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Novel method to detect Monosodium Urate Monohydrate crystals based on its interaction with peptide coated gold nanoparticles

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Crystal arthropathies, as Gout, are often challenging to diagnose and are frequently mismanaged, in part due to the lack of sensitive Gand reliable diagnostics. Optical microscopy of monosodium urate monohydrate crystals (MSU) is the gold-standard diagnostic approach, but is cumbersome and often not performed, and has poor sensitivity and high inter-operator variability. Consequently, there is a pressing need to develop new diagnostic strategies for Gout, leading to improved patient outcomes and enabling new research tools that will aid our understanding of the complex pathogenesis of this condition. On this research peptides that bind to MSU were identified by medium of a combination of phage display screening, next generation sequencing and peptide chemistry. Furthermore, a novel method to detect the presence of MSU, based on its interaction with gold nanoparticles coated with the identified peptides, was developed. We consider that the method developed here can be used as new diagnostic method for Gout which will help to a more precise diagnosis of this condition.



Biography

Javier Batista Perez has his expertise in biophysical characterization of protein-protein interaction. His extensive experience in building customized surface chemistry for surface plasmon resonance imaging (SPRi) screening allowed him to design novel SPRi methods to study antibody-antigen interactions in complex samples such as cell lysate. Currently, he is acquiring experience in high-throughput biological screening and DNA sequencing. He is working on a project that intends to develop a more reliable diagnostic method for gout as well as other crystal arthropathies.

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