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Transgenic mice for vaccine evaluation

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Transgenic creatures are hereditarily altered life forms having controlled DNA succession that are used widely in vaccine study and drug discovery. The dominant population (approximately 95%) of the current transgenic creatures are mice. Transgenic mice serve as the best model organisms to evaluate the vaccines’ protection before they are utilised on people. In this pandemic circumstance, vaccines are being researched against coronavirus to prevent infection and severe outcomes caused by it. Transgenic mice play a significant part during any pre-clinical phase of immunisation improvement. Furthermore, in COVID-19 vaccine research, hACE2 (human angiotensin-converting enzyme 2) transgenic mice are used by the researchers. These transgenic mice carry a human ACE2 coding sequence and produce the human form of protein ACE2, which is utilised by coronavirus to enter inside the human cells through SARS-CoV-2 receptor. To study the consequences of COVID-19 involving mild sickness and indications of pneumonia, the transgenic mice are first injected with coronavirus. When the mice reveal the initial symptoms, arranged snoozes of immunisations are given to them to examine their immunological reactions and other cell metabolic activities. Based on these investigations, the vaccines under study are subjected to clinical development where they undergo clinical study phase I, II and III. Following the efficacy and safety, the vaccines are approved to be used on people. Hence, every time the genetically engineered mice prove to be successful in demonstrating characteristics similar to the human operating system.

Keywords: Immunisation, Coronavirus, SARS-CoV-2 receptor, Transgenic mice, Immunological response, Vaccine evaluation

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