MONOCLONAL ANTIBODIES FOR THE TREATMENT OF OSTEOARTHRITIS IN VETERINARY MEDICINE

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Introduction

- **Osteoarthritis** (degenerative joint disease) causes: **chronic pain**, **loss** of **joint function** and **mobility**.
- **Prevalence**: **35-40% dogs**, **45% cats** (different clinical signs)
- **Multimodal treatment** (most effective therapy: **NSAIDs**)
- **Monoclonal antibodies** (**mAbs**) are immunoglobulins with a specific target (produced by recombinant DNA technology).

Objectives

- Provide an overview of **osteoarthritis**.
- Provide an overview of **monoclonal antibodies**.
- Expose the current state of **the use of monoclonal antibodies for the treatment of pain associated with osteoarthritis** in veterinary medicine.

Osteoarthritis and monoclonal antibodies

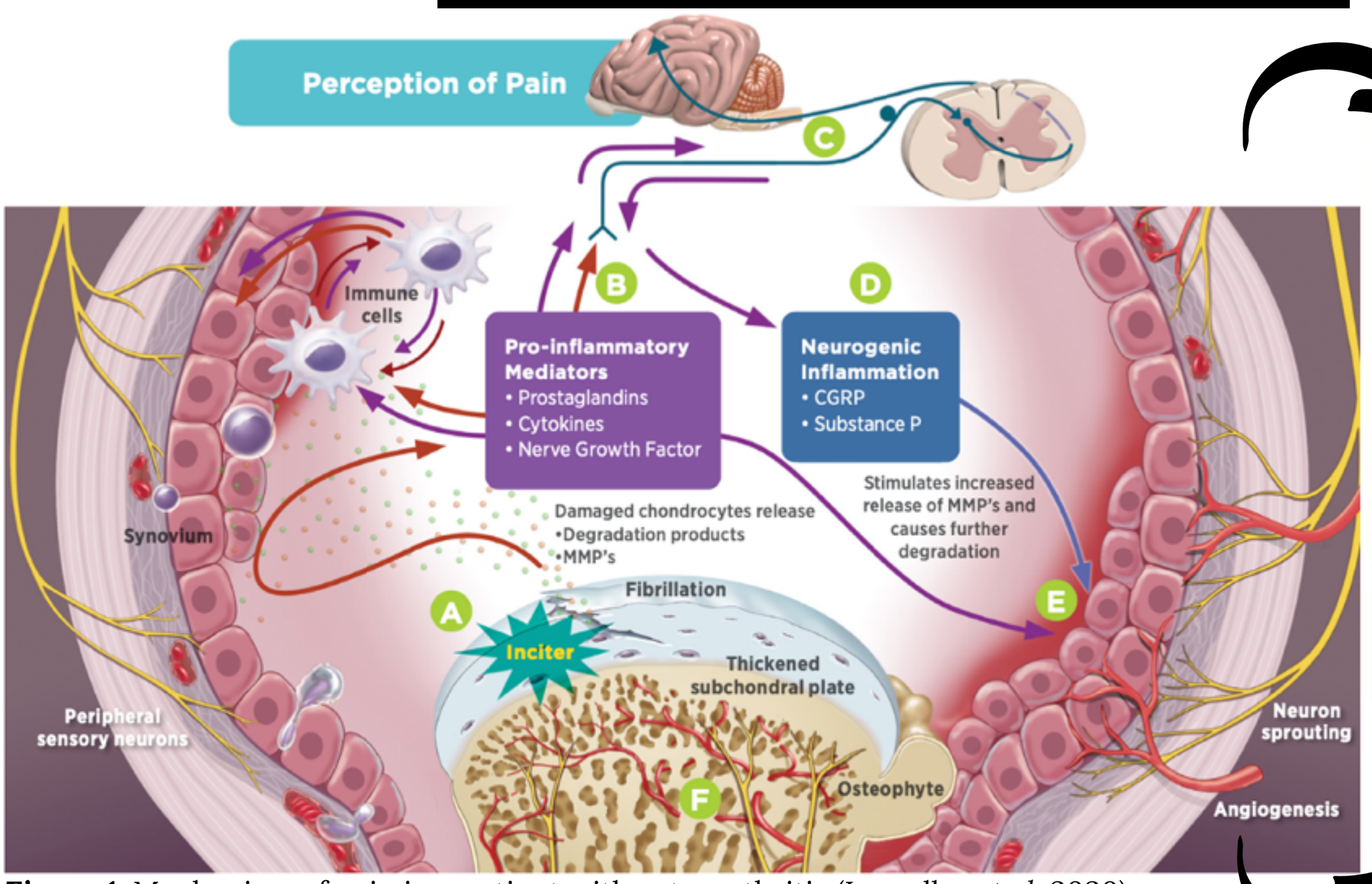

Figure 1. Mechanism of pain in a patient with osteoarthritis (Lascelles *et al.* 2020).

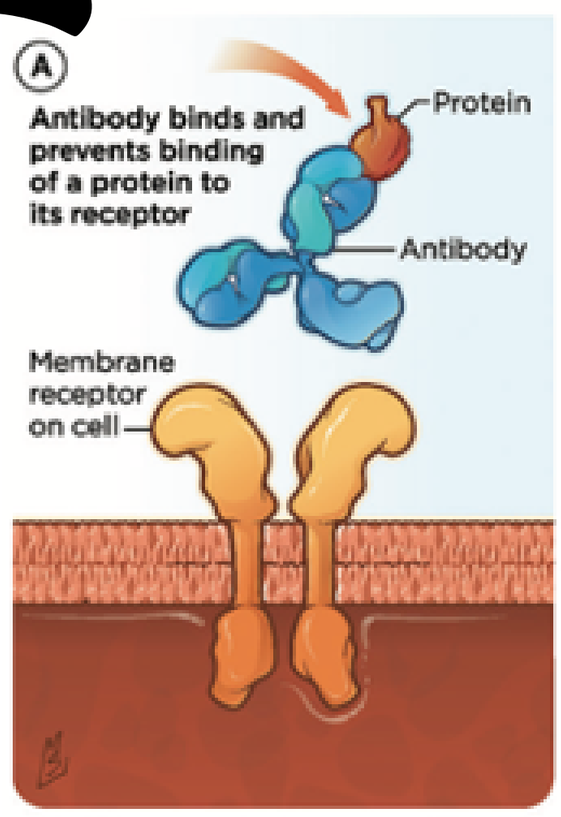

Figure 2. Mechanism of action of the monoclonal antibody anti-NGF (Adapted from Olivry and Bainbridge 2015).

mAb results in osteoarthritis

