

THE IMMUNOGENETICS FINGERPRINT OF THE INHABITANTS OF THE ITALIAN CALABRIA REGION: DISTRIBUTION OF HLA-A, -B, -C ALLELES IN FOUR PROVINCES COMPARED TO ELEVEN MODERN DESCENDANTS OF THEIR INVADERS

C. Capittini^{1*}, M. Francone², V. Calantoni², R.E. Saladino², A. De Silvestri¹, C. Tinelli¹, G. Romeo²

¹ Biometry and Clinical Epidemiology, IRCCS Policlinico San Matteo Foundation, Pavia, Italy.

² UOSD Tipizzazione Tissutale, GOM "Bianchi Melacrino Morelli", Reggio Calabria, Italy.

Calabria is the southernmost region of the Italian peninsula and it is surrounded by Tyrrhenian Sea to the west, Ionian Sea to the east and it is separated from Sicily by the Strait of Messina to the south. Due to its central position in the Mediterranean Sea, the region suffered many invasions over the centuries.

Around 700 BC colonist from ancient Greece occupied the territory that became Magna Grecia. Bruzi, a population with endoeuropean roots, founded Cosenza in IV BC. Rome conquered Calabria during the III century BC. From 536 AD, Byzantines dominated the region. The first Saracen attack occurred in 812. The Arab presence ended when Normans constituted the Duchy of Calabria. Angevins and Aragonese were the last invaders.

In a Correspondence analysis biplot (CA), we compared the frequencies of HLA-A, -B, -C alleles from Reggio Calabria (206), Cosenza (144), Catanzaro (205) and Vibo Valentia (108) provinces, with 11 populations representing the modern descendants of their invaders: Greece, Turkey, Albania, Tunisia, Neaples, Sicily, France, Catalan, Basque, Spain South, and Sweden (Jordan as outlier).

All HLA data are available at allelefreq.net.

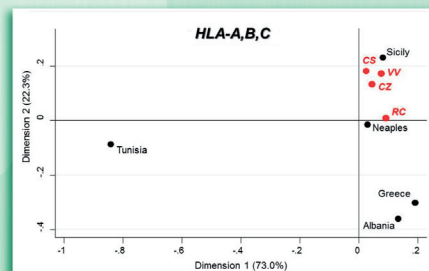
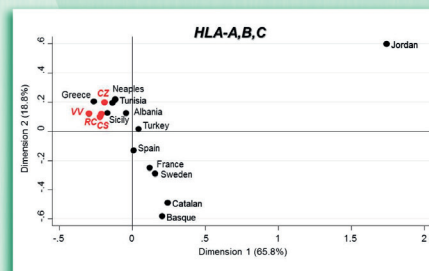
Calabrian subjects were adult donors belonging to the Italian Bone Marrow Registry.

HLA polymorphisms at high resolution level were genotyped by PCR SSO and SSP techni-

ques. Direct sequencing was used to eliminate, if necessary, major ambiguities.

No deviation from Hardy Weinberg Equilibrium was observed. In CA, the first dimension accounted for 65.8% of the variability, the second for 18.8%.

We observed a tight cluster composed by the Calabrian provinces and Greeks, Sicily, Neaples, Albania, and Tunisia. We also observed two small clusters: the first composed by France and Sweden, the second composed by Catalan and Basque. Spain was between France and Turkey, Turkey was between Calabria and Spain (**FIG.1**).



Calabrians show an immunogenetic fingerprint derived from few colonizers: Greeks (Magna Grecia and Sicily), Byzantines (Albania), Angevins (Neaples) and Arabians (Tunisia) (**FIG.2**). Unexpectedly, Calabrians are nearer to Tunisians

than Turkish.

The influence of Byzantine domination is evident in the analogy with Albanians but not so with Turkish. The evidence that Calabrians are more similar to Tunisians does not have an immediate explanation. In fact Saracens made incursions without settling in Calabria and inbreeding with local population. However, Greeks founded colonies both in Magna Graecia and in Tunisia, to support the hypothesis of a common origin of the genetic traits shared by the two populations.