, J Richtsmeier, J Sharpe N Martínez-Abadías 2014 Morphometrics detect altered gene expression patterns affecting early limb development in Apert syndrome. Meeting Spanish Society for Developmental Biology, Madrid, October.
- Dutka, T., N. Singh, J.T. Richtsmeier, R. Reeves. Does a Reduced Cellular Response to SHH Underlie Multiple Phenotypes of Down Syndrome?; (418.12). Presented at the 44<sup>th</sup> Annual Meeting of The Society For Neuroscience, November 17, 2014 in Washington, DC.
- Baab, KL, D Falk, P Brown, JT Richtsmeier, K McNulty, CF Hildebolt, FW Prior, KE Smith, W Jungers 2015 A re-evaluation of the Down syndrome diagnosis for LB1 (*Homo floresiensis*) 84<sup>th</sup> annual meeting Amer Association of Physical Anthropologists, St. Louis, MO; abstract: *Amer J Phys Anthropol* S60 :74.
- Joganic, J, FB De Oliveira, KE Willmore, JT Richtsmeier, J Rogers, JM Cheverud 2015 The role of genetic correlation in papionin facial evolution. 84<sup>th</sup> annual meeting of the American Association of Physical Anthropologists, St. Louis, MO; abstract published *Amer J Phys Anthropol* S60 :179.
- Flaherty, KV, M Musy, J Sharpe, JT Richtsmeier 2015 Patterns of asynchrony between developmental age and chronological age *in utero*. 84<sup>th</sup> annual meeting of the American Association of Physical Anthropologists, St. Louis, MO; abstract published *Amer J Phys Anthropol* S60 :134.
- Lesciotto, KM, S M Motch Perrine, K Flaherty, K Kawasaki, G Holmes, EW Jabs, JT Richtsmeier 2015 Moving towards a mouse model for choanal atresia. 38<sup>th</sup> Meeting of the Society for Craniofacial Genetics and Developmental Biology, Baltimore, MD. (abstract published *Amer J Med Genet Part A*).
- Flaherty, K, V Mazzocco, JT Richtsmeier 2015 Patterns of asynchrony between developmental age and chronological age *in utero*. 38<sup>th</sup> Meeting of the Society for Craniofacial Genetics and Developmental Biology, Baltimore, MD. (abstract published *Amer J Med Genet Part A*).
- O'Rourke, C, S Motch Perrine, C Assouline, JT Richtsmeier, EW Jabs, G Holmes 2015 Pathogenesis of the upper airway in craniosynostosis: nasal dysmorphogenesis in Apert syndrome Fgfr2<sup>+</sup>/S252W and Fgfr2<sup>+</sup>/P253R mouse models. 38<sup>th</sup> Meeting of the Society for Craniofacial Genetics and Developmental Biology, Baltimore, MD. (abstract published *Amer J Med Genet Part A*).

- Motch Perrine, SM, K Rhodes, M Wu, M Sun, EW Jabs, JT Richtsmeier 2015 Late prenatal effects of the Fgfr3 P244R mutation on murine craniofacial phenotype. *38th Meeting of the Society for Craniofacial Genetics and Developmental Biology, Baltimore, MD. (abstract published Amer J Med Genet Part A).*
- Dutka, T, D Hallberg, N Singh, JT Richtsmeier, RH Reeves 2016 Disruption of Sonic hedgehog (Shh) signaling in trisomy. Presented at the Keystone symposia on molecular and cellular biology: Biology of Down syndrome, January.
- Flaherty, K, V Mazzocco, JT Richtsmeier 2016 Developmental age and size variation in mouse embryos from embryonic days 12-16 as a window to heterochronic processes. 85th annual meeting of the American Association of Physical Anthropologists, Atlanta, GA; abstract published Amer J Phys Anthropol 159(S62):144.
- Joganic, JL, KE Willmore, JT Richtsmeier, KM Weiss, LA Cox, JL Vandeberg, MC Mahaney, J Rogers, JM Cheverud 2016 Building heads: Morphological and genetic variation in facial length, cranial base angle, and endocranial volume in baboons. Presented by J Joganic at the 85th annual meeting of the American Assoc of Physical Anthropologists, Atlanta, GA; abstract published Amer J Phys Anthropol 159 (S62):186.
- Lee, C, JT Richtsmeier, RH Kraft 2016 A coupled reaction-diffusion-strain model of bone growth in the cranial vault. World Congress on Computational Mechanics/6<sup>th</sup> Asia-Pacific Congress on Computational Mechanics, Seoul, Korea, July.
- Peter, I, A Sewda, M Erazo1, K Hao, G García-Fructuoso, I Fernández-Rodríguez, X Ye, S White, S Phillips, Y Heuzé, B Reva, P Romitti, JT Richtsmeier, EW Jabs 2017 Craniosynostosis Network: Targeted next generation sequencing identifies novel and known functional variants in coronal and sagittal nonsyndromic craniosynostosis cases. NICHD 11th Structural Birth Defects Meeting, Bethesda, April.
- Lee, C, JT Richtsmeier, RH Kraft 2017 A computational framework of cranial growth using a reaction-diffusion-strain model. NICHD 11th Structural Birth Defects Meeting, Bethesda, Maryland, April.
- Cole, TM III, L Hu, SR Lele, JT Richtsmeier 2017 Coordinate-system-invariant assessment of measurement error in landmark coordinate data. Presented by T Cole, 86th annual meeting of the American Assoc of Physical Anthropologists, New Orleans, LA, April. Abstract published Amer J Phys Anthropol: 148.
- Joganic, JL, KE Willmore, JT Richtsmeier, LA Cox, MC Mahaney, J Rogers, JM Cheverud 2017 Homoplasy in papionins: an explanation from genetic sources of variation shared by body size and craniofacial form. Presented by J Joganic at the 86th annual meeting of the American Association of Physical Anthropologists, New Orleans, LA, April. Abstract published Amer J Phys Anthropol: 232.
- Singh, N, RH Reeves, JT Richtsmeier 2017 Processes that generate modularity in the mammalian skull: implications for primate skull evolution. Presented by N Singh at the 86th annual meeting of the American Association of Physical Anthropologists, New Orleans, LA, April. Abstract: Amer J Phys Anthropol.: 361.
- Flaherty, K, M Musy, J Sharpe, JT Richtsmeier 2017 eMOSS: a high resolution staging system for mouse embryos aged E10-E15. American Association of Anatomists meeting at Federation of American Societies for Experimental Biology 2017, Chicago, April.
- Martínez-Abadías, N, Mateu, R, J Sastre, A Robert-Moreno, J Swoger, K Kawasaki, J Richtsmeier, J Sharpe 2017 Precise phenotyping reveals early limb defects in Apert syndrome. Presented at III Iberian symposium on geometric morphometrics, June. Abstract published: *Eur. J. Anat.* 21 (4): 331-332 (2017)
- Ryan, T, T. Stecko, S Motch Perrine, H Zheng, D Chen, K Kawasaki, JT Richtsmeier 2017 Three-dimensional visualization of the embryonic murine chondrocranium using contrast-enhanced microCT. Tomography for Scientific Advancement North America, Austin, TX, June.
- Flaherty, KV, A DeFonzo, JT Richtsmeier 2017 Precise temporal characterization of early ossification center appearance using Osx-GFP. 40th Meeting of the Society for Craniofacial Genetics and Developmental Biology, Minneapolis, MN, July (abstract published Amer J Med Genet Part A).
- Joganic, JL, KE Willmore, JT Richtsmeier, LA Cox, MC Mahaney, J Rogers, JM Cheverud 2017 *Wnt*-related genes are over-represented in baboon craniofacial quantitative trait loci. Frontiers in Baboon Research symposium, Germany.

