

M. Carvalho

*Departamento de Antropologia  
Universidade de Coimbra,  
3000 Coimbra, Portugal*

A. Amorim

*Instituto de Antropologia  
Universidade do Porto,  
4000 Porto, 1 Portugal*

## Population genetics of Glutathione peroxidase (GPX1) in Central Portugal

The isoenzymes of red cell glutathione peroxidase (GPX1) was investigated in the population of Central Portugal. A variant of GPX1 with mobility consistent with GPX1\*2 was detected with a frequency of:  $GPX1^*2 = 0,005$  (N=221).

*Key words:* Glutathione peroxidase, red cells, Central Portugal population, gene frequency.

### Introduction

Genetic polymorphism of the isoenzymes of red cell glutathione peroxidase (GPX1) was first described by Beutler et al (1974). This polymorphism is determined by two codominant alleles GPX1\*1 and GPX1\*2, at an autosomal locus (Meera Khan et al., 1984).

Previous populational studies of this enzyme have suggested that the GPX1\*2 allele is an African marker (Meera Khan et al., 1984). Some rare variants have also been observed: GPX1 "Musi" (Beutler et al., 1974), GPX1 "Lebanese" (Board, 1983) and GPX1 "Djuca" (Meera Khan et al., 1986). However, there are up to now, no reported family studies demonstrating the genetic inheritance of any of these variants (Destro-Bisol et al., 1989).

GPX1\*2 allele product was found to have almost twice the catalytic activity of GPX1\*1 and it was proposed that GPX1\*2 allele enjoys a selective advantage in an environmental where malaria is endemic (Meera Khan et al., 1986).

In this study we present GPX1 data concerning to the population of Central Portugal and we report the presence of the allele GPX1\*2 in this population.

### Materials and Methods

Samples of venous blood from 221 unrelated healthy individuals living in Central Portugal (Districts of Aveiro, Castelo Branco, Coimbra, Guarda, Leiria, Santarém and Viseu) were collected in EDTA tubes. The red cells were separated and stored at 20°C in glycerol medium. Hemolysates were prepared by sonication, treated with toluene and incubated with 50mMDTT, for at least one hour.