

Free Radicals and Breast Cancer

For the most part, the article in the Forum section titled "Free Radicals and Breast Cancer" [*EHP* 104:821 (1996)] accurately describes our paper "Progression of Human Breast Cancers to the Metastatic State Is Linked to Hydroxyl Radical-induced DNA Damage" (1). However, it was claimed that

Some scientists have questioned the methodologies used by Malins and note that studies published in the February 1996 issue of *Carcinogenesis* and the December 1995 issue of *Chemical Research in Toxicology* failed to duplicate Malins' initial results using identical methods.

The authors of the articles, Douki et al. (2) and Ravanat et al. (3), were concerned primarily with the possibility of DNA base oxidations in the formation of trimethylsilyl derivatives for gas chromatography-mass spectrometry (GC-MS). The focus was not on our work and the authors did not attempt to duplicate our results or dispute our conclusions. In our studies of base changes in relation to breast cancer, we consistently compared control and test samples under identical conditions that favored the exclusion of oxygen. Ravanat et

al. (3) found no fault with this approach, stating that

the differences in the levels of 8-oxoGua observed between controls and treated samples should not be due to the artifactual oxidation of guanine during the derivatization, assuming that the samples were treated in an identical fashion.

This conclusion would logically include other bases, although guanine may be particularly susceptible to oxidation.

The Forum article does not mention the findings of Musarrat et al. (4) or Nagashima et al. (5), which are consistent with our conclusions linking base damage to breast cancer (6). Overall, we applaud the effort to explore the possibility that individual bases are artifactually oxidized using the GC-MS procedures, particularly because of mounting evidence relating the base lesions to carcinogenesis. For our part, we have recently employed $^{13}\text{C}/^{15}\text{N}$ -labeled bases as standards to correct for possible oxidation in determining individual base lesions.

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REFERENCES

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Editors' note: In view of the implied criticism, the news article referred to by Dr. Malins should have included complete references, identifying authors, articles, and journals. Our apologies to Dr. Malins.

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The American Association for the Advancement of Science invites applications for one-year public policy fellowships, which bring scientists and engineers to Washington, DC, to work in Congress, the US Department of State, the US Agency for International Development, the US Environmental Protection Agency (EPA), the US Department of Agriculture, and the RAND Critical Technologies Institute. Additional fellowships at EPA are for 10 weeks in the summer. Applicants must be US citizens and must have a PhD or equivalent doctoral level degree at the time of application from any physical, biological, or social science or any field of engineering. Applicants with a master's degree in engineering and at least three years of post-degree experience may also apply. The programs are designed to provide each Fellow with a unique public policy learning experience and to make practical contributions to the more effective use of scientific and technical knowledge in the US government. Stipends vary by program. All applications must be postmarked by January 15, 1997. For further information and application instructions call 202 326-6600; Fax: 202 289-4950; or e-mail science_policy@aaas.org