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Investigation of the genetic diversity of Toll-like Receptor-9 in cattle by using next generation sequencing from FTA-cards

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Toll-like receptors (TLRs) play an important role in innate immunity that recognise pathogen-associated molecular patterns (PAMPs). In general, TLR receptor polymorphism has been found to be associated with resistance and susceptibility to infectious disease. In this project, we closely studied the TLR9 polymorphism in relation to sustbility of diseases in cattle. TLR9 responds to CpG DNA which is commonly found in bacteria, viruses and parasites and that induces proinflammatory cytokines. TLR9 polymorphism has been linked to many infectious diseases like malaria, tuberculosis, etc. The aim of this study is to investigate the association of nucleotide polymorphism in TLR9 using Next Generation Sequencing (NGS) from FTA-cards and susceptibility to parasitic diseases in natural populations of cattle. The FTA-cards contain blood samples from cattle that were collected in previous study. We have extracted the DNA from FTA-card under diffrent conditions. According to our data, Quigen kit was the best kit to extraxct the DNA from FTA-card. Subsequently, we genotyped the TLR9 gene from the FTA-card. In conclusion, we have generated an optimum condition for DNA extraction and purification from FTA-card for down-stream application like Sagner sequensing and NGS. In the future study, we will generate primer library for indentification of SNP's with the TLR9 gene by using the NGS technique.

Biography

Afnan Alqurashi has completed her Bachelor of Science degree of Laboratory Medicine from Umm Al-Qura University, KSA and the Master's of health science in Laboratory Science from Qunipiac University, USA. Recently, she is a PhD student in University of Salford, UK. The main research interest is in molecular biology and parasitiology.

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