

## Micro and nano molecularly imprinted polymers (MIPS) for analytical, environmental and forensic applications

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New classes of organic pollutants including poly-aromatic hydrocarbons (PAHs), antibiotics, endocrine disrupting compounds (ECDs), pharmaceuticals, personal care products (PPCPs), and toxins coming from cyanobacteria, such as microcystin-LR, in very low concentration, part-per-trillion (ppt) range, have been identified. On the other hand, Forensic Chemistry is an area of the chemistry devoted to the analysis of several substances, most of the organic molecules, that might be important or might have been used in the commission of a crime. Forensic chemistry employs most of the analytical chemistry knowledge and tools to analyze evidence, such as fiber, paints, explosives, fire debris, glass, soil, documents, and firearms. Moreover, the enzyme-linked immunosorbent assay (ELISA) is used for quantitative determination of the analytes. The

disadvantages of this technology are the low stability of reagents, the need for refrigerated transport and storage, batch-to-batch (or clone-to-clone) variability, and the high cost of producing antibodies are often cited as problems. In this work we have developed materials and nanomaterials based on molecularly imprinted polymers containing the optimal combination of monomers, crosslinker, initiator and solvent, having high capability and selectivity of molecular recognition with ability to be used in solid phase extraction, analytical detection and quantitative diagnosis assay for target organic molecules coming from environmental and forensic samples.

### Biography

Eduardo Pereira has completed his PhD from University of Concepción, Chile. He is Full Professor and Dean of the Faculty of Chemical Science at University of Concepción. In addition, he is the current President of the Chilean Chemical Society (SCHQ) and Latin-American Federation of Chemical Associations (FLAQ). He is the leader of a research team focusing on to develop materials and nanomaterials with molecular recognition capability and the applications in analytical, environmental and forensic chemistry. He has published more than 70 papers in reputed journals, several book chapters and more than 150 communications in conferences, symposia and meetings.

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