DRUG AND METABOLITES STUDY IN WHOLE BODY ANIMAL BY HIGH DEFINITION MALDI IMAGING

INTRODUCTION

Mass spectrometry Imaging (MSI) is increasingly used in pharmacokinetics. It has been employed as a complementary to Whole-Body Autoradiography, which is traditionally used for approval of a drug by the Food and Drug Administration Agency.

There are three main advantages of MSI: Cost savings compared to the expensive requirement to radio-label the drug to be visualised in WBA, absolute confirmation that the drug is indeed visualized as the molecular ion is followed and not the labelled itself that could be attached to a metabolite; and the possibility to visualise the metabolites within the same tissue section.

In this study Olanzapine (OLZ) was studied. The pharmacokinetics of this drug have been intensely studied in different animals. However, spatial distribution analysis solely by MSI lacks specific information. Typically, drug sensitivity and specificity.

METHODS

Sample preparation

Olanzapine (OLZ) was administrated by oral gavage to male Sprague Dawley rats (n = 8) to determine the absolute confirmation that the drug is indeed distributed within the same tissue section.

RESULTS

Conclusions

The findings of this study demonstrate the potential of MSI to study drug distribution and metabolism in whole animal. MSI is a powerful tool that can provide detailed information about the spatial distribution of a drug and its metabolites. This information can be used to optimize drug delivery and dosing regimens, and to evaluate the potential for drug interactions and toxicity.

REFERENCES

Levine et al. (2010). Drug Metabolism and Disposition, 38, 562-568.

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