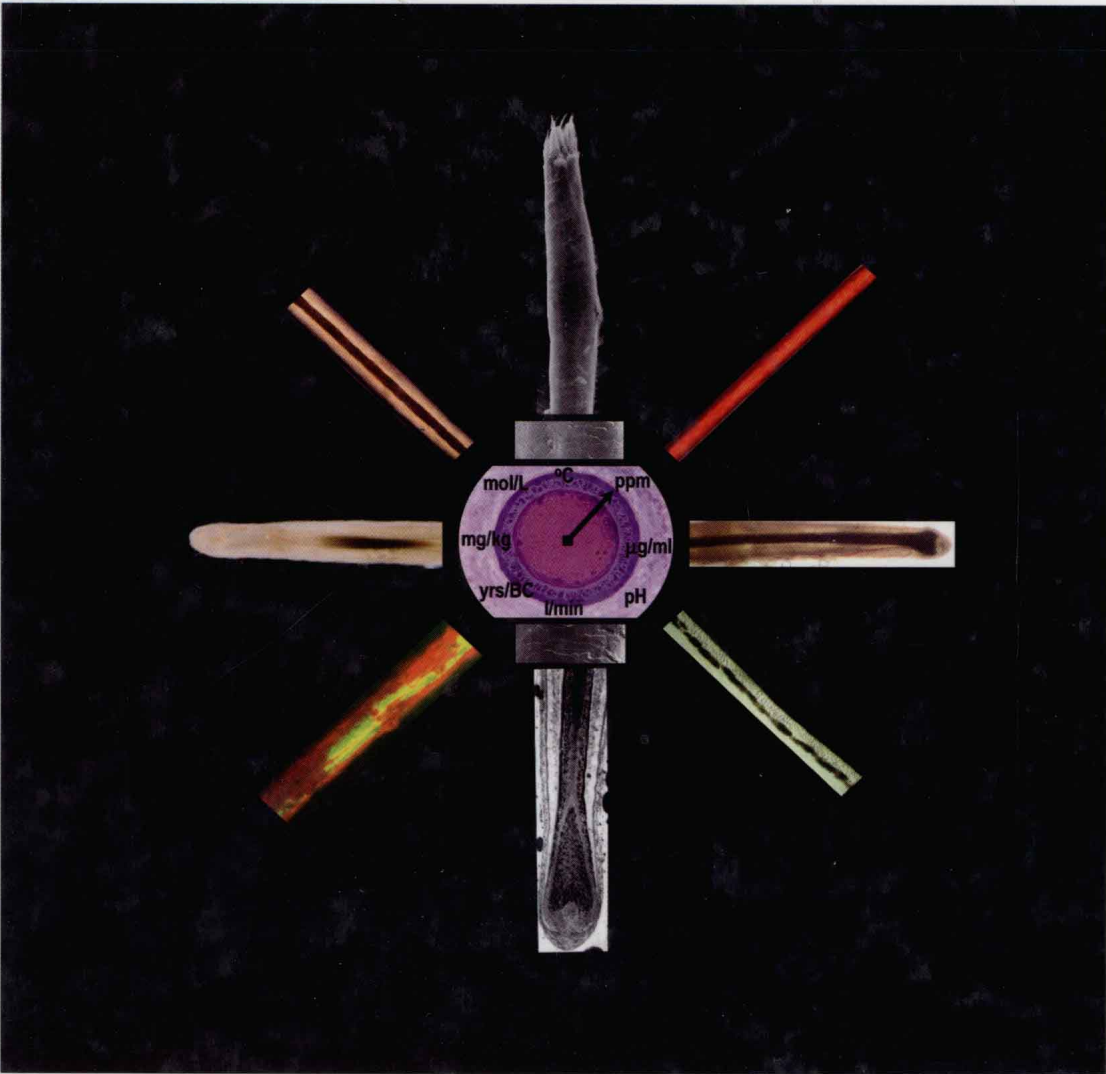


Edited by Desmond John Tobin

Hair in Toxicology

An Important Bio-Monitor



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Hair in Toxicology

An Important Bio-monitor

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Dedication

I dedicate this book to my former mentors who were instrumental in providing me with the opportunities and support to lay the foundations of my academic career: the late Aodán Breathnach who took me under his wing while he was Emeritus Professor at St. Thomas's Hospital, London, during my PhD student days; Jean-Claude Bystryn, who patiently and generously facilitated my development as an independent scientist while a post-doctoral fellow in his laboratory at NYU Medical Center, New York; and Ralf Paus, who through his unique combination of fun, fairness and frenetic activity, inspired me to attempt cultivation of these same qualities.

