

MONOCLONAL ANTIBODIES AS AN INNOVATIVE TREATMENT FOR CANINE ARTHROSIS

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INTRODUCTION

- **Osteoarthritis** is a degenerative, chronic, progressive and incurable disease considered the clinical endpoint of numerous joint disorders.
- **Causes:** chronic pain, loss of mobility and decrease the quality of life.
- **Prevalence:** 20-30% up to 90% in old ages.
- **Multifactorial disease:** ≠ etiologies and risk factors.
- Multimodal therapy is currently used but **mAb anti-NGF** has recently been developed as a new treatment for OA.

OBJECTIVES

- Provide an overview of osteoarthritis and its pathogenesis
- Explain the **role of NGF** in OA pain
- Short analysis of current state of **mAb** for OA in human medicine
- Expose the **mechanism of functioning of antibodies against NGF** and its effectiveness and safety in the treatment of osteoarthritis in veterinary medicine

PAIN IN OSTEOARTHRITIS AND MONOCLONAL ANTIBODIES

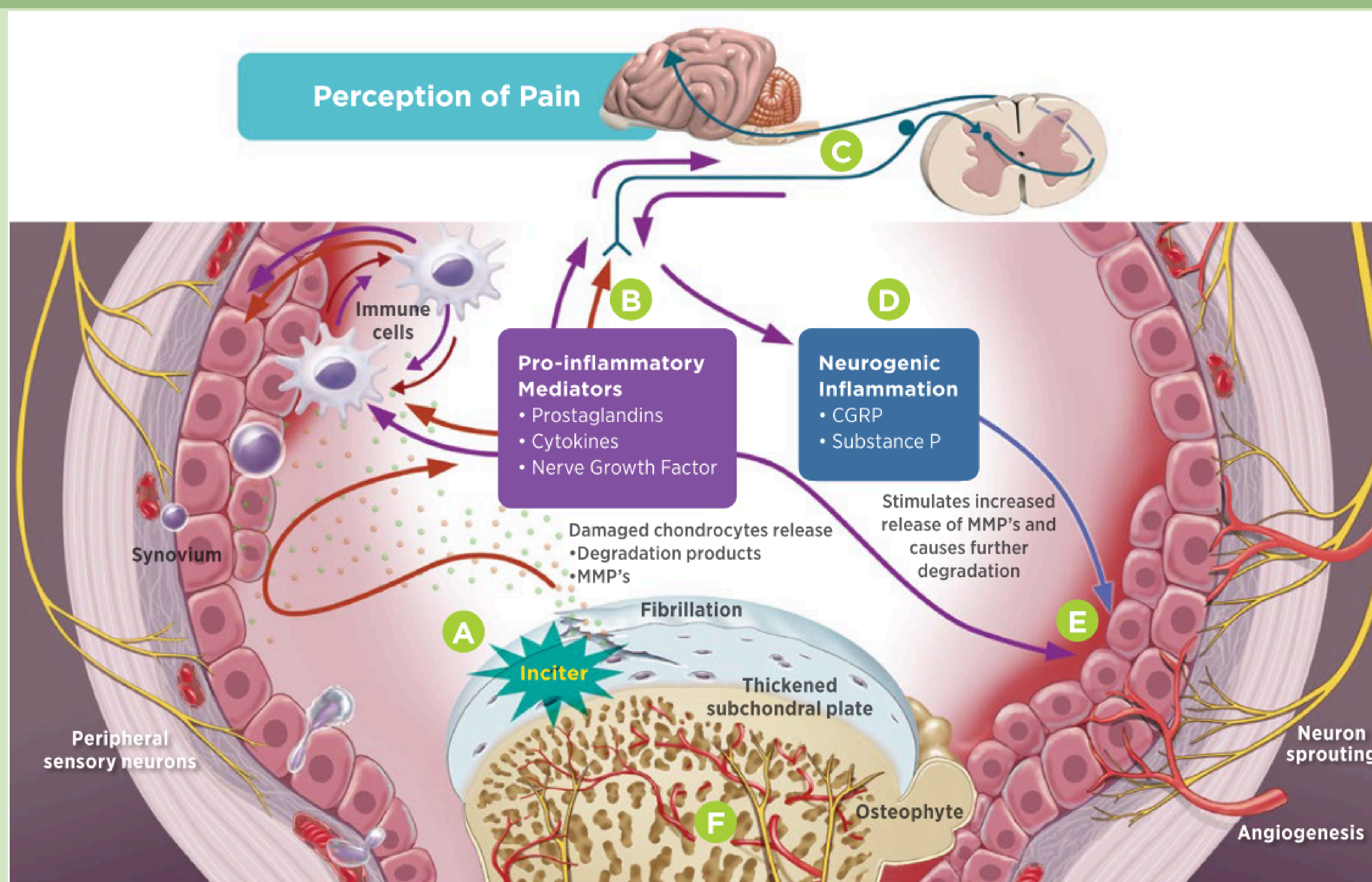
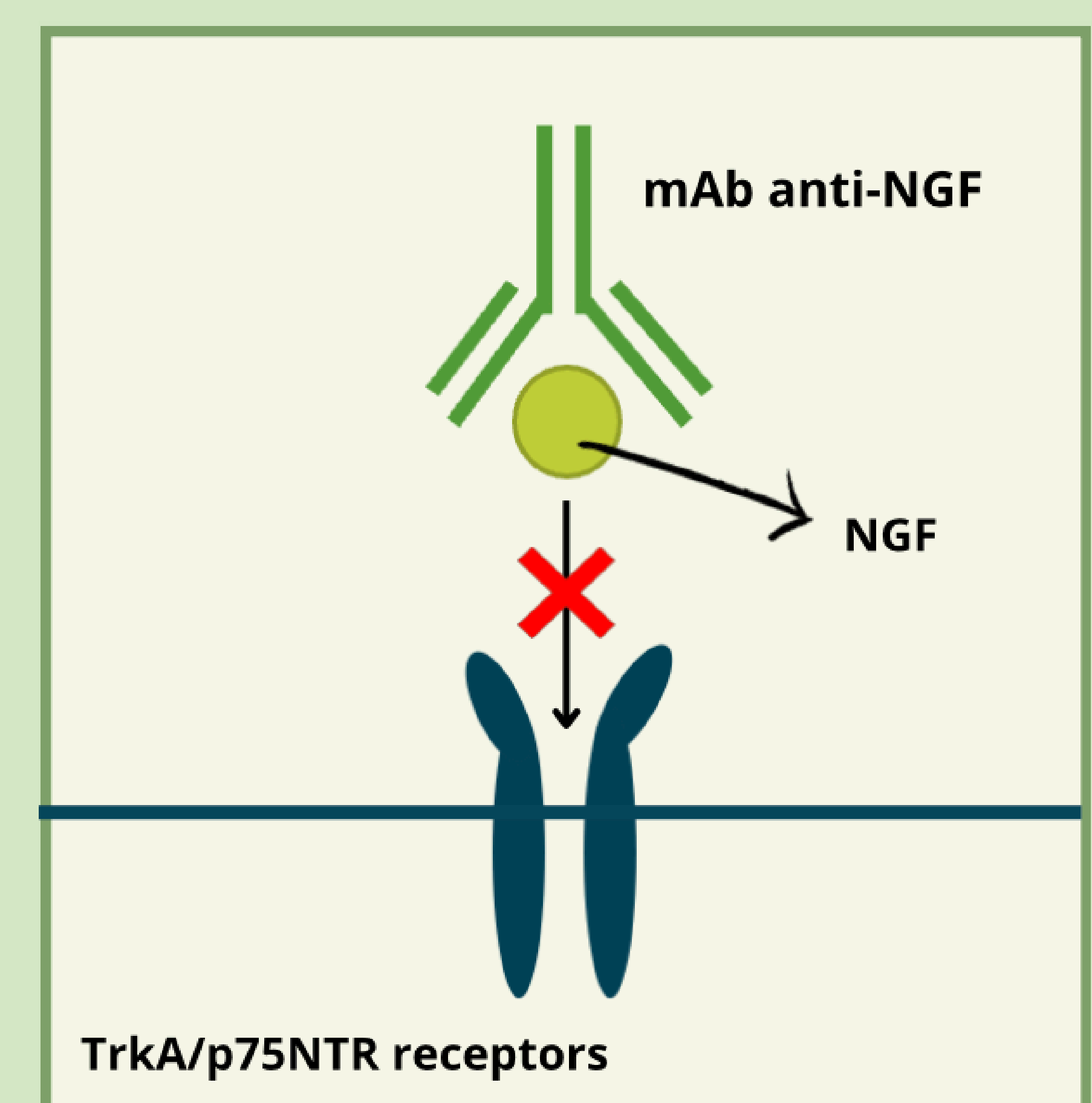


Figure 1. Pathogenesis of pain in osteoarthritis (Lascelles *et al.* 2020)



