

Gaurav (Aman) Luther, MD

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CURRENT

- Sep 2018 – Current **Hand and Upper Extremity Surgeon: Wake Orthopedics.** Raleigh, NC
- Academic and Private practice hand surgery
 - Weekly didactics with UNC residents at hand conference and intra-operative resident teaching
 - Research IRBs in conjunction with UNC residents and WakeMed Health and Hospitals

EDUCATION

- Sep 2007 – June 2012 **University of Chicago: Pritzker School of Medicine, MD**
- Graduated with Honors
- Aug 2003 – Jun 2007 **Massachusetts Institute of Technology**
- Bachelor of Science in Biology

POSTGRADUATE TRAINING

- Jun 2012- June 2017 **Harvard Combined Orthopaedics Residency Program**
- MGH Chief Resident
- Jan 2017 **Harvard Business School**
- Value Based Health Care Certification with Michael Porter and Robert Kaplan
- Jun 2017 – Jun 2018 **Harvard Hand/ Upper Extremity Fellowship- Brigham and Women's Hospital**

AWARDS AND ACCOMPLISHMENTS

- Jun 2017 **Best Clinical Research Award-** Harvard Combined Orthopaedics Residency.
- Jun 2016 **Chief Resident-** Massachusetts General Hospital/ Harvard Combined Orthopaedics Residency
- Sep 2015 **Clinician Scholar Development Program-** American Academy of Orthopedic Surgeons
- May 2015 **Resident Teaching Award-** Harvard Medical School
- Mar 2014 **Best Poster Award-** Adult Hip Reconstruction, American Academy of Orthopedic Surgeons Conference
- Oct 2013 **Adrian E. Flatt Resident Research Scholarship-** American Society of Surgery for the Hand
- May 2012 **Leon Jacobson Award for Best Oral Presentation-** Senior Scientific Session, University of Chicago Pritzker School of Medicine
- Apr 2012 **Best Abstract-** International Congress for Joint Reconstruction Conference

Feb 2012	Best Oral Presentation- Tumor Society, American Academy of Orthopedic Surgeons
Aug 2011	Fentress Research Fellowship- University of Chicago Pritzker School of Medicine
Mar 2011	Best Basic Science Presentation- Huggins Research Symposium, University of Chicago Pritzker School of Medicine
Mar 2011	Best Clinical Presentation- Huggins Research Symposium, University of Chicago Pritzker School of Medicine
Jun 2010	Pritzker Research Fellowship- University of Chicago Pritzker School of Medicine

GRANTS

Aug 2015-present **\$100,000 Stepping Strong Research Award-** Brigham and Women's Hospital (Co-Investigators with Omid Farokhzad PhD and Mitchel Harris MD). Ongoing investigation utilizing FDA approved nanoparticle scaffolds for delivery of mesenchymal stem cells to critical bony defects.

CURRENT COMMITTEES

Aug 2017- Current **President- Opus Manus Hand Club-** 50 plus member hand club consisting of hand fellowship trained hand surgeons across the country representing academic practice, private practice and breadth of practice across hand surgery, pediatric hand surgery, plastic surgery and microvascular hand surgery. Annual meetings amongst members as well as meeting at ASSH each year.

Aug 2018- Current **American Society for Surgery of the Hand-** Resident and Fellows Committee. Responsible for annual meeting resident and fellow conference, didactics, abstract reviews and case moderation.

RESEARCH EXPERIENCE

Aug 2018- present **Wake Orthopedics**

- Current 4 IRBs investigating outcomes following distal radius fractures, metacarpal fractures and bony regeneration

Aug 2013-present **Boston Children's Hospital- Department of Orthopaedics.** Mentors: Donald S. Bae, MD, Peter M. Waters, MD.

- Clinical research on novel costing methodologies and implementation of standardized clinical care plans to analyze and improve health care delivery

Jan 2015-present **Brigham and Women's Hospital- Department of Hand Surgery.** Mentors: Philip Blazar, MD, George Dyer, MD.

- Clinical research on cost efficacy of corticosteroid injections and surgical release for treatment of diabetic trigger fingers
- Educational research examining the role of nonliving microsurgical models for residency training

Aug 2014- present **Brigham and Women's Hospital- Department of Orthopaedics.** Mentors: Mitchel Harris, MD, Omid Farokhzad, MD.