This book is also dedicated to my parents and family in Ireland, who from the start encouraged, supported and indulged me – *Go raibh míle maith agaibh go léir – foai scáth a chéile a mhaireann na daoine!* [English: *Thank you all very much – people depend on each other in life!*]

Preface

While the estate agent may chant ‘location, location, location!’, and the stock exchange trader shout “Buy, sell, buy!”, the editor of a book devoted to hair has to engage in a little bit of buying, selling and unmasking of the hair follicle as the dream location for unrivalled access to myriad processes underlying much of modern and ancient human life and lifestyle.

This book, entitled *Hair in Toxicology – An Important Bio-Monitor*, is part of a new book series *Issues in Toxicology* from The Royal Society of Chemistry. It is the first book of this kind to be devoted exclusively to the hair follicle and its shaft as an important tool in modern toxicology. This multi-author book will serve as both a reference and a guide to investigations in the biomedical, biochemical and pharmaceutical sciences. Written by investigators from the fields of chemistry, biochemistry and biology, the authors have first-hand knowledge from their chosen sub-specialities and are active contributors to the peer-reviewed scientific literature.

Hair in Toxicology – An Important Bio-monitor is divided into four cognate sections, reflecting the range of interest in the exploitation of this bio-resource to provide valuable information about the world we live in today and have lived in yesterday. The book’s ‘womb to tomb/cradle to grave’ scope begins with a section reviewing our current knowledge of the biology of hair growth: how it cycles, how it generates a fibre, and the value of its component pigment. This section sets the scene by explaining why the hair should serve as a unique bio-resource in toxicology and is followed by a section that considers issues that emerge from the hair’s ability to capture snap-shots of our diverse interactions with the environment, both during and after life, and is contributed by experts in the forensic and environmental sciences.

From there we proceed to a section that concentrates on several important toxicological issues to emerge from current strategies for the ‘personal care’ of hair. Finally, the book draws to a close with an assessment of the hair fibre’s contribution to our understanding of human life from archeological and historical investigations. A final perspective on future directions in the use of hair in toxicology closes the book.

The increasing sophistication required of forensics, toxicology, and health and personal care product development requires the exploitation of novel non-invasive approaches to source accurate and vital information. The hair fibre and follicle stand alone in fulfilling these criteria. Thus, there is no better time to shout ‘location, location, location!’ for the hair and its follicle within the mammalian system, and even ‘Buy, sell, buy’ for those who make their business from this wondrous mini-organ. But for even the most detached observer, we hope that a perusal of these chapters may instill some sense of the ‘Wow!’ factor that is the hair follicle.

Editor

Desmond J. Tobin, PhD, was born in Ireland in 1965. After graduating with a BSc. (Biology, Chemistry and Maths) from the National University of Ireland, Maynooth in 1986, and a graduateship of the Institute of Biology in Immunology from NESCOT, Surrey, England in 1988, he joined the Division of Biochemistry at St.Thomas's Hospital Medical School, London where he obtained his PhD degree in 1991. His post-doctoral training was conducted at the Dept. of Dermatology, New York University Medical School, which was followed by a period as Assistant Research Professor in this Department until 1996. Returning to Europe in 1996 for a Lectureship in Biomedical Sciences at the University of Bradford, England, Desmond Tobin is currently Professor of Cell Biology at this Department. Prof.Tobin has authored or co-authored over 100 papers, reviews and chapters.

