

The background of the cover is a detailed anatomical illustration. It features several neurons with prominent cell bodies and branching dendrites. A central focus is a myelinated axon, shown in cross-section to reveal the internal structure of the myelin sheath, including the axon and the surrounding myelin layers. The color palette is dominated by soft pinks, reds, and purples, giving it a scientific yet artistic feel.

Multiple Sclerosis

Practical Comprehensive Essentials

Mike K.S.Chan
Dina Tulina



Mike K.S. Chan



Dina Tullina

Multiple sclerosis (MS) is a progressive neurological disease that affects millions of people worldwide. Currently, the causes of MS are still unclear and the cure for MS remains symptomatic, while the effectiveness of treatment varies widely among individuals. The clinical features and neurological defects derived from this progressive neurological disease are diverse since MS may affect the human central nervous system (CNS) at all levels from the brain to the end of the spinal cord. Immunopathogenesis of MS involves many steps, including activation of peripheral leucocytes against putative CNS antigens, activated leucocytes with inflamed cerebral endothelial cells, the migration of activated lymphocytes and macrophages through the endothelium to the CNS environment, and further propagation of a massive immune response within the CNS. Such large-scale immune activation leads to loss of the myelin-oligodendrocyte complex. Various types of immune cells and mediators of the immune-inflammatory response actively contribute to the pathogenesis of MS. Genetic factors are also thought to play a central role in the development of most forms of MS. Axonal degeneration and neuronal loss are the core components of irreversible and permanent CNS atrophy and disability in MS.

This book provides a comprehensive overview of the current MS situation as researchers try to understand the process and develop treatments that can slow or stop the disease, possibly repair the damage, alleviate specified symptoms, and improve the abilities of MS patients to function in everyday life. Various biological holistic approaches have been shown to slow disease progression in some patients, and the recovery rate of cellular mechanisms in the brain and spinal cord has been accelerated, increasing the possibility of achieving complete balance of the disease state.

The panel reviews the background, focusing on novel strategies that are most likely to understand the biological mechanisms of recovery and translate findings into alternative comprehensive approach to the MS management. The modality of such complementary therapies adds a new dimension, geared to further improvement in the management and sustain the acquired long-term results of MS. This book will be necessary to MS researchers, research funders, healthcare advocates of MS research and treatment, and interested patients and their families.

MEDICAL £75.00

ISBN 978-1-85196-112-4



9 781803 131184

www.troubador.co.uk

Multiple Sclerosis

Practical Comprehensive Essentials

Main authors:

Professor Mike K. S. Chan, PhD, Postdoc (Regenerative Medicine)
Dr Dina Tulina, MD, MSc, Postdoc (Psychiatry)

Contributors to Subsection 'Targeted Neural Precursor Stem Cells: Mechanism of Function'

Dr Shing Yi Pan, BSc (Biomedical Science), PhD
Yee Hui Rong, BSc (Biomedical Science)
Yenny Kenisi, BSc (Biomedical Science)

Editor

Dr Dina Tulina, MD, MSc, Postdoc (Psychiatry)

MULTIPLE SCLEROSIS

Practical Comprehensive Essentials

Mike K.S. Chan

Dina Tulina



Copyright © 2022 Mike K.S. Chan and Dina Tulina

The moral right of the author has been asserted.

Apart from any fair dealing for the purposes of research or private study, or criticism or review, as permitted under the Copyright, Designs and Patents Act 1988, this publication may only be reproduced, stored or transmitted, in any form or by any means, with the prior permission in writing of the publishers, or in the case of reprographic reproduction in accordance with the terms of licences issued by the Copyright Licensing Agency. Enquiries concerning reproduction outside those terms should be sent to the publishers.

Matador
Unit E2 Airfield Business Park,
Harrison Road, Market Harborough,
Leicestershire. LE16 7UL
Tel: 0116 2792299
Email: books@troubador.co.uk
Web: www.troubador.co.uk/matador
Twitter: @matadorbooks

ISBN 978 1803131 184

British Library Cataloguing in Publication Data.
A catalogue record for this book is available from the British Library.

