Stanford

Jill Helms

Professor of Surgery (Plastic & Reconstructive Surgery)

Surgery - Plastic & Reconstructive Surgery

CONTACT INFORMATION

- **Administrative Contact**

  Administrative Associate

  Tel 650 497-3962

Bio

BIO

I am a Professor in the Department of Surgery at Stanford School of Medicine, and my research focuses on understanding why healing slows as we age. We've found that many such age-related changes can be traced back to sluggish stem cells, and my group has developed methods to re-activate a patient's own stem cells for therapeutic intervention in a broad range of conditions affecting bone, cartilage, skin, and hair and beyond.

While conducting clinically relevant research is my main objective, it goes hand-in-hand with another goal: I believe that education is one of the most important tools to improving human health, and I aim to use every avenue available to transform the way people think about science and medicine and emphasize its contribution to our daily lives. One particular passion is introducing young people to the power and beauty of science, through a summer internship on campus (see https://plasticsurgery.stanford.edu/research/stars.html). In my new role as Vice-Chair for Diversity and Inclusion, I also have the great, good fortune to work with exceptional colleagues, students, and community partners to tackle some of the most persistent inequities in healthcare.

ACADEMIC APPOINTMENTS

- Professor, Surgery - Plastic & Reconstructive Surgery
- Member, Bio-X
- Member, Cardiovascular Institute
- Member, Wu Tsai Human Performance Alliance

ADMINISTRATIVE APPOINTMENTS

- Vice Chair of Diversity and Inclusion, Department of Surgery, (2022- present)

HONORS AND AWARDS

- Crawford Award for Dental Research, University of Minnesota (1983)
- Outstanding Dental Student Research Fellow, University of Minnesota (1983)
- AADR Research Award, University of Minnesota (1983-1984)
- ADA Student Researcher of the Year, Academy of Operative Dentistry (1984)
- Outstanding Dental Student Achievement Award, University of Minnesota (1984)

- Dentist Scientist Award, National Institute of Dental Research (1987-1992)
- Clinical Investigator Award, NICHD (1994-1999)
- New Investigator Research Award, Orthopaedic Research Society (1997)
- Howmedica Research Award, Orthopeadic Research and Education Foundation (1998)
- Associate Editor, Journal of Dental Research (2004-present)
- Vice President, American Society of Craniofacial Genetics (2005-2006)
- Associate Editor, Bone (2005-present)
- Editorial Board, Developmental Dynamics (2005-present)
- Chair, NIDCR Special Emphasis Panel (2007)
- The Bernard G. Sarnat 24th. International Lectureship, UCLA (2007)
- President, American Society of Craniofacial Genetics (2007-2008)
- IADR Distinguished Scientist Award for Craniofacial Biology Research, IADR (2013)
- 2016 Distinguished Scientist Award - Isaac Schour Memorial Award, International Association for Dental Research (IADR) (2016)
- Member, Isaac Schour Memorial Award Subcommittee, International Association of Dental Research (2017-)
- Chair, Craniofacial Biology Award, International Association of Dental Research (2018)
- Symposium co-chair, Optimizing the mechanics and biology of implant osseointegration, American Association for Dental Research (2018)
- Board member, R&D commission, AO Foundation, AO CMF (2018-2020)
- Board member, AO Foundation, AO Incubator and technology transfer (2020-)
- Associate editor, Journal of Dental Research (2021-)
- Associate editor, Journal of Clinical Periodontology (2021-)
- Vice Chair for Diversity and Inclusion, Department of Surgery, Stanford School of Medicine (June, 2022-)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Vice Chair of Diversity and Inclusion, Department of Surgery (2022 - present)
- Associate editor, Journal of Clinical Periodontology (2020 - present)
- Associate editor, Journal of Dental Research (2020 - present)
- Board member, AO Foundation, Innovation board (2020 - present)
- AO CMF R&D board member, AO Foundation (2018 - 2020)
- President, San Francisco Chapter of the AADR (2008 - 2009)
- Chair, Search Committee for Chair of Orthodontics, University of Helsinki, Finland (2008 - 2008)
- President, Society of Craniofacial Genetics (2006 - 2008)
- Primary Reviewer, Origins and properties of dental stem cells, Research Management Group, Medical Research Council, England (2006 - 2006)
- Chair, EU Advisory BoardTooth Morphogenesis and Differentiation (2005 - present)
- Society of Craniofacial Genetics, Vice President (2005 - 2006)
- Member of the Study Section, National Aeronautical and Space Administration (NASA) (2003 - present)
- Research Advisory Board, Orthopedic Research and Education Society (2002 - 2005)
- New Investigator Research Award Committee, Orthopaedic Research Society (1999 - 2000)
- Advisory Board for the Annual Conference on the Growth Plate, NIH (1999 - 1999)
- Research Advisory Board, Shriner's Hospitals (1998 - 2006)
- Scientific Advisory Board, Abstract Selection Committee, Orthopedic Research Society (1998 - 2001)

- Advisory Board for Craniofacial Development, NIH/NIDCR (1997 - present)

PROFESSIONAL EDUCATION

- Certificate, University of Connecticut, Health Sci. Center , Periodontology (1993)
- Ph.D., University of Connecticut, Health Sci. Center , Biomed Sciences (1993)
- D.D.S., University of Minnesota, Minneapolis, MN , Dentistry (1986)
- G.H.D., University of Minnesota, Minneapolis, MN , Dental Hygiene (1981)

PATENTS

- Jill Helms. "United States Patent 9,301,980 Ex-vivo use of WNT3A therapeutic", Leland Stanford Junior University
- Jill Helms. "United States Patent 14/333,220. Enhancement of Osteogenic Potential of Bone Grafts", The Board of Trustees of the Leland Stanford Junior University, Oct 2, 2014
- Jill Helms. "United States Patent 61/885,827 WNT Compositions and Methods for Purification", The Board of Trustees of the Leland Stanford Junior University, Dec 19, 2013

LINKS

- TEDx Stanford, 2014: https://tedx.stanford.edu/2014/jill-helms
- TEDMED Stanford, San Francisco, 2014: http://youtu.be/9G1eIxIDpyM
- The Evolution of Beauty, Stanford+Connects, 2014: https://youtu.be/WpK_FRXDRrc
- Aging Is Not Inevitable: Are Stem Cells the Fountain of Youth?, Stanford Health Matters, 2016: https://www.youtube.com/watch?v=ZPNFQkzMdo4
- In Pursuit of a Perfect Face, Stanford+Connects, 2016: https://stanfordconnects.stanford.edu/watch/pursuit-perfect-face

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Dr. Helms is a Professor in the Department of Surgery at Stanford University.

My research program in the field of regeneration medicine is inspired by collaborations with experts in bioengineering, materials science, physics, and with colleagues in the life sciences. We focus on developing strategies to improve tissue healing through the re-activation of autologous stem cells. Adult stem cells are critical regenerative precursors that, when activated, control tissue regeneration. We are developing clinically relevant methods to drive the self-renewal and proliferation of adult stem cells in the context of wound repair.

We are especially interested in age-related changes in tissue healing; as we get older our ability to heal injuries slows down and many of these changes can be traced back to sluggish stem cells. We believe that the ability to re-activate a patient’s own stem cells presents a unique opportunity for therapeutic intervention in a broad range of conditions affecting bone, cartilage, skin, and hair.

I have a successful track record for assembling and managing multi-investigator projects and I have obtained funding from both federal and non-federal sources including the NIH and the California Institute for Regenerative Medicine (CIRM). Work on our laboratory has led to a number of patent filings, which emphasizes the translational nature of our work.

Conducting clinically relevant research is my main objective, but this goes hand-in-hand with another goal: I believe that education is one of the most important tools to improving human health. I aim to use every avenue available to transform the way people think about science and medicine, and emphasize its contribution to their daily lives. I’ve participated in TV programming (BBC, Discovery Channel, Animal Planet), taught a variety of undergraduate courses, continuing studies courses, and now a MOOC, all in an attempt in show people how science positively impacts our lives. In the

end, I believe it falls to scientists to provide tangible examples- to students of all ages- of the value of research. By actively engaging the community (from middle school students to retirement community residents) in the benefits of scientific exploration, I believe we create a shared vision of how basic science research profits all of us.

I am also an enthusiastic mentor for programs that introduce young men and women from under-represented ethnicities to the Sciences. Through teamwork, lectures, and most importantly, hands-on experiences with real-world problems, students get a taste of what a career in biomedical research entails. Through these means I believe we can have a substantial impact on the makeup of future scientists and clinicians, and make real contributions towards the advancement of health care to underserved segments of our population.

Finally, I am deeply invested in advocating on behalf of individuals who have conditions and injuries affecting their appearance. Facial differences, especially in our young patients, can deeply affect an individuals' self-perception and their acceptance in our beauty-conscious society. As an ally to those with facial differences, I actively support the goals of charitable organizations such as Changing Faces (UK), to educate the public about people with facial disabilities. I hold this responsibility seriously, and approach it with a deep respect for the lives and choices of people with disabilities.

