



NEW SCIENCE

When it comes to chronic osteoarthritis (OA) pain, veterinarians have been waiting for the next breakthrough. OA is common and, in many respects, a quiet epidemic yet is often under-recognised and underdiagnosed in both dogs and cats¹.

Signs of pain are often overlooked by pet owners. Yet, pain is how OA is experienced by cats and dogs. As a progressive and incurable disease, early diagnosis and management can help improve quality of life. Long-term treatment that is safe and efficacious is sought to manage the debilitating impact of pain in this lifelong disease.

A new era in OA pain — one that targets a new mechanism in the pain pathway to enable long-lasting OA pain relief.

THE ROLE OF NERVE GROWTH FACTOR (NGF) IN OA PAIN

NGF is a signalling protein produced by injured tissues. NGF is elevated in joints with OA.² It is one of many factors mediating pain (like the more familiar prostaglandin). NGF binds to TrkA pain receptors on peripheral nerve endings, contributing to the pain signal. NGF also binds TrkA on inflammatory cells, inducing the release of both pro-inflammatory mediators — and more NGF — contributing to a cycle of pain and inflammation.³

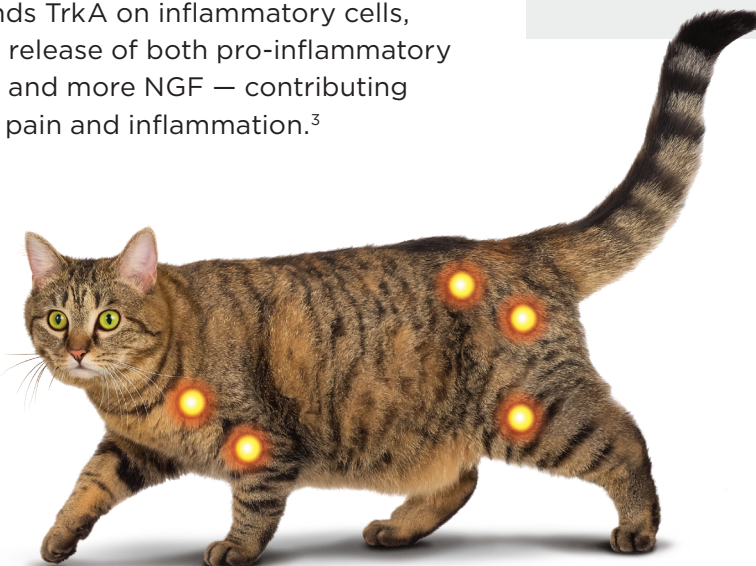
PAVING THE WAY FOR A NEW CLASS OF PAIN THERAPIES

New scientific innovations allow for the creation of monoclonal antibody therapies (mAbs) designed specifically for feline and canine use. Anti-NGF antibody therapies work differently to NSAIDs by specifically blocking NGF's negative influence in the joint.³ These species-specific therapies



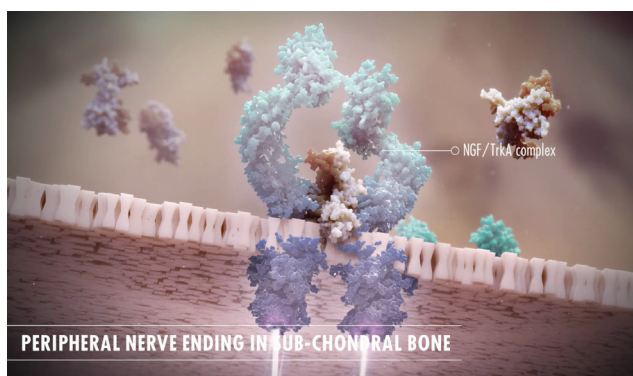
Nearly
40%
of all cats

Show clinical signs
of osteoarthritis¹



New class of therapy blocking Nerve Growth Factor relieves osteoarthritis (OA) pain in cats and dogs

are long-acting (about a month) and are delivered via subcutaneous injection. Anti-NGF antibodies function like naturally occurring antibodies and is eliminated via normal protein degradation pathways, with minimal involvement of the liver or kidneys and minimal impact on the gastrointestinal tract.⁴ As such, they have a different safety profile than traditional drug therapies.⁵



ANTI-NGF THERAPY BRINGS A POWERFUL NEW PERSPECTIVE TO THE TREATMENT OF OA PAIN

- Effectively blocks pain signals by reducing the amount of NGF binding to and activating TrkA receptors
- Expected to provide analgesia equal to or greater than current pain therapies^{2,6,7}
- Decreases the binding of NGF to immune cells in joints with OA disease
- Increases mobility and decreases pain after the first injection^{6,7}
- Effectively alleviates OA pain for an entire month^{6,7}
- Reducing pain helps improve quality of life⁸

PAVING THE WAY FOR A NEW CLASS OF PAIN THERAPIES

Anti-NGF therapy controlling OA pain is an exciting new development and represents the first medical innovation identified to block pain outside the prostaglandin pain pathway. Anti-NGF therapy is a new class of veterinary medications and an effective new way for veterinarians to provide safe, long-lasting control of chronic pain in cats.

For more than 20 years, together with veterinarians, Zoetis has been making a difference in improving the lives of dogs with OA. Zoetis launched Rimadyl® (carprofen) in 1999, and the long acting Trocoxil (mavacoxib) in 2011.

Zoetis introduced the first monoclonal antibody therapy for atopic dermatitis (Cytopoint) to veterinarians in 2018. Today, Zoetis researchers are applying their expertise in monoclonal antibody development to explore new options for OA pain control for both cats and dogs.

Zoetis is committed to bringing meaningful new medications to veterinarians, pet owners and pets through innovation.

SOLENSIA® is not a registered chemical product and contains frunvetmab which is not an approved active constituent. Application for registration of the product and approval of the active constituent have been submitted to the Australian Pesticides and Veterinary Medicines Authority (APVMA).

References: 1. Foster Rosenblatt Zoetis Librela Canine Anti-NGF Pricing Analysis. Data on file. Zoetis Inc. 2. Isola M et al. Nerve growth factor concentrations in the synovial fluid from healthy dogs and dogs with secondary osteoarthritis. *Vet Comp Orthop Traumatol*. 2011;24(4):279-284. 3. Enomoto M et al. Anti-nerve growth factor monoclonal antibodies for the control of pain in dogs and cats. *Vet Rec*. 2018; <http://dx.doi.org/10.1136/vr.104590>. 4. Keizer RJ, Huitema AD, Schellens JH, Beijnen JH. Clinical pharmacokinetics of therapeutic monoclonal antibodies. *Clin Pharmacokinet*. 2010;49(8):493-507. 5. Olivry T et al. Advances in veterinary medicine: therapeutic monoclonal antibodies for companion animals. *Clinic Notes*. 10 March 2015. https://www.zoetis.com/conditions/dogs/itchcycle/downloads/resources/publications/zoetiscn_mar_fnl.pdf. Accessed May 3, 2019. 6. Lascelles BD et al. A canine-specific anti-nerve growth factor antibody alleviates pain and improves mobility and function in dogs with degenerative joint disease-associated pain. *BMC Vet Res*. 2015;11:101. <https://doi.org/10.1186/s12917-015-0413-x>. 7. Gruen ME et al. A feline-specific anti-nerve growth factor antibody improves mobility in cats with degenerative joint disease-associated pain: a pilot proof of concept study. *J Vet Intern Med*. 2016;30(4):1138-1148. 8. Reid J, Nolan AM, Scott EM. Measuring pain in dogs and cats using structured behavioral observation. *Vet J*. 2018;236(6):72-79.

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