Contents

1 Sun, skin and cancer prevention	1	6 Other beneficial effects of sunscreens	125
Sun and skin cancer in humans	1	Prevention of non-carcinogenic dermal effects of the	he 125
Solar radiation of concern and its attenuation	4	sun Prevention of cumulative effects of exposure to the	
Sunscreens	5	sun	126
Interaction of solar radiation with biomolecules	7	Prevention of UVR-induced stimulation of cutaneous	
Effects of solar radiation other than cancer	11	diseases	127
Carcinogenicity of ultraviolet radiation in animals	13	7 Carcinogenicity	129
2 Chemical and physical characteristics of		Human studies	129
sunscreen constituents	17	Experimental models	130
Active ingredients	17		
Historical perspective	17	8 Toxic effects	133
Biological pigments	20	Toxic and other adverse effects of sunscreens	133
Vehicles and formulations	20	Reproductive and developmental effects	137
Additional ingredients	20	Genetic and related effects	137
Stability, photostability and reactivity	21		
Analysis, verification and quality control	21	9 Summary of data	141
New chemical absorbers	21	Chemistry, occurrence and human exposure	141
Other properties of sunscreen ingredients	21	Metabolism and kinetics	142
		Cancer-preventive effects	142
3 Human use of sunscreens	23	Other beneficial effects	144
Availability	23	Carcinogenic effects	144
Regulation	23	Other toxic effects	145
Production	23		
Sun exposure and protection	24	10 Recommendations	146
Behavioural considerations in sunscreen use	28	Recommendations for research	146
		Recommendations for public health action	148
4 Metabolism of sunscreens in various	00		
species	63	11 Evaluation	149
Humans	63 66		
Experimental models	00	References	151
Comment was a street of automorphism	00	Appendix 1 Chemical UVR absorbers	175
5 Cancer-preventive effects of sunscreens		Appendix 2 Definition of genetic test codes	181
Human studies	69	Glossary	183
Experimental systems	90	Sources of figures	185
Mechanisms of cancer prevention by sunscreens	118	Working Procedures	187