

# Contents

<b>1</b>	<b>Cardiac Cytoarchitecture in Health and Disease . . . . .</b>	<b>1</b>
	Marlene Pluess and Elisabeth Ehler	
<b>2</b>	<b>In Vitro Tools for Quantifying Structure–Function Relationships in Cardiac Myocyte Cells and Tissues . . . . .</b>	<b>15</b>
	Meghan B. Knight, Anna Grosberg, and Megan L. McCain	
<b>3</b>	<b>The Intercalated Disc: A Focal Point for Sarcomere Growth and Disease . . . . .</b>	<b>41</b>
	Pauline M. Bennett	
<b>4</b>	<b>Dynamics of Actin in the Heart: Defining Thin Filament Length . . .</b>	<b>71</b>
	Christine A. Henderson and Carol C. Gregorio	
<b>5</b>	<b>Ca<sup>2+</sup> Regulation of the Cardiac Thin Filament . . . . .</b>	<b>89</b>
	Anthony D. Vetter, Brian R. Thompson, and Joseph M. Metzger	
<b>6</b>	<b>Posttranslational Modification of the Titin Springs: Dynamic Adaptation of Passive Sarcomere Stiffness . . . . .</b>	<b>109</b>
	Martina Krüger	
<b>7</b>	<b>The M-Band: Not Just Inert Glue but Playing an Active Role in the Middle of the Sarcomere . . . . .</b>	<b>125</b>
	Irina Agarkova and Elisabeth Ehler	
<b>8</b>	<b>Sarcomeric Signaling . . . . .</b>	<b>141</b>
	Robert Frauen, Derk Frank, and Norbert Frey	
<b>9</b>	<b>The Nuclear Envelope in Cardiac Health and Disease . . . . .</b>	<b>161</b>
	Daniel Brayson and Catherine M. Shanahan	
<b>10</b>	<b>AMP-Activated Protein Kinase: A Metabolic Stress Sensor in the Heart . . . . .</b>	<b>187</b>
	Martin Pelosse, Malgorzata Tokarska-Schlattner, and Uwe Schlattner	

- 11 How Cardiac Cytoarchitecture Can Go Wrong: Hypertrophic Cardiomyopathy as a Paradigm for Genetic Disease of the Heart . . . . . 227**  
Thomas J. Cahill and Katja Gehmlich
- 12 Cardiac Cytoarchitecture: How to Maintain a Working Heart—Waste Disposal and Recycling in Cardiomyocytes . . . . . 245**  
Jordan Blondelle and Stephan Lange

Cardiac Cytoarchitecture

How to Maintain a Working Heart

Ehler, E. (Ed.)

2015, XIV, 309 p. 46 illus., 41 illus. in color., Hardcover

ISBN: 978-3-319-15262-2