

MOLECULAR PALEOGENETIC RESEARCH (NUCLEAR DNA) ON SOME OLD HUMAN POPULATIONS IN ROMANIA DATING FROM THE BRONZE AND IRON AGE

GEORGETA CARDOȘ^{1,2,3}, N. MIRIȚOIU⁴ M. CONSTANTINESCU⁴
A. KROLL¹ A. RODEWALD¹

We performed this paleogenetic study on skeletal samples of 50 individuals from old human populations dating from the Bronze and Iron Age, found in Romania. In order to show the degree of their genetic kinship with nowadays–Romanian population and other modern European populations, we analyzed nuclear DNA (vWA31A and DYS393 Microsatellites) polymorphisms. The genetic sex of the old individuals was identified by amplifying a sequence of the Amelogenin gene. Our results were compared with similar genetic data of some European populations. Our data reflected an evident genetic similarity between old human populations who lived in Romania in the Bronze and Iron Ages and other modern populations from South-East Europe.

INTRODUCTION

The ancient DNA (aDNA) research area appeared in the '80, and it has proved to be a valuable instrument for studying the evolution at molecular level over an unlimited time. For the human species, the study of ancient DNA extracted from fossils has led to a better understanding of human beings and the evolution of human genome, as well as the spread of human populations throughout the Earth (Paabo 1989; Cattaneo 1999; J. M. Butler 2001; Gotherstrom 2002).

Any aDNA study depends essentially on the status of DNA preservation in fossils, aDNA extraction being the crucial step of this kind of research. The DNA molecules are degraded after death by many factors, endogenous (different enzymes) or environmental factors (radiation, water, bacteria, etc.), some of them speeding up the DNA damage process. It has been assumed that in physiological concentrations of salt, neutral pH and 15°C, all DNA molecules from fossils are completely degraded in approximately 100 000 years (Hummel 2003).