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LETTER TO THE EDITOR

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Letter to the Editor Regarding "Five years of the Genomas Brasil Program: advancing genomics and precision health within Brazil's unified health system"

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To the Editor

The Human Genome Project (HGP) was the largest international biological project. It laid the foundations for our modern understanding of human genetic diversity and enabled us to completely decode the human genome by 2022. The HGP also allowed us to identify genes associated with thousands of diseases, develop personalized medicine and pharmacogenomics, create molecular diagnostic tools and make major advances in bioinformatics.

The success of the HGP stimulated the emergence of national initiatives, including the 100,000 Genomes Project (United Kingdom), All of Us (USA), the Qatar Genome Programme and the Chinese Millionome Database Project, to name a few. These initiatives established an integrated ecosystem of technologies, data and ethical frameworks that helped to translate genomic research from fundamental science into clinical practice and public health [1].

Brazil's state policy in the field of genomics has become a key driver of healthcare innovation, promoting equity and the modernization of the health system. This article analyzes the implementation of Brazil's National Genomics and Precision Medicine Program (GenBR) over a five-year period, examining the prerequisites for launching the program, its institutional structure and governance mechanisms, and quantitative indicators such as funding, the number of projects and sequencing volumes. It also considers the outcomes achieved and the challenges that remain [2].

The GenBR program is still constrained by several structural issues. These include a marked concentration of projects in the Southeast region, indicating limited territorial decentralization, and persistent technological obstacles to scaling up the production of Advanced Therapy Medicinal Products to full Good Manufacturing Practice compliance. Other issues include complex ethical and regulatory requirements relating to the implementation of the Brazilian General Data Protection Law and the safeguarding of genomic data, as well as concerns about long-term sustainability given the program's dependence on public funding and the potential impact of changing political priorities on program continuity [3, 4].

As part of Russia's Federal Scientific and Technical Program for the Development of Genetic Technologies (2019–2030), the large-scale "100,000+ Me" project is being implemented. By June 2025, over 100,000 Russian citizens' genomes had been collected, around 80,000 of which had been sequenced. This has been accompanied by the development of infrastructure, research projects and specialist training through residency and master's programs in genetics. While the GenBR program also highlights workforce development, its measures appear less extensive as it does not include specialist training pathways comparable to Russian residency or master's programs in genetics.

Both initiatives share the overarching goal of advancing genomic research, integrating it into healthcare systems and strengthening national technological sovereignty. Exchanging information between the GenBR and the "100,000+ Me" programs could significantly amplify this effect. This cooperation could focus on three areas:

- Data and methodology exchange, including a unified platform for joint genomic data analysis that considers Brazilian genetic heterogeneity and the Russian genetic profile.
- Joint research on rare diseases, focusing on shared and unique genetic markers.
- Personnel exchange, including training placements for specialists at genetic centers in both countries, with an emphasis on residency and master's programs.

This collaboration could also increase the global value of large-scale genomic consortia by improving the representation of Brazilian and Russian populations in international genomic databases, enabling more inclusive discoveries with direct implications for public health.

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