Supplementary figures 13 through 16

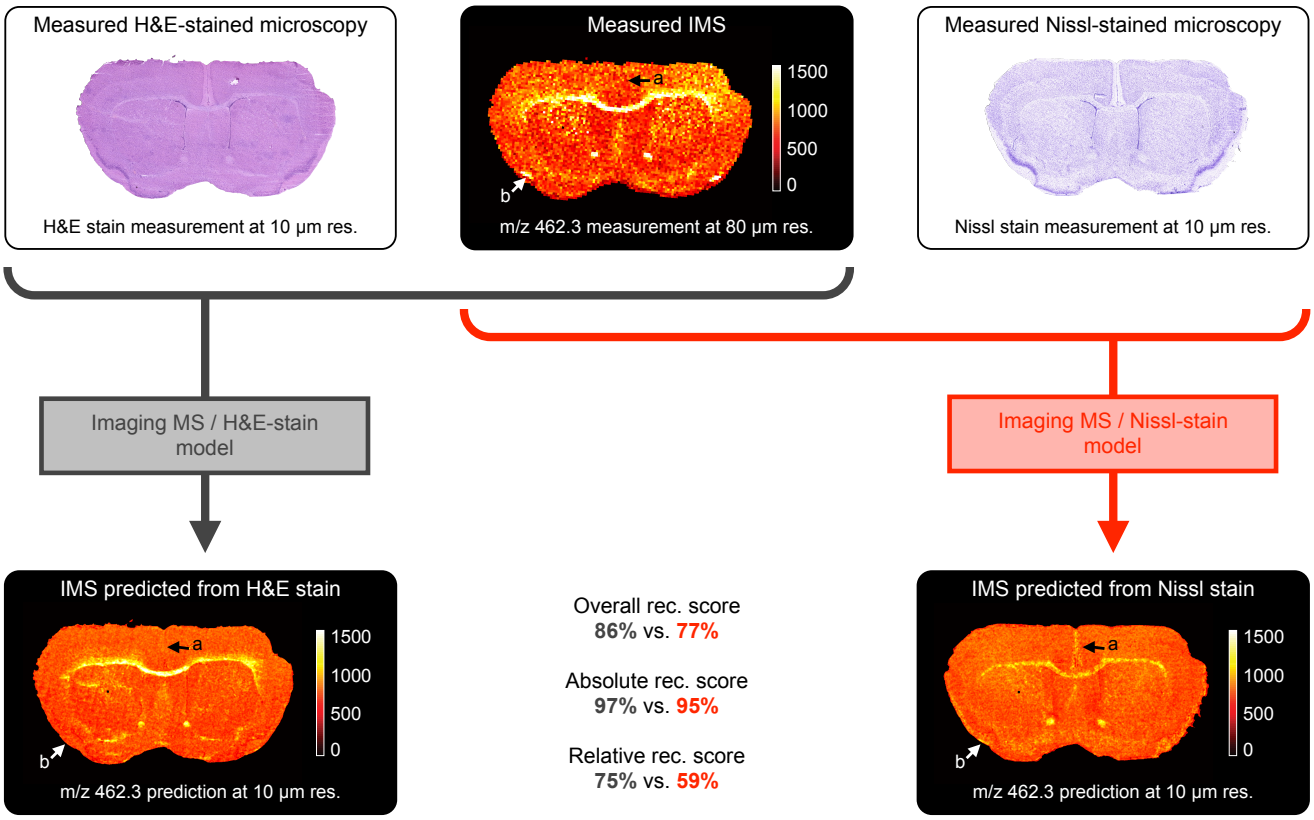
for

Image fusion of mass spectrometry and microscopy: a new multi-modality paradigm for molecular mapping of tissue

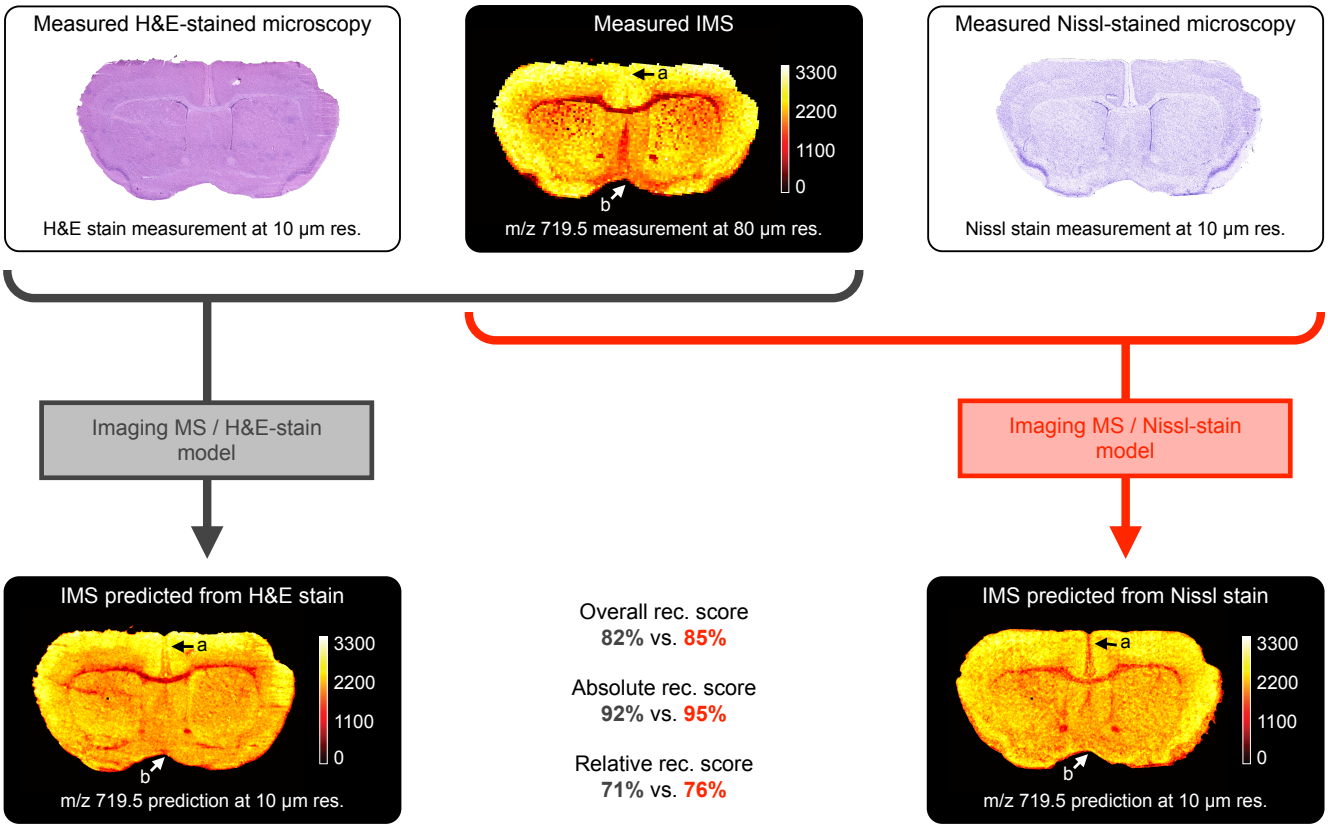
Raf Van de Plas[1], Junhai Yang[1], Jeffrey Spraggins[1], and Richard M. Caprioli[1,2]