- Flaherty, K, C Halmi, J Richtsmeier 2018 Controlling and contextualizing inter-individual variation in murine embryos E10-E15. Gordon Research Seminar on Craniofacial Morphogenesis, Il Ciocco, Italy, February.
- Motch Perrine, S, T Stecko, T Ryan, EW Jabs, K Kawasaki, JT Richtsmeier 2018 The role of the chondrocranium in development of craniosynostosis phenotypes. Gordon Research Conference on Craniofacial Morphogenesis and Tissue Regeneration, Il Ciocco, Italy, February.
- Flaherty, K, C Halmi, JT Richtsmeier 2018 Using developmental rate variation to establish a fine-grained sequence of ossification center differentiation. Amer Assoc of Anatomists meeting at EB, San Diego.
- Lesciotto, KM, SM Motch Perrine, K Kawasaki, JT Richtsmeier 2018 Identification of a novel vomer phenotype in the *Fgfr2c*<sup>C342Y/+</sup> mouse model of Crouzon syndrome. Amer Assoc of Anatomists meeting at EB, San Diego.
- Musa, M A, DZ Abdullah, H Ahmed, SM Weinberg, JT Richtsmeier 2018 Documenting sex differences in craniofacial norms of Nigerian children (aged 6 – 72 months) from Sokoto, Nigeria. 41st Meeting of the Society for Craniofacial Genetics and Developmental Biology, LoJolla, CA, October.
- Musa, M, A Zagga, H Ahmed, S Weinberg, JT Richtsmeier 2019 First systematic documentation of sex differences in craniofacial norms of Nigerian children. Amer Assoc Anat annual meeting at EB, Orlando.
- Lesciotto, K, S Motch Perrine, M Kawasaki, T Stecko, T Ryan, K Kawasaki, JT Richtsmeier 2019 Three-dimensional visualization of cranial soft tissues in embryonic and early postnatal mice using phosphotungstic acid enhanced microCT. Amer Assoc Anat annual meeting at EB, Orlando.
- Pitirri, MK, KM Lesciotto, S Motch Perrine, NB Stephens, EW Jabs, JT Richtsmeier 2019 Reduced size and complexity of the mandibular first molar in *FGFR3*<sup>P244R/P244R</sup> mice. 42nd Meeting of the Society for Craniofacial Genetics and Developmental Biology, Houston, TX, October (abstract published Amer J Med Genet Part A).
- Singh, N, RH Reeves, JT Richtsmeier 2020 Craniofacial growth and development in a mouse model of Down syndrome. Amer Assoc of Anatomists annual meeting at EB2020, San Diego FASEB Journal, 34, 1. DOI:10.1096/fasebj.2020.34.s1.05170 (American Association of Anatomy at Experimental Biology 2020, San Diego, CA. – presented virtually due to COVID-19)
- Pitirri, MK, Motch Perrine, SM, Takenaka, R., Marcucio, RS, Richtsmeier, JT 2020 Late embryonic skull anomalies in mice carrying the *Fgfr2*W290R Crouzon mutation. FASEB Journal, 34, 1. DOI: 10.1096/fasebj.2020.34.s1.08675 (American Association of Anatomy at Experimental Biology 2020, San Diego, CA. – presented virtually due to COVID-19)
- Durham, EL, K Kawasaki, M Kawasaki, SMM Perrine, JT Richtsmeier 2020 Cranial base abnormalities in developing *Fgfr2c*<sup>C342Y/+</sup> Crouzon syndrome mice. Presented at the 42<sup>nd</sup> annual meeting of the Society for Craniofacial Genetics and Developmental Biology (virtual presentation).
- Perrine, SMMM, G Holmes, EW Jabs, B Bjork, JT Richtsmeier 2020 Three-dimensional exploration of the Pierre Robin phenotype of the *Prdm16*<sup>cGT/cGT</sup> mouse. Presented at the 42<sup>nd</sup> annual meeting of the Society for Craniofacial Genetics and Developmental Biology (virtual presentation).
- Durham, EL, K Kawasaki, M Kawasaki, SM Motch Perrine, JT Richtsmeier Abnormalities in cartilage in embryonic *Fgfr2c*<sup>C342Y/+</sup> Crouzon syndrome mice FASEB Journal, 35, S1. Presented at EB2021, Virtual Meeting, April 2021 <https://faseb.onlinelibrary.wiley.com/doi/10.1096/fasebj.2021.35.S1.01830>
- Pitirri, M.K., Kawasaki, M., Norwood, J.N., Kim, Y., Kawasaki, K., Richtsmeier, J.T. 2021 Differentiation of osteoblast lineage cells that form dermal bones and sutures of the anterior cranial vault in development and disease. FASEB Journal, 35, S1. DOI: 10.1096/fasebj.2021.35.S1.03667 Presented at EB2021, Virtual Meeting, April 2021
- Lesciotto, KM, L Tomlinson, JT Richtsmeier 2021 Establishing normative embryonic and early postnatal cranial bone volume and density values for C57BL/6J laboratory mice. FASEB Journal, 35, S1. <https://doi.org/10.1096/fasebj.2020.34.s1.02442> Presented at EB2021, Virtual Meeting, April 2021
- Motch Perrine, SM, Kawasaki, K, Duham, EL, Zheng, H, Chen, DZ, Jabs, EW, Wu, M, Richtsmeier, JT 2021 SOX9, Meckel's cartilage, and mandibular development. Virtual oral presentation. Society for Craniofacial Genetics and Developmental Biology 44<sup>th</sup> Annual Meeting, October 2021.

- Durham, EL, Kawasaki, K, Kawasaki, M, Pitirri, MK, Motch Perrine, SM, Richtsmeier, JT 2021 Chondrocyte abnormalities in embryonic *Fgfr2<sup>C342Y/+</sup>* Crouzon syndrome mice. Society for Craniofacial Genetics and Developmental Biology 44<sup>th</sup> Annual Meeting, October 2021.
- Veltri, MF, Durham, EL, Lesciotto, KM, Coupe, A, Kawasaki, M, Kawasaki, K, Motch Perrine, SM, Stoykova, A, Tuoc, T, Richtsmeier, JT 2021 Effect of cortex specific overexpression of BAF170 on cranial growth. Society for Craniofacial Genetics and Developmental Biology 44<sup>th</sup> Annual Meeting, October 2021.
- Romano, N, EL Durham, K Kawasaki, M Wu, M Kawasaki, EW Jabs, MK Pitirri, SMM Perrine, JT Richtsmeier Meckel's Cartilage and Mandibles: Effects of the *Fgfr2* C342Y mutation. Poster presented at the AAA annual meeting at EB2022, Philadelphia, PA, April 2022. FASEB J. 2022 May;36 Suppl 1. doi: 10.1096/fasebj.2022.36.S1.R5008
- Durham, EL, M Kawasaki, MK Pitirri, SMM Perrine, K Kawasaki, JT Richtsmeier Differential effects of the *Fgfr2* C342Y mutation on developing cranial cartilage. Poster presented at the AAA annual meeting at EB2022, Philadelphia, PA, April 2022. FASEB J. 2022 May;36 Suppl 1. doi: 10.1096/fasebj.2022.36.S1.R4240
- Singh, N, JT Richtsmeier, Y Kazuki, FJ Gao, B Devenney, RH Reeves Craniofacial morphology of a new mouse model of Down syndrome. Poster presented at the AAA annual meeting at EB2022, Philadelphia, PA, April 2022. FASEB J. 2022 May;36 Suppl 1. doi: 10.1096/fasebj.2022.36.S1.R2456.
- Coupe, A, EL Durham, KM Lesciotto, MF Veltri, M Kawasaki, SMM Perrine, A Stoykova, TC Tuoc, K Kawasaki, JT Richtsmeier Small brains, small skulls: Effect of cortex specific overexpression of BAF170 on the mouse cranium. Poster presented at EB2022, Philadelphia, PA, April 2022. ASEB J. 2022 May;36 Suppl 1. doi: 10.1096/fasebj.2022.36.S1.R5097.
- Veltri, MF, EL Durham, KM Lesciotto, A Coupe, M Kawasaki, SMM Perrine, A Stoykova, TC Tuoc, K Kawasaki, JT Richtsmeier Cortex specific overexpression of BAF170 on growth of the cranial base, cranial vault and facial skeleton. Poster presented at EB2022, Philadelphia, PA, April 2022. FASEB J. 2022 May;36 Suppl 1. doi: 10.1096/fasebj.2022.36.S1.R4743.
- Gifford-Mahany, JA, SN Kiemle, M Kawasaki, TB Tighe, K Kawasaki, JT Richtsmeier Mechanical properties of embryonic mouse cartilage and bone. Poster presented at EB2022, Philadelphia, PA, April 2022. FASEB J. 2022 May;36 Suppl 1. doi: 10.1096/fasebj.2022.36.S1.R5161
- Saturne, M, AS Gonzalez-Reiche, SM Motch Perrine, X Zhou, AC Borges, B Shewale, JT Richtsmeier, B Zhang, H van Bakel, EW Jabs, G Holmesk 2022 Single-cell analysis identifies *Hhip* as a novel regulator of coronal suture development. Gordon Research Conference on craniofacial morphogenesis and tissue regeneration, Ventura, CA, October.

