In the early 1980s, extensive studies on the dose-response relationships of some carcinogenic nitrosamines in rats were carried out at the British Industrial Biological Research Association (BIBRA) laboratories, Carshalton, United Kingdom, by Paul Brantom and analyzed at the ICRF Cancer Studies Unit, Oxford, under the direction of Richard Peto. Unusually large numbers of animals were used over a more extensive dose range than had been used before. This work was published in abbreviated form in a 1984 monograph [Peto, R., Gray, R., Brantom, P., and Grasso, P. Nitrosamine carcinogenesis in 5120 rodents; chronic administration of sixteen different concentrations of NDEA, NDMA, NPYR and NPIP in the water of 4400 inbred rats with parallel studies on NDEA alone of the effect of age of starting (3, 6 or 20 weeks) and of species (rats, mice or hamsters). In: I. K. O’Neill, R. C. Von Borstel, C. T. Miller, J. Long, and H. Bartsch (eds.), N-Nitroso Compounds: Occurrence, Biological Effects and Relevance to Human Cancer. IARC Scientific Publications No. 57, pp. 627–665. Lyon: International Agency for Research on Cancer, 1984]. It was felt that the importance of the data warranted a more complete treatment and wider dissemination in a peer-reviewed journal. To bring this massive body of work into current perspective in the field, this Part 2 issue to the December 1, 1991 issue of Cancer Research features the full report of the BIBRA carcinogenesis bioassays, along with an invited article authored by distinguished experts in chemical carcinogenesis and risk assessment (James A. Swenberg, David G. Hoel, and Peter N. Magee), who discuss the implications of these BIBRA studies, integrate the information with current thinking in the field, and offer suggestions for future studies. Cancer Research is pleased to serve as the publication outlet for this collective work which will prove to be a highly valued reference in the field.

The Editors

CONTENTS

Mechanistic and Statistical Insight into the Large Carcinogenesis Bioassays on N-Nitrosodiethylamine and N-Nitrosodimethylamine.
James A. Swenberg, David G. Hoel, and Peter N. Magee ............................................ 6409

Effects on 4080 Rats of Chronic Ingestion of N-Nitrosodiethylamine or N-Nitrosodimethylamine: A Detailed Dose-Response Study.
Richard Peto, Richard Gray, Paul Brantom, and Paul Grasso ..................................... 6415

Dose and Time Relationships for Tumor Induction in the Liver and Esophagus of 4080 Inbred Rats by Chronic Ingestion of N-Nitrosodiethylamine or N-Nitrosodimethylamine.
Richard Peto, Richard Gray, Paul Brantom, and Paul Grasso ..................................... 6452

Chronic Nitrosamine Ingestion in 1040 Rodents: The Effect of the Choice of Nitrosamine, the Species Studied, and the Age of Starting Exposure.
Richard Gray, Richard Peto, Paul Brantom, and Paul Grasso ..................................... 6470