

# TARConnections...

Send newsletter suggestions to Abby Mihalkovic ([abby\\_mihalkovic@med.unc.edu](mailto:abby_mihalkovic@med.unc.edu))

February, 2024

## A Message From Our Center Director:

Richard F. Loeser, MD

Welcome everyone to our latest edition of the TARC Newsletter. As you can see, we have lots of activities to highlight, including the amazing work being done by TARC investigators, upcoming research seminars, and new TARC initiatives for 2024 resulting from the updated 5-year TARC and Division of Rheumatology, Allergy and Immunology Strategic Plan. A new initiative highlighted below is the development of a virtual TARC Clinical Database and Biorepository that we hope will facilitate new collaborative research studies. Please take a minute to browse the summary table on the website. If you have a database, with or without a biorepository, that you would like to add please contact Abby Mihalkovic.

Speaking of Abby, our center continues to grow with the addition of new faculty, staff, and trainees. We are particularly fortunate to have hired Abby Mihalkovic last summer as our TARC Administrative Support Specialist. She has already had a major impact in so many areas including putting together this newsletter!

Please note the TARC Investigators Meeting scheduled for May 6th. This is our first such meeting that we plan to hold annually to provide important TARC updates in more detail than can be provided in a newsletter or during TARC Research Day. It will also be a chance to ask questions and provide your input on important matters affecting the center. Time will be provided for social interaction among attendees with drinks and snacks.

Planning for the 2024 TARC Research Day which will be held on Friday October 25th at the Friday Center is underway. Please save the date and encourage the members of your research team to attend as well. We look forward to everyone's participation this year.

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# Welcome New TARC Members!

## TARC Faculty:



**Jason Franz, PhD**

Associate Professor  
BME Well-Being Director  
Joint Department of Biomedical Engineering

Joint Department of

**BIOMEDICAL ENGINEERING**



Research Interests:

- Neuromuscular biomechanics
- Sensorimotor control
- Aging and age-related mobility impairment



***Starting April 1st, 2024...***

**Ming-Feng Hsueh, PhD**

Assistant Professor  
Orthopedic Surgery



Research Interests:

- Osteoarthritis
- Cartilage regeneration
- Proteomics analysis of musculoskeletal tissue
- Non-coding RNAs in articular joints

## TARC Staff:



**Mary Hale, MS,  
MPH, CPT, ACSM-  
NCHPAD, YES**  
Soc/Clin Research  
Specialist  
Callahan Team,  
TOPS



**Nia Jackson,  
ACSM-CEP**  
Soc/Clin Research  
Specialist  
Callahan Team,  
TOPS



**Cortney Armitano-  
Lago, PhD, ATC**  
Research Project  
Manager  
Callahan Team,  
TOPS



**Sylvie Parkus**  
Research Tech.  
Phanstiel Lab



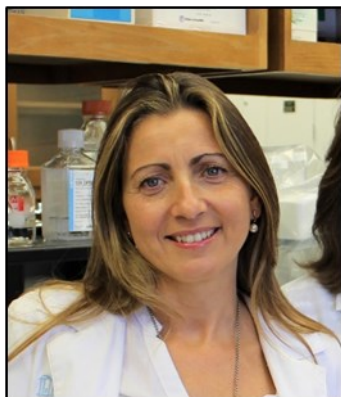
**Anna Pató, PhD**  
Post-Doc  
Research Assoc.  
Loeser Lab



**Alison Mathers, MS**  
Research Assistant/  
Phlebotomist  
Sheikh Team



## TARC Investigator Spotlight



Dr. Lara Longobardi

**Dr. Lara Longobardi** is an Associate Professor of Medicine in the Division of Rheumatology, Allergy and Immunology.

Her main research focuses on the role of inflammatory chemokines and cytokines in joint tissue degeneration during osteoarthritis and how targeting these pro-inflammatory factors can potentially slow disease progression at different tissue levels.

Her lab team has experience with engineered mouse models and has worked extensively with laboratory animals, specifically with different knee injury models of post-traumatic osteoarthritis.

