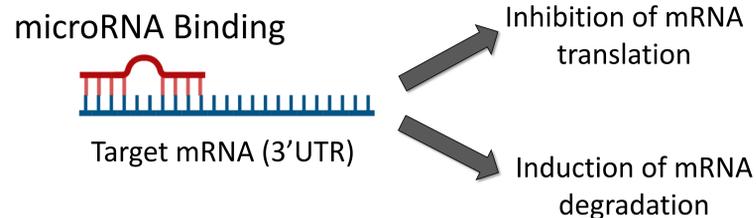
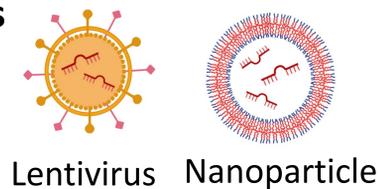


MicroRNA Function: These non-coding small RNAs can potentially target many mRNAs in modulation of a number of cellular processes.

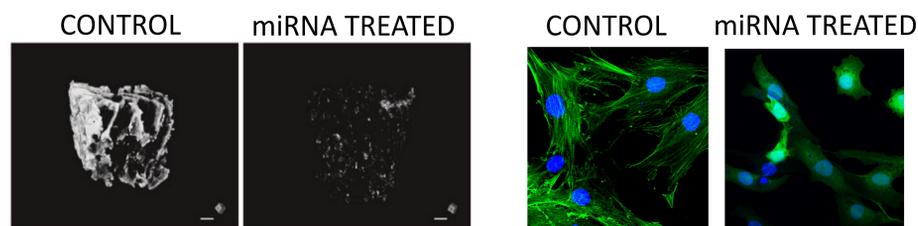


MicroRNA-based Therapeutics

MicroRNA Delivery via:



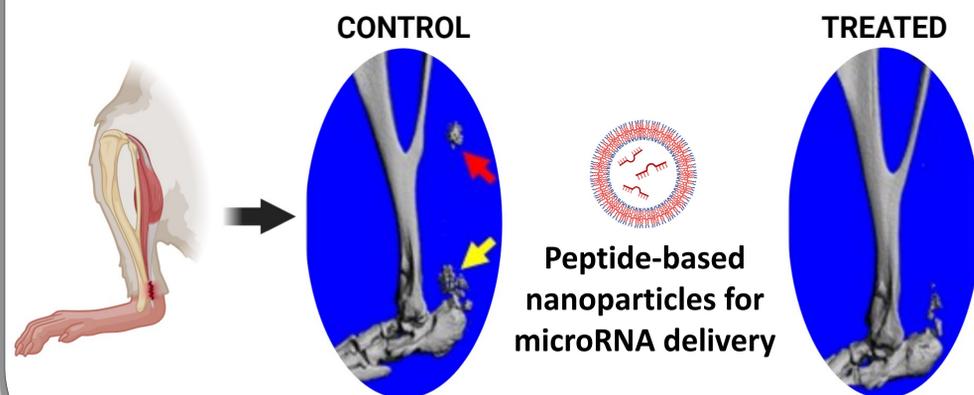
MicroRNA Data: We are pursuing two miRNAs, one that suppresses bone formation, and one that enhances bone formation. We apply various in vitro approaches to study the effects of miRNAs on: **progenitor cell differentiation, actin cytoskeleton formation, cell metabolism** and more.



MicroCT images: skeletal progenitor cells transduced with control RNA or miRNA in de-cellularized human bone scaffolds cultured in osteogenic medium for 28 days.

