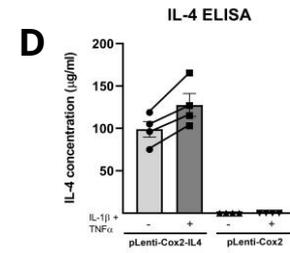
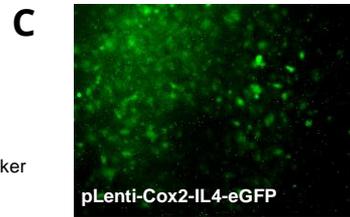
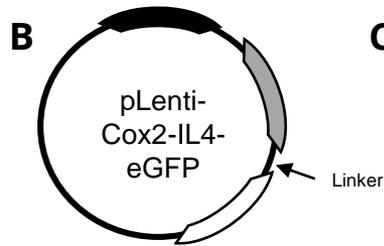




Dr. Annemarie Lang
2019 OARSI Belt and Road
Scholarship



The 2019 OARSI Belt and Road Scholarship enabled me to work in the laboratory of **Dr. M. Farooq Rai, PhD** in the **Department of Orthopaedic Surgery of Washington University School of Medicine (St. Louis, MO)**. Our collaborative research project aimed at testing and optimization of a disease-responsive gene therapy approach to treat osteoarthritis (OA). We have characterized a disease-inducible IL-4 gene therapy in murine chondrocytes in which the Cox-2 promoter is up-regulated by inflammatory cytokines IL-1 β and TNF α , serving as a feedback-controlled genetic switch upstream of the IL-4 transgene. This is the first application of this approach in murine chondrocytes and therefore paves the way towards its application in a mouse model of (post-traumatic) OA. If successful, these inducible and switchable (on/off) promoters that respond to the disease progression offer a promising alternative for stable or long-term transduction and may revolutionize current gene therapy approaches.



Legend: (A) Research team (B) Map of a representative plasmid (C) GFP showing efficient transduction (D) IL-4 protein production after transduction.

This fellowship provided me not only with the opportunity to acquire new skills in preclinical mouse model, but also to work in a different scientific environment dedicated for basic and translational research. It also allowed me to get mentored by Dr. Rai and his team member Dr. Lei Cai. Additionally, I had the opportunity to interact with **Prof. Farshid Guilak, PhD** and his lab members resulting in a new collaboration with Alireza Savadipour for the use of AFM-based *Nano-indentation* to determine the cartilage stiffness in a specific gene knockout mouse strain.

This scholarship facilitated our collaborative work, provided me with the monetary support, and fostered my international network and experience. It was indeed a great pleasure and honor to earn this prestigious scholarship and I am truly thankful to OARSI for this award. I highly recommend young investigators to take advantage of this unique opportunity to explore immense research experience beyond borders.