Teaching

COURSES

2025-26

- Becoming whatever you want to be: lessons learned from a stem cell: SURG 52Q (Win)

2024-25

- Becoming whatever you want to be: lessons learned from a stem cell: SURG 52Q (Win)

2023-24

- Becoming whatever you want to be: lessons learned from a stem cell: SURG 52Q (Win)

2022-23

- Becoming whatever you want to be: lessons learned from a stem cell: SURG 52Q (Win)

Publications

PUBLICATIONS

- **Biomechanical Basis for Bone Healing and Osseointegration of Implants in Sinus Grafts.** *Clinical implant dentistry and related research*
  Stacchi, C., Coyac, B. R., Helms, J. A.
  2024
- **Evaluation of Postoperative Outcomes Following Early and Late Palate Repair: A Preclinical Study.** *The Journal of craniofacial surgery*
  Aellos, F., Verma, I., Ly, M., Hoy, M., Quach, T., Rosbander, I., Sandoval, A., Wolvis, E., Turkkahraman, H., Helms, J. A.
  2024
- **A critical analysis on quality-of-life in women with visible facial disfigurements.** *Special care in dentistry : official publication of the American Association of Hospital Dentists, the Academy of Dentistry for the Handicapped, and the American Society for Geriatric Dentistry*
  Okine, E., Helms, J. A., Luhrmann, T.
  2024
- **Dynamic analyses of a soft tissue-implant interface: Biological responses to immediate versus delayed dental implants.** *Journal of clinical periodontology*
  Aellos, F., Grauer, J. A., Harder, K. G., Dworan, J. S., Fabbri, G., Cuevas, P. L., Yuan, X., Liu, B., Brunski, J. B., Helms, J. A.
  2024

- **The Effect of Osteocyte-Derived RANKL on Bone Graft Remodeling**
  Feher, B., Kampleitner, C., Heimel, P., Tangl, S., Helms, J., Kuchler, U., Gruber, R.
  OXFORD UNIV PRESS.2023: 53-54
- **The effect of osteocyte-derived RANKL on bone graft remodeling: An in vivo experimental study.** *Clinical oral implants research*
  Feher, B., Kampleitner, C., Heimel, P., Tangl, S., Helms, J. A., Kuchler, U., Gruber, R.
  2023
- **Linking the Mechanics of Chewing to Biology of the Junctional Epithelium.** *Journal of dental research*
  Yuan, X., Liu, B., Cuevas, P., Brunski, J., Aellos, F., Petersen, J., Koehne, T., Bröer, S., Grüber, R., LeBlanc, A., Zhang, X., Xu, Q., Helms, et al
  2023: 220345231185288
- **Mechanical-induced bone remodeling does not depend on Piezo1 in dentoalveolar hard tissue.** *Scientific reports*
  Nottmeier, C., Lavicky, J., Gonzalez Lopez, M., Knauth, S., Kahl-Nieke, B., Amling, M., Schinke, T., Helms, J., Krivanek, J., Koehne, T., Petersen, J.
  2023; 13 (1): 9563
- **Wnt/beta-Catenin Signaling in Craniomaxillofacial Osteocytes.** *Current osteoporosis reports*
  Cuevas, P. L., Aellos, F., Dawid, I. M., Helms, J. A.
  2023
- **Corrigendum to "Hormone sensitive lipase ablation promotes bone regeneration" [Biochim. Biophys. Acta Mol. Basis Dis. Volume 1868, Issue 9, 1 September 2022, 166449].** *Biochimica et biophysica acta. Molecular basis of disease*
  Shen, W. J., Still, C., Han, L., Yang, P., Chen, J., Wosczyna, M., Rando, T. A., Salmon, B. J., Perez, K. C., Li, J., Cuevas, P. L., Liu, B., Azhar, et al
  2022; 1868 (11): 166506
- **A WNT protein therapeutic accelerates consolidation of a bone graft substitute in a pre-clinical sinus augmentation model.** *Journal of clinical periodontology*
  Coyac, B. R., Wolf, B. J., Bahat, D. J., Arioka, M., Brunski, J. B., Helms, J. A.
  2022
- **Hormone sensitive lipase ablation promotes bone regeneration.** *Biochimica et biophysica acta. Molecular basis of disease*
  Shen, W. J., Chris Still, I. I., Han, L., Yang, P., Chen, J., Wosczyna, M., Salmon, B. J., Perez, K. C., Li, J., Cuevas, P. L., Liu, B., Azhar, S., Helms, et al
  2022: 166449
- **Experiential factors affecting the empathy of students in their pre-clinical year(s) of 21 universities.** *FASEB journal : official publication of the Federation of American Societies for Experimental Biology*
  Vigoda, J., Adeniyi, A., Tudor, L., Brassett, C., McWatt, S., Sagoo, M. G., Wingate, R., Chien, C., Traxler, H., Waschke, J., Vielmuth, F., Sigmund, A., Sakurai, et al
  2022; 36 Suppl 1
- **Cultural competency preparedness in medical and health professions students - a collaborative study involving anatomy departments at 20 international universities.** *FASEB journal : official publication of the Federation of American Societies for Experimental Biology*
  Wu, A., Patel, R., Brassett, C., McWatt, S., Sagoo, M. G., Wingate, R., Chien, C., Traxler, H., Waschke, J., Vielmuth, F., Sigmund, A., Sakurai, T., Yamada, et al
  2022; 36 Suppl 1
- **An Osteotomy Tool That Preserves Bone Viability: Evaluation in Preclinical and Clinical Settings.** *Journal of clinical medicine*
  Bahat, O., Yin, X., Holst, S., Zabalegui, I., Berroeta, E., Perez, J., Wohrle, P., Sorgel, N., Brunski, J., Helms, J. A.
  2022; 11 (9)
- **Multiscale analysis of craniomaxillofacial bone repair: A preclinical mini pig study.** *Journal of periodontology*
  Ticha, P., Pilawski, I., Helms, J. A.
  2022
- **Wnt/beta-catenin Signaling Controls Maxillofacial Hyperostosis.** *Journal of dental research*
  Chen, J., Cuevas, P. L., Dworan, J. S., Dawid, I., Turkkahraman, H., Tran, K., Delgado-Calle, J., Bellido, T., Gorski, J. P., Liu, B., Brunski, J. B., Helms, J. A.
  1800: 220345211067705

- **Clinically relevant preclinical animal models for testing novel cranio-maxillofacial bone 3D-printed biomaterials.** *Clinical and translational medicine*
  Hatt, L. P., Thompson, K., Helms, J. A., Stoddart, M. J., Armiento, A. R.
  2022; 12 (2): e690
- **Effects of masticatory loading on bone remodeling around teeth vs. implants: insights from a preclinical model.** *Clinical oral implants research*
  Tian, Y., Sadowsky, S. J., Brunski, J. B., Yuan, X., Helms, J. A.
  2022
- **Targeting Notch inhibitors to the myeloma bone marrow niche decreases tumor growth and bone destruction without gut toxicity.** *Cancer research*
  Sabol, H. M., Ferrari, A. J., Adhikari, M., Amorim, T., McAndrews, K., Anderson, J., Vigolo, M., Lehal, R., Cregor, M., Khan, S., Cuevas, P. L., Helms, J. A., Kurihara, et al
  2021
- **Accelerating Socket Repair via WNT3A Curtails Alveolar Ridge Resorption.** *Journal of dental research*
  Arioka, M., Dawid, I. M., Cuevas, P. L., Coyac, B. R., Leahy, B., Wang, L., Yuan, X., Li, Z., Zhang, X., Liu, B., Helms, J. A.
  2021: 220345211019922
- **Biology of sinus floor augmentation with an autograft vs. a bone graft substitute in a preclinical in vivo experimental model.** *Clinical oral implants research*
  Coyac, B. R., Wu, M., Bahat, D. J., Wolf, B. J., Helms, J. A.
  2021
- **Comparative analyses of the soft tissue interfaces around teeth and implants: Insights from a pre-clinical implant model.** *Journal of clinical periodontology*
  Yuan, X., Pei, X., Chen, J., Zhao, Y., Brunski, J. B., Helms, J. A.
  2021
- **Drill Hole Models to Investigate Bone Repair.** *Methods in molecular biology (Clifton, N.J.)*
  Li, Z., Helms, J. A.
  2021; 2221: 193–204
- **A novel cryo-embedding method for in-depth analysis of craniofacial mini pig bone specimens.** *Scientific reports*
  Ticha, P., Pilawski, I., Yuan, X., Pan, J., Tulu, U. S., Coyac, B. R., Hoffmann, W., Helms, J. A.
  2020; 10 (1): 19510
- **Molecular Basis for Craniofacial Phenotypes Caused by Sclerostin Deletion.** *Journal of dental research*
  Chen, J., Yuan, X., Pilawski, I., Liu, X., Delgado-Calle, J., Bellido, T., Turkkahraman, H., Helms, J. A.
  2020: 22034520963584
- **Pro-osteogenic Effects of WNT in a Mouse Model of Bone Formation Around Femoral Implants.** *Calcified tissue international*
  Li, Z., Yuan, X., Arioka, M., Bahat, D., Sun, Q., Chen, J., Helms, J. A.
  2020
- **Formation and regeneration of a Wnt-responsive junctional epithelium.** *Journal of clinical periodontology*
  Yuan, X., Chen, J., Van Brunt, L. A., Grauer, J., Xu, Q., Pei, X., Wang, L., Zhao, Y., Helms, J. A.
  2020
- **The Junctional Epithelium Is Maintained by a Stem Cell Population.** *Journal of dental research*
  Yuan, X., Chen, J., Gauer, J., Xu, Q., Van Brunt, L. A., Helms, J. A.
  2020: 22034520960125
- **Mechano-adaptive Responses of Alveolar Bone to Implant Hyper-loading in a pre-clinical in vivo model.** *Clinical oral implants research*
  Tian, Y., Li, Z., Chen, J., Yuan, X., Sadowsky, S. J., Coyac, B. R., Brunski, J. B., Helms, J. A.
  2020
- **Bone formation around unstable implants is enhanced by a WNT protein therapeutic in a preclinical in vivo model.** *Clinical oral implants research*
  Coyac, B. R., Leahy, B., Li, Z., Salvi, G., Yin, X., Brunski, J. B., Helms, J. A.

