

Intradermal vaccine delivery, a promising solution to secure better veterinary vaccination

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BACKGROUND

Human history has documented numerous global health emergencies that surfaced through a zoonotic pathogen. Recently, the world has been faced with rapidly-spreading global health crises: the newly emerging monkeypox virus and the ongoing COVID-19 pandemic are clear examples of human infectious diseases caused by zoonotic pathogens.

These infectious diseases have a negative impact on multiple sectors, including not only global public health, but also global economics.

through the ID route (1/5th – 1/10th of the dose typically used for IM/SC) has the potential to lower the overall cost of vaccination (including vaccines with multiple doses), and therefore contribute to higher levels of animals being vaccinated.

A study conducted on the suckling behavior of piglets following IM and ID vaccine delivery showed that the piglets who received ID vaccinations had more suckling activity compared to those who received IM vaccinations [4].

This confirms that ID vaccination has an advantage over IM vaccination in terms of the welfare of animals.



VETERINARY VACCINES

The administration of vaccines (including obligate and non-obligate) to animals to fight pathogenic zoonoses has a vital role in protecting both animal and human health. Rabies vaccine administration to companion animals and wildlife is an example of how successful veterinary vaccination helped to significantly decrease human rabies, to a level near eradication in developed countries [1].

The routes of administration of vaccines in animals varies, with Intramuscular (IM) and Subcutaneous (SC) injections the most commonly-used. These routes are convenient for eliciting systemic immunity; however, this approach is best for small numbers of animals [2].

INTRADERMAL VETERINARY VACCINATION

For successful protection of animal and associated human health, vaccines must be affordable [1]. Vaccines, especially those used for companion animals, are often too expensive and are usually not covered by pet insurance plans [3]. Utilizing lower vaccine doses

VAX-ID® AS A SOLUTION FOR BETTER ANIMAL VACCINATION

VAX-ID® is an award-winning patented medical device for standardized and reliable ID injection. It offers various advantages for the field of veterinary vaccination: Traditional ID vaccination delivery requires animals to remain still, which can be difficult to achieve for many animals and therefore requires anesthesia (thereby contributing to higher costs and time needed) [5].

VAX-ID®, however, has a straightforward mechanism to deliver the vaccine intradermally. The injection is performed perpendicular to the skin, and the whole process takes about 5 seconds. This would significantly reduce the amount of time that an animal must remain still, thereby increasing the efficacy of injections.

Moreover, VAX-ID® is user-independent; hence, it would be easy for the veterinary doctor to understand and use when injecting vaccines.

Various troubling adverse effects have been reported from IM injections, including pain, necrosis, and self-mutilation [6]. Animal vaccinations are therefore considered an event that will cause significant stress and pain to the animals [7].

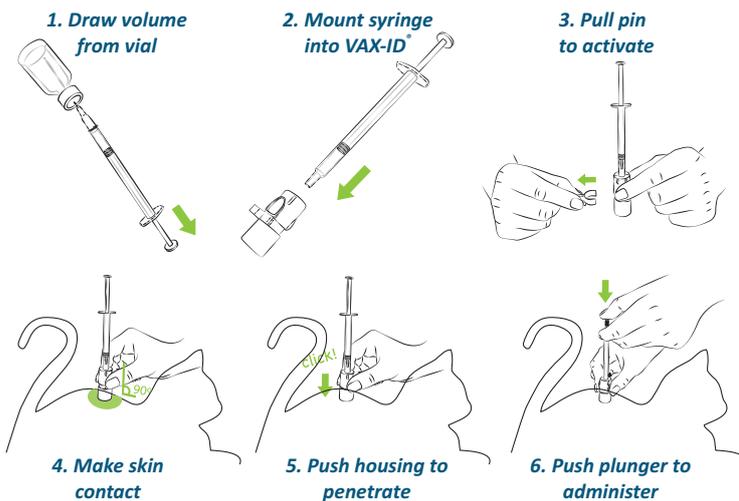
VAX-ID[®], however, elicits less pain (and can be completely painless, depending on the viscosity of the vaccine being administered) during injection due to its thin and short needle and smooth application technique.

This further demonstrates the greater efficacy it would have in veterinary vaccinations.

VAX-ID[®] was used successfully on animals in a study performed to evaluate the safety and performance of VAX-ID on piglets. In this study two 12kg piglets received 25 injections using VAX-ID[®] containing 32G and 27G needles.

An injection mixture of NaCl 0.9% and Chinese ink 1:0.15 ratio was injected in 3 sites: the neck, back, and abdomen. The injection sites were immediately visually inspected for bleb formation, leakage, and local adverse effects. Tissue samples were collected for histological analysis.

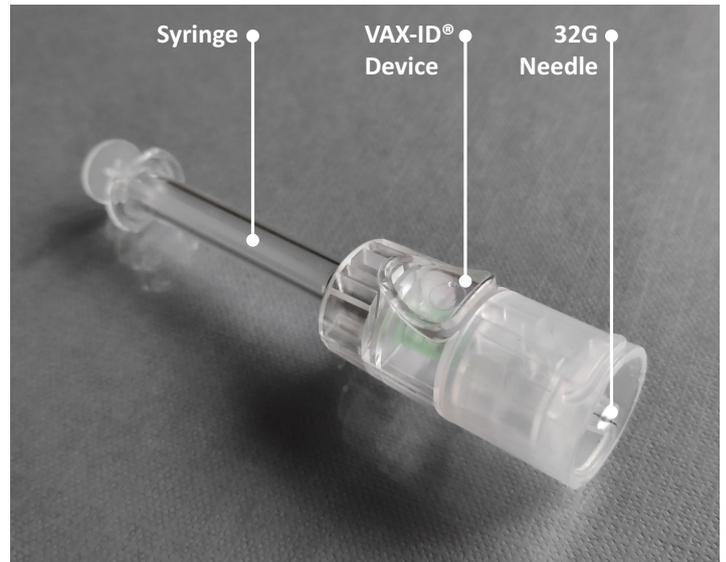
VAX-ID[®] was able to inject the dye in the dermal layer of the skin in 12kg piglets, as confirmed by the histological evaluation. The device induced bleb formation after injection, indicating a successful ID injection. No serious adverse events were observed.



VAX-ID[®] instructions for use.

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VAX-ID[®] device with 32G needle, with 0.85mm needle length.

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