

1	An Introduction on the Old Age and the Aging of the Immune System	1
	Mohamad Bagher Eslami	
2	The Immune System, a Marker and Modulator of the Rate of Aging	3
	Monica De la Fuente	
3	Age-Associated Alterations of Pleiotropic Stem Cell and the Therapeutic Implication of Stem Cell Therapy in Aging	25
	Ahmad Massoud	
4	A Role for Epigenetic Modulation of the Innate Immune Response During Aging	37
	Justin W. Killick, Stuart J. Bennett, Irundika H.K. Dias, Christopher R. Dunston, and Helen R. Griffiths	
5	Basophil, Eosinophil, and Neutrophil Functions in the Elderly	47
	Peter Uciechowski and Lothar Rink	
6	Dendritic Cells and Dysregulated Immunity in the Elderly	65
	Anshu Agrawal and Sudhir Gupta	
7	Natural Killer Cell Immunosenescence and Cancer in the Elderly	75
	Beatriz Sánchez-Correa, Carmen Campos, Alejandra Pera, Soledad Sánchez Mateos, Sara Morgado, Raquel Tarazona, and Rafael Solana	
8	Pattern Recognition Receptors and Aging	87
	Karim H. Shalaby	
9	Impact of Aging on T Cell Repertoire and Immunity	145
	Marcia A. Blackman and David L. Woodland	
10	T Cell-Mediated Immunity in the Immunosenescence Process	161
	Pierre Olivier Lang	

11	Biological and Phenotypic Alterations of T Cells in Aging	177
	Ahmad Massoud and Amir Hossein Massoud	
12	T Cells Seen from the Metabolic and Aging Perspective.	183
	Xavier Camous and Anis Larbi	
13	Age-Related Alterations in Regulatory T Cells	201
	Amir Hossein Massoud	
14	Effects of Aging on B Cells.	207
	Mohammad Hossein Nicknam and Alireza Rezaeiemanesh	
15	The Role of MicroRNAs in Immunosenescence Process	211
	Seyed Hossein Aalaei-andabili, Alireza Zare-Bidoki, and Nima Rezaei	
16	Immunogenetics of Aging.	219
	Ali Akbar Amirzargar	
17	Aging Immunity and Infection	231
	Mehdi Shekarabi and Fatemeh Asgari	
18	Influenza Infection in the Elderly	239
	Kasra Moazzami, Janet E. McElhaney, and Nima Rezaei	
19	Optimizing Response to Vaccination in the Elderly	251
	Diana Boraschi, Rino Rappuoli, and Giuseppe Del Giudice	
20	Nutrition, Immunity, and Aging	263
	Armin Hirbod-Mobarakeh, Maryam Mahmoudi, and Nima Rezaei	
21	Diet and Immunosenescence	285
	Giulia Accardi, Carmela Rita Balistreri, Calogero Caruso, and Giuseppina Candore	
22	Dietary Intake and Impact of Zinc Supplementation on the Immune Functions in Elderly: Nutrigenomic Approach	295
	Eugenio Mocchegiani, Marco Malavolta, Robertina Giacconi, and Laura Costarelli	
23	Physiological and Pathological Role of Reactive Oxygen Species in the Immune Cells.	309
	Aleksandra M. Urbanska, Valerio Zolla, Paolo Verzani, and Laura Santambrogio	
24	Oxidative Stress and Aging	323
	Behjat Al-Sadat Moayedi Esfahani, Milad Mirmoghtadaei, and Sima Balouchi Anaraki	
25	Skin Aging and Immune System	339
	Parvin Mansouri, Reza Chalangari, Katalin Martits Chalangari, and Zahra Saffarian	

26 Aging Immunity and the Impact of Physical Exercise	369
Guillaume Spielmann, Austin B. Bigley, Emily C. LaVoy, and Richard J. Simpson	
Index.	399