- Collaboration to utilize FDA approved nanoparticle delivery systems for the treatment segmental bone defects and bony infections
- Recipient of 100K Stepping Strong Grant at Brigham and Women's Hospital

- Jun 2010- Aug 2011 **Pritzker Research Fellowship-** Orthopaedic Molecular Oncology Laboratory. Mentors: Tong Chuan He, MD PhD, Hue Luu, MD.
- Awarded one year research fellowship to characterize IGFBP-5, a novel inhibitor of osteosarcoma growth and metastasis.
 - Conducted orthopaedic clinical projects investigating post-surgical joint infections and cartilage tissue engineering
- Aug 2009-Aug 2011 **University of Chicago Department of General Surgery.** Mentor: Alessandro Fichera, MD.
- Conducted clinical research on laparoscopic staging in Ulcerative Colitis.
- Jun 2008-Jun 2009 **University of Chicago Department of Neurosurgery.** Mentor: David Frim, MD PhD.
- Received research grant to conduct NIH-funded clinical research on surgical Chiari outcomes.
- Sep 2005-Sep 2007 **MIT Department of Chemical Engineering.** Mentor: Robert Langer, PhD.
- Researched targeted drug delivery using charged coupled nanoparticles.

PEER-REVIEWED PUBLICATIONS (*Primary Authorship*)

Luther G., Blazar P., Dyer G. *Achieving Microsurgical Competency in Orthopedic Residents utilizing a Self-Directed Microvascular Training Curriculum.* Journal of Bone and Joint Surgery. Feb 2019. PMID: 30730490

Luther G., Murthy, P., Blazar P. *Cost of immediate surgery versus non-operative treatment for trigger finger in diabetic patients.* Journal of Hand Surgery. Sep 2016. PMID: 27671766

Luther G., Miller P., Mahan S., Waters PM., Bae DS. *Decreasing resource utilization using standardized clinical assessment and management plans (SCAMPs).* J Pediatric Orthopaedics. Sep 2016. PMID: 27636917

Luther G., Miller P, Waters PM, Bae DS. *Radiographic evaluation of pediatric forearm fractures: implications on cost and care.* J Pediatric Orthopaedics. Apr 2015. PMID: 25887819

Luther G., Lamplot J., Chen X., Rames R., Wagner E., Shen J., Haydon R., He T.C., Luu H. *IGFBP5 Domains Exert Distinct Inhibitory Effects on the Tumorigenicity and Metastasis of Human Osteosarcoma.* Cancer Letters. May 2013. PMID 23665505

Luther G., Wagner E., Zhu G., Kang Q., Luo Q., Lamplot J., Bi Y., Luo X., Luo J., Teven C., Shi Q., Kim S., Gao J., Huang E., Rames R., Liu X., Li M., Hu N., Su Y., Chen L., He B.C., Zuo G., Deng Z., Reid R., Luu H., Haydon R., He T.C. *BMP-9 Induced Osteogenic Differentiation of Mesenchymal Stem Cells: Molecular Mechanism and Therapeutic Potential.* Current Gene Therapy. March 2011. PMID 21453282

Luther G., Rames R., Wagner E., Zhu G., Luo Q., Bi Y., Kim S., Gao J., Huang E., Yang K., Wang L., Liu X., Li M., Hu N., Su Y., Luo X., Chen L., Luo J., Haydon R., Luu H., Zhou L., He T.C. *Molecular Basis of Differentiation Therapy for Soft Tissue Sarcomas.* Trends in Cancer Research. Jan 2011.

PENDING MANUSCRIPTS

Luther G, Blazar P, Earp B. *Long-Term Outcomes following ECU reconstruction with a retinacular flap.* Manuscript in Progress.

PEER-REVIEWED PUBLICATIONS (*Other*)

Ordikhani F., Zandi N., Mazaheri M., **Luther G.**, Ghovvatoi M., Akbarzadeh A., Annabi N. *Targeted Nanomedicines for the treatment of bone disease and regeneration.* Medicinal Research Reviews. Dec 2020

Behzadi S., **Luther G.**, Harris MB., Farokhzad O., Mahmoudi M.. *Nanomedicine for safe healing of bone trauma: Opportunities and challenges.* Biomaterials. Sep 2017.

