



SCHOOL OF MEDICINE
Thurston Arthritis
Research Center

SEVENTH ANNUAL
RESEARCH DAY

Friday, October 25, 2024
8:00am-2:30pm

The UNC Friday Center
100 Friday Center Drive
Chapel Hill, NC 27517

Keynote Speaker

2024 John B. Winfield, MD Visiting Scholar

Virginia Byers Kraus, MD, PhD



*Mary Bernheim Distinguished Professor of Medicine
Professor of Medicine
Professor of Pathology
Professor in Orthopaedic Surgery
Affiliate of the Duke Regeneration Center
Member of the Duke Molecular Physiology Institute
Duke University School of Medicine*

Virginia Byers Kraus, MD, PhD, is the Mary Bernheim Distinguished Professor of Medicine, Professor of Orthopaedic Surgery, Professor of Pathology and a faculty member of the Duke Molecular Physiology Institute in the Duke University School of Medicine.

She is a practicing Rheumatologist with over 30 years' experience in translational musculoskeletal research focusing on osteoarthritis, the most common of all arthritides. She trained at Brown University (ScB 1979), Duke University (MD 1982, PhD 1993) and the Duke University School of Medicine (Residency in Internal Medicine and Fellowship in Rheumatology).

Her career has focused on elucidating osteoarthritis pathogenesis and translational research into the discovery and validation of biomarkers for early osteoarthritis detection, prediction of progression, monitoring of disease status, and facilitation of therapeutic developments. She is co-PI of the Foundation for NIH Biomarkers Consortium Osteoarthritis project. Trained as a molecular biologist and a Rheumatologist, she endeavors to study disease from bedside to bench.

TARC Research Day Program

7:30-8:00am Breakfast

Blueberry Hill Room & Atrium Center

***Morning refreshments available until 10:30am**

8:00-8:20am Welcome Remarks

Sunflower room

Dr. Beth Jonas, Division Chief,
Rheumatology, Allergy & Immunology

Dr. Richard F. Loeser Jr., Director,
Thurston Arthritis Research Center

8:20-9:20am Short Talks

Sunflower Room

Moderated by:

Amanda Nelson, MD & Lara Longobardi, PhD

Underlined names indicate the speaker for each presentation

- 8:20 Kelli D. Allen, Liubov Arbeeva, Leigh F. Callahan, Katherine Combs, Tamara Godfrey, Yvonne M. Golightly, Derek Hales, Carla Hill, Katie Huffman, Amanda E. Nelson, Jennifer Rees, Todd A. Schwartz; ***Optimizing Osteoarthritis Care through Clinical and Community Partnership: Results of an Exploratory Trial.***
- 8:35 Philip Coryell, Kenneth Pearce, Paul Brian Hardy, Susan Chubinskya, Richard Loeser. ***A Novel Small Molecule Screening Assay Toward Osteoarthritis Drug Discovery.***
- 8:50 Nonie Arora, Mildred Kwan, Andrew Winslow. ***Penicillin Allergy Decision and Mobile Empowerment (PADME): Patient Engagement and Delabeling Outcomes***
- 9:05 Daaniya Rana, Yinghui Wang, Onyinye Iweala. ***Infestation with Lone Star Tick Enhances Proliferation of CD1d-Expressing Innate Immune Antigen Presenting Cells***

9:20-9:45am Poster Pitches – Session 1

Sunflower Room

(All posters listed here will be available for viewing in the following poster viewing session)

- #1 Ashley N. Buck, Liubov Arbeeva, J. Elyse Borgert, Yvonne M. Golightly, Hyeon Lee, Richard F. Loeser, Amanda E. Nelson, Brian Pietrosimone, Stephen P. Messier, J.S. Marron. ***Vertical Ground Reaction Force Variability is Associated with Clinical Features in Individuals with Knee Osteoarthritis and Overweight/Obesity: A Novel Machine Learning Analysis of the IDEA Trial Dataset.***
- #2 Garrett A. Sessions, Madeline V. Loops, Brian O. Diekman, Jeremy E. Purvis. ***Characterizing the Temporal Dynamics of Senescence Induction.***
- #3 Joel Thompson, Keri A. Geinosky, Joshua Torrey, Louise Thoma. ***Utilization of Rehabilitation Services in Patients with Common Rheumatic Conditions: A Systematic Review.***

- #4 Shailesh K. Choudhary, Surendra R. Sharma, Shahid Karim, Julia M. Vorobiov, Scott P. Commins. ***Infestation of Alpha-gal Knockout Mice with *Amblyomma americanum* Caused Induction of Th2 Polarization Genes, Production of Alpha-gal Specific Antibody and Red Meat Allergy.***
- #5 Reece Blay, Laura Bilek, Chris Wichman, Grace Roskam, Yvonne M. Golightly. ***Identification of Tibial and Femoral Bone Characteristics in Individuals with and without Obesity: A Secondary Analysis of a Novel Computed Tomography Approach for Knee Osteoarthritis.***

