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Genetic composition of a Brazilian population: the footprint of the Gold Cycle

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ABSTRACT. Ancestry-informative markers (AIMs) are powerful tools for inferring the genetic composition of admixed populations. In this study, we determined the genetic ancestry of the Ouro Preto (Brazil) population and evaluated the association between ancestry and self-reported skin color. The genetic ancestry of 189 children

and adolescents was estimated by genotyping 15 AIMs. The estimate of population admixture was determined using the Bayesian Markov Chain Monte Carlo (MCMC) method implemented in two different programs (STRUCTURE and ADMIXMAP). Volunteers self-reported their skin colors. The European ancestry contribution ranged from 0.503 to 0.539, the African contribution ranged from 0.333 to 0.425, and the Amerindian component ranged from 0.04 to 0.164. The relative contributions of African ($P < 0.016$) and European ($P < 0.011$) ancestry differed significantly among skin color groups, except between black and dark-brown groups. The population of Ouro Preto has a higher contribution of African ancestry compared to the mean for the southeast region of Brazil. Therefore, extrapolating the African ancestry contribution for southeastern Brazil to the Ouro Preto population would underestimate the actual value for this city. We also showed that self-reported skin color could be appropriate for describing the genetic structure of this particular population.

Key words: Ancestry-informative markers; Genetic ancestry; Skin color; Brazilian population

