COMMON VACCINE HEADACHES

Another kind of headache relief

It hits hard… fever, poor appetite and lost productivity. I don't mean you, I mean your animals. Regardless of how you vaccinate your poultry and swine, the results can turn out to be a real headache. Live vaccines are intended to mildly infect the animals. You can see many of the infection's obvious effects, but what you can't see are some other negative reactions. One out-of-sight negative is the flood of prostaglandins released after vaccinating. Inoculated animals release prostaglandins that are partly responsible for the symptoms you see, but they also invisibly depress the animal's immune response.[1] They put a lid on the immune system, reducing the power of your vaccine. It's like a tug-of war. While your vaccine tries to build immunity, prostaglandins counteract your hard work. Your "vaccination headache" seems to squeeze you from all directions:

1. Visible vaccine reactions make your animals miserable, driving down feed intake and stealing growth and productivity.
2. Maintenance increases because the animals spend more energy fighting the vacination's mini-infection.
3. Low productivity, combined with higher maintenance, dramatically worsens feed conversion for about a week.
4. Invisibly, prostaglandins increase. Like a governor on the immune system, they override antibody production and keep your costly vaccine from creating as much immunity as it could.

5. What's needed is a tool to reduce your vaccination headaches. Uni-Sol®, a potent salicylate, is the ideal solution.

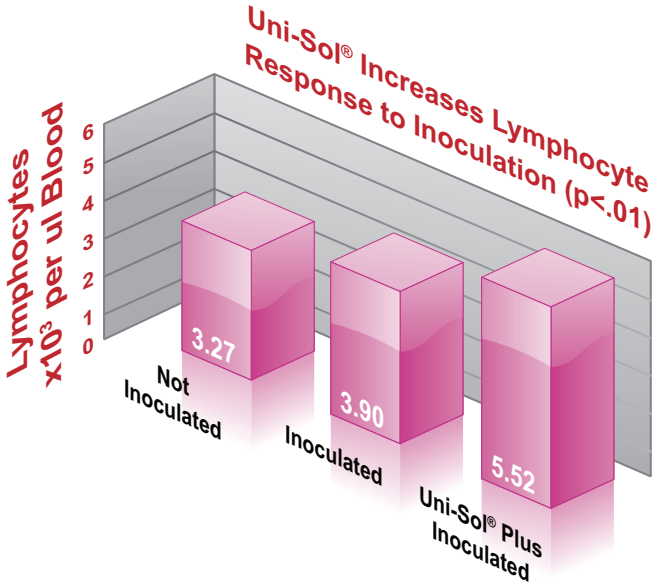
Salicylates, a family of compounds including aspirin, are over-the-counter products well known as headache remedies. Salicylates not only reduce pain and fever, they also limit harmful prostaglandins. By removing these prostaglandins' cap on antibody production, your costly vaccine is free to build more antibodies and support stronger immunity. Many researchers describe using prostaglandin inhibitors to improve responses to inoculation. Examples include mice[2], humans[3], chickens[4], turkeys[5] and swine.[1,6] Salicylates such as Uni-Sol® have reduced prostaglandin concentrations by 50-85%.[7,8] Reducing prostaglandins counteracts their immunosuppression and makes the immune response more robust.[9,4]

Building a solid wall of immunity with vaccines is becoming more important every year. Unlike antibiotic drugs which are falling out of favor, vaccines are one of animal agriculture's best tools to prevent both viral and bacterial diseases. Weak responses to mass vaccinations can cause a leaky defense. A 2007 veterinary review[10] emphasizes current vaccination methods have not adequately controlled many diseases. Uni-Sol® is a solution to strengthen vaccination protocols and prime the immune system, partnering with vaccines for solid responses.

Improving memory

B-Lymphocytes, specialized white blood cells that respond to foreign antigens, form memory cells and eventually produce antibodies. Vaccinations increase these lymphocytes and generate memory for the disease. The next time the invader is recognized, memory triggers antibodies to quickly fight the disease. The graph shows how Uni-Sol® strengthens the immune response by increasing lymphocytes to build more memory during vaccination. Researchers[5] inoculated two sets of turkeys, a group without Uni-Sol® in their drinking water and another set primed with Uni-Sol®. As expected, inoculating birds increased lymphocytes by 19%, as the birds responded to the foreign antigen. Turkeys receiving Uni-Sol® increased their lymphocyte count significantly, rising 68% over controls. Similar large improvements in antibody response have been reported in humans.[3]

How to prime with Uni-Sol®



Prime the animals by adding Uni-Sol® to their drinking water on the day before vaccination. Repeat the dosage on vaccination day, and continue each day for 5 days or until the animals have stopped reacting to the vaccine. Producers often report less severe vaccine reactions since Uni-Sol® also reduces pain and fever while curbing prostaglandins and increasing lymphocytes.

