
Contents

<i>Preface</i>	<i>vii</i>
<i>Contributors</i>	<i>xiii</i>

PART I NEUTROPHILS: AN OVERVIEW

1 The Role of Neutrophils in the Immune System: An Overview	3
<i>Harry L. Malech, Frank R. DeLeo, and Mark T. Quinn</i>	

PART II NEUTROPHIL ISOLATION AND SUBCELLULAR FRACTIONATION

2 Isolation of Human Neutrophils from Venous Blood.....	13
<i>William M. Nauseef</i>	
3 Neutrophil Isolation from Nonhuman Species.....	19
<i>Daniel W. Siemsen, Natalia Malachowa, Igor A. Schepetkin, Adeline R. Whitney, Liliya N. Kirpotina, Benfang Lei, Frank R. DeLeo, and Mark T. Quinn</i>	
4 Collection of In Vivo Transmigrated Neutrophils from Human Skin.....	39
<i>Karin Christenson, Lena Björkman, Lisa Davidsson, Anna Karlsson, Per Follin, Claes Dahlgren, and Johan Bylund</i>	
5 Subcellular Fractionation of Human Neutrophils and Analysis of Subcellular Markers	53
<i>Stine Novrup Clemmensen, Lene Udby, and Niels Borregaard</i>	

PART III BIOCHEMISTRY, BIOLOGY AND SIGNAL TRANSDUCTION OF NEUTROPHILS

6 Rho Family and Rap GTPase Activation Assays.....	79
<i>Richard T. Jennings and Ulla G. Knaus</i>	
7 Measurement of Phospholipid Metabolism in Intact Neutrophils.....	89
<i>Susan Sergeant and Linda C. McPhail</i>	
8 Optical Methods for the Measurement and Manipulation of Cytosolic Calcium Signals in Neutrophils	107
<i>Maurice B. Hallett, Maha Al-Jumaa, and Sharon Dewitt</i>	
9 Analysis of Electrophysiological Properties and Responses of Neutrophils	121
<i>Deri Morgan and Thomas E. DeCoursey</i>	
10 Assessment of Neutrophil Apoptosis.....	159
<i>David A. Dorward, Adriano G. Rossi, Ian Dransfield, and Christopher D. Lucas</i>	

11	Microinjection Methods for Neutrophils	181
	<i>Iraj Laffafian, Kimberly J. Lewis, K.Benjamin Masterman, and Maurice B. Hallett</i>	
12	Generation of Functionally Mature Neutrophils from Induced Pluripotent Stem Cells.....	189
	<i>Colin L. Sweeney, Randall K. Merling, Uimook Choi, Debra Long Priel, Douglas B. Kuhns, Hongmei Wang, and Harry L. Malech</i>	
PART IV NEUTROPHIL ADHESION AND CHEMOTAXIS		
13	Neutrophil Migration Through Extracellular Matrix.....	209
	<i>Richard T. Jennings and Ulla G. Knaus</i>	
14	Spinning Disk Confocal Imaging of Neutrophil Migration in Zebrafish	219
	<i>Pui-ying Lam, Robert S. Fischer, William D. Shin, Clare M. Waterman, and Anna Huttenlocher</i>	
15	Detection of Bidirectional Signaling During Integrin Activation and Neutrophil Adhesion	235
	<i>Stuart M. Altman, Neha Dixit, and Scott I. Simon</i>	
PART V NEUTROPHIL PHAGOCYTOSIS AND BACTERICIDAL ACTIVITY		
16	Immunofluorescence and Confocal Microscopy of Neutrophils.....	251
	<i>Lee-Ann H. Allen</i>	
17	Expression of Genetically Encoded Fluorescent Probes to Monitor Phospholipid Dynamics in Live Neutrophils	269
	<i>Benjamin E. Steinberg, Marco A.O. Magalhaes, and Sergio Grinstein</i>	
18	Quantitative Assessment of Neutrophil Phagocytosis Using Flow Cytometry.....	279
	<i>Pontus Nordenfelt</i>	
19	Analysis of Neutrophil Bactericidal Activity.....	291
	<i>Heather A. Parker, Nicholas J. Magon, Jessie N. Green, Mark B. Hampton, and Christine C. Winterbourn</i>	
20	Induction and Quantification of Neutrophil Extracellular Traps.....	307
	<i>Alejandro Sanchez Gonzalez, Bart W. Bardoel, Christopher J. Harbort, and Arturo Zychlinsky</i>	
PART VI NADPH OXIDASE AND PRODUCTION OF REACTIVE OXYGEN SPECIES		
21	Measurement of Respiratory Burst Products, Released or Retained, During Activation of Professional Phagocytes	321
	<i>Johan Bylund, Halla Björnsdottir, Martina Sundqvist, Anna Karlsson, and Claes Dahlgren</i>	
22	Cell-Free NADPH Oxidase Activation Assays: “In Vitro Veritas”.....	339
	<i>Edgar Pick</i>	

23	Assessment of Priming of the Human Neutrophil Respiratory Burst	405
	<i>Margarita Hurtado-Nedelec, Karama Makni-Maalej, Marie-Anne Gougerot-Pocidalo, Pham My-Chan Dang, and Jamel El-Benna</i>	
24	Affinity Purification and Reconstitution of Human Phagocyte Flavocytochrome b for Detection of Conformational Dynamics in the Membrane.....	413
	<i>Marcia Riesselman and Algirdas J. Jesaitis</i>	
25	Evaluation of p47phox Phosphorylation in Human Neutrophils Using Phospho-Specific Antibodies	427
	<i>Sabra Amel Belambri, Pham My-Chan Dang, and Jamel El-Benna</i>	
PART VII ANALYSIS OF NEUTROPHIL GENE EXPRESSION AND TRANSCRIPTION FACTORS		
26	Genome-Scale Transcript Analyses with Human Neutrophils	437
	<i>Scott D. Kobayashi, Daniel E. Sturdevant, and Frank R. DeLeo</i>	
27	Fast and Accurate Quantitative Analysis of Cytokine Gene Expression in Human Neutrophils.....	451
	<i>Nicola Tamassia, Marco A. Cassatella, and Flavia Bazzoni</i>	
28	High-Purity Neutrophil Isolation from Human Peripheral Blood and Saliva for Transcriptome Analysis.....	469
	<i>Flavia S. Lakschevitz and Michael Glogauer</i>	
29	Detection of Intact Transcription Factors in Human Neutrophils.....	485
	<i>Patrick P. McDonald and Richard D. Ye</i>	
PART VIII NEUTROPHIL DEFECTS AND DIAGNOSIS		
30	Disorders of Neutrophil Function: <i>An Overview</i>	501
	<i>Mary C. Dinauer</i>	
31	Diagnostic Assays for Chronic Granulomatous Disease and Other Neutrophil Disorders.....	517
	<i>Houda Zghal Elloumi and Steven M. Holland</i>	
32	Diagnostic Assays for Myeloperoxidase and Myeloperoxidase Deficiency.....	537
	<i>William M. Nauseef</i>	
	<i>Index</i>	547

Neutrophil Methods and Protocols

Quinn, M.T.; DeLeo, F.R. (Eds.)

2014, XVI, 551 p. 93 illus., 28 illus. in color., Hardcover

ISBN: 978-1-62703-844-7

A product of Humana Press