

Preface

The free-radical chemistry of DNA had been discussed in some detail in 1987 in my book *The Chemical Basis of Radiation Biology*. Obviously, the more recent developments and the concomitant higher level of understanding of mechanistic details are missing. Moreover, in the living cell, free-radical DNA damage is not only induced by ionizing radiation, but free-radical-induced DNA damage is a much more general phenomenon. It was, therefore, felt that it is now timely to review our present knowledge of free-radical-induced DNA damage induced by all conceivable free-radical-generating sources. Originally, it had been thought to include also a very important aspect, the repair of DNA damage by the cell's various repair enzymes. Kevin Prise (Cancer Campaign, Gray Laboratory, London) was so kind to agree to write this part. However, an adequate description of this strongly expanding area would have exceeded the allocated space by much, and this section had to be omitted.

The directors of the Max-Planck-Institut für Strahlenchemie (now MPI für Bioanorganische Chemie), Karl Wieghardt and Wolfgang Lubitz, kindly allowed me to continue to use its facilities after my retirement in 2001. Notably, our librarian, Mrs. Jutta Theurich, and her right-hand help, Mrs. Rosemarie Schradler, were most helpful in getting hold of the literature. I thank them very much. Without their constant help, this would have been very difficult indeed.

After my retirement at the MPI, Reiner Mehnert and recently also his successor, Michael Buchmeiser, gave me the most enjoyable opportunity to continue with research at the Leibniz-Institut für Oberflächenmodifizierung (IOM) at Leipzig and to finalize projects that were left over from my time at the MPI. Working continuously on the present book prevented me, of course, from fully devoting my time to ongoing IOM projects, and I am more than thankful that this was possible.

When talking about research, I must mention Mrs. Rita Wagner, a superb technician that looked after my laboratory and the younger Ph.D. students for about 25 years. Some of her fine work is referred to here. I have often been envied for being so lucky to have had her. It was also very fortunate that Heinz-Peter Schuchmann joined my group soon after my start at the MPI. His competence complemented mine extremely well, and this allowed us to carry out various projects that would not have been possible for either of us on our own. When Dietrich Schulte-Frohlinde was director, DNA free-radical research was the main research topic of the MPI, and our groups collaborated very closely for many years. With Peter Schuchmann and Dietrich Schulte-Frohlinde common interests beyond science led to a continuing friendship.

I flooded a number of good friends with questions, and they all were most helpful by answering them in a continuous exchange of e-mails. I cannot mention all of them, but I must mention, in alphabetical order, David Close, Gábor Merényi, Sergej Naumov, Herwig Paretzke, Kevin Prise, Peter Schuchmann, Michael Sevilla, Melanie Spothem-Maurizot and Peter Wardman.

I did not realize that writing this book was to take much more time than I had anticipated from the experience with the preceding book. My charming wife, Ilsabe, took this with some amusement and without grumbling. Being herself a professional painter, she knew all too well that unless one is fully immersed in a project one will not achieve much. I am very grateful for her patience and encouragement.

Clemens von Sonntag

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