# AGINKO Research

In Vivo Arthritis Models

Aginko offers a wide range of OA models. Our expertise allows us to perform state-of-the-art studies to test new therapies, and to advise on study design and data interpretation.

Surgically-induced Osteoarthritis Models

Transection of the anterior cruciate ligament to induce OA in a rabbit model.

Surgical models use a variety of methods (e.g. ACL transection, meniscal tear, meniscectomy) in small and large species to induce joint instability. While etiologically similar to human secondary OA, the resulting lesions also resemble primary OA. Depending on the model, lesions may be more reproducible, more rapidly induced, or more severe than in the spontaneous models. The chosen model should be carefully selected to match the expected therapeutic result.

Preclinical Arthritis Research Services
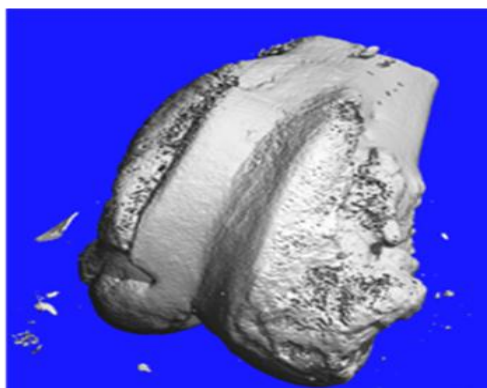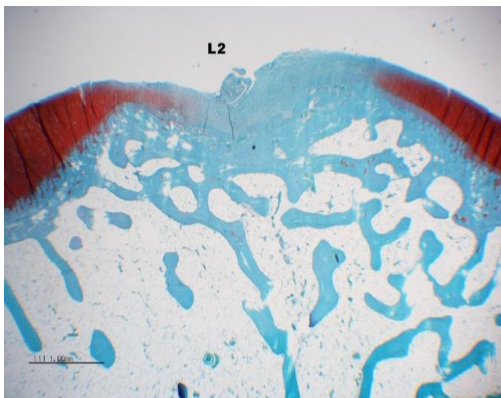
Spontaneous Osteoarthritis Models

Several species and laboratory rodent strains spontaneously develop OA with age, including the STR/ort mouse, Dunkin Hartley guinea pig, cynomolgus monkey, and Syrian hamster. The Dunkin Hartley guinea pig model is one of the few preclinical OA models recommended by the FDA Guidance for Industry (1999).

While these models display some morphological and biochemical similarities to human OA, they are also characterized by slow progression, mild degeneration, and high variability. These models are best suited to study disease modifying agents, but require large group sizes to achieve statistical significance.

Inflammatory Arthritis Models

Inflammatory arthritis models range from mild disease to highly destructive and rapidly progressing lesions, and are performed almost exclusively in rodents. The inflammatory component may also range from mild to severe and varies in character and pathogenesis between models. More information can be found in the Aginko Pain and Inflammation Models fact sheet.

Outcome Measures

In most arthritis models, the primary outcome measures are morphologic characterization and quantification of lesions. Pain and other behaviours, cartilage biomechanics, and biochemical markers may also be of interest.

For preclinical arthritis models in the CRO industry and the expertise to select and interpret them.

- Morphology: plain film radiography, arthroscopy, µCT, MRI, histology, histological grading (e.g. modified Mankin's score), histomorphometry
- Biochemistry: serum, synovial fluid and urinary biomarkers, cartilage biochemistry
- Behaviour: quantification of hyperalgesia, allodynia, and motor behaviours
- Biomechanics: mechanical characterization of cartilage, friction and lubrication testing.

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