

2nd Indo-Global Summit & Expo on

Veterinary

October 26-28, 2015 Hyderabad, India

Genetically engineered animals in biological research

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The ability to engineer transgenic animals i.e., animals that carry a foreign gene that has been deliberately inserted into their genome is possible due to accelerated breakthroughs in molecular biology. Though the majority of transgenic animals produced so far are mice, the technology has also produced rats, rabbits, pigs, sheep and cows. There are many applications of transgenic models in biomedical research. Interestingly, the creation of transgenic animals has resulted in a shift in the use of laboratory animals from the use of higher-order species such as dogs to lower-order species such as mice and has decreased the number of animals used in such experimentation especially in the development of disease models. This is certainly a good turn of events since transgenic technology holds great potential in many fields including agriculture, medicine and industry. These animals illustrate the *in vivo* extension of recombinant DNA technology for the study of specific molecules in diseases and for the production of animal models that can lead to the discovery of new treatments.

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Present status of bacterial diseases of pigs in India with special reference to their diagnosis and management

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Both endemic and emerging bacterial diseases are considered to be one of the important impediments for profitable pig production in India. Apart from viral diseases, endemic bacterial diseases are responsible for huge economic losses to the pig producers because of the mortality as well as cost of medication associated with such diseases in pigs. Although several important bacterial diseases are reported from almost all Asian countries such reports are very limited from India. This paper reports the present status of bacterial diseases of pigs in India. Many bacterial diseases of pigs are found to be emerging in Asian countries including India and most of them are found to have public health significance. Emphasis has been given on epidemiology, molecular diagnosis and management of such diseases in pigs. Some of the important bacterial diseases recorded in pigs in India include colibacillosis, salmonellosis, campylobacteriosis, clostridial infections, swine erysipelas, edema disease, pasteurellosis, listeriosis, leptospirosis, tuberculosis, *Bordetella bronchiseptica* infection, *Actinobacillus pleuropneumoniae* infection methicillin-resistant *Staphylococcus aureus* (MRSA) infection, brucellosis, *Streptococcus suis* infection etc. Other bacterial diseases prevalent in India are also discussed.

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