

Michele A. Miller Interview



Prof Michele Miller is the South African Research Chair in Animal TB DST-NRF Centre of Excellence for Biomedical Tuberculosis Research at the SA-Medical Research Council Centre for Biomedical Tuberculosis Research based at Stellenbosch University. Prof. Miller was interviewed by Caleb Muefong during the January 2020 TB Keystone Meeting. This interview cover's Prof. Miller's research interest and advice for young immunologist who would like to conduct research in Africa and Globally.

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This may be very basic, but do animal found with TB get treated? If they do with what regimen? Due to regulations, animals with TB do not usually get treated. There are regulations usually by each country's Department of Agriculture that requires that infected animals are culled. The exception is very rare/endangered animals or where special permission has been approved. For example, elephants in zoos that have TB may be treated using human drugs but the regimen needs to be tailored to each animal since they commonly have side-effects or refuse to ingest the drugs.

We know BCG was created for humans, but do wildlife [and farm animals] get BCG or is there an alternative BCG vaccination for animals ? Again, because of regulations, animals are not usually vaccinated. The immune response tests (especially intradermal tuberculin test) cannot differentiate infected

from vaccinated animals and so this would complicate testing programs. However, there has been an experimental vaccine developed for use in European badgers and wild boars that are being investigated.

Is there a natural reservoir for *mycobacterium sp.* in wildlife? There are maintenance hosts in wildlife that include deer, wild boars, African buffaloes, brush-tailed possums and European badgers. *M. bovis* is an introduced disease in wildlife (from cattle) however, it has been maintained in certain wildlife populations after being introduced, especially in Kruger National Park and Hluhluwe-iMfolozi Park in South Africa.

Are there studies on TB transmission in wildlife, and what is the current dogma of transmission in game parks? Due to the logistical difficulties of working with wildlife, there are few studies on transmission. There are studies in deer and wild boars that have been experimentally infected but this may not mirror what happens in the wild. Transmission often depends on a variety of factors including susceptibility of the host species, route, dose of bacilli and health status of the host. We believe that both direct (through respiratory aerosols and biting/grooming) and indirect (through contaminated pastures/waterholes/browse) transmission occurs which makes it very difficult to control.

What role does SANParks play in you conducting your research? SANParks is a key partner in our work. They provide the expertise, equipment, and personnel to be able to obtain samples from wildlife in the park. Wildlife research requires strong partnerships to achieve your goals.

Video interview by Caleb Muefong & Written Interview by Cheleka AM Mpande