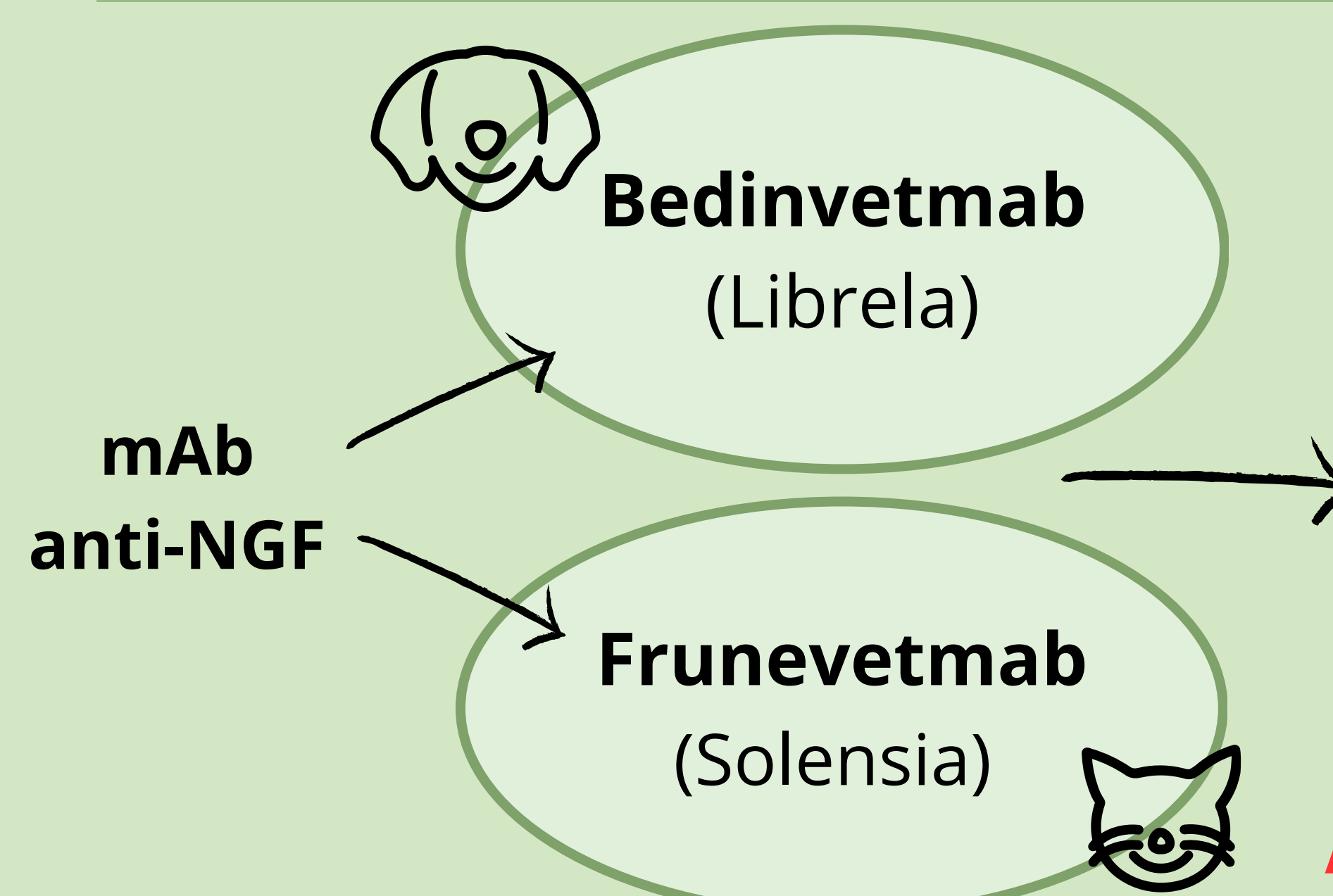
Mechanism of action of monoclonal antibodies (specifically mAb anti-NGF)

mAb FOR OA IN HUMAN MEDICINE

- mAb against IL-1
- mAb against TNF-α
- mAb **against NGF** → Tanezumab
- mAb against VEGF

RPOA!

mAb ANTI-NGF AGAINST OA IN VETERINARY MEDICINE



- IgG2 that prevent NGF binding to its receptors
- Monthly SC dose
- **AEs:** injection site reaction/skin disorders
- **High success rates**
- Only studies of 3-9 months of duration

ADAs!

Small % of animals treated
(± 1-2%)

CONCLUSIONS

- Chronic disease with high prevalence and generally under-diagnosed which not has a fully effective treatment.
- Monoclonal antibodies anti-NGF therapy is a promising new alternative to multimodal treatment for its **lack of AEs**.
- Presents **high success rates** due to they efficacy, safety and prolonged effect.
- **ADAs** have been seen in a low percentage of the treated population → long-term studies are missing