9:45-10:45am **Poster Viewing – Session A**

Willow Lounge

- #6 Astia Allenzara, Katherine Jicha, Carolina Álvarez, Amanda Nelson, Galen Foulke, Louise Thoma. ***Rehabilitation Services Utilization: A US Retrospective Cohort Assessment of Rehabilitation Services After Idiopathic Inflammatory Myopathy (IIM) Diagnosis.***
- #7 Louise Thoma, Jing Li, Gabriela Schmajuk. ***Examination of Rehabilitation Referrals from Rheumatology Practices for Adults with Rheumatoid Arthritis in the RISE Registry: A Feasibility and Descriptive Study.***
- #8 Pranathi Narayanareddy, Rumey Ishizawar, Beth Jonas, Amanda E. Nelson. ***Evaluating Hand Osteoarthritis Awareness and Understanding Amongst University of North Carolina Healthcare Professionals.***
- #9 Sahar Sawani, Liubov Arbeeva, Katherine Yates, Carolina Alvarez, Todd A. Schwartz, Serena Savage-Guin, Jordan B. Renner, Catherine J. Bakewell, Minna J. Kohler, Janice Lin, Jonathan Samuels, Amanda E. Nelson. ***Patterns of Shared Variation in Knee Ultrasound for Osteoarthritis: A Machine Learning Approach.***
- #10 Natalie Allcott, Stephen Messier, Shannon Mihalko, Jeffrey Katz, Paul DeVita, David Hunter, Sara Quandt, Carolina Alvarez, Leigh F. Callahan, Amanda E. Nelson. ***Association of Depressive Symptoms and Multiple Joint Osteoarthritis with Pain Outcomes in the WE-CAN Trial.***
- #11 Abigail L. Gilbert, Ashley Abbott, Tyson Chiaro, Darren DeWalt. ***Optimizing Anti-nuclear Antibody Orders.***
- #12 Emma Astrike-Davis, Carolina Alvarez, Shruti Saxena Beem, Shivani Surati, Amanda Nelson, Rumey Ishizawar. ***Factors Impacting the Inclusion of Underrepresented Minorities in Immuno-Oncology Study Enrollment at UNC.***
- #13 Grace Kenney, Cristina Furdui, Richard Loeser, Douglas Phanstiel. ***Investigating Altered Kinase Signaling in an Ex Vivo Model of Osteoarthritis.***
- #14 Jacqueline Shine, Jack R. Felkner, Brian O. Diekman. ***Isolation of Murine Chondrocytes for Cell Sorting and Single Cell RNA Sequencing after Tissue Fixation to Preserve Transcriptome Fidelity.***
- #15 Samantha Stuppy, Jacqueline Shine, Emma Klein, Douglas Phanstiel, Brian Diekman. ***Decoding the Genetic Regulation of Osteoarthritis through Integrated Functional Genomics in Primary Human Chondrocytes***

- #16 Elena V. Filippova, Ishani H. Deliwala, Jacqueline Shine, Miguel A. Martinez Leal, Adam B. Yanke, Richard F. Loeser, Brian O. Diekman. ***Activation of Sirtuin 6 (SIRT6) Enhances DNA Damage Repair in Primary Human Chondrocytes.***
- #17 Tessa Englund, Katherine Holben, Simone Frank, Khadeejatul-Kubraa Lawal, Julie Hsieh, Christine Lee, Saira Sheikh. ***Bridging the Gap: Enhancing Diversity in Lupus Clinical Trials Through Investigator and Research Staff Engagement.***
- #18 Yinghui Wang, Robert M. Immormino, Yugen Zhang, Timothy P. Moran, Onyinye I. Iweala. ***Regulatory T cell and T follicular regulatory cell populations are disrupted in mice with UTX-deficient T cells.***

10:45-11:00am **Break**

11:00am-12:00pm **Keynote Presentation**
Sunflower Room

Dr. Virginia B. Kraus
Unveiling Early Osteoarthritis: Preclinical Detection and the Path to Disease Modification

12:00-1:00pm **Lunch**
Trillium AB

1:10-1:40pm **Poster Pitches – Session 2**
Sunflower Room

(All posters listed here will be available for viewing in the following poster viewing session)

- #19 Gabrielle Quickstad, Karl Shpargel. ***H3K4 Methyltransferases and Enhancer Function in Skeletal Development and Osteoarthritis***
- #20 Trinity Morrow, Joe M. Hart, Amanda E. Nelson, Liubov Arbeeva, Devin K. Kelly. ***Classification of Anterior Cruciate Ligament Reconstruction Patients Using Machine Learning.***
- #21 Rachel M. P. Caddiell, Kim Love, David Knazovicky, Eleanor McNamee, B. Duncan X. Lascelles, Margaret E. Gruen. ***Adapting the Pain Catastrophizing Scale for Dog Owners: Implications for Translational Research in Chronic Pain.***
- #22 Hyunwook Lee, Ashley N. Buck, Courtney Armitano-Lago, Robert A. Creighton, Ganesh M. Kamath, Jeffrey T. Spang, Xiaojuan Li, David Lalush, Jason R. Franz, Troy Blackburn, Brian Pietrosimone. ***Aberrant Gait Biomechanics Linked to Cartilage Changes After ACL Reconstruction Differ in Those with High Body Mass Index.***