Lamplot J., **Luther G.**, Mawdsley EL, Luu HH, Manning D. *Modified Protocol Decreases Surgical Site Infections after Total Knee Arthroplasty.* Journal of Knee Surgery. Mar 2015. PMID 25699629

Lamplot J., Liu B., Zhang W., Wang Z., **Luther G.**, Wagner E., He T.C., Ho S. *Reversibly immortalized articular chondrocytes acquire long-term proliferative capability while retaining chondrogenic phenotype.* Cell Transplantation. Apr 2014. PMID 24800751

Chen X., **Luther G.**, Zhang W., Nan G., Wagner E., Liao Z., Haydon R., Zhou L., Luu H., He T.C. *The E-F hand calcium-binding protein S100A4 regulates the proliferation, survival and differentiation potential of human osteosarcoma cells.* Cellular Physiology and Biochemistry. Sep 2013. PMID 24217649

Hekman K., Aliaga L., Straus D., **Luther G.**, Chen J., Sampat., Frim D. *Positive and negative predictors for good outcome after decompressive surgery for Chiari malformation type 1 as scored on the Chicago Chiari Outcome Scale.* Neurological Research. Sep 2012. PMID 22781921

Aliaga L., Yassari R., Straus D., Hekman K., **Luther G.**, Chen J., Sampat A., Frim D. *A Novel Scoring System for Assessing Chiari Malformation Type 1 Treatment Outcomes.* Neurosurgery. Mar 2012. PMID 21849925

Teven C., Liu X., Hu N., Tang N., Kim S., Huang E., Yang K., Li M., Gao J., Liu H., **Luther G.**, Luo Q., Wang L., Rames R., Bi Y., Luo J., Luu H., Haydon R., Reid R., He T.C. *Epigenetic regulation of mesenchymal stem cells: A focus on osteogenic and adipogenic differentiation.* Stem Cells and Nuclear Reprogramming. Jul 2011. PMID 21772852

Wagner E. **Luther G.**, , Zhu G., Luo Q., Shi Q., Kim S., Gao J., Huang E., Gao Y., Yang K., Wang L., Teven C., Luo X., Liu X., Li M., Hu N., Su Y., Bi Y., He B.C., Haydon R., Luu H., He T.C. *Defective Osteogenic differentiation in the development of osteosarcoma.* Sarcoma. Feb 2011. PMID 21437219

Pandey S., **Luther G.**, Umanskiy K., Malhotra G., Rubin M., Hurst R., Fichera A. *Minimally invasive pouch surgery for ulcerative colitis. Is there a benefit in staging?* Diseases of the Colon and Rectum. Feb 2011. PMID 21304301

Rastegar F., Gao J., Shenaq D., Luo Q., Shi Q., Kim S., Jiang W., Wagner E., Huang E., Gao Y., Shen J., Yang K., He B.C., Chen L., Zuo G., Luo J., Luo X., Bi Y., Liu X., Li M., Hu N., Wang L., **Luther G.**, Luu H., Haydon R., He T.C. *Lysophosphatidic acid acyltransferase b (LPAATb) promotes tumor growth of human osteosarcoma.* PLoS ONE. Dec 2010. PMID 21152068

He B.C., Gao J., Zhang B., Luo Q., Shi Q., Kim S., Huang E., Gao Y., Yang K., Wagner E., Wang L., Tang N., Luo J., Liu X., Li M., Bi., Shen J., **Luther G.**, Hu N., Zhou Q., Luu H., Haydon R., Zhao Y., He T.C. *Tetrandrine Inhibits Wnt/ β -Catenin Signaling and Suppresses Tumor Growth of Human Colorectal Cancer.* Molecular Pharmacology. Oct 2010. PMID 20978119

Tepley B., Tong R., Jeong S., **Luther G.**, Sherifi I., Yim C., Khademhosseini A., Farokhzad O., Langer R., Cheng J. *The use of charge-coupled polymeric microparticles and micromagnets for modulating the bioavailability of orally delivered macromolecules.* Biomaterials. Dec 2007. PMID 18082254

Cheng J., Tepley B., Sherifi I., Sung J., **Luther G.**, Gu F., Nissenbaum E., Moreno A., Langer R., Farokhzad O. *Formulation of functionalized PLGA-PEG nanoparticles for in vivo targeted drug delivery.* Biomaterials. Feb 2007. PMID 17055572

PODIUM PRESENTATIONS *(in chronological order)*

Luther G, Blazar P, Dyer, G. *Effectiveness of a microvascular training curriculum utilizing nonliving models*. Richard J. Smith Annual Research Symposium. April 2017.

Luther G, Miller P, Mahan, S, Waters PM, Bae DS. *Decreasing resource utilization using standardized clinical assessment and management plans (SCAMPs)*. Richard J. Smith Annual Research Symposium. May 2014.

Lamplot J., **Luther G.**, Luu H., Manning D. *Aseptic protocol decreases surgical site infections following hip arthroplasty*. Mid-America Orthopaedic Association Annual Meeting. Apr 2014.

