Re: Clinical significance of SOD2 and GSTP1 gene polymorphisms in Chinese patients with gastric cancer by Xu *et al*.

Maria Gazouli

Department of Basic Medical Science, Laboratory of Biology, School of Medicine, University of Athens, Athens, Greece
Corresponding to: Maria Gazouli, PhD, Assist Prof of Molecular Biology. Dept of Basic Medical Science, School of Medicine, Michalakopoulou 176, 11527 Athens, Greece. Email: mgazouli@med.uoa.gr.

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The article of Xu *et al*. (1) describes the investigation of SOD2 and GSTP1 gene polymorphisms association with gastric cancer incidence, prognosis and progression in patients from a Chinese population. The authors report that there were strong associations between the SOD2 rs4880 and GSTP1 rs1695 genotypes with lymph node metastasis, tumor size, progression, and tumor aggressiveness. Of perhaps even greater interest, SOD2 rs4880 CT and CC genotypes were correlated significantly with shorter overall survival. The authors did not investigate and other polymorphisms i.e. SOD2 T5482C that have be found to be closely associated with an increased susceptibility to the development and differentiation of gastric cancer different populations like Korean (2). Since, polymorphisms of GSTP1 have also been associated with platinum-based chemotherapy efficacy in different cancers (3,4), including gastric cancer (5), revealing their clinical potential as a biomarker to predict platinum-related chemosensitivity, it would be interesting to further evaluate the functional role of these polymorphisms. Nonetheless, the paper is very interesting in that it indicates that the genetic background of the tumor or/and patient, rather than just the characteristics of the cancer, may play a role in the biological progression of the tumor. Stepwise progression of human cancer has been clinically well recognized. SOD2 has been considered as one of the most important antioxidant enzymes that regulate the cellular redox state in normal and tumorigenic conditions. Studies suggested that alteration in SOD2 level may influence the metastatic potential of tumor cells via activating mitogen-activated protein kinases (MAPK), and regulating the expression of matrix metalloproteinase (MMP) gene family members (including MMP-1 and MMP-9) (6). However, the role of SOD2 in carcinogenesis has been widely studied but remains ambiguous (7). Regarding the GSTP1, several GST isoenzymes have been shown to modulate cell signaling pathways that control cell proliferation and cell death (apoptosis) (8). A variety of human cancers, including of breast, colon, kidney, lung, and ovarian, usually express high levels of GSTP1 compared with the surrounding tissues. Consequently, GSTP1 expression has been considered to be a marker for cancer development. High expression levels have been associated not only with disease progression but also with drug resistance in patients undergoing chemotherapy.

A challenge issue of cancer investigators has been the identification of specific markers of cancer progression. Most studies have focused on the identification of genetic characteristics of tumor cells that could be used to predict their risk of progression, metastasis and/or outcome. Such prognostic markers could then be used clinically to define individualized treatment for patients. Some of these markers may predict the response of a cancer to a particular treatment. Recently gene expression, as well as gene single nucleotide polymorphisms (SNPs) array analysis has identified numerous gene expression patterns or SNPs that are promising prognostic or markers but have yet to find their way into general clinical acceptance. All of these are based on "molecular signatures" from the cancer cells.

The article by Xu *et al*. (1), as well as the work of others, point up some interesting findings concerning the potential for the tumor and/or host genetic background to contribute to the progression of the cancer. These types of findings need to be expanded to further evaluate genetic background influences on the metastasis of gastrointestinal cancers or

other malignancies.

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