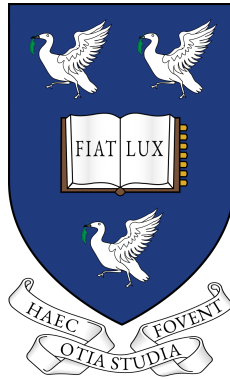


# Standard operating procedure (EPA)

Anders Jensen



## Equine Protein Atlas

### Skin

## Background

The skin in horses is a vital organ that serves as a protective barrier, regulates temperature, and plays a sensory role. It consists of three primary layers: the epidermis, dermis, and subcutaneous tissue, each contributing to its strength, flexibility, and function. Horse skin is specialized to accommodate environmental challenges, such as UV exposure, insects, and mechanical stress. With ageing, the skin undergoes significant changes, including thinning of the epidermis, reduced elasticity, and decreased production of collagen and elastin in the dermis. These changes can lead to a duller coat, slower wound healing, and increased susceptibility to infections and environmental damage. Sebaceous gland activity also declines, reducing skin hydration and making it more prone to dryness and cracking. Additionally, ageing can impact the skin's immune function, increasing the risk of conditions like dermatitis. Proper grooming, balanced nutrition, and protection against environmental stressors can help support skin health in ageing horses.

## Equipment needed

1. Razor
2. Scalpel
3. Tweezers
4. Liquid Nitrogen
5. 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. Gently remove some hair using a scalpel in the mid section of the masseter
4. Once you have removed most of the hair use a razor to shave remaining hair
5. Then pinch the skin with tweezers and cut a small biopsy for proteomics analysis (Left side)
6. Snap freeze at least 200mg in liquid nitrogen
7. Annotate sample with age, type of tissue and date collected
8. Transfer to labelled box store at -80°C (Age, Type of Tissue, Date of collection)
9. Take more skin for histological processing (Doesn't need to be shaved)
10. Store in 10% Formalin