2020

- **Interspecies Comparison of Alveolar Bone Biology, Part I: Morphology and Physiology of Pristine Bone.** *JDR clinical and translational research*
  Pilawski, I., Tulu, U. S., Ticha, P., Schupbach, P., Traxler, H., Xu, Q., Pan, J., Coyac, B. R., Yuan, X., Tian, Y., Liu, Y., Chen, J., Erdogan, et al
  2020: 2380084420936979
- **Interspecies comparison of alveolar bone biology: Tooth extraction socket healing in mini pigs and mice.** *Journal of periodontology*
  Pan, J., Pilawski, I., Yuan, X., Arioka, M., Ticha, P., Tian, Y., Helms, J. A.
  2020
- **Effects of condensation and compressive strain on implant primary stability A longitudinal, in vivo, multiscale study in mice** *BONE & JOINT RESEARCH*
  Li, Z., Arioka, M., Liu, Y., Aghvami, M., Tulu, S., Brunski, J. B., Helms, J. A.
  2020; 9 (2): 60–70
- **Bioactivating a bone substitute accelerates graft incorporation in a murine model of vertical ridge augmentation.** *Dental materials : official publication of the Academy of Dental Materials*
  Chen, J. n., Yuan, X. n., Li, Z. n., Bahat, D. J., Helms, J. A.
  2020
- **Optimizing autologous bone contribution to implant osseointegration.** *Journal of periodontology*
  Coyac, B. R., Sun, Q. n., Leahy, B. n., Salvi, G. n., Yuan, X. n., Brunski, J. B., Helms, J. A.
  2020
- **Root resorption and ensuing cementum repair by Wnt/β-catenin dependent mechanism.** *American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics*
  Turkkahraman, H. n., Yuan, X. n., Salmon, B. n., Chen, C. H., Brunski, J. B., Helms, J. A.
  2020
- **A novel system exploits bone debris for implant osseointegration.** *Journal of periodontology*
  Coyac, B. R., Salvi, G. n., Leahy, B. n., Li, Z. n., Salmon, B. n., Hoffmann, W. n., Helms, J. A.
  2020
- **Wnt responsive progenitor cells contribute to osseointegration of implants in lone bone**
  Li, Z., Yuan, X., Helms, J.
  WILEY.2019: 86–87
- **Wnt responsive progenitor cells contribute to osseointegration of implants in lone bone.**
  Li, Z., Yuan, X., Helms, J.
  WILEY.2019: 86–87
- **Improving intraoperative storage conditions for autologous bone grafts: an experimental investigation in mice.** *Journal of tissue engineering and regenerative medicine*
  Sun, Q., Li, Z., Liu, B., Yuan, X., Guo, S., Helms, J.
  2019
- **Wnt-Responsive Stem Cell Fates in the Oral Mucosa.** *iScience*
  Yuan, X., Xu, Q., Zhang, X., Van Brunt, L. A., Ticha, P., Helms, J. A.
  2019; 21: 84–94
- **A preclinical model links osseo-densification due to misfit and osseo-destruction due to stress/strain.** *Clinical oral implants research*
  Coyac, B. R., Leahy, B., Salvi, G., Hoffmann, W., Brunski, J. B., Helms, J. A.
  2019
- **A Correlation between Wnt/Beta-catenin Signaling and the Rate of Dentin Secretion.** *Journal of endodontics*
  Zhao, Y., Yuan, X., Bellido, T., Helms, J. A.
  2019
- **WNT3A accelerates delayed alveolar bone repair in ovariectomized mice.** *Osteoporosis international : a journal established as result of cooperation between the European Foundation for Osteoporosis and the National Osteoporosis Foundation of the USA*

Liu, Y., Li, Z., Arioka, M., Wang, L., Bao, C., Helms, J. A.
2019

- **A novel hypothesis based on clinical, radiological, and histological data to explain the dentinogenesis imperfecta type II phenotype.** *Connective tissue research*
  Turkkahraman, H., Galindo, F., Tulu, U. S., Helms, J. A.
  2019: 1–11

- **Mechanoadaptive Responses in the Periodontium Are Coordinated by Wnt** *JOURNAL OF DENTAL RESEARCH*
  Xu, Q., Yuan, X., Zhang, X., Chen, J., Shi, Y., Brunski, J. B., Helms, J. A.
  2019; 98 (6): 689–97

- **Mechanoadaptive Responses in the Periodontium Are Coordinated by Wnt.** *Journal of dental research*
  Xu, Q., Yuan, X., Zhang, X., Chen, J., Shi, Y., Brunski, J. B., Helms, J. A.
  2019: 22034519839438

- **Osteoporotic Changes in the Periodontium Impair Alveolar Bone Healing** *JOURNAL OF DENTAL RESEARCH*
  Arioka, M., Zhang, X., Li, Z., Tulu, U. S., Liu, Y., Wang, L., Yuan, X., Helms, J. A.
  2019; 98 (4): 450–58

- **Mechanical and Biological Advantages of a Tri-Oval Implant Design.** *Journal of clinical medicine*
  Yin, X., Li, J., Hoffmann, W., Gasser, A., Brunski, J. B., Helms, J. A.
  2019; 8 (4)

- **Osteoporotic Changes in the Periodontium Impair Alveolar Bone Healing.** *Journal of dental research*
  Arioka, M., Zhang, X., Li, Z., Tulu, U. S., Liu, Y., Wang, L., Yuan, X., Helms, J. A.
  2019: 22034518818456

- **Molecular Basis for Periodontal Ligament Adaptation to In Vivo Loading.** *Journal of dental research*
  Zhang, X., Yuan, X., Xu, Q., Arioka, M., Van Brunt, L. A., Shi, Y., Brunski, J., Helms, J. A.
  2019: 22034518817305

- **Systemic Immunologic Consequences of Chronic Periodontitis.** *Journal of dental research*
  Gaudilliere, D. K., Culos, A. n., Djebali, K. n., Tsai, A. S., Ganio, E. A., Choi, W. M., Han, X. n., Maghaireh, A. n., Choisy, B. n., Baca, Q. n., Einhaus, J. F., Hedou, J. J., Bertrand, et al
  2019: 22034519857714

- **Relationship Between Primary/Mechanical and Secondary/Biological Implant Stability** *INTERNATIONAL JOURNAL OF ORAL & MAXILLOFACIAL IMPLANTS*
  Monje, A., Ravida, A., Wang, H., Helms, J. A., Brunski, J. B.
  2019; 34: S7-+

- **A Novel Osteotomy Preparation Technique to Preserve Implant Site Viability and Enhance Osteogenesis.** *Journal of clinical medicine*
  Chen, C. H., Coyac, B. R., Arioka, M. n., Leahy, B. n., Tulu, U. S., Aghvami, M. n., Holst, S. n., Hoffmann, W. n., Quarry, A. n., Bahat, O. n., Salmon, B. n., Brunski, J. B., Helms, et al
  2019; 8 (2)

- **Aberrantly elevated Wnt signaling is responsible for cementum overgrowth and dental ankylosis.** *Bone*
  Wu, Y., Yuan, X., Perez, K. C., Hyman, S., Wang, L., Pellegrini, G., Salmon, B., Bellido, T., Helms, J. A.
  2018

- **A Thermal and Biological Analysis of Bone Drilling.** *Journal of biomechanical engineering*
  Aghvami, M., Brunski, J. B., Serdar Tulu, U., Chen, C., Helms, J. A.
  2018; 140 (10)

- **An osteopenic/osteoporotic phenotype delays alveolar bone repair.** *Bone*
  Chen, C., Wang, L., Serdar Tulu, U., Arioka, M., Moghim, M. M., Salmon, B., Chen, C., Hoffmann, W., Gilgenbach, J., Brunski, J. B., Helms, J. A.
  2018; 112: 212–19

- **WNT-activated bone grafts repair osteonecrotic lesions in aged animals (vol 7, 14254, 2017)** *SCIENTIFIC REPORTS*

Salmon, B., Liu, B., Shen, E., Chen, T., Li, J., Gillette, M., Ransom, R. C., Ezran, M., Johnson, C. A., Castillo, A. B., Shen, W. J., Kraemer, F. B., Smith, et al
2018; 8: 6356