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Contents

Editor	xix
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Contributors	xx
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Part 1 – Biology of Hair

Chapter 1 The Biogenesis and Growth of Human Hair	3
--	----------

Desmond J. Tobin

1.1 The Hair Follicle Mini-organ	3
1.1.1 Introduction	3
1.1.2 A Unique Mammalian Epithelial-Mesenchymal- Neuroectodermal Interactive System	4
1.1.3 Comparison with Other Keratinised Skin Appendages – The Nail	4
1.2 Embryology of the Hair Follicle	5
1.2.1 Hair Follicle Induction	5
1.2.2 Hair Follicle Cell Differentiation	7
1.3 Regulation of Hair Growth	10
1.3.1 The Hair Growth Cycle	10
1.3.1.1 Introduction	10
1.3.1.2 Catagen	13
1.3.1.3 Telogen	14
1.3.1.4 Anagen	14
1.3.2 Hair Follicle Stem Cells	16
1.3.3 Systemic and Intrinsic Influences on Hair Growth	17
1.3.3.1 Introduction	17
1.3.3.2 Hair Follicle Immunology	17
1.3.3.3 Hormones and Hair Growth	19
1.4 Hair Growth Pattern and Type	21
1.5 Hair Growth Rate and Fibre Diameter/Calibre	21

1.6	Racial and Ethnic Characteristics of Hair Growth	22
1.6.1	Body Site Variation in Hair Growth Patterns	23
1.7	Aging of the Hair Follicle and Human Scalp	23
1.8	Common Disorders Affecting Human Hair Growth	24
1.8.1	Introduction	24
1.8.2	Male Pattern Alopecia	26
1.8.3	Female Pattern Alopecia	27
1.8.4	Alopecia Areata	27
1.8.5	Telogen Effluvium	29
1.9	Conclusion	29
1.10	Acknowledgements	29
1.11	References	29

Chapter 2 The Human Hair Fibre 34

Desmond J. Tobin

2.1	Psychological Issues Surrounding Hair	34
2.2	Anatomy of the Human Scalp Hair Fibre	35
2.2.1	Hair Fibre Surface – The Cuticle	36
2.2.2	Hair Fibre – The Cortex	39
2.2.3	Hair Fibre – The Medulla	39
2.3	Biosynthesis of the Hair Fibre	40
2.3.1	Hair Keratins	41
2.3.1.1	Keratin-associated Proteins	42
2.3.1.2	Biochemical Aspects of Hair Keratinisation	43
2.3.1.3	Nutrition and Hair Fibre Proteins	43
2.3.1.4	Genetic Variation in Hair Fibre Proteins	43
2.4	Physical Properties of the Hair Fibre	44
2.4.1	Hair fibre Lipids	44
2.4.2	Mechanical Properties of the Hair Fibre	44
2.4.2.1	Hair Fibre Curvature	46
2.4.3	Ethnic Variations in Hair Structure	47
2.4.4	Aging and Hair Fibre Form	48
2.5	Hair Shaft Abnormalities	50
2.5.1	Features of Damage in Normal Hairs	50
2.5.2	Hair Shaft Dysplasias	50
2.5.3	Hair Shaft Abnormalities with Increased Hair Fragility	50
2.5.4	Hair Shaft Abnormalities without Increased Hair Fragility	52
2.5.5	Hair Shaft Abnormalities Due to Cosmetic Use	52
2.6	Summary	54
2.7	References	54

