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Review Article

The Use of Primers in PCR Detection of Pathogens of Human and Veterinary Interest and Other Brilliant Ideas.

Carlos Navarro Venegas*

Faculty of Veterinary and Livestock Sciences (FAVET), University of Chile, Chile.

***Corresponding author:** Carlos Navarro Venegas, Associate professor according to FAVET, Faculty of Veterinary and Livestock Sciences (FAVET), University of Chile, Chile Mail: carnaven444@gmail.com, Chile.

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Abstract

The incorporation of the fantastic idea of the biochemist and doctor in chemistry Kary Mullis has allowed, along with the design of primers for his protocol, to amplify part of the genome of everything that contains DNA as starting material and in the case of some viruses that contain RNA as genomic material, a previous reaction that synthesizes DNA allows it. A database completes the scene and that's it.!!! the existence of any suspected pathogen can be validated, regardless of the origin of the sample, animal or human.

Introduction

The design of primers for a Polymerase Chain Reaction (PCR), the brilliant idea of Kary Mullis, can clearly contribute to the detection of any pathogen that contains DNA or RNA as a genome. The design of primers can be done using various internet platforms, such as Oligoperfect Primer Designer [1]. The PCR protocol is universal since its invention and the other characteristics of the protocol are provided by the computer program.

In short, in human or animal virology, taught in university undergraduate and postgraduate teaching, the specific PCR protocol can now be implemented for the specific detection of the pathogen of interest.

Material and Methods

In our Faculty (FAVET) there is an animal virology laboratory that has a cell culture room. If we take into account that viral isolation continues to be the gold standard or viral detection test, the incorporation of the technique devised by Kary Mullis [2] together with the design of matches obtained from a computer program such as OligoPerfect complete the idea, prior access to a database: Genbank [3].

The chosen program provides a primer ranking that is generated by the best combination of thermodynamic parameters, such as GC nucleotide percentage, melting temperature, and obviously nucleotide complementarity, by entering the requested DNA fragment size.

Once the pair of primers of the presented ranking has been chosen, its synthesis is entrusted to a commercial company. Once synthesized and received, all that remains is to program a thermal cycler with the characteristics of the pair of primers and that's it...!!! everything works perfectly using a conventional PCR system that allows the observation of the DNA fragment through a 2% agarose gel electrophoresis, followed by a photographic record of the evidence using a UV transilluminator.

Discussion and Conclusion

The design of primers that includes the characteristics to be incorporated into a conventional PCR protocol has already been

used several times in our laboratory and since 2014 they have been incorporated into the molecular detection of pathogens of veterinary interest using models used that have been made known through the Internet without import the "pedigree" of the journal [4-16].

The foregoing has been reflected in the fact that our country can now count on at least 35 new veterinarians, graduates of our famous House of Studies.

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