## PUBLICATIONS

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### BOOKS

- Sade, DS, BD Chepko-Sade, JM Schneider, S Roberts, JT Richtsmeier 1985 *Basic Demographic Observations on free-ranging rhesus monkeys*. HRAF, Multimedia Publications, New Haven. 144 pages.
- Lele, S. and JT Richtsmeier 2001 *An invariant approach to statistical analysis of shapes*. Interdisciplinary studies in statistics series. Chapman and Hall-CRC press, London. 308 pages.
- Percival, CJ and JT Richtsmeier (Eds) 2017 *Building Bones: Bone formation and development in anthropology*, Cambridge Univ Press. 320 pgs. ISBN: 9781316388907; DOI: <https://doi.org/10.1017/9781316388907>
- Pitirri, MK, & Richtsmeier, JT (Eds.) 2021 *Evolutionary Cell Processes in Primates: Bone, Brains, and Muscle* (Volume 1, 1st ed.). CRC Press. <https://doi.org/10.1201/9781003206231>
- Pitirri, MK, & Richtsmeier, JT (Eds.) 2021 *Evolutionary Cell Processes in Primates: Genes, Skin, Energetics, Breathing, and Feeding* (Vol 2, 1st ed.). CRC Press. <https://doi.org/10.1201/9781003206293>

### ARTICLES and BOOK CHAPTERS

- Richtsmeier, JT, JM Cheverud, JE Buikstra 1984 The relationship between cranial metric and non-metric traits in the rhesus macaques from Cayo Santiago. *Amer. J. Phys. Anthrop.*, 64: 213-222. PMID: 6476098

- Richtsmeier, JT and JW McGrath 1986 Quantitative genetics of cranial nonmetric traits in random bred mice: heritability and etiology. *Amer. J. Phys. Anthropol.* 69: (1) 51-58. PMID: 3946596
- Richtsmeier, JT and JM Cheverud 1986 Finite element scaling analysis of normal growth of the human craniofacial complex. *J. Craniofac. Genet. Dev. Biol.*, 6: (3) 289-323. PMID: 3771738
- Cheverud, JM and JT Richtsmeier 1986 Finite element scaling applied to sexual dimorphism in rhesus macaque (*Macaca mulatta*) facial growth. *Syst. Zool.*, 35: (3) 109-128.
- Richtsmeier, JT 1987 A comparative study of normal, Crouzon and Apert craniofacial morphology using finite-element scaling analysis. *Amer. J. Phys. Anthropol.* 74:473-493. PMID: 3442299
- Richtsmeier, JT 1988 Craniofacial growth in Apert syndrome as quantified by finite-element scaling analysis. *Acta Anatomica* 133:50-56. PMID: 3213406
- Richtsmeier, JT and JM Cheverud 1989 Sexual Dimorphism of facial growth in *Macaca mulatta* and *M. fascicularis*. Proceedings of the 2nd International Symposium on Vertebrate Morphology. *Fortschritte der Zoologie*, Vol. 35: 438-440. Splechtna and H. Hilgers, editors.
- Richtsmeier, JT, GR Morris, C Hildebolt, MW Vannier 1989 Application of finite-element scaling analysis in the study of growth. *National Computer Graphics Conference Proceedings*, vol. I., pp. 199-206.
- Richtsmeier, JT 1989 Applications of finite element scaling analysis in primatology. *Folia primatologica* 53:50-64. PMID: 2606398
- Kaye, CI, BR Rollnick, WW Hauck, AO Martin, JT Richtsmeier, K Nagatoshi 1989 Microtia and associated anomalies: statistical analysis. *Am. J. Med. Genet.* 34: (4) 574-578. PMID: 2624271
- Richtsmeier, JT and S Lele 1990 Analysis of craniofacial growth in Crouzon syndrome using landmark data. *J. Craniofac. Genet. Dev. Biol.* 10: (1) 39-62. PMID: 2373755
- Lele, S and JT Richtsmeier 1990 Statistical models in morphometrics- are they realistic? *Syst. Zool.* 39: (1) 60-69.
- Richtsmeier, JT, JM Cheverud, GR Morris 1990 Comparison of three-dimensional form. *J. of Anat.* 170:221-223.
- Richtsmeier, JT 1990 Quantitative analysis of three-dimensional data. *Society of Photo-Optical Instrumentation Engineers Conference (SPIE) Proceedings* 1380: 49-60.
- Richtsmeier, JT, GR Morris, JL Marsh, MW Vannier 1990 The biological implications of varying element design in finite-element scaling analyses of growth. *Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, 12: (1) 387-388.
- Leakey, MG, RE Leakey, JT Richtsmeier, EL Simons, AC Walker 1991 Morphological similarities in *Aegyptopithecus* and *Afropithecus*. *Folia Primatologica* 56: (2)65-85. PMID: 1904388
- Richtsmeier, JT, HM Grausz, GR Morris, JL Marsh, MW Vannier 1991 Growth of the cranial base in craniosynostosis. *Cleft Palate Craniofac. J.* 28: (1) 55-67. PMID: 2004097
- Corner, BD and JT Richtsmeier 1991 Morphometric analysis of craniofacial growth in *Cebus apella*. *Amer. J. Phys. Anthropol.* 84:(3) 323-342. PMID: 2024716
- Wong, L, CR Dufresne, JT Richtsmeier, PM Manson 1991 The effect of rigid fixation on growth of the neurocranium. *Plast. Reconstr. Surg.* 88:(3) 395-403. PMID: 1871215
- Grausz, HM, JT Richtsmeier, ML Oster-Granite 1991 Morphogenesis of the brain and craniofacial complex in trisomy 16 mice. In *The morphogenesis of Down Syndrome, Progress in clinical and biological research*, vol. 373, C.J. Epstein, editor. Wiley-Liss, New York. Pp.169-188. PMID: 1780330
- Cheverud, JM, S Hartman, JT Richtsmeier, WR Atchley 1991 A quantitative genetic analysis of localized morphology in mandibles of inbred mice using finite element scaling analysis. *J. Craniofac. Genet. Dev. Biol.* 11:(3)122-137. PMID: 1761645
- Lele, S and JT Richtsmeier 1991 Euclidean distance matrix analysis: a coordinate-free approach for comparing biological shapes using landmark data. *Amer. J. Phys. Anthropol.* 86:(3)415-427. PMID: 1746646
- Dufresne, CR, B Corner, JT Richtsmeier 1992 Categorization of craniofacial dysmorphology for the prediction of surgical outcome. In *Craniofacial Surgery: Proceedings of the fourth meeting of the International Society of Cranio-maxillo-facial surgery*. Monduzzi Editore, Bologna, Italy, pp. 41-45.
- Lele, S and JT Richtsmeier 1992 On comparing biological shapes- detection of influential landmarks. *Amer. J. Phys. Anthropol.* 87:(1) 49-65. PMID: 1736674