Chapter 3 Pigmentation of Human Hair

57

Desmond J. Tobin

3.1	Overview	57
3.2	Evolutionary Context for Hair Pigmentation	57
3.3	Embryological Development of the Hair Follicle Pigmentary Unit	59
3.4	Biology of the Mature Hair Follicle Pigmentary Unit	59
3.4.1	Melanocyte – Keratinocyte Interactions in the Hair Follicle	61
3.5	Biochemistry of Melanin Biosynthesis	63
3.5.1	Melanosome Organogenesis	63
3.5.1.1	Intra- and Inter-racial Variation in Human Scalp Hair Colour	64
3.5.2	Biosynthesis of Melanins (Eumelanin and Pheomelanin)	64
3.5.3	Physico-Chemical Aspects of Hair Melanins	65
3.6	Regulation of Hair Pigmentation	66
3.6.1	Hair Growth Cycle Influences	66
3.6.1.1	Telogen to Anagen Transition	67
3.6.1.2	Anagen to Catagen Transition	68
3.6.1.3	Fate of Pigmented Melanocytes During Catagen	68
3.6.1.4	Pigment Incontinence During Catagen	70
3.6.2	Hormonal Influences and Pigmentation	70
3.6.2.1	Positive Regulators of Follicular Melanogenesis	70
3.6.2.2	Negative Regulators of Follicular Melanogenesis	72
3.6.3	Nutrition and Hair Pigmentation	72
3.6.4	Transfer and Degradation of Melanin Granules to Hair Shaft Keratinocytes	73
3.7	Aging of the Hair Follicle Pigmentary Unit	73
3.7.1	Molecular Aspects of Melanocyte Aging	74
3.7.2	Onset and Progression of Hair Graying	75
3.7.3	Pathogenesis of Loss of Hair Pigmentation	76
3.7.4	Impact of Pigment Loss on Hair Fibre Structure	78
3.7.5	Can Canities Serve as a Marker for Disease?	79
3.7.6	Is Canities Reversible?	79
3.8	Conclusion	80
3.9	Acknowledgements	80
3.10	References	80

Part 2 – Application of Hair Biology to Environmental Assessments

Chapter 4	Hair in Forensic Toxicology with a Special Focus on Drug-Facilitated Crimes	89
	<i>Pascal Kintz and Marion Villain</i>	
4.1	Introduction	89
4.2	Mechanisms of Drug Incorporation into Hair	90
4.3	Specimen Collection	91
4.4	Stability of Drugs in Hair	91
4.5	Hair Analysis	91
4.6	Applications of Hair Analysis	93
4.7	Special Focus on Drug-Facilitated Crimes	94
4.7.1	Case 1	95
4.7.2	Case 2	95
4.7.3	Case 3	95
4.7.4	Case 4	96
4.7.5	Case 5	96
4.7.6	Case 6	97
4.7.7	Case 7	97
4.7.8	Case 8	98
4.7.9	Case 9	98
4.7.10	Case 10	99
4.8	Discussion	99
4.9	References	103
Chapter 5	Hair and Human Identification	104
	<i>Bruce A. Benner Jr. and Barbara C. Levin</i>	
5.1	Introduction	104
5.2	Background	105
5.2.1	General Composition and Characteristics of Hair	105
5.2.2	Growth Phases of Hair	106
5.2.3	Hair as Forensic Evidence: Interpretation and Legal Considerations	107
5.3	Forensic Analysis of Hair for Identification	108
5.3.1	Microscopy	108
5.3.2	DNA Sequencing	110
5.3.2.1	Nuclear DNA	110
5.3.2.2	Mitochondrial DNA	112
5.3.3	Chemical Characterisations of Hair – Internal and Surface Components	116
5.4	Summary	121
5.5	Acknowledgements	121

5.6	Disclaimer	122
5.7	References	122

Chapter 6 Hair and Metal Toxicity 125

Stefanos N. Kales and David C. Christiani

6.1	Overview	125
6.2	Mercury	126
6.2.1	Toxicology	126
6.2.2	Kinetics and Relation to Hair	127
6.2.3	Hair vs. Other Biomarkers	127
6.2.4	Indications for Hair Analysis	135
6.3	Arsenic	135
6.3.1	Toxicology	135
6.3.2	Kinetics and Relation to Hair	135
6.3.3	Hair vs. Other Biomarkers	136
6.3.4	Indications for Hair Analysis	140
6.4	Lead	140
6.4.1	Toxicology	140
6.4.2	Kinetics and Relation to Hair	140
6.4.3	Hair vs. Other Biomarkers	140
6.4.4	Indications for Hair Analysis	141
6.5	Cadmium	141
6.5.1	Toxicology	141
6.5.2	Kinetics and Relation to Hair	141
6.5.3	Hair vs. Other Biomarkers	142
6.5.4	Indications for Hair Analysis	142
6.6	Manganese	142
6.6.1	Toxicology	142
6.6.2	Kinetics and Relation to Hair	143
6.6.3	Hair vs. Other Biomarkers	143
6.6.4	Indications for Hair Analysis	146
6.7	Thallium	146
6.7.1	Toxicology	146
6.7.2	Kinetics and Relation to Hair	146
6.7.3	Hair vs. Other Biomarkers	147
6.7.4	Indications for Hair Analysis	147
6.8	Commercial Hair Tests and Their Potential Misuses	147
6.9	Important Methodological Issues in Hair Metal Analysis	151
6.9.1	Sampling	151
6.9.2	Cosmetic/Hygiene Products	152
6.9.3	Sample Washing	152
6.9.4	Sample Preparation	152
6.9.5	Analytical Methods	152
6.9.6	Targeted Analyses	153

