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MEETING ABSTRACTS

FIFTY SHADES OF CHOLINESTERASE IMMOBILIZATION AND THEIR APPLICATION TO DRUG DISCOVERY

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New screening methodologies capable of identifying new enzyme inhibitors in a faster, more reproducible and automated way may help early drug discovery. Indeed high throughput screening methodologies for the identification of new cholinesterase inhibitors can reduce screening time and screening costs. In this frame, "immobilized enzymes" [1] can serve as handy and efficient alternatives to conventional in-solution methods. On the other hand, other than massive screening, highly informative approaches may provide decisive information in the selection of best-in-class compounds. Hence, combination of several parameters spanning from inhibition, binding mechanisms and kinetic parameters is important to be considered. In particular, estimation of residence time has recently emerged as critical feature [2]. Therefore, accessing kinetic information on drug binding events at initial stages of the drug discovery process is gaining increasing interest among medicinal chemists.

In the light of these considerations, the talk will present different approaches involving immobilized human cholinesterases (ChEs). Micro-immobilized enzyme reactors (IMERs) can be used in combination with HPLC systems while SPR biosensing technology can be exploited for binding and kinetic investigation. ChE-based IMERs and single or multiple sensing surface(s) can be used in combination as valuable screening tools, which allow to quickly retrieve a set of highly useful information which can assist scientists in the selection of new chemical entities to be further developed.

Keywords: human cholinesterases; automation; bioreactors; sensing surfaces; binding events

References

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