E ARMSTRONG

'A fascinating story of human ingenuity' Matt Ridley





THE GENE THAT CRACKED THE CANCER CODE

p53

THE GENE THAT CRACKED THE CANCER CODE





First published in 2014

Copyright © 2014 Sue Armstrong

The moral right of the author has been asserted

No part of this book may be used or reproduced in any manner whatsoever without written permission from the Publisher except in the case of brief quotations embodied in critical articles or reviews

Every effort has been made to trace or contact all copyright holders. The publishers would be pleased to rectify at the earliest opportunity any omissions or errors brought to their notice.

Bloomsbury Sigma is an imprint of Bloomsbury Publishing Plc
50 Bedford Square
London
WC1B 3DP

www.bloomsbury.com

Bloomsbury is a trademark of Bloomsbury Publishing Plc

Bloomsbury Publishing: London, New Delhi, New York and Sydney

A CIP catalogue record for this book is available from the British Library

ISBN (hardback) 978-1-4729-1051-6 ISBN (trade paperback) 978-1-4729-1320-3 ISBN (ebook) 978-1-4729-1053-0

1098765432

Typeset by Mark Heslington Ltd, Scarborough Printed and bound by CPI Group (UK) Ltd, Croydon, CR0 4YY

Bloomsbury Sigma, Book Two



Also available in the Bloomsbury Sigma series: Sex on Earth by Jules Howard

For Struan, Isla, Louise and Fraser who, I hope and trust, will reap the full rewards of this mighty endeavour in cancer research

Contents

Preface	9
Chapter 1: Flesh of our Own Flesh	17
Chapter 2: The Enemy Within	27
Chapter 3: Discovery	39
Chapter 4: Unseeable Biology	53
Chapter 5: Cloning the Gene	59
Chapter 6: A Case of Mistaken Identity	67
Chapter 7: A New Angle on Cancer	75
Chapter 8: p53 Reveals its True Colours	89
Chapter 9: Master Switch	101
Chapter 10: 'Guardian of the Genome'	109
Chapter 11: Of Autumn Leaves and Cell Death	123
Chapter 12: Of Mice and Men	133
Chapter 13: The Guardian's Gatekeeper	151
Chapter 14: The Smoking Gun	157
Chapter 15: Following the Fingerprints	171
Chapter 16: Cancer in the Family	183
Chapter 17: The Tropeiro Connection?	197
Chapter 18: Jekyll and Hyde	213
Chapter 19: Cancer and Ageing: A Balancing Act?	229

Chapter 20: The Treatment Revolution	239
Dramatis Personae	261
Glossary	265
Notes on Sources	269
Acknowledgements	279
Index	281

Also available in the Bloomsbury Sigma series: Sex on Earth by Jules Howard

p53

THE GENE THAT CRACKED THE CANCER CODE

Sue Armstrong



First published in 2014

Copyright © 2014 Sue Armstrong

The moral right of the author has been asserted

No part of this book may be used or reproduced in any manner whatsoever without written permission from the Publisher except in the case of brief quotations embodied in critical articles or reviews

Every effort has been made to trace or contact all copyright holders. The publishers would be pleased to rectify at the earliest opportunity any omissions or errors brought to their notice.

Bloomsbury Sigma is an imprint of Bloomsbury Publishing Plc
50 Bedford Square
London
WC1B 3DP

www.bloomsbury.com

Bloomsbury is a trademark of Bloomsbury Publishing Plc

Bloomsbury Publishing: London, New Delhi, New York and Sydney

A CIP catalogue record for this book is available from the British Library

ISBN (hardback) 978-1-4729-1051-6 ISBN (trade paperback) 978-1-4729-1320-3 ISBN (ebook) 978-1-4729-1053-0

1098765432

Typeset by Mark Heslington Ltd, Scarborough Printed and bound by CPI Group (UK) Ltd, Croydon, CR0 4YY

Bloomsbury Sigma, Book Two



For Struan, Isla, Louise and Fraser who, I hope and trust, will reap the full rewards of this mighty endeavour in cancer research

Contents

Preface	9
Chapter 1: Flesh of our Own Flesh	17
Chapter 2: The Enemy Within	27
Chapter 3: Discovery	39
Chapter 4: Unseeable Biology	53
Chapter 5: Cloning the Gene	59
Chapter 6: A Case of Mistaken Identity	67
Chapter 7: A New Angle on Cancer	75
Chapter 8: p53 Reveals its True Colours	89
Chapter 9: Master Switch	101
Chapter 10: 'Guardian of the Genome'	109
Chapter 11: Of Autumn Leaves and Cell Death	123
Chapter 12: Of Mice and Men	133
Chapter 13: The Guardian's Gatekeeper	151
Chapter 14: The Smoking Gun	157
Chapter 15: Following the Fingerprints	171
Chapter 16: Cancer in the Family	183
Chapter 17: The Tropeiro Connection?	197
Chapter 18: Jekyll and Hyde	213
Chapter 19: Cancer and Ageing: A Balancing Act?	229

Chapter 20: The Treatment Revolution	239
Dramatis Personae	261
Glossary	265
Notes on Sources	269
Acknowledgements	279
Index	281