6.9.7	Interpretation	153
6.10	References	153
Chapter 7	Hair and Exposure to Environmental Pollutants	159
	<i>Vladimír Bencko</i>	
7.1	Monitoring of Environmental Pollution	159
7.2	The Hair Fibre as a Biomarker of Human Exposure to Metals and Inorganic Substances	160
7.3	Advantages and Limitations of Hair Fibre Analysis as a Biomarker of Human Exposure to Trace Elements	166
7.4	Washing of Hair Samples	170
7.5	Discussion	170
7.6	Conclusions	171
7.7	References	172
Chapter 8	Hair and Nutrient/Diet Assessment	175
	<i>Tamsin O'Connell</i>	
8.1	Hair and Diet	175
8.2	Diet and Nutritional Investigations Using Hair – a Brief Outline	176
8.3	Advantages of Using Hair as a Study Tissue	176
8.4	Problems Associated with the Use of Hair as a Study Tissue	177
8.4.1	Correlation with Diet and Body Pools	177
8.4.1.1	Isotope Ratios of Light Elements	177
8.4.1.2	Trace Metal Analysis in Hair	178
8.4.2	Endogenous Variability in Chemical Signals from Hair	178
8.4.2.1	Isotope Ratios of the Light Elements Carbon, Nitrogen, Sulfur, Oxygen and Hydrogen	178
8.4.2.2	Trace Metals	180
8.4.3	Hair Growth Rates	181
8.4.4	Hair Contamination	181
8.5	Analysis and Data Interpretation	182
8.5.1	Analytical Methods	182
8.5.2	Pre-treatment of Hair for Analysis	183
8.5.3	Data Interpretation	183
8.6	Applications	183
8.6.1	Dietary Intake and Hair Signals	184
8.6.2	Nutritional Status and Hair Signals	185
8.6.3	Diseases and Illnesses Associated with Changes in Hair Composition	187

8.7	Summary	188
8.8	References	189

Part 3 – Chemistry and Toxicology of Personal Hair Care Products

Chapter 9 Hair Colorant Chemistry 197

Thomas Clausen and Wolfgang Balzer

9.1	Introduction	197
9.2	Hair Dyes: Bleaching	197
9.2.1	Chemistry of Bleaching	197
9.2.2	Bleaches	199
9.3	Hair Dyeing	199
9.3.1	Permanent Hair Dyes	199
9.3.1.1	Dye Precursors	199
9.3.1.2	Dye Oxidation	200
9.3.1.3	Primary Intermediates	201
9.3.1.4	Couplers	202
9.3.1.5	Other Dye Intermediates	203
9.3.2	Semipermanent and Temporary Hair Dyes	203
9.3.2.1	Nitro Dyes	203
9.3.2.2	Cationic (Basic) Dyes	204
9.3.2.3	Anionic (Acidic) Dyes	205
9.3.2.4	Other Dyes	205
9.3.3	Dyeing with Inorganic Compounds	205
9.4	Product Forms	206
9.5	Dye-removal Preparations	207
9.6	Testing Hair Dyes	207
9.7	Toxicology	208
9.8	References	208

Chapter 10 Hair Dyes and Skin Allergy 212

G. Frank Gerberick and Cindy A. Ryan

10.1	Introduction	212
10.1.1	Biology of Skin Sensitisation and Allergic Contact Dermatitis	212
10.1.2	Skin Penetration	213
10.1.3	Protein Reactivity and Skin Metabolism	215
10.2	Predictive Testing of Hair Dyes for Skin Sensitisation	216
10.2.1	Animal Models	216
10.2.2	Predictive Testing of Hair Dyes in Humans	219
10.3	Human Diagnostic Patch Testing	220