Bedinvetmab

- Monthly SC dose 0.2-10 mg/kg
- **Success rate 37-95%**, period from 4 weeks to 9 months
- **No side effects observed**

Frunevetmab

- Monthly SC dose 0.4-28 mg/kg
- **Success rate 55-80%**, period from 3 weeks to 3 months
- **Mild dermatological side effects observed**

Reduction of pain associated with osteoarthritis.
Significant **increase** in **mobility and quality of life**.

Conclusions

- **Monoclonal antibodies** as a **therapeutic alternative** for the treatment of pain associated with osteoarthritis due to their **efficacy, prolonged effect and safety.**
- A single monthly SC dose of **mAb** (0.5-1mg/kg in dogs, 1-2.8mg/kg in cats) **is as effective as** daily administration of non-steroidal anti-inflammatory drugs (**NSAIDs**), but **without adverse effects**.
- **High success rates** (Bedinvetmab 95%, Frunevetmab 80%).

References

- Lascelles *et al.* 2020. https://www.zoetis.com.pt/oa-pain/img/pdf/the-new-science-of-oa-pain-and-inflammation-canine-technical-bulletin-us.pdf
- Olivry T and Bainbridge G. 2015. https://www.zoetisus.com/conditions/dogs/itchcycle/downloads/resources/publications/zoetiscn_mar_fnl.pdf