Using these animal models, Dr. Longobardi's Lab is aiming to discover new targets to develop novel, disease-modifying treatments for post-traumatic osteoarthritis. Specifically, her team is testing the preventive and therapeutic potential of new molecules and developing strategies that would allow a pharmaceutical compound to be protected from degradation and released in a sustained manner to the target tissue to mitigate systemic side effects while boosting therapeutic efficacy.

A recent collaboration with Dr. Paolo Decuzzi at the Italian Institute of Technology (Genova, Italy) led to the successful delivery of polymeric microparticles loaded with a chemokine inhibitor into the intraarticular space of osteoarthritic knees in mice, allowing prolonged release of the molecule over time and slowing joint damage.

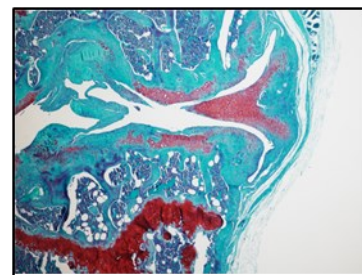
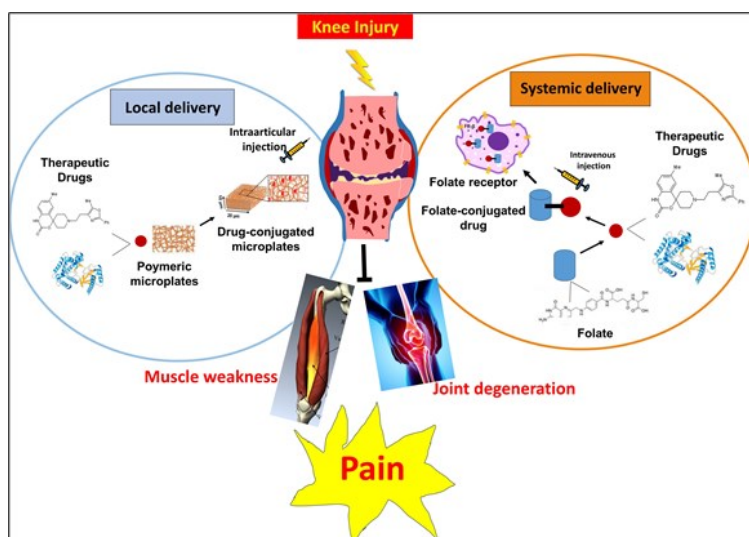


Image of joint and muscle.

In the last year, her lab teamed up with Dr. Philip Low (Purdue University), an expert in macrophage reprogramming techniques for disease therapy. Leveraging on this collaboration, Dr. Longobardi's lab is using activated macrophages expressing folate receptor, as carrier for different therapeutic molecules, to be specifically delivered at sites of inflammation during osteoarthritis.

Dr. Longobardi is also focusing on the role of the muscles during osteoarthritis. Muscles are critical for maintaining joint mobility and stability and muscle weakness has been associated with OA onset and progression. In this context, her lab is exploring the therapeutic potential of Fetuin-A, a liver secreted glycoprotein, to reduce joint and muscle degeneration during osteoarthritis. In addition to its well-known anti-inflammatory action, Fetuin-A has been shown to inhibit mineralization and stimulate muscle satellite cells, therefore it constitutes an ideal candidate to target inflammation, cartilage hypertrophy and muscle weakness occurring during osteoarthritis, alleviating pain.



Schematic figure of whole drug delivery method.





# TARC News & Announcements

## TARC Resources Update:

**TARC Clinical Databases and Biorepositories:** A table of information for existing databases and biorepositories held by TARC Investigators is now available on the TARC website. This information can serve as a reference for current TARC investigators and for external researchers looking to collaborate upon request. See image below of where to locate this new table on the TARC website or [click here to visit the page](#).

