

## POSTER - DNA AND GENOMICS

### THE GEN-T PLATFORM: ADVANCING BIOMEDICAL RESEARCH AND DEVELOPMENT

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The Brazilian population exhibits significant genetic diversity due to its admixed American Indigenous, African, and European ancestries. This diversity makes it an ideal setting for comprehensive genetic studies. However, about 80% of the existing genetic knowledge is derived from studies of European populations, resulting in missed opportunities for pioneering discoveries in non-European genomes that could drive healthcare innovations. The 'Gen-t do Brasil' project aims to map the DNA of more than 200,000 Brazilians by 2027 to understand the impact of genetic factors on health and to develop innovative methods for disease detection and treatment. Distinctively, our project employs a longitudinal approach, simultaneously and systematically collecting DNA, health, and behavioral data from diverse participants for a defined period. The gen-t platform covers all the steps, from data collection and storage to processing and analysis, for both genomic and phenotypic data. Supported by a

robust bioinformatics infrastructure, this includes the development of novel pipelines for handling and analyzing vast genomic data (including Genome-Wide Association Studies, global admixture, and fine mapping analyses). This effort provides a comprehensive and unique R&D infrastructure to investigate, among others, the combined effects of genetic, environmental, and behavioral factors on health outcomes. The gen-t platform is already capturing individual data from various regions across Brazil, and, thus, can foster significant advancement in public health. In summary, the “Gen-t do Brasil” Project, together with the gen-t platform leveraging the diversity of the Brazilian population, represents a major leap in genetic research that can revolutionize healthcare on a global scale.

Palavras-chave: bioinformatics; biobank; brazilian ancestry; evolution; pipelines.