Small doses of Uni-Sol® fight pain and fever, but inhibiting prostaglandins requires higher doses. The first day's anti-inflammatory/Anti-prostaglandin dose for swine and poultry is 1.6 ounces for each 1000 pounds of liveweight vaccinated (104 ml per 1000 Kg). The dose is reduced on following days to 1 ounce per 1000 lb (65 ml per 1000 Kg). Calculate the daily dose of Uni-Sol® from the liveweight as shown in the table and pour the daily dose into enough stock solution or finished drinking water to be consumed over several hours. Repeat the administration each day.

Example daily dose calculation

Daily Uni-Sol Dose Quick Reference Chart

Vaccinated Liveweight	Initial Day	Following Days
10,000 lb (4,536 Kg)	16 ounces (472 ml)	10 ounces (295 ml)
20,000 lb (9,072 Kg)	32 ounces (944 ml)	20 ounces (590 ml)
30,000 lb (13,608 Kg)	48 ounces (1416 ml)	30 ounces (885 ml)
40,000 lb (18,144 Kg)	64 ounces (1888 ml)	40 ounces (1179 ml)

Plugging holes

You've spent good money on valuable vaccines. Shouldn't you expect to get the most out of them? There are plentiful causes of leaky immunity and vaccination failures. Inaccurate dosing, poor vaccine stability, uneven coverage during mass vaccination, and prostaglandin-induced antibody shortfalls can all weaken vaccine effectiveness. All of these causes are manageable, and Uni-Sol® can be a strong partner in plugging some of the holes and relieving vaccination headaches.

References

1. Lees, P. and S.A. May, 1992. Inflammation and anti-inflammatory drugs. 843-863 in: Bovine Medicine. A.H. Andrews, R.W. Blowey, H. Boyd, and R.G. Eddy, ed. Oxford Blackwell Scientific Publications, Cambridge, MA.

2. Webb, D.R. and P.L. Osheroff, 1976. Antigen stimulation of prostaglandin synthesis and control of immune responses. Proc. Natl. Acad. Sci. U.S.A. 73:1300-1304.

3. Goodwin, J.S., D.S. Selinger, R.P. Messner and W.P. Reed, 1978. Effect of indomethacin in vivo on humoral and cellular immunity in humans. Infection and Immunity, Feb.:430-433.

4. Likoff, R.O., 1999. Vitamin E and aspirin depress prostaglandins in protection of chickens against E. coli infection. Am. J. Clin. Nut. 34:245-251.

5. Huff, G.R., W.E. Huff, J.M. Balog, N.C. Rath and R.S. Izard, 2003. Water-soluble vitamin E and sodium salicylate (Uni-Sol) increase the resistance of turkeys to E. coli respiratory infection. Proc. 2003 Research Review for Decision Makers in Turkey Production. University of Minnesota Extension Service, St. Paul.

6. Middleton, T.F., 2005. Personal communication.

7. Higgs, G.A., J.A. Salmon, B. Henderson and J.R. Vane, 1987. Pharmacokinetics of aspirin and salicylate in relation to inhibition of arachidonate cyclooxygenase and anti-inflammatory activity. Proc. Natl. Acad. Sci. U.S.A. 84(5):1417-1420.

8. Higgs, G.A., E.A. Harvey, S.H. Ferreira and J.R. Vane, 1976. The effects of anti-inflammatory drugs on the production of prostaglandins in vivo. 105-109 in: Advances in Prostaglandin and Thromboxane Research, Vol 1. B. Samuelsson and R. Paoletti, ed. Raven Press, New York.

9. Bainbridge, B.W., R.C. Page and R.P. Darveau, 1997. Serum antibodies to Porphyromonas gingivalis block the prostaglandin E2 response to lipopolysaccharide by mononuclear cells. Infection and Immunity, Nov.:4801-4805.

10. Patterson, A.R., L.A. Karriker, M.D. Apley and P.M. Imerman, 2007. Plasma concentrations of sodium salicylate in nursery pigs treated orally. J Swine Health Prod. 15(3):146-151.