The screenshot shows the Thurston Arthritis Research Center website. The navigation menu includes 'About Us', 'Research', 'Clinical Trials', 'Clinical Care', 'Fellowships', 'Diversity', 'Make A Gift', and 'Contact'. The 'Research' link is circled in red. Below the navigation menu, the 'Research' section is active, and the 'Clinical Databases and Biorepositories' link is also circled in red. The main content area is titled 'Clinical Databases and Biorepositories' and contains a table of information for existing databases and biorepositories held by TARC Investigators. The table has columns for 'Name of Study', 'PI Name(s) & Contact(s)', 'Clinical Variables', 'Biospecimens', 'Collection Timepoints', and 'Enrolled Individuals'. The table lists three studies: 'Total Knee Arthroplasty Database and Biorepository', 'Arthroplasty Database and Biorepository', and 'Total Knee Arthroplasty Database and Biorepository'. The table also includes a search bar and a 'Show 10 entries' dropdown.

Name of Study	PI Name(s) & Contact(s)	Clinical Variables	Biospecimens	Collection Timepoints	Enrolled Individuals
Total Knee Arthroplasty Database and Biorepository	Daniel Bracey, Richard Loeser, Joseph Hart	- Demographics - Medications - Radiographs	- Joint tissue (cartilage and synovial tissue) - Knee ROM	Tissue and synovial fluid: surgery	Enrollment goal of 500
Arthroplasty Database and Biorepository	Contact: Richard Loeser (Richard.Loeser@med.unc.edu)	- PROMIS-29 (pain, depression, anxiety) - KOOS (pain and function) - PCS (pain)	Planned: - Synovial fluid - Blood - Urine	Blood and urine: - Time of surgery - 3mo - Post-surgery	

## Recent TARC Touchpoints:

- **February 5th, 2024:** Advancing Understanding of Severe Peanut Allergy: Dr. Erin Steinbach Receives AAAAI Foundation Faculty Award
  - [Read the full article here.](#)
- **January 29th, 2024:** Callahan and Soto Awarded R34 Planning Grant to Address Physical Activity Disparities among Latinos
- **January 19th, 2024:** University of North Carolina Designated as Scleroderma Research and Treatment Center
  - [Read the full article here](#)
- **January 12th, 2024:** Does a Red Meat Allergy Cause Knee Pain?
  - [Read the full article here.](#)
- **December 11, 2023:** Dr. Todd Schwartz is Named Associate Chair for the Department of Biostatistics
  - [Read the full article here.](#)



# Osteoarthritis Research Society International (OARSI)

Vienna, Austria

April 18-21, 2024

## UNC Poster Presentations at OARSI 2024

Abstract Title	Author & Co-Authors
A Multi-Omics Approach for Discovery of New Targets for Osteoarthritis Disease Modification	Richard F. Loeser, Philip Coryell, Ken Pearce, Nicole Kramer, Grace Kenney, Susan Chubinskaya, Cristina Furdui, Doug Phanstiel
The Prevalence of Knee Osteoarthritis in a Robust Administrative Cohort	Sarah Gebauer, Leigh Callahan, Jeffrey Scherrer, Joanne Salas
Body Composition, not Body Mass Index, Associates with Patient-Reported Outcomes, Quadriceps Strength, and Physical Function Linked to Early Knee Osteoarthritis-Related Outcomes After Anterior Cruciate Ligament Reconstruction	Ashley Buck, Sam Moore, Abbie Smith-Ryan, Todd Schwartz, Amanda Nelson, Hope Davis-Wilson, Troy Blackburn, Brian Pietrosimone
Adapting and Implementing Walk with Ease for the Australian Context: Protocol for Consumer Co-Design and a Stepped Wedge Cluster Randomised Trial	Sarah Kobayshi, Leigh Callahan, David Hunter, Dawn Aitken, Kim Bennell, Christian Barton, Jillian Eyles, Elena Losina, Nicole Rankin, Emmanuel Stamatakis, Bill Vicenzino, Daniel White, Rana Hinman
Determining Optimal Diet/Exercise Treatment Assignment for Patients with Symptomatic Knee Osteoarthritis Using Baseline Gait Forces	Aleksandra Kostic, Liubov Arbeeva, Xiaotong Jiang, Yvonne Golightly, Stephen Messier, Richard Loeser, Elyse Borgert, Daniel De Marchi, J.S. Marron, Michael Kosorok, Amanda Nelson
Early findings from the Genetics of Osteoarthritis Endophenotypes Working Group: A Genome-wide Association Meta-analysis of Hip Osteophytosis Identifies IGFBP3	BG Faber, L Arbeeva, J Zheng, R Beynon, M Jung, R Agricola, AE Nelson, YM Golightly, S Wang, JP Kemp, JH Tobias, J van Meurs, C Boer
Examining Associations Between Race and Ethnicity and Treatment Use in Individuals with Anterior Cruciate Ligament Injury	Chris Y. Lane, Brian Pietrosimone, Joe M. Hart, Yvonne M. Golightly, Tamara A. Baker, Adam D. Lutz, Louise M. Thoma
A Novel Approach for Longitudinal Analysis of Serum Biomarkers of Joint Metabolism and Traumatic Knee Injury	Liubov Arbeeva, Virginia B. Kraus, Amanda E. Nelson, Maryalice Nocera, Leigh F. Callahan, Richard F. Loeser, Stephen W. Marshall, Yvonne M. Golightly
Gene Expression, RNA Splicing, Chromatin Structure of Chondrocytes from 125 Donors Reveals Novel Putative OA Risk Genes	Nicole Kramer, Seyoun Byun, Philip Coryell, Eliza Thulson, Susan D'Costa, Susan Chubinskaya, Brian Diekman, Karen Mohlke, Richard Loeser, Douglas Phanstiel