- #23 Seyoun Byun, Philip Coryell, Nicole Kramer, Susan D'Costa, Eliza Thulson, Jacqueline Shine, Susan Chubinskya, Richard Loeser, Brian Diekman, Douglas Phanstiel. ***Response sQTLs in Primary Human Chondrocytes Identify Novel Putative Osteoarthritis Risk Genes.***

1:40-2:30pm Poster Viewing – Session B

Willow Lounge

- #24 Christina Stevens, Samantha Norris, Liubov Arbeeva, Scott Carter, Masataka Enomoto, Amanda E. Nelson, B Duncan X Lascelles. ***Gut Microbiome and Osteoarthritis: Insights from the Naturally Occurring Canine Model of OA.***
- #25 Sera Hill, KyShaun Bowie, Maggie Creamer, Zoe Loh, Eleanor McNamee, Lin Yang, Briana Dopfel, Jennifer Thompson, Javian McMillan, Masataka Enomoto, B. Duncan X. Lascelles, Margaret Gruen. ***Longitudinal Pilot Study on Chronic Pain Caused by Osteoarthritis in Pet Dogs & the Impact of Effective Pain Treatment in Cognitive & Affective Domains.***
- #26 Maggie Creamer, Zoe Loh, Eleanor McNamee, Sera Hill, Lin Yang, Briana Dopfel, Jennifer Thompson, Kyshaun Bowie, Javian McMillan, B. Duncan X. Lascelles, Margaret Gruen. ***Characterization of the Cognitive and Emotional Effects of Chronic Pain in Pet Dogs with Naturally Occurring Osteoarthritis.***
- #27 Aditi Vigneshwar, Ankita Gupta, Uma Nair, Connor Thonen-Fleck, David Knazovicky, Daniel Duffy, Simon Roe, B. Duncan X. Lascelles, Santosh Mishra. ***Localization and Expression of the Gene for Artemin in Mouse and Canine Osteoarthritic Joint Tissues.***
- #28 Sarah C. Gebauer, Timothy Chrusciel, Joanne Sala, Leigh F. Callahan, Jeffrey F. Schrrer. ***Validation of an Administrative Knee Osteoarthritis Severity Index in a Veterans Health Affairs Cohort.***
- #29 Liubov Arbeeva, Virginia B. Kraus, Amanda E. Nelson, Maryalice Nocera, Leigh F. Callahan, Richard F. Loeser, Stephen W. Marshall, Yvonne M. Golightly. ***A Novel Approach for Longitudinal Analysis of Serum Biomarkers of Joint Metabolism and Traumatic Knee Injury.***
- #30 Lily Al-Omari, Rebecca J. Cleveland, Daniel P. Beavers, Kate Queen, Shannon L. Mihalko, Gary D. Miller, Elena Losina, Jeffrey N. Katz, Richard F. Loeser, Paul DeVita, David J. Hunter, Jovita J. Newman, Sara A. Quandt, Mary F. Lyles, Joanne M. Jordan, Leigh F. Callahan, Stephen P. Messier. ***Associations of Diet + Exercise on Improvement of Psychological Symptoms Over an 18-month Intervention in Overweight or Obese Adults with Osteoarthritis: The WE-CAN Study.***
- #31 Devin K. Kelly, Dominic Willoughby, Adam W. Kiefer, Joe M. Hart. ***Single Leg Landing Kinematics and Performance after ACL Reconstruction.***
- #32 Dominic Willoughby, Adam W. Kiefer, Devin K. Kelly, Joe M. Hart. ***Preliminary Insights into Coordination Differences Between Injured and Uninjured Limbs in Athletes Cleared to Return Post-ACL Reconstruction.***

- #33 Morika D. Williams, Jeannette Delva-Wiley, Ernest J. Hough, Gregory K. Wilkerson. ***Evaluation of Histological Scoring Methods in a Rat Surgical Model of Chronic Knee Osteoarthritis.***
- #34 Kathryn Kwon, Helen Wilcockson, A. Greco, A. Fragassi, R. Palomba, L.B. Hooper, P. Decuzzi, Kathryn L. Kelley, Richard Loeser, Lara Longobardi. ***Exogenous Administration of Fetuin-A in Osteoarthritic Knees Using Fabricated Microparticles for Slow-Release Decrease Joint Degeneration, Synovial Hyperplasia and Muscle Damage in a Mouse PTOA Model.***

***Thank you for attending
TARC Research Day 2024!***

Notes