

## Lack of association between glutathione S-transferase polymorphisms and primary glioma in a case-control study in Rio de Janeiro

P. Coutinho<sup>1</sup>, V. Sandim<sup>2,4</sup>, J.A. Oliveira<sup>3</sup>, G. Alves<sup>2</sup> and A. Hatagima<sup>1</sup>

<sup>1</sup>Laboratório de Genética Humana, Instituto Oswaldo Cruz/FIOCRUZ, Rio de Janeiro, RJ, Brasil

<sup>2</sup>Laboratório de Genética Aplicada, Serviço de Hematologia, Instituto Nacional de Câncer (INCA), Rio de Janeiro, RJ, Brasil

<sup>3</sup>Serviço de Neurocirurgia, INCA, Rio de Janeiro, RJ, Brasil

<sup>4</sup>Departamento de Bioquímica Médica, UFRJ, Rio de Janeiro, RJ, Brasil

Corresponding author: A. Hatagima

E-mail: [ahatagima@gmail.com](mailto:ahatagima@gmail.com)

Genet. Mol. Res. 9 (1): 539-544 (2010)

Received December 1, 2009

Accepted January 11, 2010

Published March 23, 2010

**ABSTRACT.** The glutathione S-transferases (GSTs), a family of phase II isozymes, detoxify several carcinogens. Genetic variations in GSTs have been associated with increased risk for cancer due to a heritable deficiency in detoxification pathways for environmental carcinogens. Conflicting findings have been reported about the association between constitutive GST polymorphisms and gliomas in different populations. The present case-control study examined 78 patients with primary glioma and 347 controls from Rio de Janeiro. DNA was isolated from whole blood, and four genetic polymorphisms (*GSTM1*, *GSTM3*, *GSTT1*, and *GSTP1*) were determined by PCR-RFLP. The distributions of the genotypic frequencies of these polymorphisms did not differ significantly between cases and controls and were as expected by Hardy-Weinberg equilibrium ( $P > 0.05$ ). Risk analysis did not show an association between GSTs and primary glioma, suggesting that these polymorphisms do not influence the risk of primary glioma, at least in this population in Rio de Janeiro, Brazil.

**Key words:** Glioma; Glutathione S-transferase; Genetic polymorphisms