



Bio-Analysis by LC-MS/MS Case Study

"Do you recognise unwanted peak in your LC-MS/MS....." Is it always from Matrix???

During the development of one of the Bio-analytical methods it was observed that there was a chromatographic hump co-eluting with the compound of interest. As this problem was observed during the analysis of "matrix extracted samples", the interference was assumed to be from the matrix only. This is one of the most common assumptions in the mind of bio-analytical chemist for analytical methods developed on LC-MS/MS in biological matrices, which sometimes lead to wrong interpretation or erroneous results. Therefore, this issue needs to be fixed for the reasons mentioned below;

1. Single integration approach or automated integration may not give accurate results at low concentration,
2. If hump is a late elute then it may interfere in the next sample, and
3. Failure of analytical batch.

To investigate the root cause, initial focus was on interference from matrix. Hence, various trials were undertaken to resolve the issue in the direction of our assumption but failed. As any conclusion was still eluding, further investigation of the issue was conducted in depth, using a few non-routine trials. The results confirmed that the hump was due to the raw material of one type of the sample tube (processing apparatus) used for sample extraction.

Finally, it was concluded that the sample processing tubes made-up of particular raw material was not compatible with a type of solvent used for processing and leaching some unknown material during interaction with it, which later co-eluted with the compound of interest as hump.



About The Author

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