## UNC Oral Presentations at OARSI 2024

Presentation Title	Presenter & Co-Authors
Amplifying the Patient's Voice: How We Can Make Research More Impactful - "Framework for Rigorously and Effectively Including Patient Partners and Experts in Research Pathways"	Leigh Callahan, James Bilzon
Exploring Associations Between Pro-inflammatory Cytokines, Obesity Associated Osteoarthritis, and Gut Microbiome Composition Using Machine Learning	Cam Kurz, Liubov Arbeeva, Richard Loeser, Amanda Nelson
The Relative Importance of Structural Changes of Radiographic Osteoarthritis and Pain in Multiple Sites: The Johnston County Osteoarthritis Project	Amanda Nelson, Carolina Alvarez, Liubov Arbeeva, Sherwin Novin, Kelli Allen, Yvonne Golightly
Current Evidence for Anti-inflammatory Treatments of OA as DMOADs	Richard Loeser

Visit Us On The [TARC Website](#), or Join Us on Social Media:

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## Upcoming TARC Events

### We Look Forward to Seeing You at TARC Research Day 2024!

**October 25th, 2022; 8:00 a.m. to 2:30 p.m.; UNC Friday Center, Chapel Hill, N.C.**

We're excited to be announce our Keynote Speaker and John B. Winfield, MD Visiting Scholar for this year's TARC Research Day meeting. See details below.

*More information and updates regarding this event will be announced in the coming months.*

#### Keynote Speaker & John B. Winfield, MD Visiting Scholar



**Virginia B. Kraus, MD, PhD**

Distinguished Professor of Medicine

Professor of Pathology

Professor in Orthopaedic Surgery

Duke University School of Medicine



**Department of Medicine**

Duke University School of Medicine

### TARC Investigators Meeting

**When:** Monday, May 6th from 4:00pm-5:30pm

**Where:** the Dickson Conference Room (Thurston 3200)

**What:** Opportunity for TARC investigators to gather together and receive updates and news regarding TARC, as well as a chance to socialize and catch-up with fellow investigators.

*\*Refreshments and snacks to be provided*

### TARC Research Seminar Series

Date	Speaker	Affiliation
3/15	Duncan Lascelles, PhD, DECVS/DAVCS	Professor Small Animal Surgery and Pain Management, NC State College of Veterinary Medicine
4/12	Benjamin A. Alman, MD	James R. Urbaniak Professor and Chair of Orthopaedic Sur- gery, Duke University School of Medicine
5/17	Onyinye I. Iweala, MD, PhD	Assistant Professor of Medicine, Director, Allergy Mast Cell Disorders Program, Div. of Rheum., Allergy, & Immun., UNC

