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978-1-107-00326-2 - From Clone to Bone: The Synergy of Morphological and Molecular Tools in Palaeobiology

Edited by Robert J. Asher and Johannes Müller

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From Clone to Bone

The Synergy of Morphological and Molecular Tools in Palaeobiology

Since the 1980s, a renewed understanding of molecular development has afforded an unprecedented level of knowledge of the mechanisms by which phenotype in animals and plants has evolved. In this volume, top scientists in these fields provide perspectives on how molecular data in biology help to elucidate key questions in estimating palaeontological divergence and in understanding the mechanisms behind phenotypic evolution. Palaeobiological questions such as genome size, digit homologies, genetic control cascades behind phenotype, estimates of vertebrate divergence dates, and rates of morphological evolution are addressed, with a special emphasis on how molecular biology can inform palaeontology, directly and indirectly, to better understand life's past. Highlighting a significant shift towards interdisciplinary collaboration, this is a valuable resource for students and researchers interested in the integration of organismal and molecular biology.

Robert J. Asher is a Lecturer and Curator of Vertebrates in the University Museum of Zoology, Cambridge, UK. He is a vertebrate palaeontologist, specializing in mammals, with interests in phylogenetics and development.

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This new Cambridge series addresses the interface between morphological and molecular studies in living and extinct organisms. Areas of coverage include evolutionary development, systematic biology, evolutionary patterns and diversity, molecular systematics, evolutionary genetics, rates of evolution, new approaches in vertebrate palaeontology, invertebrate palaeontology, palaeobotany, and studies of evolutionary functional morphology. The series invites proposals demonstrating innovative evolutionary approaches to the study of extant and extinct organisms that include some aspect of both morphological and molecular information. In recent years the conflict between “molecules vs. morphology” has given way to more open consideration of both sources of data from each side, making this series especially timely.

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Molecular Tools in
Palaeobiology

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Contents

<i>List of contributors</i>	<i>page ix</i>
1 Molecular tools in palaeobiology: divergence and mechanisms ROBERT J. ASHER AND JOHANNES MÜLLER	i
PART I Divergence	
2 Genomics and the lost world: palaeontological insights into genome evolution CHRIS ORGAN	16
3 Rocking clocks and clocking rocks: a critical look at divergence time estimation in mammals OLAF R. P. BININDA-EMONDS, ROBIN M. D. BECK AND ROSS D. E. MACPHEE	38
4 Morphological largess: can morphology offer more and be modelled as a stochastic evolutionary process? HANS C. E. LARSSON, T. ALEXANDER DECECCHI AND LUKE B. HARRISON	83
5 Species selection in the molecular age CARL SIMPSON AND JOHANNES MÜLLER	116
PART II Mechanisms	
6 Reconstructing the molecular underpinnings of morphological diversification. A case study of the Triassic fish <i>Saurichthys</i> LEONHARD SCHMID	135
7 A molecular guide to regulation of morphological pattern in the vertebrate dentition and the evolution of dental development MOYA SMITH AND ZERINA JOHANSON	166
8 Molecular biology of the mammalian dentary: insights into how complex skeletal elements can be shaped during development and evolution NEAL ANTHWAL AND ABIGAIL S. TUCKER	207

VIII Contents

9	Flexibility and constraint: patterning the axial skeleton in mammals	230
	EMILY A. BUCHHOLTZ	
10	Molecular determinants of marsupial limb integration and constraint	257
	KAREN E. SEARS, CAROLYN K. DOROBÁ, XIAOYI CAO, DAN XIE AND SHENG ZHONG	
11	A developmental basis for innovative evolution of the turtle shell	279
	SHIGERU KURATANI AND HIROSHI NAGASHIMA	
12	A molecular–morphological study of a peculiar limb morphology: the development and evolution of the mole’s ‘thumb’	301
	CHRISTIAN MITGUTSCH, MICHAEL K. RICHARDSON, MERIJN A. G. DE BAKKER, RAFAEL JIMÉNEZ, JOSÉ EZEQUIEL MARTÍN, PETER KONDRASHOV AND MARCELO R. SÁNCHEZ-VILLAGRA	
13	<i>Manus horribilis</i> : the chicken wing skeleton	328
	MICHAEL K. RICHARDSON	
	<i>Index</i>	363

The colour plates are situated between pages 182 and 183.

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