- Corner, BD and JT Richtsmeier 1992 Cranial growth in the squirrel monkey (*Saimiri sciureus*)- a quantitative analysis using three dimensional coordinate data. *Amer. J. Phys. Anthropol.* 87:(1) 67-81. PMID: 1736675
- Corner, BD and JT Richtsmeier 1992 Experiments in nature- premature unicoronal cranial synostosis in mantled howler monkeys (*Alouatta palliata*). *Cleft Palate Craniofac. J.* 29:(2) 143-151. PMID: 1571347
- Richtsmeier, JT, JM Cheverud, S Lele 1992 Advances in anthropological morphometrics. *Ann. Rev. Anthropol.* 21: 231-253.
- Richtsmeier, JT 1992 Evolutionary biology and development and dysmorphology. In, *Complex facial problems*, C.R. Dufresne and B. Carson, editors, Churchill-Livingstone, New York. Pp. 13-26.
- Corner, BD, SL Lele, JT Richtsmeier 1992 Measuring precision of three-dimensional landmark data. *Quantitative Anthropol.* 3:(4) 347-359.
- Kaye, C, A Martin, B Rollnick, K Nagatoshi, J Israel, M Haermanoff, B Tropea, J Richtsmeier, NE Morton 1992 Oculoauriculovertebral anomaly: segregation analysis. *Amer J Med Genet* 43:(6) 913-917. PMID: 1415339
- Richtsmeier, JT and A Walker 1993 Morphometric analysis of facial growth in *Homo erectus*. In, *The Nariokotome Homo erectus skeleton*, R.E. Leakey and A. Walker, eds., Harvard Univ Press. Pp. 391-410.
- Richtsmeier, JT, JM Cheverud, SM Danahey, BC Corner, S Lele 1993 Sexual dimorphism of ontogeny in the crab eating macaque (*Macaca fascicularis*). *Journal of Human Evolution*, 25:(1) 1-30.
- Richtsmeier, JT and S Lele 1993 A coordinate-free approach to the analysis of growth patterns: models and theoretical considerations. *Biological Reviews* 68:(3) 381-411. PMID: 8347767
- Richtsmeier, JT, BD Corner, HM Grausz, JM Cheverud, S Danahey 1993 The role of postnatal growth pattern in the production of facial morphology. *Systematic Biology* 42:(3) 307-330.
- Richtsmeier, JT 1993 Beyond morphing: visualization to predict a child's skull growth. *Advanced Imaging* 8:(7) 24-27.
- Corner, BD and JT Richtsmeier 1993 Cranial growth and growth dimorphism in *Ateles geoffroyi*. *Amer. J. Phys. Anthropol.* 92:(3) 371-394. PMID: 8291622
- Wong, L, JT Richtsmeier, PN Manson 1993 Craniofacial growth following rigid fixation: suture excision, miniplating, and microplating. *The Journal of Craniofacial Surgery* 4:(4) 234-244. PMID: 8110905
- Richtsmeier, JT, GH Sack, Jr., HM Grausz, LC Cork 1994 Cleft palate with autosomal recessive transmission in Brittany Spaniels. *Cleft Palate-Craniofacial J* 31:(5) 364-371. PMID: 7986797
- Ohman, J and JT Richtsmeier 1994 Perspectives on craniofacial growth. In *Clinics in Plastic Surgery* 21:(4) 489-499. PMID: 7813150
- Dufresne, C and JT Richtsmeier 1995 Interaction of craniofacial dysmorphology, growth, and the prediction of surgical outcome. *J Craniofacial Surg.* 6:(4) 270-281. PMID: 9020701
- Dufresne, CR, R Raghavan, S. Fang, JT Richtsmeier 1995 Computerized dynamic skeletal modeling for craniofacial surgical planning: new tools to predict growth following surgery. In *Craniofacial Surgery: Proceedings of the VIth Congress of the International Society for Craniofacial Surgery*. Daniel Marchac, Editor. Monduzzi Editore, Bologna. Pp 31-32.
- Richtsmeier, JT, C Paik, P Elfert, T Cole, HR Dahlman 1995 Precision, repeatability and validation of the localization of cranial landmarks using computed tomography scans. *Cleft Palate-Craniofacial Journal* 32: (3)217-227. PMID: 7605789
- Lele, S and JT Richtsmeier 1995 Euclidean Distance Matrix Analysis- confidence intervals for form and growth comparison. *Amer J Phys Anthropol* 98: (1) 73-86. PMID: 8579192
- Fang, S, R Raghavan, JT Richtsmeier 1996 Volume morphing methods for landmark based 3D image deformation. *Proc. 1996 SPIE Medical Imaging*, pp. 404-415. Newport Beach, CA.
- Shapiro, D and Richtsmeier, JT 1997 Brief communication: a sample of pediatric skulls available for study. *Amer J Phys Anthropol* 103(3): 415-416. PMID: 9261504
- Richtsmeier, JT, T Cole, CJ Valeri, G Krovitz S Lele 1998 Pre-operative morphology and development in sagittal synostosis. *J. Craniof. Genet. Devel. Biol.*, 18: (2) 64-78. PMID: 9672839
- Cole, T.M.III and JT Richtsmeier 1998 A simple method for visualization of influential landmarks when using Euclidean Distance Matrix Analysis. *Amer J of Phys Anthropol*, 107: (3) 273-283.



- Valeri, C, TM Cole, III, S Lele, JT Richtsmeier 1998 Capturing data from three-dimensional surfaces using fuzzy landmarks. *Amer J of Phys. Anthropol.* 107:(1) 113-124.
- Burrows, AM, JT Richtsmeier, MP Mooney, TD Smith, HW Losken, MI Siegel 1999 Three-dimensional analysis of craniofacial form in a familial rabbit model of nonsyndromic coronal synostosis using Euclidean distance matrix analysis. *Cleft palate-Craniofacial Journal* 36:(3) 196-206.
- Zumpano, MP, BS Carson, JL Marsh, CA VanderKolk, JT Richtsmeier 1999 A three-dimensional morphological analysis of isolated metopic synostosis. *Anat Rec* 256:1-12.
- Fang, S, R Srinivasan, R Raghavan, JT Richtsmeier 2000 Volume Morphing and Rendering -- An Integrated Approach. *Journal of Computer Aided Geometric Design*, 17:(1) 59-81.
- Baxter, LL, TH Moran, JT Richtsmeier, J Troncoso, RH Reeves 2000 Discovery and genetic localization of Down syndrome cerebellar phenotypes using the Ts65Dn mouse. *Hum molec genet*, 9:(2) 195-202.
- Richtsmeier, JT, LL Baxter, RH Reeves 2000 Parallels of craniofacial maldevelopment in Down syndrome and Ts65Dn mice, *Dev Dyn*, 217:137-145.
- DeLeon, VB, EW Jabs, JT Richtsmeier 2000 Craniofacial growth: genetic basis and morphogenetic process in craniosynostosis. In *Plastic Surgery: Indications, Operations, Outcomes*, Achauer, et al., eds., Vol. Two, Part 1, Chapter 42, pp 619-636. Mosby-Yearbook, Inc.
- Reeves, RH, LL Baxter, JT Richtsmeier 2001 Too much of a good thing- understanding effects of gene dosage in Down Syndrome. *Trends in genetics*, 17: (2) 79-84.
- DeLeon, VB, M Zumpano, JT Richtsmeier 2001 The effect of neurocranial surgery on basicranial morphology in isolated sagittal craniosynostosis. *Cleft Palate-Craniofac J* 38(2): 134-146. PMID: 11294541
- Cole, TM, III, S Lele, JT Richtsmeier 2002 A parametric bootstrap approach to the detection of phylogenetic signals in landmark data. In MacLeod N & Forey P (eds.): *Morphometrics, Shape, and Phylogenetics*. London: Taylor and Francis. Pp. 194-219.
- Richtsmeier, JT, A Zumwalt, E Carlson, CJ Epstein, RH Reeves 2002 Craniofacial phenotypes in segmentally trisomic mouse models for Down Syndrome. *Amer J Med Genet* 107(4): 317-324. PMID: 11840489.
- Richtsmeier, JT 2002 Cranial Vault Morphology and Growth in Craniosynostoses. In: Mooney, M.P., and Siegel, M.I. (eds.) *Understanding Craniofacial Anomalies: The etiopathogenesis of craniosynostoses and facial clefting*. New York:Wiley-Liss. Pp. 321-341.
- Aldridge, KA, JL Marsh, D Govier, JT Richtsmeier 2002 Central nervous system phenotypes in craniosynostosis. *J of Anatomy* 201: 31-39. PMCID: PMC1570892
- Richtsmeier, JT, VB DeLeon, S Lele 2002 The promise of geometric morphometrics. *Yearbook of Physical Anthropology* 45: 63-91. PMID: 12653309
- Richtsmeier, JT 2003 Growth. In *Key Concepts and Approaches in Evolutionary Developmental Biology*, BK Hall and W Olson, eds. Harvard University Press, Pp. 161-168.
- Zumpano, M and JT Richtsmeier 2003 Growth-related shape changes in the fetal craniofacial complex of humans (*Homo sapiens*) and pigtailed macaques (*Macaca nemestrina*): A 3D-CT comparative analysis. *Amer. J. Phys. Anthropol*, 120(4): 339-351. PMID: 12627529
- Williams, FL and JT Richtsmeier 2003 Comparison of mandibular landmarks from computed tomography and 3D digitizer data. *Clinical Anatomy*, 16(6): 494-500. PMID: 14566895
- Olson, L, JT Richtsmeier, J Leszl, RH Reeves 2004 A chromosome 21 critical region does not cause specific Down syndrome phenotypes. *Science*, 306: 687-690. PMID: 15499018
- Richtsmeier, JT, S. Lele, TM Cole, III 2005 An invariant approach to the study of fluctuating asymmetry : developmental instability in a mouse model for Down syndrome. In, *Modern Morphometrics in Physical Anthropology*, D Slice, Ed., Kluwer Academic/Plenum Publishers Series, *Developments in Primatology: Progress and Prospects*, RH Tuttle, Ed., Pp. 187-212.
- Richtsmeier, JT, TM Cole, III, S Lele 2005 Landmark morphometrics and the analysis of variation. In, *Variation: A Central Concept in Biology*, B Hallgrímsson and BK Hall, eds., Elsevier Academic Press, Boston. Pp 49-68.
- Aldridge, K, AA Kane, JL Marsh, D Govier, JT Richtsmeier 2005 Relationship of brain and skull in pre- and post operative sagittal synostosis. *J of Anatomy*, 206 (4) 373-385. PMCID: PMC1571486

