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Measurement of post-replicative DNA metabolism and damage in the rodent brain

The DNA of all organisms undergoes persistent DNA damage and repair. Additionally, DNA bases undergo enzymatically-mediated modifications involved in both stem cell differentiation and increased immune diversity. Many of these modified bases are removed from DNA by glycosylases of the base excision repair system. Therefore, the released free bases represent the end product of DNA metabolism in most organisms. While a substantial number of investigations have focused on the identification and measurement of modified bases in DNA, few have examined the free bases products released either spontaneously or enzymatically. We have developed a method for examining free bases in extracts of animal tissues which involves HPLC separation followed by GC/MC/MS analysis using stable isotope analogs. The challenges and advantages of this method, which has been applied to the normal rodent brain, will be discussed.

Biography

Lawrence C Sowers received his PhD in Physical Biochemistry from Duke University. Following Post-doctoral positions at Harvard and the University of Southern California, he began his independent career at the City of Hope National Medical Center. He then moved on to Loma Linda Medical School and then to the University of Texas Medical Branch where he is currently Professor and Chair of the Department of Pharmacology and Toxicology. He is currently a member of the Cancer Etiology study section and a Member of the Editorial Board of the *Journal of Biological Chemistry*.

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