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**Title: Cloning & Sequencing with Plasmid encoding microneme 3 protein (MIC3) of Toxoplasma gondii by Escherichia coli bacteria**

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**Abstract:** Backgrounds and Aims: Escherichia coli is a Gram-negative, rod-shaped bacterium that is commonly found in the lower intestine of warm-blooded organisms (endotherms). E. coli bacteria are not always confined to the intestine, and their ability to survive for brief periods outside the body makes them ideal indicator organisms to test environmental samples for fecal contamination. The bacterium can also be grown easily, and its genetics are comparatively simple and easily manipulated or duplicated through a process of metagenics, making it one of the best-studied prokaryotic model organisms, and an important species in biotechnology and microbiology. Toxoplasma gondii is an obligate intracellular protozoan parasite that is responsible for toxoplasmosis in animals and humans. Micronemal protein of Toxoplasma gondii is one of protein which plays an important role during cell host invasion. Gene encoding MIC3 protein has been studied and it was suggested a potent vaccine candidate against Toxoplasma gondii infection. MIC3 was secreted from Tackyzoite, Bradyzoite and Sprozoite.

**Materials and Methods:** In this research, the sequence encoding MIC3 was obtained by amplification from genomic DNA of Toxoplasma gondii RH strain and cloned into the PTZ57R vector. The target gene was determined after the identification of MIC3 protein by enzyme digesting, PCR amplification and sequencing. It was transformed into TOP10 strain of E.coli Bacteria. The recombinant Plasmid extracted from E.coli bacteria and amplified through PCR technique. Recombinant plasmids were isolated using alkali lysis method and analyzed by digestion using restriction Endonuclase Enzymes.

**Results:** The accuracy correctness was confirmed by using Restriction Enzymes, PCR methods and Sequencing.

**Discussion:** The results showed that the cloning and transformation of fragment MIC3 in PTZ57R and E.coli was done properly.

**Toxoplasma gondii RH strain, Cloning, Micronemal 3 protein (MIC3), Sequencing, PTZ57R vector, Endonuclase Enzymes, Escherichia coli**

**Presentation:** Poster