- Aldridge, K, AA Kane, JL Marsh, J Panchal, SA Boyd, P Yan, D Govier, W Ahmad, JT Richtsmeier 2005 Brain morphology in non-syndromic unicoronal craniosynostosis. *Anat Rec A Discov Mol Cell Evol Biol* 285:690-698. PMID: 15977220
- Wang, Y, R Xiao, F Yang, BO Karim, AJ Iacovelli, J Cai, CP Lerner, JT Richtsmeier, JM Leszl, CA Hill, K Yu, DM Ornitz, J Elisseff, DL Huso, EW Jabs 2005 Abnormalities in cartilage and bone development in the Apert syndrome FGFR2<sup>+/S252W</sup> mouse. *Development*, 132: 3537-3548. PMID: 15975938
- Aldridge KA, SA Boyadjiev, GT Capone, VB DeLeon, JT Richtsmeier 2005 Precision and error of three-dimensional phenotypic measures acquired from 3dMD photogrammetric images. *Amer. J. Med. Genet*, 138A:247-253. PMID: 16158436 NIHMSID 68059
- Richtsmeier JT, KA Aldridge, VB DeLeon, J Panchal, AA Kane, JL Marsh, P Yan, TM Cole III 2006 Phenotypic integration of neurocranium and brain. *Journal of Experimental Zoology Part B: Molecular and Developmental Evolution*, 306B:360-378. PMCID: PMC2752667
- Kane AA, VB DeLeon, C Valeri, DB Becker, JT Richtsmeier, L-J Lo 2007 Preoperative Osseous Dysmorphology in Unilateral Complete Cleft Lip and Palate: A Quantitative Analysis of CT Data. *Plastic and Reconstructive Surgery* 119: 1295-301. PMID: 17496604
- Parsons T, TM Ryan, RH Reeves, JT Richtsmeier 2007 Microstructure of trabecular bone in a mouse model for Down syndrome. *Anatomical Record* 290(4):414-421. PMID: 17514765
- Aldridge KA, RH Reeves, LE Olson, JT Richtsmeier 2007 Differential effects of trisomy on brain shape and volume in related aneuploid mouse models. *Amer. J. Med. Genet.*, 143A:1060-1070. PMID: 17431903
- Hill CA, RH Reeves, JT Richtsmeier 2007 Effects of aneuploidy on skull growth in a mouse model of Down syndrome. *J Anat* 210(4): 394-405. PMCID: PMC2100298
- Committee for the Assessment of the NIOSH Head and Face Anthropometric Survey of U.S. Respirator Users 2007 *Assessment of the NIOSH Head-and-Face Anthropometric Survey of U.S. respirator Users*. J C Bailar III, EA Meyer, R Pool, Eds., The National Academies Press (Richtsmeier is a member of the authoring committee).
- Willmore, KE, NM Young, JT Richtsmeier 2007 Phenotypic variability: its components, measurement, and underlying developmental mechanisms. *Evolutionary Biology* 34(3-4): 99-120.
- Weinberg S, K Neiswanger, JT Richtsmeier, BS Maher, MP Mooney, MI Siegel, ML Marazita 2008 Three-dimensional morphometric analysis of craniofacial shape in the unaffected relatives of individuals with nonsyndromic orofacial clefts: a possible marker for genetic susceptibility. *Amer J Med Genet Part A*, 146(1):409-420. PMID: 18203157
- Hill, CA, JT Richtsmeier 2008 A quantitative method for the evaluation of three-dimensional structure of temporal bone pneumatization. *J Hum Evol*, 55:682-690. PMCID: PMC2837910
- Frazier BC, MP Mooney, HW Losken, T Barbano, A Moursi, MI Siegel, JT Richtsmeier 2008 Comparison of craniofacial phenotype in craniosynostotic rabbits treated with anti-Tgf- $\beta$ 2 at suturectomy site. *Cleft palate-craniofacial Journal*, 45(6): 571-582. PMCID: PMC2836716
- DeLeon, VB and JT Richtsmeier 2009 Fluctuating asymmetry and developmental instability in sagittal craniosynostosis. *Cleft palate-craniofacial Journal* 46(2): 187-196. PMCID: PMC2829315
- Buchanan, AV, S Sholtis, JT Richtsmeier, KM Weiss 2009 What are genes 'for' or where are traits 'from'? What is the question? *Bioessays*, 31:198-208. PMCID: PMC2807122
- Richtsmeier, JT and VB DeLeon 2009 Morphological Integration of the skull in craniofacial anomalies. *Orthodontics and Craniofacial Research*, 12(3):149-158. PMCID: PMC2804975
- Willmore, KE, CC Roseman, J Rogers, JT Richtsmeier, JM Cheverud 2009 Genetic variation in baboon craniofacial sexual dimorphism. *Evolution*, 63(3):799-806. PMCID: PMC2836714
- Marcus, CL, RJH Smith, LA Mankarious, R Arens, GS Mitchell, RGelluru, V Forte, S Goudy, EW Jabs, AA Kane, E Katz, D Paydarfar, K Pereira, RH Reeves, JT Richtsmeier, RL Ruiz, BT Thach, DE Tunkel, JA Whitsett, D Wootton, CJ Blaisdell 2009 Developmental Aspects of the Upper Airway. Report from an NHLBI Workshop, March 5-6, 2009. *Proc Amer Thoracic Soc* 6:513-520. PMCID: PMC3136952
- Hill, CA, TE Sussan, RH Reeves, JT Richtsmeier 2009 Complex contributions of *Ets2* to craniofacial and thymus phenotypes of trisomic Down Syndrome mice. *Am J Med Genet, Part A* 194: 2158-2165. PMCID: PMC2903219

