International Journal of Pharmaceutica Analytica Acta

Editorial

Imprinting of Pharmaceuticals -

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Submitted: 28 July 2017; **Approved:** 03 August 2017; **Published:** 04 August 2017

Citation this article: Hussain M, Wendel HP, Gehring FK. Imprinting of Pharmaceuticals. Int J Pharma Anal Acta. 2017;1(1): 013-014.

EDITORIAL

Molecular imprinting technology is promising for pharmaceutical applications for instance, separation, extraction, quantitative analysis, qualitative analysis, screening, delivery and targeting of medicines or their metabolites. The literature demonstrates similar or sometimes even higher selectivity on comparing with those of natural antibodies. Achieving selectivity is still challenging [1], because natural antibodies are generated in nature via "induced fit" mechanism along with the natural optimization of the analyte-receptor interaction [2].

The established platforms such as modern mass spectrometric techniques are flexible and offer astonishing sensitivities. Molecularly Imprinted Membranes (MIMs) - based biosensors are high selective and stabile on comparing to their counterparts [3]. MIMs based domain needs more research for its complete establishment at industrial levels [4,5].

Nanostructure approaches for instance Nanoparticles (NPs) are the focus of the scientific community these days. Nanostructures contribute to the improvements in the sensitivity and selectivity of the target drug. The research area is paving a path to industrial applications such as drug delivery systems [6,7].

Molecular imprinting techniques target the ruggedness and reusability of the biosensor material, while diagnostics, security or healthcare departments for instance illegal drugs biosensors focus on disposables. The diagnostic equipment market follows traditional techniques rather than novel technologies because of lack of expertise and knowledge. Molecular Imprinted Polymers (MIPs) are suitable for the applications for long-term stability in the cases of process or quality control and diagnostics department [8].

In chromatography, MIP-Chiral Stationary Phases (MIP-CSPs) are the successful area for general applications and MIP-CSPs are used in most chiral analysis techniques for drugs. For affinity separations especially in HPLC and Solid Phase Extraction (SPE), MIPs are better alternatives of traditional stationary phases. MIPs of structurally related analogues can be applied for ultra-trace analysis of the target drugs [9].

Figure 1: Exemplary acoustic (QCM-D) device (www.3t-analytik.de)

Soft contact lenses can provide better bioavailability of drugs and can enhance their residence time. MIPs can produce astonishing drug carriers for ophthalmic drug delivery [10]. Molecular imprints can be beneficial to target for delivering a drug to cancer cells by virtue of increasing the nuclear and cancer killing potency. This is usually achieved by localizing of a MIP on the immune system.

The acoustic techniques are the best choice for MIP technology, due to the cost-effective and unique properties. For instance, quartz crystal balance offers preeminent potential via [11] biomedical engineering, miniaturization and sensor arrays [12].

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