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Development of a methodology for the evaluation of tumor necrosis factor antibody (anti-TNF-alpha) in patients with treatment of biological products through the use of nanobiosensors

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Rheumatoid Arthritis (RA) is an inflammatory disease of the joints that affects a large number of people worldwide. This condition can lead to debilitating joint destruction through the erosion of cartilage and bone. One of the pharmaceutical interventions for the treatment of this pathology are the biological disease-modifying anti-rheumatic drugs (DMARDs) that are directed toward inhibiting the cellular immune response responsible for the inflammation. TNF inhibitors were the first of the biological DMARDs to be approved for the treatment of RA and have become part of the routine treatment of patients with this disease. During the last years, the therapeutic drug monitoring of adalimumab and other biosimilar anti-TNF drugs have been an important tool to optimize the outcomes and costs of treatment, because the wide variations in their serum concentrations cannot be explained by classic pharmacokinetic factors and they are associated with therapeutic failures, anti-drug antibody formation, presence of adverse reactions, over dosage and in many cases treatment drop out. The methods for measurement of these drugs are expensive, with very high analysis time and for some molecules with low sensitivity and specificity. Biosensors is a nano-biosensor technology used for the study of interactions in real time, with advantages in the speed of analysis time, without the use of markers or developers and complying with the harmonization standards for biological analytical methodologies, allowing to customize the therapy and the use of concomitant immunomodulatory treatment. The objective of this study is to develop a real-time methodology through the use of an optic biosensor for the serum quantification of anti-TNF alpha in patients diagnosed with rheumatoid arthritis treated with anti-TNF alpha therapy.

Biography

Zapata C is a Medical Doctor interested in the evaluation of the relationship between serum levels and therapeutic efficacy in the use of biological drugs as well as the determination of immunogenicity in the clinical setting related to use of these molecules. Currently, he is working in the research group of therapeutic evidence, Faculty of Medicine, Universidad de La Sabana under the coordination of Dr. Rosa Bustos. In addition, he has participated in speeches and conferences regarding the safe and cost effective use of biological drugs in Colombia.

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