Lamplot J., **Luther G.**, Krummenacher T., Hussain M., Luu H., Manning D. *Aseptic protocol decreases surgical site infection after knee arthroplasty*. American Academy of Orthopaedic Surgeons (AAOS) Annual Conference. Mar 2014.

Luther G, Miller P, Waters PM, Bae DS. *Radiographic evaluation of pediatric forearm fractures: implications on cost and care*. American Academy of Orthopaedic Surgeons (AAOS) Annual Conference. Mar 2014.

Luther G, Miller P, Waters PM, Bae DS. *Radiographic evaluation of pediatric forearm fractures: implications on cost and care*. Richard J. Smith Annual Research Symposium. May 2013.

Luther G, Stack M, Manning D. *A novel aseptic protocol decreases surgical site infections following total hip and revision hip arthroplasty*. International Congress for Joint Reconstruction (Apr 2012), MidAmerica Orthopaedics Association Annual Meeting (Apr 2012)

Luther G, Wagner E, Rames R., Lamplot J., Haydon R, He T.C., Luu H. *Functional characterization of IGFBP-5 in the inhibition of osteosarcoma tumorigenicity*. American Academy of Orthopaedic Surgeons (AAOS) Annual Conference-Tumor Society Best Oral Presentation. Feb 2012.

Luther G., Rames R., Wagner E., Lamplot J., Haydon R., He T.C., Luu H. *Mechanism of Osteosarcoma tumorigenesis by *SI00A4**. American Academy of Orthopaedic Surgeons (AAOS) Annual Conference. Feb 2012.

Luther G, Rames R, Wagner E, Haydon R, He T.C., Luu H. *Functional characterization of IGFBP-5 in the inhibition of osteosarcoma tumorigenicity*. Huggins Research Symposium: Winner of Best Basic Science Presentation. Apr 2011.

Rames R, **Luther G**, Lamplot J, Wagner E, Luu H, He T.C. *Induction of chondrogenic differentiation in Mesenchymal Stem Cells using a novel combination of Sox Transcription Factors and Bone Morphogenetic Proteins*. Huggins Research Symposium: Winner of Best Clinical Presentation. Apr 2011.

Wagner E., **Luther G.**, Haydon R., He T.C., Luu H. *The mechanism underlying the inhibition of osteosarcoma tumorigenicity by IGFBP5*. American Academy of Orthopaedic Surgeons (AAOS) Annual Conference. Feb 2011.

POSTER PRESENTATIONS *(in chronological order)*

Luther G., Blazar P., Dyer G. *Development of a low-cost, high-fidelity resident microsurgical training curriculum*. American Society for Surgery of the Hand (ASSH) Annual Conference. Oct 2017.

Luther G., Murthy, P., Blazar P. *Cost of immediate surgery versus non-operative treatment for trigger finger in diabetic patients*. American Society for Surgery of the Hand (ASSH) Annual Conference. Oct 2016

Luther G, Miller P, Mahan, S, Waters PM, Bae DS. *Decreasing resource utilization using standardized clinical assessment and management plans (SCAMPs)*. American Academy of Orthopaedic Surgeons (AAOS) Annual Conference. Mar 2015.

Lamplot J., **Luther G.**, Borque K., Luu H.H., Manning D.W. *Aseptic protocol decreases surgical site infection after hip arthroplasty*. American Academy of Orthopaedic Surgeons (AAOS) Annual Conference. Mar 2014.

Luther G., Miller P, Waters PM, Bae DS. *Radiographic evaluation of pediatric forearm fractures: implications on cost and care*. American Society for Surgery of the Hand (ASSH) Annual Conference. Oct 2013.

Lamplot J., **Luther G.**, He T.C., Luu H. *Methylation of IGFBP5 promoter regulates human osteosarcoma*. Orthopaedic Research Society (ORS) Annual Conference. Jan 2013.

Luther G., Stack M, Rames R, Manning D. *A novel aseptic protocol decreases surgical site infections following total hip and revision hip arthroplasty*. International Congress of Joint Reconstruction. Apr 2012.

Luther G., Rames R., Wagner E., Haydon R., He T.C., Luu H. *Inhibition of Osteosarcoma metastasis by Insulin Growth Factor Binding Protein 5 (IGFBP5)*. Orthopaedic Research Society (ORS) Annual Conference. Feb 2012.

Luther G., Rames R., Wagner E., Haydon R., He T.C., Luu H. *Mechanism of Osteosarcoma tumorigenesis by S100A4*. Orthopaedic Research Society (ORS) Annual Conference. Feb 2012.

