Matrix metalloproteinases (MMPs) are a family of enzymes that regulate the extracellular matrix environment and whose activity has been implicated in normal and pathological processes. [1],[2] There are 23 MMPs identified in humans and these are upregulated in response to injury and during tumorgenesis. It has been reported that MMP-3, 8, and 12 null mice show increased tumor growth and / or metastases, while MMP-2, 7, 9, 11, and 19 null mice show decreased tumor growth and / or metastases. [3]

Given their relevance in human cancers it has become increasingly important to gather data about the expression of individual MMPs at different sites and in different cancers, and to determine if they can be utilized as prognostic biomarkers. This has fuelled the development of techniques to analyze their expression and activity in human disease. Studies of MMP expression at a mRNA level have utilized microarray and automated real time polymerase chain reaction (RT-PCR) techniques. [4] Qualitative analysis has utilized in situ hybridization. [5] Other techniques that have been utilized include immunohistochemistry, sandwich-enzyme immunoassay systems, gelatin zymography, immunoblotting, and in situ zymography. [6],[7],[8]

Recent evidence from a host of studies shows members of the MMP family as potential biomarkers for diagnosis, prognosis, early detection of cancer, tumor recurrence, and metastasis, and an assessment of response to therapy in a variety of cancers, including brain tumors. [9],[10],[11],[12],[13],[14],[15],[16],[17],[18]

The present study by Kumar et al.[19] describes a case control study to determine if there is an association between MMP-2 (-1306 C/T) polymorphisms and susceptibility to develop glioblastoma multiforme in an Indian population. This has been done by PCR-restriction fragment length polymorphism in 110 cases and 150 age- and gender-matched controls. Although -1302 MMP2 gene polymorphisms have been demonstrated in malignancies of the lung, breast, cervix, and gastrointestinal tract, the authors have not found this to be the case in their study population of a high-grade brain tumor. MMP 2 and 9 have been demonstrated in gliomas of various grades in other racial populations. The lack of association in this study can be, as pointed out by the authors, due to the study of a small sample size. Larger population studies are required before firm conclusions.
can be drawn. However, this article serves well as a pilot report on a geographically and ethnically distinct population.

References