AGINKO Research

Pain Inflammation Animal Model

Pain is a critical problem and is the most common reason for medical consultation. It often results in disability and psychological distress in patients. Improvement in the management of pain is a high priority. The use of preclinical pain models allows the identification and development of novel drugs and offer new opportunities of pain relieving therapies for patients. According to the nature and the origin of the pain, appropriate pre-clinical models are useful to study the mechanisms and efficacy of novel pain relieving drugs. A variety of preclinical models are available to study persistent and chronic pains. More specific models for chronic osteoarticular and neuropathic pains are of great value to assess the efficacy of novel drugs targeting bone cancer, rheumatoid arthritis, osteoarthritis and neuropathic pains such as post-surgical pain syndrome, traumatic nerve injury, spinal cord injury and diabetic neuropathy.
Osteoarthritis-related pain can be modeled by chemical or surgical alteration of the joint. A robust preclinical model consists in intra-articular injection of monosodium acetate, which induces similar pathological changes and pain as observed in human osteoarthritis.

Preclinical models of inflammatory and rheumatoid arthritis pain involve the injection of immunogenic or non-immunogenic adjuvants in the joints or in the systemic system.
Neuropathic pain models involve partial nerve injury such as ligature of the spinal or sciatic nerves.

Inflammatory pains of high to mild amplitude and with short to long duration can be induced by formalin or by immune-stimulating substances such as Freund's Complete Adjuvant or Carrageenan.

Endpoints assessment of quality of life in a preclinical model of arthritis:

- Paw withdrawal test (latency and duration)
- Static weight-bearing
- Validated pain scores for several animal species
- Validated protocols for gait analysis in goat and sheep
- Video-monitoring of animals (behavioural studies)
- Algometry
- Electrophysiology

Pain Preclinical Research Services

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Models	Species		Endpoints								
Name (Abbreviation)	Rat	Mouse	Thermal Hyperalgesia-Ankle	Thermal Hyperalgesia	Mechanical Allodynia-eVF	Mechanical Allodynia-von	Mechanical Hyperalgesia-	Primary Hyperalgesia-	Weight bearing	Number of Flinches	Paw Volume
Bone and Joint Pain											
Bone Cancer Pain (BCP)	X				X				X		
Monosodium Iodoacetate-ankle (MIA ankle)	X							X			
Monosodium Iodoacetate-knee (MIA knee)	X							X			
	X								X		
Freund's Complete Adjuvant-ankle (FCA Joint)	X		X						X		X
	X							X			
Neuropathic Pain											
Spinal Nerve Ligation (SNL)	X				X	X	X				
Streptozotocin Induced Diabetic Neuropathy (STZ)	X					X	X				
Chronic Constriction Injury (CCI)	X					X					
Inflammatory Pain											
Freund's Complete Adjuvant (FCA)	X			X							
	X					X	X				
Formalin		X								X	
	X									X	
Carrageenan	X	X		X							X