- **Effects of mechanical loading on cortical defect repair using a novel mechanobiological model of bone healing** *BONE*
  Liu, C., Carrera, R., Flamini, V., Kenny, L., Cabahug-Zuckerman, P., George, B. M., Hunter, D., Liu, B., Singh, G., Leucht, P., Mann, K. A., Helms, J. A., Castillo, et al
  2018; 108: 145–55
- **A WNT protein therapeutic improves the bone-forming capacity of autografts from aged animals** *SCIENTIFIC REPORTS*
  Chen, T., Li, J., Cordova, L. A., Liu, B., Mouraret, S., Sun, Q., Salmon, B., Helms, J.
  2018; 8: 119
- **Wnt-Responsive Odontoblasts Secrete New Dentin after Superficial Tooth Injury.** *Journal of dental research*
  Zhao, Y. n., Yuan, X. n., Liu, B. n., Tulu, U. S., Helms, J. A.
  2018: 22034518763151
- **Biomechanics of Immediate Postextraction Implant Osseointegration.** *Journal of dental research*
  Yuan, X. n., Pei, X. n., Zhao, Y. n., Li, Z. n., Chen, C. H., Tulu, U. S., Liu, B. n., Van Brunt, L. A., Brunski, J. B., Helms, J. A.
  2018: 22034518765757
- **A Wnt-Responsive PDL Population Effectuates Extraction Socket Healing.** *Journal of dental research*
  Yuan, X. n., Pei, X. n., Zhao, Y. n., Tulu, U. S., Liu, B. n., Helms, J. A.
  2018: 22034518755719
- **Single-Molecule Imaging of Wnt3A Protein Diffusion on Living Cell Membranes** *BIOPHYSICAL JOURNAL*
  Lippert, A., Janeczek, A. A., Furstenberg, A., Ponjavic, A., Moerner, W. E., Nusse, R., Helms, J. A., Evans, N. D., Lee, S. F.
  2017; 113 (12): 2762–67
- **Wnt signals control development of the periodontium.**
  Yuan, X., Wu, Y., Zhao, Y., Perez, K., Pellegrini, G., Condon, K., McAndrews, K., Cregor, M., Bellido, T., Helms, J.
  WILEY.2017: S131–S132
- **WNT-activated bone grafts repair osteonecrotic lesions in aged animals** *SCIENTIFIC REPORTS*
  Salmon, B., Liu, B., Shen, E., Chen, T., Li, J., Gillette, M., Ransom, R. C., Ezran, M., Johnson, C. A., Castillo, A. B., Shen, W. J., Kraemer, F. B., Smith, et al
  2017; 7: 14254
- **Cleft Palate and Aglossia Result From Perturbations in Wnt and Hedgehog Signaling** *CLEFT PALATE-CRANIOFACIAL JOURNAL*
  Yuan, G., Singh, G., Chen, S., Perez, K. C., Wu, Y., Liu, B., Helms, J. A.
  2017; 54 (3): 269-280
- **Effects of Condensation on Peri-implant Bone Density and Remodeling** *JOURNAL OF DENTAL RESEARCH*
  Wang, L., Wu, Y., Perez, K. C., Hyman, S., Brunski, J. B., Tulu, U., Bao, C., Salmon, B., Helms, J. A.
  2017; 96 (4): 406-413
- **Relationships among Bone Quality, Implant Osseointegration, and Wnt Signaling.** *Journal of dental research*
  Li, J., Yin, X., Huang, L., Mouraret, S., Brunski, J. B., Cordova, L., Salmon, B., Helms, J. A.
  2017: 22034517700131-?
- **A Comparative Assessment of Implant Site Viability in Humans and Rats.** *Journal of dental research*
  Chen, C. H., Pei, X. n., Tulu, U. S., Aghvami, M. n., Chen, C. T., Gaudillière, D. n., Arioka, M. n., Maghazeh Moghim, M. n., Bahat, O. n., Kolinski, M. n., Crosby, T. R., Felderhoff, A. n., Brunski, et al
  2017: 22034517742631
- **Effects of Condensation on Peri-implant Bone Density and Remodeling.** *Journal of dental research*
  Wang, L., Wu, Y., Perez, K. C., Hyman, S., Brunski, J. B., Tulu, U., Bao, C., Salmon, B., Helms, J. A.
  2016: 22034516683932-?
- **Comment on "Hotair Is Dispensable for Mouse Development"** *PLOS GENETICS*
  Li, L., Helms, J. A., Chang, H. Y.

2016; 12 (12): e1006406

- **Axin2-expressing cells execute regeneration after skeletal injury** *SCIENTIFIC REPORTS*
  Ransom, R. C., Hunter, D. J., Hyman, S., Singh, G., RANSOM, S. C., Shen, E. Z., Perez, K. C., Gillette, M., Li, J., Liu, B., Brunski, J. B., Helms, J. A.
  2016; 6
- **From restoration to regeneration: periodontal aging and opportunities for therapeutic intervention** *PERIODONTOLOGY 2000*
  Huang, L., Salmon, B., Yin, X., Helms, J. A.
  2016; 72 (1): 19-29
- **Activating Hair Follicle Stem Cells via R-spondin2 to Stimulate Hair Growth.** *journal of investigative dermatology*
  Smith, A. A., Li, J., Liu, B., Hunter, D., Pyles, M., Gillette, M., Dhamdhere, G. R., Abo, A., Oro, A., Helms, J. A.
  2016; 136 (8): 1549-1558
- **Mechanoresponsive Properties of the Periodontal Ligament** *JOURNAL OF DENTAL RESEARCH*
  Huang, L., Liu, B., Cha, J. Y., Yuan, G., Kelly, M., Singh, G., Hyman, S., Brunski, J. B., Li, J., Helms, J. A.
  2016; 95 (4): 467-475
- **Response to Letter to the Editor, "Wnt Signaling and Its Contribution to Craniofacial Tissue Homeostasis".** *Journal of dental research*
  Yin, X., Li, J., Helms, J. A.
  2016; 95 (3): 357-?
- **Rescuing failed oral implants via Wnt activation.** *Journal of clinical periodontology*
  Yin, X., Li, J., Chen, T., Mouraret, S., Dhamdhere, G., Brunski, J. B., Zou, S., Helms, J. A.
  2016; 43 (2): 180-192
- **Linking suckling biomechanics to the development of the palate.** *Scientific reports*
  Li, J., Johnson, C. A., Smith, A. A., Hunter, D. J., Singh, G., Brunski, J. B., Helms, J. A.
  2016; 6: 20419-?
- **Del1 Knockout Mice Developed More Severe Osteoarthritis Associated with Increased Susceptibility of Chondrocytes to Apoptosis.** *PloS one*
  Wang, Z., Tran, M. C., Bhatia, N. J., Hsing, A. W., Chen, C., LaRussa, M. F., Fattakhov, E., Rashidi, V., Jang, K. Y., Choo, K. J., Nie, X., Mathy, J. A., Longaker, et al
  2016; 11 (8)
- **Disrupting the intrinsic growth potential of a suture contributes to midfacial hypoplasia.** *Bone*
  Li, J., Johnson, C. A., Smith, A. A., Salmon, B., Shi, B., Brunski, J., Helms, J. A.
  2015; 81: 186-195
- **Response to Letter to the Editor, "Multiscale Analyses of the Bone-implant Interface".** *Journal of dental research*
  Helms, J. A., Brunski, J. B.
  2015; 94 (12): 1783
- **Wnt Signaling and Its Contribution to Craniofacial Tissue Homeostasis.** *Journal of dental research*
  Yin, X., Li, J., Salmon, B., Huang, L., Lim, W. H., Liu, B., Hunter, D. J., Ransom, R. C., Singh, G., Gillette, M., Zou, S., Helms, J. A.
  2015; 94 (11): 1487-1494
- **Wnt Acts as a Prosurvival Signal to Enhance Dentin Regeneration** *JOURNAL OF BONE AND MINERAL RESEARCH*
  Hunter, D. J., Bardet, C., Mouraret, S., Liu, B., Singh, G., Sadoine, J., Dhamdhere, G., Smith, A., Tran, X. V., Joy, A., Rooker, S., Suzuki, S., Vuorinen, et al
  2015; 30 (7): 1150-1159
- **Reengineering autologous bone grafts with the stem cell activator WNT3A.** *Biomaterials*
  Jing, W., Smith, A. A., Liu, B., Li, J., Hunter, D. J., Dhamdhere, G., Salmon, B., Jiang, J., Cheng, D., Johnson, C. A., Chen, S., Lee, K., Singh, et al
  2015; 47: 29-40
- **Multiscale Analyses of the Bone-implant Interface.** *Journal of dental research*
  Cha, J. Y., Pereira, M. D., Smith, A. A., Houschyar, K. S., Yin, X., Mouraret, S., Brunski, J. B., Helms, J. A.
  2015; 94 (3): 482-490

