Immunosecurity: Strengthen the Impact of Immune Regulation in Domestic Animals

Cheol-Heui YUN

Full Professor
Department of Agricultural Biotechnology and Research Institute of Agriculture and Life Sciences,
Seoul National University

E-mail: cyun@snu.ac.kr

Animal farming has been affected by a number of factors including national and international restrictions based on their guidelines and regulations, disease outbreak, welfare issues, balance between demand and supply of the meats and animals together with their by-products or processed-products, and economic and cultural demand. The global population increases coincident with an enhancement of living standards in developing countries, which is likely to create a high demand for animal-derived proteins over time. With that in mind, we are under great pressure and constantly facing a challenge in relation with the issues including climate change (i.e., global warming), banning on the use of antibiotics as a feed additive concordant with disease outbreak for both domestic animals (African swine fever, avian influenza, foot-and-mouse disease) and human (corona pandemic for instance). Yet, high productivity together with high quality meat from the animal would be most desirable for producers and animal farming industry. Thus, it is fair to say that current animal farming is under various psychological and physical stressful conditions, which can be categorized into nutritional factors, environmental factors, biological factors and physical factors.

Basic, however essential, components of immune system include the recognition of self and non-self, and its remarkable specificity for subtle chemical differences that distinguish one foreign pathogen from another. Domestic animal immunology is seemingly important as we could find answers to the convoluted questions such as finding suitable antibiotic replacements, immunomodulants and vaccines with appropriate adjuvants. In this mini-review, I attempted to categorize aforementioned questions and to provide a direction towards our future of the animal science and biotechnology.



Research Biography

Professor Cheol-Heui Yun was educated at the Chonnam National University for BSc and the Seoul National University for his MSc in the area of Animal Nutrition. Professor Yun completed his PhD at the University of Saskatchewan, Canada in the area of immune modulation and mucosal immunology. Then, he pursued his professional career at leading research institutes in different region of the world including International Vaccine Institute (IVI, Seoul, Korea), United States Department of Agriculture (USDA, Greenbelt, MD, USA), National Institutes of Health (NIH, Bethesda, MD, USA) and Gothenburg University (Gothenburg, Sweden) where he undertook research related to stressors, vaccine, infection and host protective immunity. He published over 230 SCIE papers to date and has been the recipient of prestigious awards, including Seoul National University Excellence in Teaching Award (2018), Distinguished teaching award by Kukdam Foundation (2010), and official commendation for from the cabinet minister of the Ministry of Science and Technology, Korea (2007).

He was invited as a professor at Seoul National University since 2006, and currently serves as editors of a number of societies including World Journal of Immunology, Frontiers in Immunology (Molecular Innate Immunity Section, and Cytokines and Soluble Mediators in Immunity Section), Journal of Biomaterials and Tissue Engineering. He currently also serves as a co Editor-in-Chief of Asian-Australasian Journal of Animal Sciences. On the other hand, he is acting as an Ethics editor of the science editing, and Korean Journal of Women Health Nursing. Recently, he is actively involving in Ethical issues where he is acting as a Chair of Committee on Publication Ethics, Korean Council of Science Editors (KCSE) and Secretary General of Council of Asian Science Editors (CASE).