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Mechanisms of human natural resistance to HIV: A summary of ten years of research in the Colombian population
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Abstract
The natural history of human immunodeficiency virus type-1 (HIV-1) infection is a complex and variable process that, similarly to other infections, has clearly demonstrated the existence of mechanisms of human natural resistance. The resistance either inhibits the establishment of infection or delays disease progression. When there is continuous exposure to infectious viral particles, several genetic and immunological mechanisms are essential to lead to resistance to HIV-1 infection/progression. The objective of this manuscript was to review the different mechanisms so far proposed to be responsible for HIV-1 resistance and to present the main results derived from 10 years of research in this area among Colombian subjects. In particular, this review focuses on determining the mechanisms involved in the protection of a group of individuals repeatedly exposed to the virus but who remained exempt of serological and clinical evidence of HIV-1 infection. Although the studies carried out in our research group corroborated the protective role of some of the previously proposed mechanisms of protection, ongoing research worldwide has made it clear that the phenomenon of human natural resistance depends on multiple factors with an important genetic influence, and only multicenter studies involving individuals with different genetic backgrounds may determine more universal mechanisms of resistance. Increasing our knowledge in this field will contribute to the development of novel preventive and therapeutic measures.

Keywords
HIV, acquired immunodeficiency syndrome, infection control, HLA antigens, receptors, CCR5, killer cells, natural; apoptosis, defensins.