

Preface

We, as the three editors, are pleased to edit this book entitled “Nutritional and Physiological Functions of Amino Acids in Pigs,” which provides a comprehensive overview of the nutritional and physiological functions of amino acids in swine during growth and development. The first two parts of the book are related to the rapid development of the gastrointestinal tract and digestive glands in piglets and to the related terminal digestion of peptides by the enterocytes before amino acid absorption and metabolism by these cells. In the second part of the book, a chapter is specifically devoted to the development of the gut microbiota in piglets. The physiological functions of amino acids and related metabolites in the body are then presented in the subsequent chapters. These articles take into account that, apart from the role of amino acids as building blocks for protein synthesis, these compounds also have numerous functions including hormone secretion, signaling role in intestine, and modulation of immune functions. Finally, given the similarities in anatomy, digestion, absorption, metabolism, physiology, and nutrition between swine and humans, a special chapter is dedicated to the use of pigs as an animal model to study amino acid-related human diseases, including obesity, diabetes, and vascular disease.

The last part of the book is devoted to methodological considerations for research on amino acids including the state of the art for performing experiments such as surgical techniques used in the field, measurement of protein digestibility in growing pigs, quantification of protein metabolism in pigs, and analysis of amino acids including those of endogenous origin.

This book was written not only from an academic point of view but also with a goal of translating basic scientific knowledge to practices in agriculture, nutrition, physiology, and medicine. Thus, we hope that this book will be useful for agronomists involved in pig breeding, for professionals involved in amino acid production, for nutritionists dealing with alimentary amino acid supplementation, for physiologists and pathophysiologists who may use the pig as a model for studying human medicine, and for students majoring in agricultural and veterinary sciences.

Lastly, we wish to thank warmly all the talented contributors who spent much of their time and efforts on writing this textbook and NSFC (#31110103909), the China Basic Research Program (#2013CB127301) and the companies of LuYe, WiHon Food Co., Ltd, Hunan Diyi Bio-tech Co., Ltd, Hunan Ground, Shenzhen Premix Inve Nutrition Co., Ltd, Jiuding Group, Twins group, Nufarm group, Aonong, Lucta, Xingjia Biotechnology, Singao, BFI, Insider, Tianke, Sunhy, Evonik Degussa (China) Co., Ltd. for their support.

Paris, France
College Station, TX, USA
Changsha, China

François Blachier
Guoyao Wu
Yulong Yin

Nutritional and Physiological Functions of Amino Acids
in Pigs

Blachier, F.; Wu, G.; Yin, Y. (Eds.)

2013, IX, 307 p., Hardcover

ISBN: 978-3-7091-1327-1