Editorial

Twenty years of the genomic era in Brazil: Impacts on dental research

The last century of advances in genetics and genomics, such as the identification of the DNA molecule and genes, the elucidation of the central dogma of biology; and later, in the beginning of this century, the completion of the Human Genome Project in 2003, have significantly benefited the health and dental researchers and clinicians.

The past two decades has been characterized by exponential advances in our understanding of the biological and molecular basis of oral and dental conditions/traits. Scientists around the world made remarkable progress toward understanding the genetic etiology of many common and rare conditions in dental practice, such as tooth agenesis, periodontal disease, skeletal malocclusion and temporomandibular disorders. It is clear that dental research has been transformed by a new era of genomic and other 'omics', such as epigenomics, transcriptomics, proteomics, metabolomics and lipidomics. Currently, an impressive number of associations between genomic regions and oral and dental traits have been reported by many research groups, including Brazilian researchers.

The continuous advances in the technologies and the establishment of national and international cross-disciplinary collaborations among researchers and Institutions have democratized and accelerate the pace on both the science and education fronts. Based on the experience of the Human Genome Project, keeping a truly collaborative team spirit is key for the acceleration of scientific discovery. Briefly, the current scenario clearly suggests that the available information on phenotype-genotype associations in Brazilian samples will continue to increase seeking to identify genomic markers associated with rare and common oral and dental diseases or traits as a result of collaborative projects.

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