CAMBRIDGE

Cambridge University Press
0521020204 - Biological Perspectives on Human Pigmentation
Ashley H. Robins
Table of Contents
More information

Contents

Preface xi

Acknowledgements xiii

1 Biology of the pigment cell 1
Architecture of the skin 1
Historical aspects of pigment cell biology 3
Melanocytes 5
Hair follicle 19
Age and the melanocyte system 22
Genetics of human skin pigmentation 22

2 The biochemical and hormonal control of pigmentation 25
Character of melanin 25
Biochemistry 25
Hormones and skin pigmentation 31
Sex hormones 37

3 Ultraviolet radiation and the pigmentary system 42
Types of ultraviolet radiation (UV) 42
Photoimmunology 45
Factors influencing ultraviolet radiation 45
The effect of ultraviolet radiation on the human melanocyte system 48
Natural photoprotection 50
Sunscreen preparations 51
Skin darkening agents 52
Sun protection factor 54
Photosensitivity disorders 55

4 Functions of melanin 59
Photoprotection 59
Thermoregulation 63
Concealment 68
Animal-related functions of melanin 70
Animal colours and non-melanin pigments 72

© Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
0521020204 - Biological Perspectives on Human Pigmentation
Ashley H. Robins
Table of Contents
More information

5 Non-cutaneous melanin: distribution, nature and relationship to skin melanin 74
Eye 74
Mucous membranes 76
Ear 76
Leptomeninges 77
Neuromelanin (brain pigment) 78

6 The properties and possible functions of non-cutaneous melanin 88
The circulation of melanin 88
Drug binding to melanin 89
Ethnic differences in drug response 92
The possible functions of non-cutaneous melanin 93

7 Measurement of skin colour 98
Measurement techniques 98
Pigments contributing to skin colour 103
Factors influencing skin reflectances 106
Genetic studies 122

8 Disorders of hyperpigmentation 123
Hormonal and metabolic factors 123
Developmental causes 126
The phenothiazines and schizophrenia 131
Other agents causing hyperpigmentation 136

9 Disorders of hypopigmentation 139
Albinism 139
Phenylketonuria 151
Vitiligo 153
Other genetic hypopigmentation disorders 157
Chemical hypopigmentation 160
Sudden whitening of the hair 163

10 Skin colour and society: the social–biological interface 166
Legends, symbolism and culture 166
The colour problem: historical and philosophical aspects 170
The colour problem in the twentieth century 173
Passing for white 175
The black consciousness movement 176

© Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
0521020204 - Biological Perspectives on Human Pigmentation
Ashley H. Robins
Table of Contents
More information

Sociological perspectives of pigmentary disorders 180
Skin colour and blood pressure 184

11 The evolution of skin colour 187
Ultraviolet radiation and melanin 189
Heat load 192
Concealment 193
Resistance against disease 194
Skin depigmentation: the vitamin D hypothesis 195
Cold injury 208
Conclusions 210
References 213
Index 241

© Cambridge University Press www.cambridge.org