- **Alveolar Bone Turnover and Periodontal Ligament Width Are Controlled by Wnt** *JOURNAL OF PERIODONTOLOGY*
  Lim, W. H., Liu, B., Mah, S., Yin, X., Helms, J. A.
  2015; 86 (2): 319-326
- **The potential for vertical bone regeneration via maxillary periosteal elevation.** *Journal of clinical periodontology*
  Mouraret, S., Von Kaeppler, E., Bardet, C., Hunter, D. J., Chaussain, C., Bouchard, P., Helms, J. A.
  2014; 41 (12): 1170-1177
- **Wnt signaling regulates homeostasis of the periodontal ligament** *JOURNAL OF PERIODONTAL RESEARCH*
  Lim, W. H., Liu, B., Cheng, D., Williams, B. O., Mah, S. J., Helms, J. A.
  2014; 49 (6): 751-759
- **Midfacial growth and surgically induced growth arrest.** *Plastic and reconstructive surgery*
  Johnson, C. A., Li, J., Smith, A. A., Brunski, J. B., Helms, J. A.
  2014; 134 (4 Suppl 1): 20
- **The molecular and cellular effects of ageing on the periodontal ligament** *JOURNAL OF CLINICAL PERIODONTOLOGY*
  Lim, W. H., Liu, B., Mah, S., Chen, S., Helms, J. A.
  2014; 41 (10): 935-942
- **The capacity of neural crest-derived stem cells for ocular repair.** *Birth defects research. Part C, Embryo today : reviews*
  Liu, B., Hunter, D. J., Smith, A. A., Chen, S., Helms, J. A.
  2014; 102 (3): 299-308
- **Molecular mechanisms underlying skeletal growth arrest by cutaneous scarring.** *Bone*
  Li, J., Johnson, C. A., Smith, A. A., Shi, B., Brunski, J. B., Helms, J. A.
  2014; 66: 223-231
- **A ciliopathy with hydrocephalus, isolated craniosynostosis, hypertelorism, and clefting caused by deletion of Kif3a** *REPRODUCTIVE TOXICOLOGY*
  Liu, B., Chen, S., Johnson, C., Helms, J. A.
  2014; 48: 88-97
- **The Capacity of Neural Crest-Derived Stem Cells for Ocular Repair** *BIRTH DEFECTS RESEARCH PART C-EMBRYO TODAY-REVIEWS*
  Liu, B., Hunter, D. J., Smith, A. A., Chen, S., Helms, J. A.
  2014; 102 (3): 299-308
- **Downregulation of Wnt causes root resorption** *AMERICAN JOURNAL OF ORTHODONTICS AND DENTOFACIAL ORTHOPEDICS*
  Lim, W. H., Liu, B., Hunter, D. J., Cheng, D., Mah, S., Helms, J. A.
  2014; 146 (3): 337-345
- **Molecular mechanisms underlying skeletal growth arrest by cutaneous scarring.** *Bone*
  Li, J., Johnson, C. A., Smith, A. A., Shi, B., Brunski, J. B., Helms, J. A.
  2014; 66: 223-231
- **Cell viability after osteotomy and bone harvesting: comparison of piezoelectric surgery and conventional bur** *INTERNATIONAL JOURNAL OF ORAL AND MAXILLOFACIAL SURGERY*
  Mouraret, S., Houschyar, K. S., Hunter, D. J., Smith, A. A., Jew, O. S., Girod, S., Helms, J. A.
  2014; 43 (8): 966-971
- **Primary Cilia Integrate Hedgehog and Wnt Signaling during Tooth Development** *JOURNAL OF DENTAL RESEARCH*
  Liu, B., Chen, S., Cheng, D., Jing, W., Helms, J. A.
  2014; 93 (5): 475-482
- **Wnt Signaling Regulates Pulp Volume and Dentin Thickness** *JOURNAL OF BONE AND MINERAL RESEARCH*
  Lim, W. H., Liu, B., Cheng, D., Hunter, D. J., Zhong, Z., Ramos, D. M., Williams, B. O., Sharpe, P. T., Bardet, C., Mah, S., Helms, J. A.
  2014; 29 (4): 892-901
- **Improving oral implant osseointegration in a murine model via Wnt signal amplification.** *Journal of clinical periodontology*
  Mouraret, S., Hunter, D. J., Bardet, C., Popelut, A., Brunski, J. B., Chaussain, C., Bouchard, P., Helms, J. A.

2014; 41 (2): 172-180

- **A pre-clinical murine model of oral implant osseointegration.** *Bone*
  Mouraret, S., Hunter, D. J., Bardet, C., Brunski, J. B., Bouchard, P., Helms, J. A.
  2014; 58: 177-184
- **A pre-clinical murine model of oral implant osseointegration** *BONE*
  Mouraret, S., Hunter, D. J., Bardet, C., Brunski, J. B., Bouchard, P., Helms, J. A.
  2014; 58: 177-184
- **Drugging a stem cell compartment using Wnt3a protein as a therapeutic.** *PloS one*
  Dhamdhere, G. R., Fang, M. Y., Jiang, J., Lee, K., Cheng, D., Olveda, R. C., Liu, B., Mulligan, K. A., Carlson, J. C., Ransom, R. C., Weis, W. I., Helms, J. A.
  2014; 9 (1)
- **CXCR4 Antagonism Attenuates Load-Induced Periosteal Bone Formation in Mice** *JOURNAL OF ORTHOPAEDIC RESEARCH*
  Leucht, P., Temiyasathit, S., Russell, A., Arguello, J. F., Jacobs, C. R., Helms, J. A., Castillo, A. B.
  2013; 31 (11): 1828-1838
- **Augmenting Endogenous Wnt Signaling Improves Skin Wound Healing** *PLOS ONE*
  Whyte, J. L., Smith, A. A., Liu, B., Manzano, W. R., Evans, N. D., Dhamdhere, G. R., Fang, M. Y., Chang, H. Y., Oro, A. E., Helms, J. A.
  2013; 8 (10)
- **Targeted disruption of hotair leads to homeotic transformation and gene derepression.** *Cell reports*
  Li, L., Liu, B., Wapinski, O. L., Tsai, M., Qu, K., Zhang, J., Carlson, J. C., Lin, M., Fang, F., Gupta, R. A., Helms, J. A., Chang, H. Y.
  2013; 5 (1): 3-12
- **Rhinoplasty: Congenital Deficiencies of the Alar Cartilage** *AESTHETIC SURGERY JOURNAL*
  Kosins, A. M., Daniel, R. K., Sajjadian, A., Helms, J.
  2013; 33 (6): 799-808
- **Wnt3a reestablishes osteogenic capacity to bone grafts from aged animals.** *journal of bone and joint surgery. American volume*
  Leucht, P., Jiang, J., Cheng, D., Liu, B., Dhamdhere, G., Fang, M. Y., Monica, S. D., Urena, J. J., Cole, W., Smith, L. R., Castillo, A. B., Longaker, M. T., Helms, et al
  2013; 95 (14): 1278-1288
- **Wnt3a Reestablishes Osteogenic Capacity to Bone Grafts from Aged Animals** *JOURNAL OF BONE AND JOINT SURGERY-AMERICAN VOLUME*
  Leucht, P., Jiang, J., Cheng, D., Liu, B., Dhamdhere, G., Fang, M. Y., Monica, S. D., Urena, J. J., Cole, W., Smith, L. R., Castillo, A. B., Longaker, M. T., Helms, et al
  2013; 95A (14): 1278-1288
- **Micromotion-induced strain fields influence early stages of repair at bone-implant interfaces.** *Acta biomaterialia*
  Wazen, R. M., Currey, J. A., Guo, H., Brunski, J. B., Helms, J. A., Nanci, A.
  2013; 9 (5): 6663-6674
- **Primary cilia act as mechanosensors during bone healing around an implant** *MEDICAL ENGINEERING & PHYSICS*
  Leucht, P., Monica, S. D., Temiyasathit, S., Lenton, K., Manu, A., Longaker, M. T., Jacobs, C. R., Spilkere, R. L., Guo, H., Brunski, J. B., Helms, J. A.
  2013; 35 (3): 392-402
- **Wnt Signaling Promotes Muller Cell Proliferation and Survival after Injury** *INVESTIGATIVE OPHTHALMOLOGY & VISUAL SCIENCE*
  Liu, B., Hunter, D. J., Rooker, S., Chan, A., Paulus, Y. M., Leucht, P., Nusse, Y., Nomoto, H., Helms, J. A.
  2013; 54 (1): 444-453
- **Augmenting endogenous Wnt signaling improves skin wound healing.** *PloS one*
  Whyte, J. L., Smith, A. A., Liu, B., Manzano, W. R., Evans, N. D., Dhamdhere, G. R., Fang, M. Y., Chang, H. Y., Oro, A. E., Helms, J. A.
  2013; 8 (10)
- **Wntless functions in mature osteoblasts to regulate bone mass** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*

Zhong, Z., Zylstra-Diegel, C. R., Schumacher, C. A., Baker, J. J., Carpenter, A. C., Rao, S., Yao, W., Guan, M., Helms, J. A., Lane, N. E., Lang, R. A., Williams, B. O.
2012; 109 (33): E2197-E2204

