Poster presentation abstract

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One objective of the VAC2VAC [1] project is to determine whether an immunoassay can potentially replace current in vivo tests for determining the potency of tetanus vaccines. NIBSC has previously developed a capture ELISA method using a specific monoclonal antibody to capture the tetanus toxoid antigen. This assay has been applied to different tetanus vaccines for human use and shown to be suitable for specifically and quantitatively detecting the tetanus toxoid antigen in these vaccines [2] and it will be evaluated further in the VAC2VAC project. However, this method has not previously been applied to tetanus vaccine for veterinary use. Tetanus vaccines for veterinary use contain a tetanus toxoid antigen that is similar to that used in production of vaccines for human use but with additional components and/or adjuvants that are not found in tetanus vaccines for human use. These include other clostridial antigens that have a greater potential to show cross-reactivity with an antibody to tetanus, and non-aluminium adjuvants that might interfere with antigen detection. The results obtained for a number of tetanus vaccines from different veterinary manufacturers suggest that the immunoassay is suitable for use with veterinary tetanus vaccines. No cross-reactivity for a large number of non-tetanus antigens was observed. Non-aluminium adjuvants did not interfere with antigen detection but, as previously observed for human vaccines, aluminium adjuvants did interfere with the assay and a desorption step can increase the amount of antigen available for detection. Further work will now focus on whether this method, or a modification of it, is stability indicating (for both human and veterinary tetanus vaccines) and to what extent the assay can discriminate between compliant and altered batches.

[1] http://www.vac2vac.eu/

[2] Coombes L, Tierney R, Rigsby P, Sesardic D, Stickings P. In vitro antigen ELISA for quality control of tetanus vaccines. Biologicals. 2012 Nov;40(6):466-72.