Dominik R. Haudenschild, Ph.D.

Clinical Interests

Dr. Haudenschild's research focus is in the interactions between the chondrocyte cytoskeleton and signal transduction events which lead to the regulation of gene expression and extracellular matrix synthesis required for the maintenance of health cartilage and the interactions between COMP and ADAMTS enzymes that create osteoarthritis biomarkers.

Research/Academic Interests

We study early responses to joint injury to learn about the pathogenesis of osteoarthritis and to identify intervention strategies. We study chondrocyte mechanobiology to understand how mechanical forces are translated into biochemical responses. We study cartilage matricellular proteins to gain insight into how cells interact with growth factors and the extracellular matrix. We use animal models of joint injury and bone formation, explant models of osteochondral injuries, stem-cell based tissue engineering, and 3-axis bioreactors to mechanically stimulate hydrogel-embedded chondrocytes and stem cells.

We apply the knowledge to translational studies. Example: Intervene with inflammatory gene expression upon joint injury to prevent or delay OA. Example: Enhance BMP-mediated bone regeneration by presenting the growth factor in a biologically relevant context on matricellular proteins.

Title Associate Professor

Specialty Orthopaedic Research

Department Orthopaedic Surgery

Division Orthopaedic Research

Address/Phone Research I , 4635 2nd Ave. Suite 3004 Sacramento, CA 95817

Languages German

Education

Ph.D., UC Davis, Davis, California, 2003

B.A., Boston University, Boston, Massachusetts, 1989

Professional Memberships

American Society for Bone and Mineral Research

Editorial Review Board - Journal of Orthopaedic Research, Cartilage

Faculty of 1000 Prime (F1000)

International Cartilage Repair Society

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Dominik R. Haudenschild, Ph.D.

Orthopaedic Research Society, Active Member
OsteoArthritis Research Society International, Active Member

Honors and Awards

Orthopaedic Research Society Exchange Grant, 2015
Arthritis Foundation Innovative Research Grant, 2011
Earle C. Anthony Scholarship Award, 1998

Select Recent Publications

Haudenschild DR, Eldridge A, Lein PJ, and Chromy BA. High abundant protein removal from rodent blood for biomarker discovery. Biochem Biophys Res Commun. Volume 455, Issues 1–2, 5 December 2014, Pages 84–89.

Refaat M, Klineberg EO, Fong MC, Garcia TC, Leach JK, Haudenschild DR. Binding to COMP Reduces the BMP2 Dose for Spinal Fusion in a Rat Model. Spine. ePublished 14 December 2015.

Khorasani MS, Diko S, Hsia AW, Anderson MJ, Genetos DC, Haudenschild DR, and Christiansen BA. Effect of Alendronate on Post-Traumatic Osteoarthritis Induced by Anterior Cruciate Ligament Rupture in Mice. Arthritis Research %26amp%3B Therapy 2015 Feb, 17:30.

Klineberg E, Haudenschild DR, Snow KD, Garitty S, Christiansen BA, Acharya C, Maitra S, Gupta MC. The effect of noggin interference in a rabbit posterolateral spinal fusion model. Eur Spine J. 2014 Nov;23(11):2385-92.

Acharya C, Yik JHN, Van Dinh V, Di Cesare PE, and Haudenschild DR. Cartilage Oligomeric Matrix Protein and its binding partners in the cartilage extracellular matrix: Interaction, regulation and role in chondrogenesis. Matrix Biol 2014 Jul;37:102-11.

Yik JHN, Hu A, Kumari R, Christiansen BA, and Haudenschild DR. Cyclin-Dependent Kinase 9 Inhibition Protects Cartilage from the Catabolic Effects of Pro-Inflammatory Cytokines. Arthritis Rheumatol. 2014 Jun;66(6):1537-46.

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Lockwood KA, Chu BT, Anderson MJ, Haudenschild DR, Christiansen BA. Comparison of loading rate-dependent injury modes in a murine model of post-traumatic osteoarthritis. J Orthop Res. 2014 Jan;32(1):79-88.

Hu Z, Yik JHN, Cissell DD, Michelier PV, Athanasiou KA, and Haudenschild DR. Inhibition of CDK9 prevents mechanical injury-induced inflammation, apoptosis and matrix degradation in cartilage explants. Published 12 October, 2015.

Christiansen BA, Yik JHN, and Haudenschild DR. Closed Joint ACL Disruption in Murine Model of PTA, Chapter 7 in book "Post-Traumatic Arthritis: Pathogenesis, Diagnosis and Management", edited by Steve Olson and Farshid Guilak. Published July, 2015.

Christiansen BA, Guilak F, Lockwood KA, Olson SA, Pitsillides AA, Sandell LJ, Silva MJ, van der Meulen MC, and Haudenschild DR. Non-Invasive Mouse Models of Post-Traumatic Osteoarthritis. 20 May 2015.

Fukui T, Tenborg E, Yik JHN, and Haudenschild DR. In-vitro and in-vivo imaging of MMP activity in cartilage and joint injury. Biochem Biophys Res Commun, Published 26 March, 2015.

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