



Applications

- Useful for studying the biology and progression of osteoarthritis
- Potential use for testing new osteoarthritis drugs and treatments

Benefits

- Unique model for exploring the relationship between *Mig-6* and osteoarthritis
- Permits *in vivo* monitoring of phenotypic changes due to treatment or additional genetic alterations

VARI IP-00044

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Mig-6 Knockout Mouse Model

A genetic mouse model for the study of osteoarthritis and osteoarthritic therapies.

Background

Osteoarthritis (OA) is a common degenerative joint disease, particularly affecting large weight-bearing joints such as knees and hips. In the U.S., the incidence of hand OA is between 2 percent and 4 percent while knee OA is between 0.16 percent and 0.24 percent. The frequency of OA rises from 1 percent in people younger than 30 years old to nearly 10 percent for those older than 40. There are treatments available to alleviate some of the swelling and pain associated with OA; however, none of the current therapies completely stop or reverse disease progression.

Technology

While the underlying mechanisms of OA are not thoroughly understood, previous studies showed the disruption of mitogen-inducible gene-6 (*Mig-6*) in mice leads to early onset of OA. Scientists at Van Andel Research Institute (VARI) generated *Mig-6* knockout mice to observe the progression of OA-like symptoms with increased joint inflammation and deformity. This *Mig-6* mutant mouse strain can serve as a useful animal model for osteoarthritic research and for the assessment of OA therapeutics.

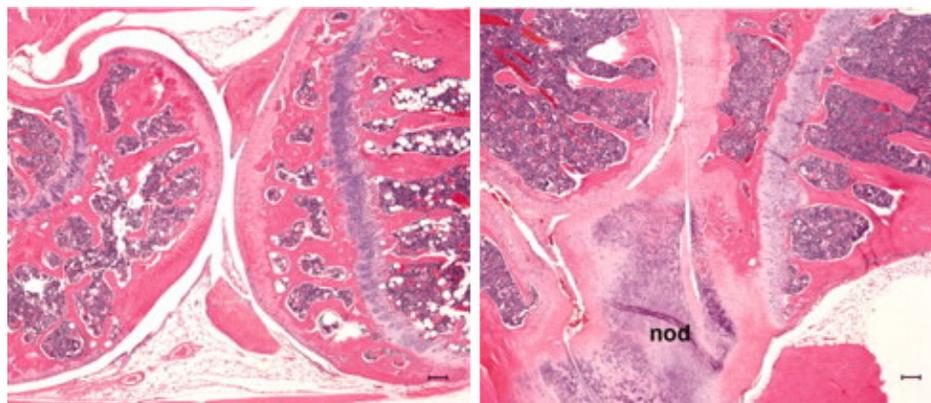


Figure 1: Joint deformities in *Mig-6* (-/-) mice. Comparison of knee joints between wild type (left; *Mig-6* (+/+)) and *Mig-6* knockout (right; mutant *Mig-6* (-/-)) mice. Progressive enlargement and deformity of multiple joints in the *Mig-6* (-/-) mice were observed, especially in the knees, ankles, and temporal-mandibular joints.

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