- Willmore, KE, CC Roseman, J Rogers, JM Cheverud, JT Richtsmeier 2009 Comparison of mandibular phenotypic and genetic integration between baboon and mouse. *Evolutionary Biology*, 36: 19-36.
- Aldridge, K, CA Hill, JR Austin, C Percival, N Martínez-Abadías, T Neuberger, Y Wang, EW Jabs, JT Richtsmeier 2010 Brain phenotypes in two FGFR2 mouse models for Apert syndrome. *Devel Dyn*, 239:987-997. PMCID: PMC2829947
- Wang, Y, M Sun, V Uhlhorn, X Zhou, I Peter, N Martínez-Abadías, C A Hill, C J Percival, JT Richtsmeier, D L Huso, E W Jabs 2010 Activation of p38 MAPK pathway in the skull abnormalities of Apert syndrome *Fgfr2*<sup>+/P253R</sup> mice. *BMC Developmental Biology*, 10:22 (22 Feb 2010). PMCID: PMC2838826
- Heuzé, Y, SA Boyadjiev, JL Marsh, AA Kane, E Cherkez, JE Boggan, JT Richtsmeier 2010 New insights into the relationship between suture closure and craniofacial dysmorphology in sagittal nonsyndromic craniosynostosis. *J. Anatomy*, 217: 85-96. PMCID: PMC2913018
- Roseman, CC, KE Willmore, J Rogers, C Hildebolt, BE Sadler, JT Richtsmeier, JM Cheverud 2010 Genetic and environmental contributions to variation in baboon cranial morphology. *Amer. J. Phys. Anthropol.* 143:1-12. PMCID: PMC3258659
- Martínez-Abadías, N, C Percival, K Aldridge, CA Hill, T Ryan, S Sirivunnabood, Y Wang, EW Jabs, JT Richtsmeier 2010 Beyond the closed suture in Apert syndrome mouse models: evidence of primary effects of FGFR2 signaling on facial shape at birth. *Devel Dyn*, 239:3058-3071. PMCID: PMC2965208
- Hill C, Vaddi S, Moffitt A, Kane A, Marsh J, Panchal J, Richtsmeier J, Aldridge K 2011 Intracranial volume and whole brain volume in infants with unicoronal craniosynostosis. *Cleft Palate Craniofac J* 48(4) 394-398. PMCID: PMC3248228
- Percival, CJ, JT Richtsmeier 2011 The epigenetics of dysmorphology: craniosynostosis as an example. In *Epigenetics*, B Hallgrímsson and BK Hall, eds., U of California Press, Berkeley, Pp 377-397.
- Starbuck, JM, RH Reeves, JT Richtsmeier 2011 Morphological integration of soft-tissue facial morphology in Down syndrome individuals and their siblings. *Amer. J. Phys. Anthropol.*, 146: 560-568. PMCID: PMC3258662.
- Martínez-Abadías, N, Y Heuzé, Y Wang, EW Jabs, K Aldridge, JT Richtsmeier 2011 FGF/FGFR signaling coordinates skull development by modulating magnitude of morphological integration: evidence from Apert syndrome mouse models. *PLoS ONE* 6(10): e26425. doi:10.1371/journal.pone.0026425. PMCID: PMC3203899
- Heuzé, Y, N Martínez-Abadías, JM Stella, CW Senders, SA Boyadjiev, L-J Lo, JT Richtsmeier 2012 Unilateral and bilateral expression of a quantitative trait: asymmetry and symmetry in coronal craniosynostosis. *J Exp. Zool. B Mol Dev Evol* Mar;318(2):109-22. doi: 10.1002/jezb.21449 PMCID: PMC3315613.
- Willmore, KE, JE Buikstra, JM Cheverud, JT Richtsmeier 2012 Developmental origin of and covariation between metric and nonmetric cranial traits. In *Bones, Genetics, and Behavior of Rhesus Macaques: Macaca mulatta of Cayo Santiago and Beyond*, Life Science Series: Developments in Primatology: Progresses and Prospects, Springer, Series Editor – Louise Barrett; Editor – Qian Wang Pp. 61-84.
- Joganic, JL, KE Willmore, CC Roseman, JT Richtsmeier, J Rogers, JM Cheverud 2012 Comparative quantitative genetic analysis of cranial capacity and craniofacial morphology in two closely related primate species. In *Bones, Genetics, and Behavior of Rhesus Macaques: Macaca mulatta of Cayo Santiago and Beyond*, Life Science Series: Developments in Primatology: Progresses and Prospects, Springer, Series Editor – Louise Barrett; Editor – Qian Wang. Pp. 37-60.
- Wang, Y, X Zhou, K Oberoi, R Phelps, R Couwenhoven, M Sun, A Rezza, G Holmes, CJ Percival, J Friedenthal, P Krejci, JT Richtsmeier, DL Huso, M Rendl, EW Jabs 2012 p38 Inhibition ameliorates skin and skull abnormalities in *Fgfr2* Beare-Stevenson mice. *J Clinical Investigation*, 122(6):2153-2164. PMID: 22585574; PMCID:PMC3366414.
- Percival, CJ, Y Wang, X Zhou, EW Jabs, JT Richtsmeier 2012 The effect of a Beare-Stevenson syndrome *Fgfr2* Y394C mutation on early craniofacial bone volume and relative bone mineral density in mice. *J Anat.* 221(5):434-442. PMCID: PMC3482351
- Justice, CM, G Yagnik, Y Kim, I Peter, EW Jabs, M Erazo, X Ye, L Shi, M L Cunningham, V Kimonis, T Roscioli, SA Wall, AOM Wilkie, J Stoler, JT Richtsmeier, Y Heuzé, PA Sanchez-Lara, MF Buckley, CM Druschel, JL Mills, M Caggana, PA Romitti, DM Kay, C Senders, PJ Taub, OD Klein, J Boggan, M

- Zwienenberg-Lee, C Naydenov, J Kim, AF Wilson, SA Boyadjiev 2012 A genome-wide association study identifies susceptibility loci for non-syndromic sagittal craniosynostosis on chromosomes 20 and 7. *Nature genetics*, 44: 1360-1364. published online 18Nov2012; doi:10.1038/ng.2463. PMID:23160099; PMCID: PMC3736322.
- Lambi, A, T Pankratz, C Mundy, M Gannon, M Barbe, JT Richtsmeier, S Popoff 2012 The skeletal site-specific role of connective tissue growth factor (CTGF/CCN2) in skeletogenesis. *Devel Dyn*, 241:1944-1959. doi: 10.1002/dvdy.23888. Epub 2012 Nov 5. PMID: 23073844 PMCID in process.
- Martínez-Abadías, N, P Mitteroecker, TE Parsons, M Esparza, T Sjøvold, C Rolian, JT Richtsmeier, B Hallgrímsson 2012 The developmental basis of quantitative craniofacial variation in humans and mice. *Evol Biol* 39(4):554-567. Epub 2012 Nov 20. PMID: 23226904; PMCID: PMC3514712
- Martínez-Abadías, N, Motch, S, T Pankratz, Y Wang, K Aldridge, EW Jabs, JT Richtsmeier 2013 Tissue specific responses to aberrant Fgf signaling in complex head phenotypes. *Devel Dyn*, 242(1):80-94. Epub 2012 Dec 5. PMCID: PMC3556393
- Richtsmeier, JT 2013 Dysmorphology. Entry 458, *Encyclopedia of Genetics*, 2<sup>nd</sup> edition, S Maloy and K Hughes, eds. Elsevier.
- Hill, CA, N Martínez-Abadías, SM Motch, JR Austin, Y Wang, EW Jabs, JT Richtsmeier, K Aldridge 2013 Postnatal brain and skull growth in an Apert syndrome mouse model. *Amer J Med Genet Part A*, 161(4):745-757, doi 10.1002/ajmg.a.35805. PMCID: PMC3606655
- Starbuck, JM, TM Cole, III RH Reeves, JT Richtsmeier 2013 Trisomy 21 and facial developmental instability. *Amer. J. Phys. Anthropol.*, 151(1):49-57. doi: 10.1002/ajpa.22255. PMID: 23505010; PMCID: PMC3744194.
- Martínez-Abadías, N, G Holmes, T Pankratz, Y Wang, X Zhou, EW Jabs, JT Richtsmeier 2013 From shape to cells: mouse models reveal mechanisms altering palate development in Apert syndrome. *Disease models and mechanisms* 6(3): 768-779. doi:10.1242/dmm.010397. PMID: 23519026; PMCID: PMC3634659.
- Richtsmeier, JT, K Flaherty 2013 Hand in glove: brain and skull in development and dysmorphogenesis. *Acta Neuropathol*, 125(4): 469-489, PMID: 23525521; PMCID: PMC3652528.
- Percival, CJ, JT Richtsmeier 2013 Angiogenesis and intramembranous osteogenesis, *Devel Dyn*, 242(8):909-922. PMID: 23737393, PMCID: PMC3803110.
- Klein, OD, J Bush, S Knox, A Jheon, DR Cordero, JT Richtsmeier 2013 The Society for Craniofacial genetics and developmental biology 35<sup>th</sup> annual meeting. *Amer J Med Genet A* 161(12):2938-2952.
- Percival, C, Y Huang, EW Jabs, R Li, J T Richtsmeier 2013 Embryonic craniofacial bone volume and bone mineral density in *Fgfr2*<sup>P253R</sup> and nonmutant mice. *Devel Dyn* 243(4): 541-55. PMID: 24504751 PMCID: PMC3998671.
- Heuzé, Y, N Martínez-Abadías, J Stella, E Arnaud, C Collet, G García Fructuoso, M Alamar, L-J Lo, S Boyadjiev, JT Richtsmeier 2014 Quantification of facial skeletal shape variation in FGFR-related craniosynostosis syndromes. *Birth Defects Research Part A: Clinical and Molecular Teratology*, 100(4): 250-259. PMCID: PMC4029055.
- Heuzé, Y, N Singh, C Basilico, EW Jabs, G Holmes, JT Richtsmeier 2014 Morphological comparison of the craniofacial phenotypes of mouse models expressing the Apert FGFR2 S252W mutation either in neural crest- or mesoderm-derived tissues. *Bone*, 63:101-9. Epub 2014 Mar 13. PMCID: PMC4018479
- Motch Perrine, S, T M Cole III, N Martínez-Abadías, K Aldridge, EW Jabs, J T Richtsmeier 2014 Craniofacial divergence by distinct prenatal growth patterns in *Fgfr2* mutant mice. *BMC Devel Biol*, PMCID: PMC4101838.
- Starbuck, JM, T Dutka, T Ratliff, RH Reeves, JT Richtsmeier 2014 Overlapping trisomies for human Chromosome 21 orthologs produce similar effects on skull and brain morphology in Dp(16)1Yey and Ts65Dn mice. *Amer J Med Genet Part A*, 164(8):1981-1990. PMCID: PMC4107150.
- Heuzé, Y, G Holmes, I Peter, JT Richtsmeier, EW Jabs 2014 Closing the gap: Genetic and genomic continuum from syndromic to nonsyndromic craniosynostoses. *Curr Genet Med Rep*, Sep 1; 2(3): 135-145; PMID 26146956; PMCID: PMC4489147.
- Lee, C, JT Richtsmeier, RH Kraft 2014 A multiscale computational model for the growth of the cranial vault in craniosynostosis. *Proc of the ASME 2014 Inter Mech Engineer Congr & Exposition, ASME IMECE*.

