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Omics technologies for analyzing diseases in livestock species

For several decades, the advances that have been made in breeding goals have been based on the needs of breeders; however, they are also influenced by consumers and societal needs related to food safety and efficient and environmentally sound production. New functional traits are growing in importance because of recent declines in animal health and fitness. They have also become more important because of growing concern about animal well-being and consumers' demand for healthy and natural products. There are major concerns about the impact of drugs used in veterinary medicine on the spread of antibiotic-resistant strains of bacteria that can negatively impact human health. Technical progress in the field of next-generation sequencing, mass spectrometry and bioinformatics facilitates the study of highly complex biological processes. In general, integration of the main Omics-technologies genomics, transcriptomics and proteomics in live science promises highly detailed information about the specific research object and helps to understand molecular changes in response to internal and external environmental factors. Here we will provide a general overview about the recent Omics-based research to study diseases in livestock. These approaches aim to define the gene pathways and networks governing animal immune response, host-parasites interactions or to help to understand the complexity of reproduction to resolve some reproductive diseases.

Biography

Cinzia Marchitelli has graduated in 1992 in Biological Sciences from Università degli Studi di Roma and she has completed her PhD in 2000 in Biotechnology and Genetic improvement of domestic animals from Università degli Studi del Molise. She is a Researcher at CRA-PCM and her research interest is the application of molecular biology to animal production. She is a Leader of Research Unit of EU Project GplusE "Genotype plus Environment" and of an Italian Project "REDBOV- "Increase of profitability by improvement of technical and biological parameters". She is the author and co-author of more than 20 peer-reviewed papers.

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