Typeset in 11pt Adobe Garamond Pro by Troubador Publishing Ltd, Leicester, UK



Matador is an imprint of Troubador Publishing Ltd

TABLE OF CONTENTS

FOREWORD	vii
ABBREVIATIONS	ix
INTRODUCTION AND DISEASE PATHOGENESIS	xi
PART I	1
Pathology And Diagnosis	1
1.1 Aetiology	1
1.2 Epidemiology and Genetics	5
1.3 Pathophysiology	8
1.4 Classification	11
1.5 The Course of MS	15
1.6 Clinical Features	16
1.7 Cognitive Impairment in MS	18
1.8 Diagnosis and Magnetic Resonance Imaging	20
PART II	25
Management	25
2.1 Treatment and Prevention	25
Immune-Modulating Peptides (Transfer Factor™)	27
Active Specific Immunotherapy (ASI) Therapy	28
Neural Mito Organelles (MO) Peptides	30
2.2 Mechanisms and Potentials of Stem Cells	31
Advantages and Drawbacks of Various Types of Cells	32

Targeted Neural Precursor Stem Cells: Mechanism of Function	33
CNS Remyelination Mechanisms	36
Mesenchymal Precursor Stem Cells: Mechanisms of Function	40
Embryonic Stem Cells (ESC) and Induced Pluripotent Stem Cells (iPSC)	41
2.3 Diet Facts and Management	42
Fatty Acids as a Risk Factor in MS Development	44
Salt in Typical ‘Western Food’	47
2.4 Physiotherapy in Treatment and Symptom Management	49
Hyperbaric Oxygenation Therapy (HBOT)	50
Morphogenetic Harmoniser System: the Scalar Plasma Wave Modulator	52
Transcranial Direct Current Stimulation (tDCS)	53
Transcranial Magnetic Stimulation (TMS)	56
2.5 The Role of Memory Training Centres	59
2.6 The Management of Spasticity	60

REFERENCES

63

FOREWORD

Multiple sclerosis (MS) is a debilitating and disabling disease, mainly diagnosed in middle age, the course of which completely determines the future life of the individual. Most patients suffer from a permanent loss of ability to work and a deterioration in their quality of life. This determines the high social and economic significance of this disease.

There are many books on multiple sclerosis, ranging from patients' own experiences to a detailed breakdown of the pathophysiological processes and the ways of influencing them. Many specialists and patients confronted with MS have become disillusioned with the therapies currently available. This occurs because there is no cure at present or even a sufficiently effective therapy for MS, and existing medicines can only alleviate symptoms and slow down the progression of the disease or reduce the number of relapses. In addition, the drugs are administered by injection throughout the life. Basic therapy consists of high-dose steroids (administered intravenously or orally) and is used to treat relapses, while damaging other organs as a result of side effects. Despite the severe diagnosis and the lack of a complete cure, there is a high probability of reversing the course of the disease, with the potential to continue enjoying a full life and complete physical and mental health.

This book introduces biological holistic approaches to the management of multiple sclerosis and the possibility of achieving a complete balancing of the disease state. The first part introduces the reader to a theoretical background and clinical features of the disease. The second part covers the mechanisms of treatment and prevention, and the basics of biomolecular and biological medicine and its potential. Consistent with recent discoveries in research and the likelihood of the gut and its microbiota to affect the development of disease, diet and its effect through the gut on the nervous and immune systems are also addressed in the next chapter. The importance of physiotherapy, medical rehabilitation and management of spasticity is paramount in the middle and late course of the disease, and this is covered in detail at the end of the book.

A book on the potential and biological approaches to managing multiple sclerosis was written with inspiration from the positive and long-term results obtained by clinicians using these technologies around the world. Let's start the journey of new opportunities.

Professor Mike K. S. Chan and Dr Dina Tulina

