

Differentiation of sheep and goat strains of *Mycobacterium avium* subsp *paratuberculosis* by Multiplex PCR on Large sequence polymorphisms

Radhika Syam

Indian Veterinary Research Institute, India

M*ycobacterium avium* subsp *paratuberculosis* (MAP) is the causative agent of chronic wastin disease in cattle and sheep, but caused by different strains. Genomic reduction by loss of large sequence polymorphisms (LSPs) is the major contributor of genomic diversity in *M avium* subspecies and can also be used for differentiating cattle and sheep strains of MAP. A part of LSP^{A4} is present only in sheep strains not in cattle strains. Faecal samples were collected from cattle, sheep and goat from Bareilly and Thrissur districts. DNA was extracted from those faecal samples by using the Qiagen QIAamp DNA kit and was subjected to IS 900 PCR. 20% cattle, 25% sheep and 44.44% goat were positive for MAP. All the DNA samples were subjected to LSP4 multiplex PCR for specific detection of cattle and sheep strains of MAP. All positive cattle samples had given amplification of 490 bp and all positive sheep samples had given amplification of 540 bp. One except all goat samples gave 540bp product indicating infection with sheep strain. One goat sample gave both 540bp and 490 bp products indicating mixed infection of sheep and goat strains as they are susceptible to both strains. None of the negative samples produced any amplification with LSP 4 multiplex PCR. The ability to detect and differentiate between strains of MAP is of obvious importance for both accurate diagnosis and to guide control programs. LSP's are very specific for MAP diagnosis and strain differentiation of MAP.

Keywords: *Mycobacterium avium* subsp *paratuberculosis*, multiplex PCR, LSP, Faecal PCR, John's disease.

Biography

Radhika Syam is the native of Kerala, India. She has completed her MVSc degree from Indian Veterinary research institute and is pursuing PhD from the same institute on Veterinary Bacteriology. She is the holder of JRF from ICAR for PG, ICMR and CSIR for PhD and SRF from ICAR for PhD. She is also honoured by Prime minister of India for her achievement in BVSc exams.

drradhikasyam@yahoo.com

Nano bio robotics application in DES treatment

Akshi Gupta

Amity Institute of Biotechnology, AMITY University, India

Clinically talking eye specialists come across increasing complaints of dry eyes problem in large number of people. Most patients with dry eye have only discomfort, and no vision loss. With severe cases, the clear window on the front of the eye (cornea) may become damaged or infected. Ulcers or infections of the cornea are serious complications. There is no way to prevent dry eye syndrome. You can prevent complications by using wetting and lubricating drops and ointments. The only solution to this is artificial tear drops or if the problem has increased over time the lens get cracked leading to surgery to replace lens. Thus, I have reached to a thought why not rectify the problem using nano bio robotics that can eventually detect and overcome this problem. Nanotechnology, the engineering and art of manipulating matter at the nanoscale (1-100 nm), the art of future, offers the potential of novel nanomaterials for the treatment of various deadly diseases. At the present time many nanomaterials are under active research and development. The development of environmentally-responsive functional 'nanodevices', capable of performing complex tasks at nanoscale, will require the assembly of individual nanoscale components. Hence, a robot (functionally attach to middle layer of eye, detector of dryness, and therefore programmed to overcome dryness) of nano size biologically active could be developed and used for the patient and they could be freed from this problem for life time.

akshartgupta@gmail.com