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## Single nucleotide polymorphisms (SNPs) in the outcome of tacrolimus treatment in renal transplantation

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The main goal of individualized medicine is optimizing the balance between therapeutic efficacy and the occurrence of adverse events, especially when employing narrow therapeutic index drugs such as immunosuppressants. These drugs are necessary for the transplanted patients. In this sense, pharmacogenetics can be very helpful to analyze this scenario and give a tool for helping the clinicians choose the right drug and the right dose for each patient. Changes in expression or function of proteins and enzymes involved in drug transport, metabolism or mechanism of action will cause changes in drug's absorption, metabolism and distribution and, therefore, can lead to changes in the response and toxicity of the treatment. Characterization of these genetic variants, mainly Single Nucleotide Polymorphisms (SNPs), can help to establish effective doses and to minimize adverse effects. Many publications, including our own, have found statistically significant correlations between SNPs and tacrolimus dose-corrected blood levels. We will also be presenting our work correlating certain SNP variants with safety and efficacy of the treatment. All these findings are leading to the proposal of tacrolimus initial dose adjustments according to the recipient's SNPs. Pharmacogenetic tests are becoming cheaper every day, so it is getting more assumable, especially when clinically relevant associated complications are demonstrated. Many results contribute to highlight the need of prospective controlled studies, with pharmacogenetic analysis prior to transplantation. Approaches to economic analyses will also be presented, in order to show the convenience of performing these tests, to save money and to improve the patients' health quality.

### Biography

María José Herrero completed her PhD in Biology at University of Valencia. She has performed most of her research work in Gene Therapy. Her postdoctoral research has been focused at Hospital La Fe, in Valencia, addressed to the clinical application of Pharmacogenetics since 2008. She is now the head of laboratory of the Pharmacogenetics Unit at IIS La Fe, developing translational research in this field, in different clinical areas, ranging from Cancer to Transplantation, amongst others.

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