

Dear Professor Giudici,

thanks for your comments and suggestions for improvements to our article. Below you will find our replies to your comments.

Kind regards,
Mats Larsbo

P4L3-5. We have accepted your suggestion on language improvements.

P9L16-17. We agree that the justification for equation 1 is rather weak but prefer not to give more details since the method for subtracting the background electrical conductivity will not have a large influence on the measures of preferential transport.

P10L12. We have changed 'Eulerean' to 'Eulerian' as suggested.

P11L10. We have accepted your suggestion for deletion and added the word 'normalised'. The text now reads 'The normalised cumulative breakthrough curve is defined by...'

P12L4-5. It is good that you made us think through this more carefully. It is not possible to measure a complete breakthrough curve (simply because it is not possible to determine when it is complete). Therefore, breakthrough curves must either be truncated or extrapolated using a model (e.g. the CDE or log-normal model) if one wants to calculate temporal moments. We have now rephrased this text to clarify that effects of truncation are in relation to modelled breakthrough curves. We have deleted the last sentence since the statement was not justified.

P13L12-14. We have now rephrased this sentence.

P17L6-7. We have now rephrased the sentence.

P18L19-23. We have now rewritten this sentence.

P20L11 and L25. We have now changed 'providing' to 'provided' according to your suggestion.

P22L2. We have now deleted 'highly significant'.

P23L19-20. We have now rephrased the sentence.

P34. The caption for figure 2 is correct.

P37L10. We do not understand your question? We used $p < 0.05$ as the limit for statistical significant correlations throughout the manuscript. This is stated at the end of the *Materials and methods* chapter.