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### **EDITORIAL PRODUCTION**

Ricardo Borges Costa

# **EDITORIAL**

# PCR and dental research

Tabitha M. Powledge wrote a very good article (Adv Physiol Educ 2004;28:44-50) on the Polymerase Chain Reaction (PCR). In it she says that "PCR, the quick, easy method for generating unlimited copies of any fragment of DNA, is one of those scientific developments that actually deserve timeworn superlatives like 'revolutionary' and 'breakthrough.' First described only 10 years ago, in its short life PCR has transformed the life sciences utterly. From the daily practicalities of medical diagnosis to the theoretical framework of systematics, from courts of law to field studies of animal behavior, PCR takes analysis of tiny amounts of genetic material – even damaged genetic material – to a new level of precision and reliability."

PCR has very quickly become an essential tool for improving human health and human life. Medical research and clinical medicine are profiting from PCR mainly in two areas: detection of infectious disease organisms, and detection of variations and mutations in genes, especially human genes. The same thing is valid in Dental Research and Clinical Dentistry. Indeed, the culture-independent approaches have revealed the diversity of human oral microbiota and the existence of a large number of as-yet-to-be-cultured organisms, which are presumed to be dental pathogens. Certainly, it will be shown that there are more than 600 species encountered in the oral cavity. Furthermore, specific haplotypes and single-nucleotide polymorphisms in specific genes may be associated with susceptibility to several dental diseases, for instance, to chronic periodontitis.

The variety of applications of PCR has attracted financial support of the industry. Therefore, innovations in the size of the equipment, in the speed of the amplifications, and reduction of the costs should be expected. It would be good that every research could be able to attract investment, which in turn would lead to scientific progress, improvement in health and quality of life, as PCR does.

As a final remark, even though we might be involved with our high-tech research, clinical data from our patients are still very important and should never be neglected to a second level. We should never forget that our goal is to provide the best possible treatment to our patients, and so basic science results should be always linked to clinical evidence. In the end, one of the most exciting things is to correlate the findings of our research with the clinical features presented by the patients.

Brenda P. F. de Almeida Gomes Member of SBPqO