Editorial

The polymerase chain reaction (PCR) technology has developed into one of the most frequently utilized genomic research and diagnostic tools in human and veterinary medicine. An ever-increasing literature of more than 66,000 PubMed-cited articles on general infections, 3,600 on all mycobacteria, 2,400 on *Mycobacterium tuberculosis* and 249 on *Mycobacterium leprae* (as of 06.01.2007), documents the wide dissemination of PCR.

As an economic showcase, PCR has been so important to the research and business communities that despite patents and license restrictions, new ways of distribution through business partnerships, corporate and adaptive licensing have been found. Nevertheless the patent holders have been rewarded with 2 billion USD returns [1].

As an example of the development of a diagnostic tool, PCR methods and proper handling have been refined for many years to yield sensitive, specific and rapid results of small amounts of pathogen DNA or RNA from patient specimens with very few stainable organisms [2, 3].

Applications of PCR for the laboratory diagnosis of granulomatous masses with few and slowly replicating organisms like mycobacteria are evident [4, 5]. PCR and RT-PCR are helpful to detect, quantify, and differentiate mycobacterial DNA or

RNA as well as determine drug resistance in slowly replicating nonculturable organisms like *M. leprae*. Therefore, *M. leprae* PCRs have been developed as early as in the 1980s [6].

In this issue of *Ophthalmic Research*, Farrukh Shamsi and his group from the King Khaled Eye Specialist Hospital in Riyadh, KSA, subjected ocular tissue specimens of a female patient with suspected leprotic eye lesions to stains and confirmed the findings by custom-made real-time PCR. If any DNA is found by PCR this does not yet imply a causal relationship, but if stains identify the suspected organism from a lesion, evidence is strong. Therefore it can be difficult to interpret positive findings in asymptomatic patients long after treatment [7].

Is this case report relevant for ophthalmologists today? Seen on a global scale, 410,000 new cases (in 2004) [8] are diagnosed each year, and ocular involvement is common. Laboratory diagnosis can be difficult, and until now the diagnostic arsenal has not been sufficient [4]. In this article it is stated correctly that 'acid-fast bacilli' and 'typical' histopathology of a lesion is not sufficient. Confirmation of pathogens from excised tissues and quantification by RT-PCR is to be recommended whether or not the clinical diagnosis seems evident [4, 5, 9].

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