



Nutrition, Metabolism, and Functions of Amino Acids and Peptides in Animals

Guest Editor



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Message from the Guest Editor

Dear Colleagues,

Amino acids (AAs) are the building blocks of proteins and peptides in animals. AAs are also essential precursors for the syntheses of low-molecular weight nitrogenous substances with enormous versatilities and biological significance. Physiological concentrations of AA metabolites (e.g., creatine, nitric oxide, polyamines, glutathione, taurine, heme, homoarginine, thyroid hormones, and serotonin), peptides, and proteins are required for cell integrity and functions. Additionally, AAs serve signalling molecules and key regulators of gene expression and metabolism. Thus, AAs are vital to animal growth, development, health, and survival. Increasing evidence shows that animals (e.g., mammals, birds, fish, and crustaceans) have dietary requirements for all proteinogenic AAs for their maximum growth, optimum health, and resistance to infectious pathogens. Furthermore, animals have dietary requirements for substances [e.g., taurine, creatine, and peptides (e.g., carnosine and anserine)] that are present in animal-sourced foods but are absent from plant-sourced foods, in a species-, age-, performance-, and environment-dependent manner. However, elevated concentrations of some metabolites (e.g., ammonia, homocysteine, H₂S, and asymmetric dimethylarginine) of AAs can contribute to metabolic disorders and chronic diseases, such as those in nervous, skeletal, muscular, circulatory, respiratory, digestive, urinary, reproductive, endocrine, and immune systems as well as in sense organs. Thus, optimal amounts and ratios of AAs in diets and the fine tuning of the regulation of AA metabolism are crucial for whole-body homeostasis and health. This special issue welcomes both review and original research articles related to nutrition, metabolism, and functions of amino acids and peptides in organisms of the animal kingdom, including farm (e.g., swine, cattle, sheep, goats, mink,



poultry, rabbits, fish, shrimp, and crabs), laboratory (e.g., rats and mice), companion (e.g., dogs, cats, and horses), and zoo (e.g., pandas, giraffes, elephants, dolphins, tigers, and peacocks) animals, as well as humans, insects, reptiles, and amphibians.

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