- **Wnt Signaling and Injury Repair** *COLD SPRING HARBOR PERSPECTIVES IN BIOLOGY*
  Whyte, J. L., Smith, A. A., Helms, J. A.
  2012; 4 (8)
- **Differentiation of multipotent vascular stem cells contributes to vascular diseases** *NATURE COMMUNICATIONS*
  Tang, Z., Wang, A., Yuan, F., Yan, Z., Liu, B., Chu, J. S., Helms, J. A., Li, S.
  2012; 3
- **A Cross-Species Analysis of MicroRNAs in the Developing Avian Face** *PLOS ONE*
  Powder, K. E., Ku, Y., Brugmann, S. A., Veile, R. A., Renaud, N. A., Helms, J. A., Lovett, M.
  2012; 7 (4)
- **Mechanosensing by the Primary Cilium: Deletion of Kif3A Reduces Bone Formation Due to Loading** *PLOS ONE*
  Temiyasathit, S., Tang, W. J., Leucht, P., Anderson, C. T., Monica, S. D., Castillo, A. B., Helms, J. A., Stearns, T., Jacobs, C. R.
  2012; 7 (3)
- **Vascular endothelial growth factor improves bone repair in a murine nonunion model.** *The Iowa orthopaedic journal*
  Ogilvie, C. M., Lu, C., Marcucio, R., Lee, M., Thompson, Z., Hu, D., Helms, J. A., Miclau, T.
  2012; 32: 90-94
- **Wnt/beta-catenin signaling and Msx1 promote outgrowth of the maxillary prominences** *FRONTIERS IN PHYSIOLOGY*
  Medio, M., Yeh, E., Popelut, A., Babajko, S., Berdal, A., Helms, J. A.
  2012; 3
- **Wnt/ß-catenin signaling and Msx1 promote outgrowth of the maxillary prominences.** *Frontiers in physiology*
  Medio, M., Yeh, E., Popelut, A., Babajko, S., Berdal, A., Helms, J. A.
  2012; 3: 375-?
- **Indian Hedgehog Positively Regulates Calvarial Ossification and Modulates Bone Morphogenetic Protein Signaling** *GENESIS*
  Lenton, K., James, A. W., Manu, A., Brugmann, S. A., Birker, D., Nelson, E. R., Leucht, P., Helms, J. A., Longaker, M. T.
  2011; 49 (10): 784-796
- **A long noncoding RNA maintains active chromatin to coordinate homeotic gene expression** *NATURE*
  Wang, K. C., Yang, Y. W., Liu, B., Sanyal, A., Corces-Zimmerman, R., Chen, Y., Lajoie, B. R., Protacio, A., Flynn, R. A., Gupta, R. A., Wysocka, J., Lei, M., Dekker, et al
  2011; 472 (7341): 120-U158
- **Long noncoding RNA programs active chromatin domain to coordinate homeotic gene expression** *71st Annual Meeting of the Society-for-Investigative-Dermatology*
  Wang, K. C., Yang, Y. W., Liu, B., Sanyal, A., Corces-Zimmerman, R., Chen, Y., Lajoie, B. R., Protacio, A., Flynn, R. A., Gupta, R. A., Wysocka, J., Lei, M., Dekker, et al
  NATURE PUBLISHING GROUP.2011: S63–S63
- **The acceleration of implant osseointegration by liposomal Wnt3a** *BIOMATERIALS*
  Popelut, A., Rooker, S. M., Leucht, P., Medio, M., Brunski, J. B., Helms, J. A.
  2010; 31 (35): 9173-9181
- **Craniofacial Ciliopathies: A New Classification for Craniofacial Disorders** *AMERICAN JOURNAL OF MEDICAL GENETICS PART A*
  Brugmann, S. A., Cordero, D. R., Helms, J. A.
  2010; 152A (12): 2995-3006
- **Sonic Hedgehog Influences the Balance of Osteogenesis and Adipogenesis in Mouse Adipose-Derived Stromal Cells** *TISSUE ENGINEERING PART A*
  James, A. W., Leucht, P., Levi, B., Carre, A. L., Xu, Y., Helms, J. A., Longaker, M. T.
  2010; 16 (8): 2605-2616

- **rBMP Represses Wnt Signaling and Influences Skeletal Progenitor Cell Fate Specification During Bone Repair** *JOURNAL OF BONE AND MINERAL RESEARCH*
  Minear, S., Leucht, P., Miller, S., Helms, J. A.
  2010; 25 (6): 1196-1207
- **Molecular control of facial morphology** *SEMINARS IN CELL & DEVELOPMENTAL BIOLOGY*
  Liu, B., Rooker, S. M., Helms, J. A.
  2010; 21 (3): 309-313
- **Wnt Proteins Promote Bone Regeneration** *SCIENCE TRANSLATIONAL MEDICINE*
  Minear, S., Leucht, P., Jiang, J., Liu, B., Zeng, A., Fuerer, C., Nusse, R., Helms, J. A.
  2010; 2 (29)
- **A primary cilia-dependent etiology for midline facial disorders** *HUMAN MOLECULAR GENETICS*
  Brugmann, S. A., Allen, N. C., James, A. W., Mekonnen, Z., Madan, E., Helms, J. A.
  2010; 19 (8): 1577-1592
- **Comparative gene expression analysis of avian embryonic facial structures reveals new candidates for human craniofacial disorders** *HUMAN MOLECULAR GENETICS*
  Brugmann, S. A., Powder, K. E., Young, N. M., Goodnough, L. H., Hahn, S. M., James, A. W., Helms, J. A., Lovett, M.
  2010; 19 (5): 920-930
- **Role of Wnt Signaling in the Biology of the Periodontium** *DEVELOPMENTAL DYNAMICS*
  Rooker, S. M., Liu, B., Helms, J. A.
  2010; 239 (1): 140-147
- **Regeneration, repair and remembering identity: the three Rs of Hox gene expression** *TRENDS IN CELL BIOLOGY*
  Wang, K. C., Helms, J. A., Chang, H. Y.
  2009; 19 (6): 268-275
- **Endochondral ossification is required for haematopoietic stem-cell niche formation** *NATURE*
  Chan, C. K., Chen, C., Luppen, C. A., Kim, J., DeBoer, A. T., Wei, K., Helms, J. A., Kuo, C. J., Kraft, D. L., Weissman, I. L.
  2009; 457 (7228): 490-U9
- **CONTROLLING THE IN VIVO ACTIVITY OF WNT LIPOSOMES** *METHODS IN ENZYMOLOGY LIPOSOMES, PT G*
  Zhao, L., Rooker, S. M., Morrell, N., Leucht, P., Simanovskii, D., Helms, J. A.
  2009; 465: 331-347
- **Translating insights from development into regenerative medicine: The function of Wnts in bone biology** *SEMINARS IN CELL & DEVELOPMENTAL BIOLOGY*
  Leucht, P., Minear, S., Ten Berge, D., Nusse, R., Helms, J. A.
  2008; 19 (5): 434-443
- **Wnt and FGF signals interact to coordinate growth with cell fate specification during limb development** *DEVELOPMENT*
  ten Berge, D., Brugmann, S. A., Helms, J. A., Nusse, R.
  2008; 135 (19): 3247-3257
- **Primary cilia: Cellular sensors for the skeleton** *37th International Sun Valley Workshop on Skeletal Tissue Biology*
  Anderson, C. T., Castillo, A. B., Brugmann, S. A., Helms, J. A., Jacobs, C. R., Stearns, T.
  WILEY-BLACKWELL.2008: 1074–78
- **SDF-1 is Expressed in Osteocytes and Periosteal Cells in Response to Mechanical Loading.** *30th Annual Meeting of the American-Society-for-Bone-and-Mineral-Research*
  Castillo, A. B., Leucht, P., Tang, J., Helms, J. A., Jacobs, C. R.
  WILEY-BLACKWELL.2008: S399–S399
- **Wingless protein (Wnt) expression in fetal wounds** *94th Annual Clinical Congress of the American-College-of-Surgeons/63rd Annual Sessions of the Owen H Wangensteen Forum on Fundamental Surgical Problems*
  Carre, A. L., Joseph, K., Chang, E., Longaker, M. T., Helms, J., Lorenz, H. P.
  ELSEVIER SCIENCE INC.2008: S60–S61

- **Embryonic origin and Hox status determine progenitor cell fate during adult bone regeneration** *DEVELOPMENT*
  Leucht, P., Kim, J., Amasha, R., James, A. W., Girod, S., Helms, J. A.
  2008; 135 (17): 2845-2854

- **Liposomal Packaging Generates Wnt Protein with In Vivo Biological Activity** *PLOS ONE*
  Morrell, N. T., Leucht, P., Zhao, L., Kim, J., Ten Berge, D., Ponnusamy, K., Carre, A. L., Dudek, H., Zachlederova, M., McElhaney, M., Brunton, S., Gunzner, J., Callow, et al
  2008; 3 (8)

- **Beta-catenin-dependent Wnt signaling in mandibular bone regeneration.** *journal of bone and joint surgery. American volume*
  Leucht, P., Kim, J., Helms, J. A.
  2008; 90: 3-8

- **Beta-catenin-dependent Wnt signaling in mandibular bone regeneration** *74th Annual Meeting of the American-Academy-of-Orthopaedic-Surgeons*
  Leucht, P., Kim, J., Helms, J. A.
  JOURNAL BONE JOINT SURGERY INC.2008: 3–8

- **A dermal HOX transcriptional program regulates site-specific epidermal fate** *GENES & DEVELOPMENT*
  Rinn, J. L., Wang, J. K., Allen, N., Brugmann, S. A., Mikels, A. J., Liu, H., Ridky, T. W., Stadler, H. S., Nusse, R., Helms, J. A., Chang, H. Y.
  2008; 22 (3): 303-307

- **Periosteal biaxial residual strains correlate with bone specific growth rates in chick embryos** *COMPUTER METHODS IN BIOMECHANICS AND BIOMEDICAL ENGINEERING*
  Chen, J. C., Zhao, B., Longaker, M. T., Helms, J. A., Carter, D. R.
  2008; 11 (5): 453-461

- **Bone regeneration is regulated by Wnt signaling** *JOURNAL OF BONE AND MINERAL RESEARCH*
  Kim, J., Leucht, P., Lam, K., Luppen, C., Ten Berge, D., Nusse, R., Helms, J. A.
  2007; 22 (12): 1913-1923

- **Cross-regulatory interactions between Fgf8 and Shh in the avian frontonasal prominence.** *Congenital anomalies*
  Abzhanov, A., Cordero, D. R., Sen, J., Tabin, C. J., Helms, J. A.
  2007; 47 (4): 136-148

- **Bone voyage: An expedition into the molecular and cellular parameters affecting bone graft fate** *BONE*
  Helms, J. A., Amasha, R. R., Leucht, P.
  2007; 41 (4): 479-485

- **Shaping up and shipping out: the role of cilia in growth and patterning.** *Journal of musculoskeletal & neuronal interactions*
  Brugmann, S., Helms, J.
  2007; 7 (4): 300-?