- doi: 10.1115/IMECE2014-38728. IMECE2014-38728, November, Montreal, Canada. PMID: 25909093; PMCID: PMC4404787
- Singh, N, T Dutka, B Devenney, K Kawasaki, R Reeves, JT Richtsmeier 2015 Acute up-regulation of hedgehog signaling causes differential effects on cranial morphology. *Disease models and mechanisms*, 8:1-9. doi:10.1242 PMID: 25540129; PMCID:PMC4348564
- Lee, C, JT Richtsmeier, RH Kraft 2015 A computational analysis of bone formation in the cranial vault in the mouse. *Front Bioeng Biotechnol*. 2015 Mar 19;3:24. doi: 10.3389/fbioe.2015.00024 PMCID: PMC4365500
- Richtsmeier, JT, MC Jones, S Lozanoff, PA Trainor 2015 The Society for Craniofacial Genetics and Developmental Biology 37<sup>th</sup> Annual Meeting, *Amer J Med Genet, Part A* 167: 1455-1473; DOI: 10.1002/ajmg.a.37012
- Trainor, PA, JT Richtsmeier 2015 Facing up to the challenges of advancing craniofacial research. *Amer J Med Genet, Part A*. 167(7):1451-4; PMID: 25820983; PMCID: PMC4478228
- Weiss, KM, A Buchanan, JT Richtsmeier 2015 How are we made? Even well-controlled experiments show the complexity of our traits. *Evol Anthropol* 24(4): 130-136. PMID: 26267434 PMCID: PMC4568433
- Singh, N, T Dutka, RH Reeves, JT Richtsmeier 2016 Chronic up-regulation of sonic hedgehog has little effect on postnatal craniofacial morphology of euploid and trisomic mice. *Devel dyn* 245:114-122. epub ahead of print doi: 10.1002/dvdy.24361. PMID: 26509735; PMCID: PMC4715749.
- Ye, X, A Guilmatre, B Reva, I Peter, Y Heuzé, JT Richtsmeier, DJ Fox, CM Druschel, RJ Goedken, EW Jabs, PA Romitti 2016 Mutation screening of candidate genes in patients with nonsyndromic sagittal craniosynostosis. *Plast and Reconstr Surgery*, 137(3):952-61. PMCID: PMC4770826.
- Flaherty, KV, N Singh, JT Richtsmeier 2016 Understanding craniosynostosis as a growth disorder. *WIREs Dev Biol* 5(4):429-59. PMCID: PMC4911263.
- Flaherty, K, N Singh, and JT Richtsmeier 2016 Inside Cover Image, *WIREs Dev Biol* 55.4. DOI:10.1002/wdev.243. PMCID: PMC4911263
- Taneyhill, L, J Hoover-Fong, S Lozanoff, R Marcucio, JT Richtsmeier, PA Trainor 2016 The society for craniofacial genetics and developmental biology 38th annual meeting. *Am J Med Genet Part A* Jul;170(7):1732-53, DOI: 10.1002/ajmg.a.37651; PMID: 27102868.
- Baab, KL, P Brown, D Falk, JT Richtsmeier, CF Hildebolt, K Smith, W Jungers 2016 A critical evaluation of the Down syndrome diagnosis for LB1, type specimen of *Homo floresiensis*. *PLoS ONE* 11(6): e0155731. doi:10.1371/journal.pone.0155731; PMID: 27275928, PMCID: PMC4898715.
- Heuzé, Y, K Kawasaki, T Schwarz, JJ Schoenebeck, JT Richtsmeier 2016 Developmental and evolutionary significance of the zygomatic bone. *Anat Rec* 299:1616-1630. PMID: 27870340. PMCID: PMC5111587
- Fish, JL, RC Albertson, MP Harris, S Lozanoff, RS Marcucio, JT Richtsmeier, PA Trainor 2017 The society for craniofacial genetics and developmental biology 39th annual meeting. *Am J Med Genet Part A*:1-22. PMID: 28168819.
- Lee, C, JT Richtsmeier, R Kraft 2017 A computational analysis of bone formation in the cranial vault using a coupled reaction-diffusion-strain model. *J Mechanics in Med & Bio*, May 2017 17(4); NIHMS 853364. <https://doi.org/10.1142/S0219519417500737>. PMCID: PMC5722272
- Kawasaki, K and JT Richtsmeier 2017 Association of the chondrocranium and dermatocranium in early skull development, in: Percival, CJ and JT Richtsmeier (Eds.), *Building Bones: Bone Development and Formation in Anthropology*, Cambridge Studies in Biological and Evolutionary Anthropology. Cambridge University Press. Pp 52-78.
- Kawasaki, K, JT Richtsmeier 2017 Appendix to Chapter 3 in *Building Bones: Bone formation and development in anthropology*, Percival, CJ and JT Richtsmeier (Eds.), Cambridge Studies in Biological and Evolutionary Anthropology. Cambridge University Press. Pp 303-315.
- Percival, C.J., K Kawasaki, Y Huang, KM Weiss, EW Jabs, R Li, JT Richtsmeier 2017 The contribution of angiogenesis to variation in bone development and evolution, in: Percival, CJ and JT Richtsmeier(Eds.), *Building Bones: Bone Development and Formation in Anthropology*, Cambridge Studies in Biological and Evolutionary Anthropology. Cambridge University Press. pp. 26-51.

- Motch Perrine, SM, T Stecko, R Neuberger, T Ryan, JT Richtsmeier 2017 Integration of brain and skull in prenatal mouse models of Apert and Crouzon syndromes. *Front Hum neurosci.* 25July, 11:369. doi: 10.3389/fnhum.2017.00369. eCollection 2017. PMID: 28790902 PMCID: PMC5525342
- Richtsmeier, JT 2017 Dysmorphology. In *Reference module in the Life Sciences*, Elsevier. ISBN: 978-0-12-809633-8, <http://dx.doi.org/10.1016/B978-0-12-809633-8.06370-6>
- Starbuck JM, Cole TM, Reeves RH, Richtsmeier JT 2017 The Influence of trisomy 21 on facial form and variability. *Am J Med Genet A.* 173(3) DOI10.1002/ajmg.a.38464, PMCID: PMC5679727.
- Joganic, J, KE Willmore, JT Richtsmeier, MC Mahaney, J Rogers, JM Cheverud 2018 Additive genetic variation in the craniofacial skeleton of baboons (genus *Papio*) and its relationship to body and cranial size. *Amer J Phys Anthropol.* 165(2): 269-285. PMID: 29154459
- Lesciotto, K, Y Heuzé, EW Jabs, JM Bernstein, JT Richtsmeier 2018 Choanal atresia and craniosynostosis: development and disease. *Plast Reconstr Surg* 141(1):156-168. PMCID: PMC5747311
- Musy M, Flaherty K, Raspopovic J, Robert-Moreno A, Richtsmeier JT, Sharpe J. A quantitative method for staging mouse embryos based on limb morphometry. *Development.* 2018 Apr 5;145(7). doi: 10.1242/dev.154856. PMCID: PMC5963863.
- Richtsmeier, JT 2018 A century of development. *Amer J Phys Anthropol* 165(4):726-740. doi: 10.1002/ajpa.23379 PMCID: PMC6007869
- Holmes, G, C O'Rourke, SM Motch Perrine, H van Bakel, JT Richtsmeier, EW Jabs 2018 Midface and upper airway dysgenesis in FGFR2-craniosynostosis involves multiple tissue-specific and cell cycle effects. *Development* 2018 Oct 5;145(19). PMCID: PMC6198473
- Martínez-Abadías N, Mateu Estivill R, Sastre Tomas J, Motch Perrine S, Yoon M, Robert-Moreno A, Swoger J, Russo L, Kawasaki K, Richtsmeier J, Sharpe J. 2018 Quantification of gene expression patterns to reveal the origins of abnormal morphogenesis. *Elife.* 2018 Sep 20;7. doi: 10.7554/eLife.36405. PMCID: PMC6199133.
- Flaherty, KV, and JT Richtsmeier 2018 Its about time: ossification center formation in C57BL/6 mice from E12-E16. *J. Dev. Biol.*, 6, 31; doi:10.3390/jdb6040031, PMCID: PMC6316780.
- Sewda A, SR White, M Erazo, K Hao, G García-Fructuoso, I Fernández-Rodríguez, Y Heuzé, JT Richtsmeier, PA Romitti, B Reva, EW Jabs, I Peter 2019 Nonsyndromic craniosynostosis: novel coding variants *Pediatr Res.* 85(4):463-468. doi: 10.1038/s41390-019-0274-2. PMCID: PMC6398438.
- Lesciotto, K and JT Richtsmeier 2019 Craniofacial skeletal adaptations to encephalization: How do we know what we think we know? *Am J Phys Anthropol.* 2019; 168:S67:27-46. PMCID: PMC6424107
- Lee, C, JT Richtsmeier, R Kraft 2019 A coupled reaction-diffusion-strain model predicts cranial vault formation in development and disease, *Biomech model mechanobiol*, <https://doi.org/10.1007/s10237-019-01139-z>. PMCID: PMC6625897
- Motch Perrine, SM, M Wu, NB Stephens, D Kriti, H van Bakel, EW Jabs, JT Richtsmeier 2019 Mandibular dysmorphology due to abnormal embryonic osteogenesis in FGFR2-related craniosynostosis mice. *Disease models and mechanisms* 2019 12: dmm038513 doi: 10.1242/dmm.038513 PMCID:PMC6550049
- Dolack, ME, C Lee, Y Ru, A Marghoub, JT Richtsmeier, EW Jabs, M Moazen, DA Garzón-Alvarado, RH Kraft 2019 Computational morphogenesis of embryonic bone development: past, present, and future. In, GL Niebur, ed., *Mechanobiology: from molecular sensing to disease*. Elsevier. DOI: 10.1016/B978-0-12-817931-4.00011-X
- Lesciotto KM, Motch Perrine, SM, M Kawasaki, T Stecko, TM Ryan, K Kawasaki, JT Richtsmeier 2019 Phosphotungstic acid-enhanced microCT: Optimized protocols for embryonic and early postnatal mice. *Devel Dyn* 249:573-585. <https://doi.org/10.1002/dvdy.136> PMCID: PMC7125040 [with cover illustration]
- Richtsmeier, JT and KM Lesciotto 2020 From phenotype to genotype and back again (Du génotype au phénotype et vice versa) *BMSAP* 32:8-17 DOI 10.3166/bmsap-2019-0065
- Kazuki, Y, FJ Gao, Y Li, AJ Moyer, B Devenney, K Hiramatsu, S Miyagawa-Tomita, S Abe, K Kazuki, N Kajitani, N Uno, S Takehara, M Takiguchi, M Yamakawa, A Hasegawa, R Shimizu, S Matsukura, N Noda, N Ogonuki, K Inoue, S Matoba, A Ogura, L Florea, A Savonenko, M Xiao, D Wu, DAS Batista, J Yang, Z Qiu, N Singh, JT Richtsmeier, T Takeuchi, M Oshimura, RH Reeves 2020 A non-



