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## Detection of viable mycobacteria in milk and milk products: Implications for the dairy industry and human health

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The introduction of routine pasteurization of milk and a TB eradication program resulted in a dramatic reduction in the number of cases of human TB in UK, from more than 50,000 cases per annum in the 1940 to less than 50 cases of human *Mycobacterium bovis* infections being reported per annum since the 1990. However there are many reports of viable *Mycobacterium paratuberculosis* (MAP) being detected in retail milk and milk products, indicating that this group of bacteria can survive commercial pasteurization. Although not a recognized zoonotic organism, an association has been established between MAP and the development of Crohn's disease and regulatory bodies have advised that MAP should be eradicated from the food chain on a precautionary principle. We have developed a method to rapidly and sensitively detect pathogenic mycobacteria in milk and have showed it can be used to detect viable MAP in milk products, including powdered infant formula. We have been working with raw milk cheese producers to develop methods to detect *M. bovis* in raw milk to ensure the safety of their products. Given increasing consumer interest in the consumption of raw milk and the resurgence of bovine TB in the UK, these methods will provide new ways to allow quality assurance tests to be performed. I will review the work that we have carried out and also discuss how this technique can also be used to develop new approaches to eradicate these endemic diseases from dairy cattle to further improve food safety.

### Biography

Catherine Rees has obtained her training in Biochemistry and Genetics, focus of her current research is on the application of molecular techniques to study various aspects of applied microbiology. She has a long term interest in the development of phage-based methods of bacterial detection (specifically mycobacteria). Her recent research focus has been on the development of rapid, non-recombinant, phage-based tests for the detection of mycobacterial pathogens for the food and agriculture sectors.

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