Standard operating procedure (EPA)

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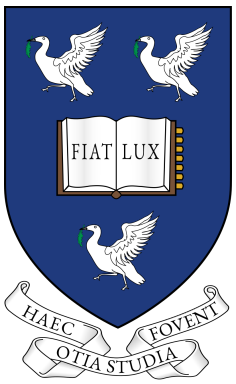


# Equine Protein Atlas

# Peripheral Nerves

**Background**

The peripheral facial nerve in horses is responsible for controlling the muscles of facial expression and includes branches that pass through various regions of the head. The submandibular area is a key region where the facial nerve runs close to the mandibular margin, making it susceptible to trauma or compression. This nerve region governs movements such as lip curling, ear twitching, and nostril dilation, which are essential for communication and feeding behaviors. Ageing can affect the peripheral facial nerve by reducing nerve conduction velocity and increasing the risk of neurodegenerative changes. In older horses, this can result in weakened or asymmetric facial expressions, decreased muscle tone, and impaired responses to stimuli. Additionally, chronic conditions associated with ageing, such as dental issues or changes in the surrounding soft tissues, can indirectly influence the function of the facial nerve in the submandibular region, further complicating its role in facial movement and expression.

**Equipment needed**

1. Scalpel
2. Tweezers
3. Liquid nitrogen
4. 10% Formalin

**Methods**

1. Collect equine heads from abattoir or following informed consent and ethical approval from horses donated for veterinary research . Take details of age, breed and sex from passport. Avoid leaving head in fridge for more than 24h.
2. If this is not possible use equine dentition to determine age and sex Click here
3. Use tweezers to pinch the skin and cut with a scalpel
4. Peel skin away with a scalpel to reveal facial nerve in the masseter region (Left side)
5. Make a small incision in the nerve and gently remove the nerve with tweezers
6. Cut the nerve in half (200mg)
7. Split the tissue into two

   A. One part into 10% formalin in an appropriate container for histology and one for protein which will be snap frozen.

   B. Place into an appropriate sized and LN proof tube. Ensure tubes are suitable for liquid nitrogen
8. Snap freeze at least 200mg in liquid nitrogen
9. Annotate sample with age, type of tissue and date collected
10. Transfer to labelled box store at -80°C (Age, Type of Tissue, Date of collection)
11. Store the remaining facial nerve in 10% Formalin