

Peer Review

Review of: "A Computer Simulation Study on Ion Optics Aiming at the Realization of Projection-Type Mass Spectrometry Imaging"

Sén Takeda^{1,2}

1. Anatomy, Teikyo University Hospital, Tokyo, Japan; 2. Anatomy and Cell Biology, Yamanashi Medical University, Japan

In this study, Naito tried to determine the optimal conditions for implementing the projection mode in mass spectrometry imaging (MSI) through a computer simulation. The author set four aims to appropriately evaluate the conditions for realizing the implementation of the projection mode. Through a set of simulations meticulously controlled by a wide range of parameters, the author reached the conclusion that the projection mode in MSI is feasible, at least at the present simulation level. While we cannot definitely say that the simulation here must be realized in a real MSI, the study proper provides us with invaluable prospects for improving MSI from a theoretical standpoint. There are a couple of minor concerns that I would like to ask the author to take into consideration.

1. Whilst this reviewer finds the simulation works very well, it is based on a specific mass spectrometer, the Ultraflex by Bruker. This reviewer is just wondering whether the simulation can be extrapolated to other TOF-MS from different manufacturers. This is a critical issue for generalizing the results to apply the methods to other TOF-MS. The author is required to discuss this issue by just doing the same simulation on at least another TOF-MS. Is it possible to provide examples of how the simulation results might differ if applied to a different TOF-MS? What specific improvements or additions to the simulation would help generalize the findings for other manufacturers?
2. If there is any specific reason for choosing the MS from Bruker for the simulation, the authors should account for that to convince the readership of employing Bruker's MS. For example, could you suggest specific manufacturers or models of TOF-MS that would benefit from a similar simulation study? What additional data or analysis would strengthen the explanation and rationale for choosing Bruker's MS for the simulation?
3. For clarity, it is advisable to have a summary or conclusion section corresponding to all four aims stated on page 5. In addition, it would be better to prepare a table summarizing the parameters for achieving the projection mode in TOF-MS.

Declarations

Potential competing interests: No potential competing interests to declare.