- **Wnt signaling mediates regional specification in the vertebrate face** *DEVELOPMENT*
  Brugmann, S. A., Goodnough, L. H., Gregorieff, A., Leucht, P., Ten Berge, D., Fuerer, C., Clevers, H., Nusse, R., Helms, J. A.
  2007; 134 (18): 3283-3295

- **The origins of species-specific facial morphology: the proof is in the pigeon** *Symposium on Linking Genes and Morphology in Vertebrates*
  Helms, J. A., Brugmann, S. A.
  OXFORD UNIV PRESS INC.2007: 338–42

- **Geometric morphometric analysis of craniofacial deformity in the noggin mutant** *93rd Annual Clinical Congress of the American-College-of-Surgeons*
  Gupta, D. M., Young, N. M., Wan, D. C., Brunet, L. J., Harland, R. M., Helms, J. A., Longaker, M. T.
  ELSEVIER SCIENCE INC.2007: S60–S60

- **Molecular analysis of healing at a bone-implant interface** *JOURNAL OF DENTAL RESEARCH*
  Colnot, C., Romero, D. M., Huang, S., Rahman, J., Currey, J. A., Nanci, A., Brunski, J. B., Helms, J. A.
  2007; 86 (9): 862-867

- **Stage-dependent craniofacial defects resulting from Sprouty2 overexpression** *DEVELOPMENTAL DYNAMICS*
  Goodnough, L. H., Brugmann, S. A., Hu, D., Helms, J. A.
  2007; 236 (7): 1918-1928
- **Accelerated bone repair after plasma laser corticotomies** *ANNALS OF SURGERY*
  Leucht, P., Lam, K., Kim, J., Mackanos, M. A., Simanovskii, D. M., Longaker, M. T., Contag, C. H., Schwettman, H. A., Helms, J. A.
  2007; 246 (1): 140-150
- **Reconciling the roles of FAK in osteoblast differentiation, osteoclast remodeling, and bone regeneration** *BONE*
  Kim, J., Leuch, P., Luppen, C. A., Park, Y. J., Beggs, H. E., Damsky, C. H., Helms, J. A.
  2007; 41 (1): 39-51
- **Functional demarcation of active and silent chromatin domains in human HOX loci by Noncoding RNAs** *CELL*
  Rinn, J. L., Kertesz, M., Wang, J. K., Squazzo, S. L., Xu, X., Brugmann, S. A., Goodnough, L. H., Helms, J. A., Farnham, P. J., Segal, E., Chang, H. Y.
  2007; 129 (7): 1311-1323
- **FAK-Mediated Mechanotransduction in Skeletal Regeneration** *PLOS ONE*
  Leucht, P., Kim, J., Currey, J. A., Brunski, J., Helms, J. A.
  2007; 2 (4)
- **Effect of mechanical stimuli on skeletal regeneration around implants** *BONE*
  Leucht, P., Kim, J., Wazen, R., Currey, J. A., Nanci, A., Brunski, J. B., Heims, J. A.
  2007; 40 (4): 919-930
- **Sonic hedgehog in the pharyngeal endoderm controls arch pattern via regulation of Fgf8 in head ectoderm** *DEVELOPMENTAL BIOLOGY*
  Haworth, K. E., Wilson, J. M., Grevellee, A., Cobourne, M. T., Healy, C., Helms, J. A., Sharpe, P. T., Tucker, A. S.
  2007; 303 (1): 244-258
- **Visualizing in vivo liposomal drug delivery in real-time** *JOURNAL OF DRUG TARGETING*
  Kim, J., Leucht, P., Morrell, N. T., Schwettman, H. A., Helms, J. A.
  2007; 15 (9): 632-639
- **Geometric morphometric analysis identifies craniofacial deformity in the noggin mutant** *12th Biennial Meeting of the International-Society-Craniofacial-Surgery*
  Gupta, D. M., Young, N. M., Wan, D. C., Kwan, M. D., Slater, B. J., Brunet, L. J., Harland, R. M., Helms, J. A., Longaker, M. T.
  MEDIMOND S R L.2007: 13–15
- **Rapid growth of cartilage rudiments may generate perichondrial structures by mechanical induction** *BIOMECHANICS AND MODELING IN MECHANOBIOLOGY*
  Henderson, J. H., De la Fuente, L., Romero, D., Colnot, C. I., Huang, S., Carter, D. R., Helms, J. A.
  2007; 6 (1-2): 127-137
- **Looking different: understanding diversity in facial form.** *American journal of medical genetics. Part A*
  Brugmann, S. A., Kim, J., Helms, J. A.
  2006; 140 (23): 2521-2529
- **Looking different: Understanding diversity in facial form** *AMERICAN JOURNAL OF MEDICAL GENETICS PART A*
  Brugmann, S. A., Kim, J., Helms, J. A.
  2006; 140A (23): 2521-2529
- **Analyzing the cellular contribution of bone marrow to fracture healing using bone marrow transplantation in mice** *BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS*
  Colnot, C., Huang, S., Helms, J.
  2006; 350 (3): 557-561
- **Craniofacial tissue engineering by stem cells** *JOURNAL OF DENTAL RESEARCH*
  Mao, J. J., Giannobile, W. V., Helms, J. A., Hollister, S. J., Krebsbach, P. H., Longaker, M. T., Shi, S.
  2006; 85 (11): 966-979

- **The molecular origins of species-specific facial pattern** *CURRENT TOPICS IN DEVELOPMENTAL BIOLOGY, VOL 73*
  Brugmann, S. A., Tapadia, M. D., Helms, J. A.
  2006; 73: 1-?

- **It's all in your head: new insights into craniofacial development and deformation** *JOURNAL OF ANATOMY*
  Tapadia, M. D., Cordero, D. R., Helms, J. A.
  2005; 207 (5): 461-477

- **Molecular interactions coordinating the development of the forebrain and face** *DEVELOPMENTAL BIOLOGY*
  Marcucio, R. S., Cordero, D. R., Hu, D., Helms, J. A.
  2005; 284 (1): 48-61

- **Indian hedgehog regulates skeletal angiogenesis in association with cartilage and bone development.** *64th Annual Meeting of the Society-for-Development-Biology*
  Colnot, C., De la Fuente, L., Huang, S., Hu, D., Lu, C. Y., St-Jacques, B., Helms, J. A.
  ACADEMIC PRESS INC ELSEVIER SCIENCE.2005: 695–95

- **Head, shoulders, knees, and toes** *DEVELOPMENTAL BIOLOGY*
  De la Fuente, L., Helms, J. A.
  2005; 282 (2): 294-306

- **The fickle finger of fate** *JOURNAL OF CLINICAL INVESTIGATION*
  De la Fuente, L., Helms, J. A.
  2005; 115 (4): 833-836

- **New insights into craniofacial morphogenesis** *DEVELOPMENT*
  Helms, J. A., Cordero, D., Tapadia, M. D.
  2005; 132 (5): 851-861

- **Indian hedgehog synchronizes skeletal angiogenesis and perichondrial maturation with cartilage development** *DEVELOPMENT*
  Colnot, C., De la Fuente, L., Huang, S., Hu, D., Lu, C. Y., St-Jacques, B., Helms, J. A.
  2005; 132 (5): 1057-1067

- **Mechanisms of osteogenic differentiation of mouse adipose-derived mesenchymal cells** *11th International Congress of the International-Society-of-Craniofacial-Surgery*
  Shi, Y. Y., Nacamuli, R. P., Salim, A., Quarto, N., LYONS, K. M., Wan, D. C., Cowan, C. M., Helms, J. A., Longaker, M. T.
  MEDIMOND S R L.2005: 63–65

- **Fgfr1 gain-of-function results in premaxillomaxillary suture fusion and mid-face retrusion** *11th International Congress of the International-Society-of-Craniofacial-Surgery*
  Lenton, K. A., Helms, J. A., Longaker, M. T.
  MEDIMOND S R L.2005: 271–272

- **Analysis of cartilages in the developing skull vault** *11th International Congress of the International-Society-of-Craniofacial-Surgery*
  Lenton, K. A., Helms, J. A., Longaker, M. T.
  MEDIMOND S R L.2005: 267–269