- mosaic transchromosomal mouse model of Down syndrome carrying the long arm of human chromosome 21. *eLife* 2020;9:e56223 DOI: 10.7554/eLife.56223. PMCID: PMC7358007
- Zheng, H, S.M. Perrine, M.K. Pitirri, K. Kawasaki, C. Wang, J. Richtsmeier, D.Z. Chen 2020 Cartilage segmentation in high-resolution 3D micro-CT images via uncertainty-guided self-training with very sparse annotation. In: *Medical Image Computing and Computer Assisted Intervention (MICCAI) Part I*, Lima, Peru, October 2020, pp 802-212. DOI: 10.1007/978-3-030-59710-8\_78. PMCID: PMC7711309
- Dias, MS, T Samson, EB Rizk, LS Governale, JT Richtsmeier, and Section on Neurological Surgery, Section on Plastic and Reconstructive Surgery 2020 Identifying the Misshapen Head: Craniosynostosis and Related Disorders. *Pediatrics* 146 (3) e2020015511; DOI: <https://doi.org/10.1542/peds.2020-015511>. PMID: 32868470
- Pitirri, MK, Kawasaki, K, Richtsmeier, JT 2020 It takes two: Building the vertebrate skull from chondrocranium and dermatocranium. *Vertebrate Zoology*, 70(4): 587- 600. <https://doi.org/10.26049/VZ70-4-2020-04>. PMCID: PMC7644101
- Motch Perrine, SM, M Wu, G Holmes, BC Bjork, EW Jabs, JT Richtsmeier 2020 Phenotypes, developmental basis, and genetics of Pierre Robin complex. *J. Dev. Biol.* 8(4), 30; doi:10.3390/jdb8040030. PMCID: PMC7768358
- Harmon, D.J., SM Attardi, M Barremkala, DC Bentley, KM Brown, JF Dennis, HM Goldman, KM Harrell, BA Klein, CJ Ramnanan, JT Richtsmeier, GJ Farkas 2021 An Analysis of Anatomy Education Before and During COVID-19: May–August 2020. *Anat Sci Educ*. <https://doi.org/10.1002/ase.2051>
- Richtsmeier, JT and KM Pitirri 2021 Evolutionary cell biology in anthropological research. In: MK Pitirri & JT Richtsmeier (Eds), *Evolutionary Cell Processes in Primates Bone, Brains, and Muscle*, (1<sup>st</sup> ed., Vol. 1, pp. 1-18) CRC Press/Taylor & Francis Group. <https://www.routledge.com/Evolutionary-Cell-Processes-in-Primates-Bone-Brains-and-Muscle-Volume/Pitirri-Richtsmeier/p/book/9780367437688>
- Martínez-Abadías, N, R González, R Mateu, J Sastre, A Robert-Moreno, J Swoger, SM Motch Perrine, K Kawasaki, JT Richtsmeier, J Sharpe 2021 How gene expression can induce correlated changes in brain and skull systems. In: MK Pitirri & JT Richtsmeier (Eds), *Evolutionary Cell Processes in Primates Bone, Brains, and Muscle*, (1<sup>st</sup> ed., Vol. 1, pp. 203-226) CRC Press/Taylor & Francis Group. <https://www.routledge.com/Evolutionary-Cell-Processes-in-Primates-Bone-Brains-and-Muscle-Volume/Pitirri-Richtsmeier/p/book/9780367437688>
- Holmes G, Gonzalez-Reiche AS, Saturne M, Motch Perrine SM, Zhou X, Borges AC, Shewale B, Richtsmeier JT, Zhang B, van Bakel H, Jabs EW 2021 Single-cell analysis identifies a key role for Hhip in murine coronal suture development. *Nat Comm* <https://rdcu.be/cCQII>, doi:10.1038/s41467-021-27402-5. PMCID: PMC8655033
- Kazuki, Y, FJ Gao, M Yamakawa, M Hirabayashi, K Kazuki, N Kajitani, S Miyagawa-Tomita, S Abe, M Sanbo, H Hara, H Kuniishi, S Ichisaka, Y Hata, M Koshima, H Takayama, S Takehara, Y Nakayama, M Hiratsuka, Y Iida, S Matsukura, N Noda, Y Li, A J Moyer, B Cheng, N Singh, JT Richtsmeier, M Oshimura, RH Reeves 2022 A transchromosomal rat model with human chromosome 21 shows robust Down syndrome features. *Amer J Hum Genet*, <https://doi.org/10.1016/j.ajhg.2021.12.015>. PMCID: [PMC8874226](https://pubmed.ncbi.nlm.nih.gov/368874226/)
- Lesciotto, KM, L Tomlinson, S Leonard, JT Richtsmeier 2022 Normative embryonic and early postnatal cranial bone volume and tissue mineral density values for C57BL/6J laboratory mice. *Devel Dyn*, DVDY458; doi: 10.1002/dvdy.458, PMID 35092111 <https://doi.org/10.1002/dvdy.458> PMCID: PMC9250594.
- Pitirri, MK, EL Durham, N Romano, J Santos, H Zhen, DZ Chen, K Kawasaki, EW Jabs, JT Richtsmeier, M Wu, SM Motch Perrine 2022 Meckel's cartilage in mandibular development and dysmorphogenesis. *Frontiers in Genetics*, <https://doi.org/10.3389/fgene.2022.871927>. PMCID: [PMC9149363](https://pubmed.ncbi.nlm.nih.gov/39149363/)
- Motch Perrine, SM, M Kathleen Pitirri, EL Durham, M Kawasaki, H Zheng, DZ Chen, K Kawasaki, JT Richtsmeier 2022 A dysmorphic mouse model reveals developmental interactions of chondrocranium and dermatocranium *eLife* 11:e76653. PMCID: [PMC9259032](https://pubmed.ncbi.nlm.nih.gov/39259032/)