



APSA 2023 19TH BIENNIAL CONFERENCE

Australasian Pig Science
Association (Inc)

Sofitel, Brisbane, Australia

13th - 16th November 2023



Professor Paul Verma



Genetic engineering technologies in domestic pigs

Professor Paul Verma is Principal Scientist - Reproduction, and Acting Program Leader - Livestock Sciences at the South Australian Research and Development Institute (SARDI), and an Affiliate Professor at the University of Adelaide. After obtaining his BSc and MSc from MS University in India, and PhD at The University of Adelaide (1996), Professor Verma joined BresaGen Ltd where he developed an interest in stem cells working on genetic manipulation of large animals. He moved to Monash University to continue his cell-reprogramming research where he established the premier Australian reprogramming group at the Monash Institute of Medical Research (MIMR), attracting ~\$10 million in funding, >80 publications and seven granted and provisional patents. Professor Verma's contributions to cell reprogramming research led to the first international reports on cattle, reprogrammed sheep and endangered felid iPSC as well as the first mouse and human iPSC in Australia. His innovative science was featured in Nature (2003) and has resulted in over 50 invited lectures in more than 15 countries. Professor Verma has extended his research to large animals, aimed at improving production and disease outcomes funded by peak industry, commercial and research funders.

The emergence of advances in genome editing provides a simple and rapid approach to impact livestock genetics for a variety of applications; thus far, the majority of genes that have been targeted in livestock species are genes impacting animal and human health. However, with experience, the application of these approaches for modulating and enhancing livestock for production, health and welfare gain are now feasible, hence the immense excitement in the field. The ability for direct genome modification of embryos, using Clustered Regularly Interspaced Short Palindromic Repeat (CRISPR/Cas9) is a reality and Professor Verma will present his research in efficient manipulation of embryo genomes in pigs and other livestock. Further, he will discuss his vision for the future use of these technologies in pigs.