- **Molecular and cellular characterization of mouse calvarial osteoblasts derived from neural crest and paraxial-mesoderm** *44th Annual Meeting of the American-Society-for-Cell-Biology*
  Xu, Y., Malladi, P., Zhou, D., Helms, J. A., Longaker, M. T.
  AMER SOC CELL BIOLOGY.2004: 351A–351A

- **Cranial neural crest-derived cells participate in craniofacial skeletal repair** *90th Annual Clinical Congress of the American-College-of-Surgeons*
  Nacamuli, R. P., Fang, T. D., Salim, A., Song, H., Shi, Y. Y., Hu, D., Miclau, T., Helms, J., Longaker, M. T.
  ELSEVIER SCIENCE INC.2004: S48–S49

- **Temporal perturbations in sonic hedgehog signaling elicit the spectrum of holoprosencephaly phenotypes** *JOURNAL OF CLINICAL INVESTIGATION*
  Cordero, D., Marcucio, R., Hu, D., Gaffield, W., Tapadia, M., Helms, J. A.
  2004; 114 (4): 485-494

- **Distinguishing the contributions of the perichondrium, cartilage, and vascular endothelium to skeletal development** *DEVELOPMENTAL BIOLOGY*
  Colnot, C., Lu, C. Y., Hu, D., Helms, J. A.
  2004; 269 (1): 55-69
- **Altered fracture repair in the absence of MMP9** *DEVELOPMENT*
  Colnot, C., Thompson, Z., Miclau, T., WERB, Z., Helms, J. A.
  2003; 130 (17): 4123-4133
- **Cranial skeletal biology** *NATURE*
  Helms, J. A., SCHNEIDER, R. A.
  2003; 423 (6937): 326-331
- **A zone of frontonasal ectoderm regulates patterning and growth in the face** *DEVELOPMENT*
  Hu, D., Marcucio, R. S., Helms, J. A.
  2003; 130 (9): 1749-1758
- **Molecular ontogeny of the skeleton.** *Birth defects research. Part C, Embryo today : reviews*
  Eames, B. F., de la Fuente, L., Helms, J. A.
  2003; 69 (2): 93-101
- **The cellular and molecular origins of beak morphology** *SCIENCE*
  SCHNEIDER, R. A., Helms, J. A.
  2003; 299 (5606): 565-568
- **In situ analysis of osteogenic differentiation in mouse cranial sutures** *10th International Congress of the International-Society-of-Craniofacial-Surgery*
  Nacamuli, R. P., Fong, K. D., Warren, S. M., Fang, T. D., Song, H. M., Salim, A., Helms, J. A., Longaker, M. T.
  MEDIMOND PUBLISHING CO.2003: 455–457
- **Prenatal morphogenesis of the human mental foramen** *EUROPEAN JOURNAL OF ORAL SCIENCES*
  Radlanski, R. J., Renz, H., Muller, U., Schneider, R. S., Marcucio, R. S., Helms, J. A.
  2002; 110 (6): 452-459
- **A model for intramembranous ossification during fracture healing** *JOURNAL OF ORTHOPAEDIC RESEARCH*
  Thompson, Z., Miclau, T., Hu, D., Helms, J. A.
  2002; 20 (5): 1091-1098
- **Local retinoid signaling coordinates forebrain and facial morphogenesis by maintaining FGF8 and SHH** *DEVELOPMENT*
  SCHNEIDER, R. A., Hu, D., Rubenstein, J. L., Maden, M., Helms, J. A.
  2001; 128 (14): 2755-2767
- **A molecular analysis of matrix remodeling and angiogenesis during long bone development** *MECHANISMS OF DEVELOPMENT*
  Colnot, C. I., Helms, J. A.
  2001; 100 (2): 245-250
- **Molecular aspects of healing in stabilized and non-stabilized fractures** *43rd Annual Meeting of the Orthopaedic-Research-Society*
  Le, A. X., Miclau, T., Hu, D., Helms, J. A.
  JOHN WILEY & SONS INC.2001: 78–84
- **Genetic and teratogenic approaches to craniofacial development** *CRITICAL REVIEWS IN ORAL BIOLOGY & MEDICINE*
  Young, D. L., SCHNEIDER, R. A., Hu, D., Helms, J. A.
  2000; 11 (3): 304-317
- **The role of Sonic hedgehog in normal and abnormal craniofacial morphogenesis** *DEVELOPMENT*
  Hu, D., Helms, J. A.
  1999; 126 (21): 4873-4884
- **Does adult fracture repair recapitulate embryonic skeletal formation?** *MECHANISMS OF DEVELOPMENT*
  Ferguson, C., Alpern, E., Miclau, T., Helms, J. A.

1999; 87 (1-2): 57-66

- **From head to toe: conservation of molecular signals regulating limb and craniofacial morphogenesis** *CELL AND TISSUE RESEARCH*
  SCHNEIDER, R. A., Hu, D., Helms, J. A.
  1999; 296 (1): 103-109
- **LMP-1, a LIM-domain protein, mediates BMP-6 effects on bone formation** *ENDOCRINOLOGY*
  Boden, S. D., Liu, Y. S., Hair, G. A., Helms, J. A., Hu, D., Racine, M., Nanes, M. S., Titus, L.
  1998; 139 (12): 5125-5134
- **Mechanobiology of skeletal regeneration** *Workshop on Fracture Healing Enhancement*
  Carter, D. R., Beaupre, G. S., Giori, N. J., Helms, J. A.
  SPRINGER.1998: S41–S55
- **Histochemical and molecular analyses of distraction osteogenesis in a mouse model** *JOURNAL OF ORTHOPAEDIC RESEARCH*
  Tay, B. K., Le, A. X., Gould, S. E., Helms, J. A.
  1998; 16 (5): 636-642
- **MMP-9/gelatinase B is a key regulator of growth plate angiogenesis and apoptosis of hypertrophic chondrocytes** *CELL*
  Vu, T. H., Shipley, J. M., Bergers, G., Berger, J. E., Helms, J. A., Hanahan, D., Shapiro, S. D., Senior, R. M., WERB, Z.
  1998; 93 (3): 411-422
- **Common molecular pathways in skeletal morphogenesis and repair** *Conference on Morphogenesis - Cellular Interactions*
  Ferguson, C. M., Miclau, T., Hu, D., Alpern, E., Helms, J. A.
  NEW YORK ACAD SCIENCES.1998: 33–42
- **The role of Hedgehog genes in skeletogenesis and repair** *Workshop on Skeletal Growth and Development - Clinical Issues and Basic Science Advances*
  Helms, J. A., Le, A. X., Iwasaki, M.
  AMER ACAD ORTHOPAEDIC SURGEONS.1998: 131–145
- **Expression of Indian hedgehog, bone morphogenetic protein 6 and gli during skeletal morphogenesis** *43rd Annual Meeting of the Orthopaedic-Research-Society*
  Iwasaki, M., Le, A. X., Helms, J. A.
  ELSEVIER SCIENCE BV.1997: 197–202
- **Neuronal pentraxin receptor, a novel putative integral membrane pentraxin that interacts with neuronal pentraxin 1 and 2 and taipoxin-associated calcium-binding protein 49** *JOURNAL OF BIOLOGICAL CHEMISTRY*
  Dodds, D. C., Omeis, I. A., Cushman, S. J., Helms, J. A., Perin, M. S.
  1997; 272 (34): 21488-21494
- **Sonic hedgehog participates in craniofacial morphogenesis and is down-regulated by teratogenic doses of retinoic acid** *DEVELOPMENTAL BIOLOGY*
  Helms, J. A., Kim, C. H., Hu, D., Minkoff, R., Thaller, C., Eichele, G.
  1997; 187 (1): 25-35
- **Retinoic acid signaling is required during early chick limb development** *DEVELOPMENT*
  Helms, J. A., Kim, C. H., Eichele, G., Thaller, C.
  1996; 122 (5): 1385-1394
- **EFFECTS OF CHLORHEXIDINE ON HUMAN TASTE PERCEPTION** *ARCHIVES OF ORAL BIOLOGY*
  Helms, J. A., DELLAFERA, M. A., Mott, A. E., Frank, M. E.
  1995; 40 (10): 913-920
- **NEURONAL PENTRAXIN, A SECRETED PROTEIN WITH HOMOLOGY TO ACUTE-PHASE PROTEINS OF THE IMMUNE-SYSTEM** *NEURON*
  SCHLIMGEN, A. K., Helms, J. A., Vogel, H., Perin, M. S.
  1995; 14 (3): 519-526
- **CLONING AND ANALYSIS OF A NEW DEVELOPMENTALLY-REGULATED MEMBER OF THE BASIC HELIX-LOOP-HELIX FAMILY** *MECHANISMS OF DEVELOPMENT*
  Helms, J. A., Kuratani, S., Maxwell, G. D.

1994; 48 (2): 93-108

- **RELATIONSHIP BETWEEN RETINOIC ACID AND SONIC HEDGEHOG, 2 POLARIZING SIGNALS IN THE CHICK WING BUD** *DEVELOPMENT*
  Helms, J., Thaller, C., Eichele, G.
  1994; 120 (11): 3267-3274