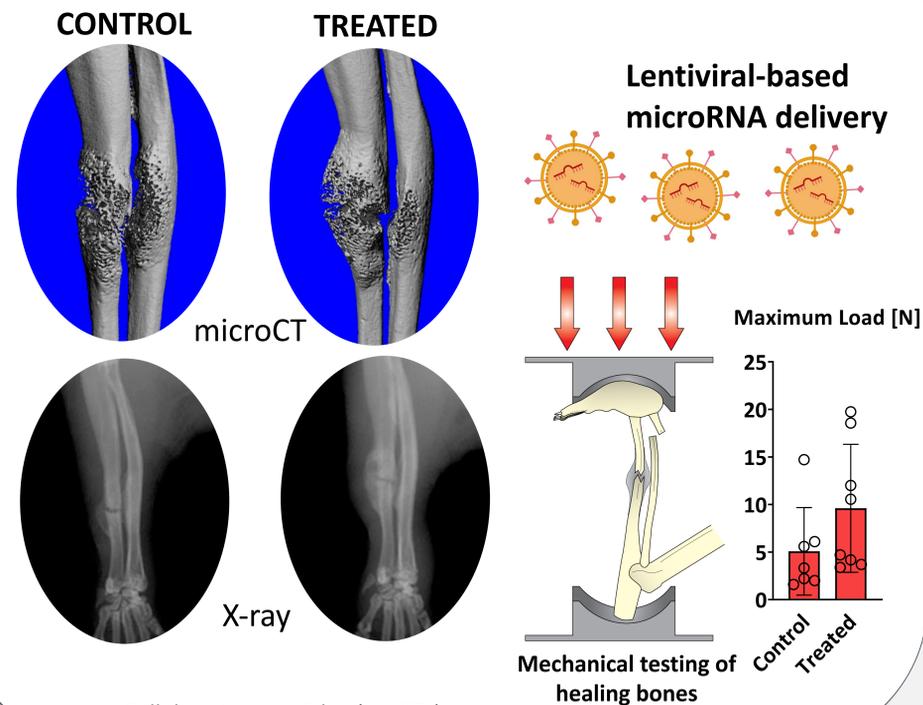
Confocal microscopy images showing phalloidin-stained actin cytoskeleton in skeletal progenitor cells. Note inhibition of F-actin formation in miRNA treated cells.

In vivo models: Heterotopic ossification of tendon tissue.



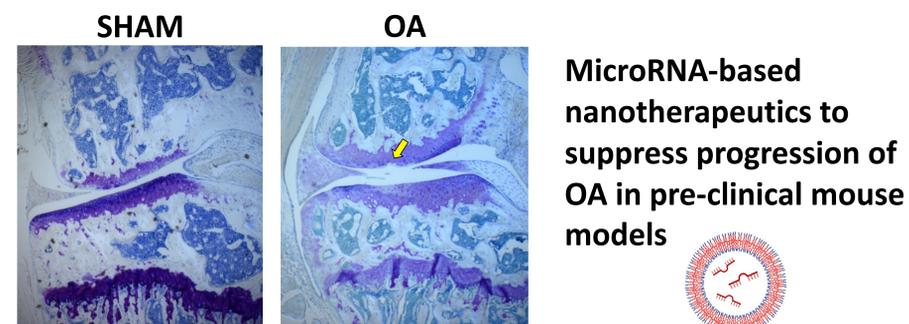
Collaborators: H. Pan (WUSTL), B. Levi (UTSW)

Murine Ulnar Fracture Model



Collaborators: M. Silva (WUSTL)

Trauma-induced Osteoarthritis Model

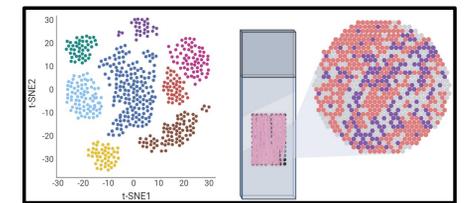


Genetically Engineered Mouse Models

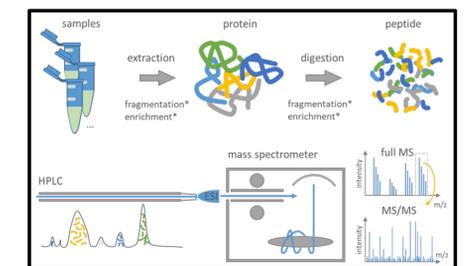


Unique mouse models generated in the McAlinden Lab

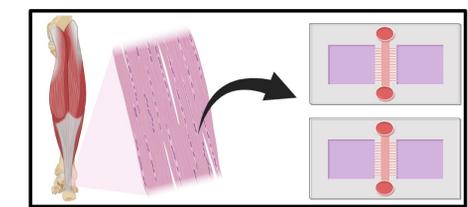
Future Technologies / Projects



Spatial RNA-Sequencing



Proteomics



Tendon-on-a-Chip

Meet the Lab



From left:

Hongjun Zheng (Senior Scientist)
Jin Liu (Technician)
Audrey McAlinden (PI)
Austin Bell-Hensley (PhD Student)
Lei Cai (Staff Scientist)
Victor Brito (Post-Doc)

Great training and mentorship opportunities!



Funding
R01 ('20-'25), R01 ('24-'29),
R56 ('23-'24) Pending: R01 ('24-'29)

"Diversity in all its forms
is the
path to greatness"