Luther G., Rames R, Wagner E, Haydon R, He T.C., Luu H. *Functional characterization of IGFBP-5 in the inhibition of osteosarcoma tumorigenicity*. American Society of Clinical Oncology (ASCO) Annual Conference. Jun 2011.

Luther G., Stack M, Manning D. *Use of trabecular metal components in revision hip arthroplasty*. Huggins Annual Research Symposium. Apr 2011.

Luther G., Stack M, Rames R, Manning D. *Surgical site infections following total hip and revision hip arthroplasty*. Huggins Annual Research Symposium. Apr 2011.

Luther G., Wagner E, Rames R, Haydon R, He T.C., Luu H. *S100A6 is a novel inducer of osteosarcoma tumorigenicity*. Huggins Annual Research Symposium. Apr 2011.

Luther G., Rames R, Wagner E, Haydon R, He T.C., Luu H. *Functional characterization of IGFBP-5 in the inhibition of osteosarcoma tumorigenicity*. Huggins Annual Research Symposium. Apr 2011.

Rames R, **Luther G.**, Lamplot J, Wagner E, Luu H, He T.C. *Establishment and characterization of a novel murine chondrocytic cell line*. Huggins Annual Research Symposium. Apr 2011.

Rames R, **Luther G.**, Lamplot J, Wagner E, Luu H, He T.C. *Induction of chondrogenic differentiation in Mesenchymal Stem Cells using a novel combination of Sox Transcription Factors and Bone Morphogenetic Proteins*. Huggins Annual Research Symposium. Apr 2011.

Luther G., Wagner E., Haydon R., He T.C., Luu H. *Delineating the Role of S100A6 in Osteosarcoma and Osteogenic Differentiation*. Orthopaedic Research Society (ORS) Annual Conference. Jan 2011.

Luther G., Wagner E., Haydon R., He T.C., Luu H. *The Mechanism Underlying the Inhibition of Osteosarcoma Tumorigenicity by IGFBP5*. Orthopaedic Research Society (ORS) Annual Conference. Jan 2011.

LECTURES/ JOURNAL REVIEW

June 2017 **Invited Reviewer**, *Hand*. June 2017.

Dec 2016 **Invited Discussant**, Grandview Orthopedics Residency Journal Club

June 2015

Musculoskeletal Anatomy Lecture, Harvard Medical School

LEADERSHIP ROLES

Jun 2016- Present **Chief Resident**, Harvard Combined Orthopaedics Program

Jun 2010-Mar 2012 **Coggeshall Advising Society Leader**, Pritzker School of Medicine.

Jun 2010-Jun 2011 **Executive Board**, Peer Mentors at Pritzker (PMAP): Pritzker School of Medicine.

Aug 2007-Aug 2009 **Executive Board**, American Medical Association: Pritzker School of Medicine.

Aug 2007-Aug 2008 **President**, Surgery Interest Group: Pritzker School of Medicine.

MEDICAL SCHOOL TEACHING EXPERIENCE

Aug 2011-Mar 2012 **Biostatistics and Epidemiology Teaching Assistant**, Instructor: Diane Lauderdale, MD

Nov 2010-May 2011 **Doctor-Patient Relationship Teaching Assistant**, Instructor: Mark Siegler MD, David Rubin MD

Sep 2010-Dec 2010 **Anatomy Teaching Assistant**, Instructor: Jim O'Reilly, PhD

Sep 2010- Nov 2010 **Clinical Skills Teaching Assistant**, Instructor: Jeanne Farnan, MD

Sep 2007-Mar 2008 **Radiology Teaching Assistant**, Instructor: Christopher Straus, MD

Sep 2007-Jan 2008 **Health Care Disparities Teaching Assistant**, Instructor: Monica Vela, MD

INSTITUTIONAL AND COMMUNITY SERVICE

May 2010-Jun 2010 **Health Education Instructor**, EPIC High School- South Chicago.

Sep 2007-Jun 2008 **Fundraising Committee and Volunteer**, REMEDY (Recovering Medical Supplies for Developing World)

Sep 2007-Sep 2008 **Instructor**, ASAP (Adolescent Substance Abuse Program).

Nov 2007-Jan 2008 **Activities Committee/ T-Team Leader**, Class of 2012 Orientation

PROFESSIONAL SOCIETY MEMBERSHIPS

- American Academy of Orthopaedic Surgeons
- American Society for Surgery of the Hand- Board Certified

OTHER INTERESTS AND HOBBIES

- Tennis, Golf, Competitive races