[1] Mass Spectrometry Research Center and Department of Biochemistry, Vanderbilt University, Nashville, Tennessee, U.S.A.
[2] Departments of Chemistry, Pharmacology, and Medicine, Vanderbilt University, Nashville, Tennessee, U.S.A.

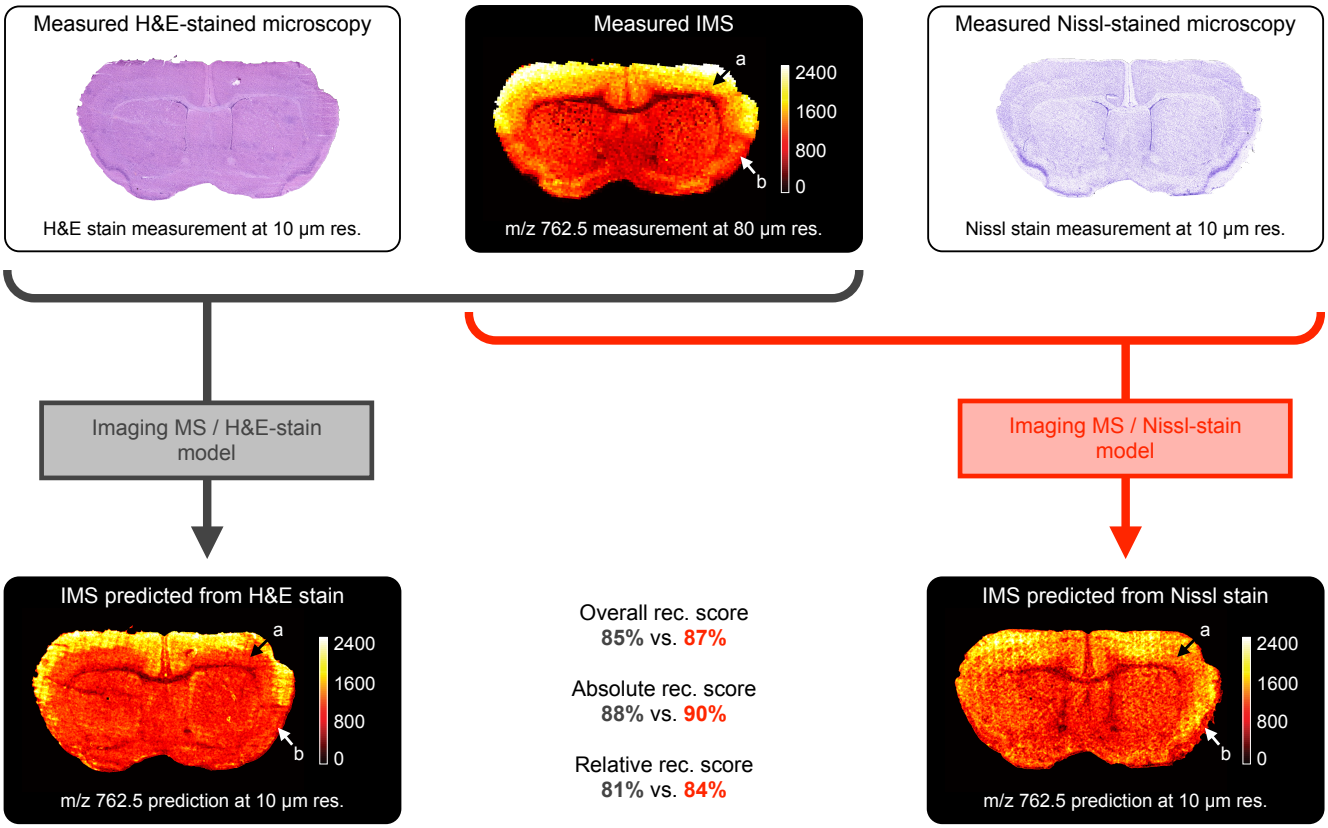
Correspondence should be addressed to R.M.C. (richard.m.caprioli@vanderbilt.edu).



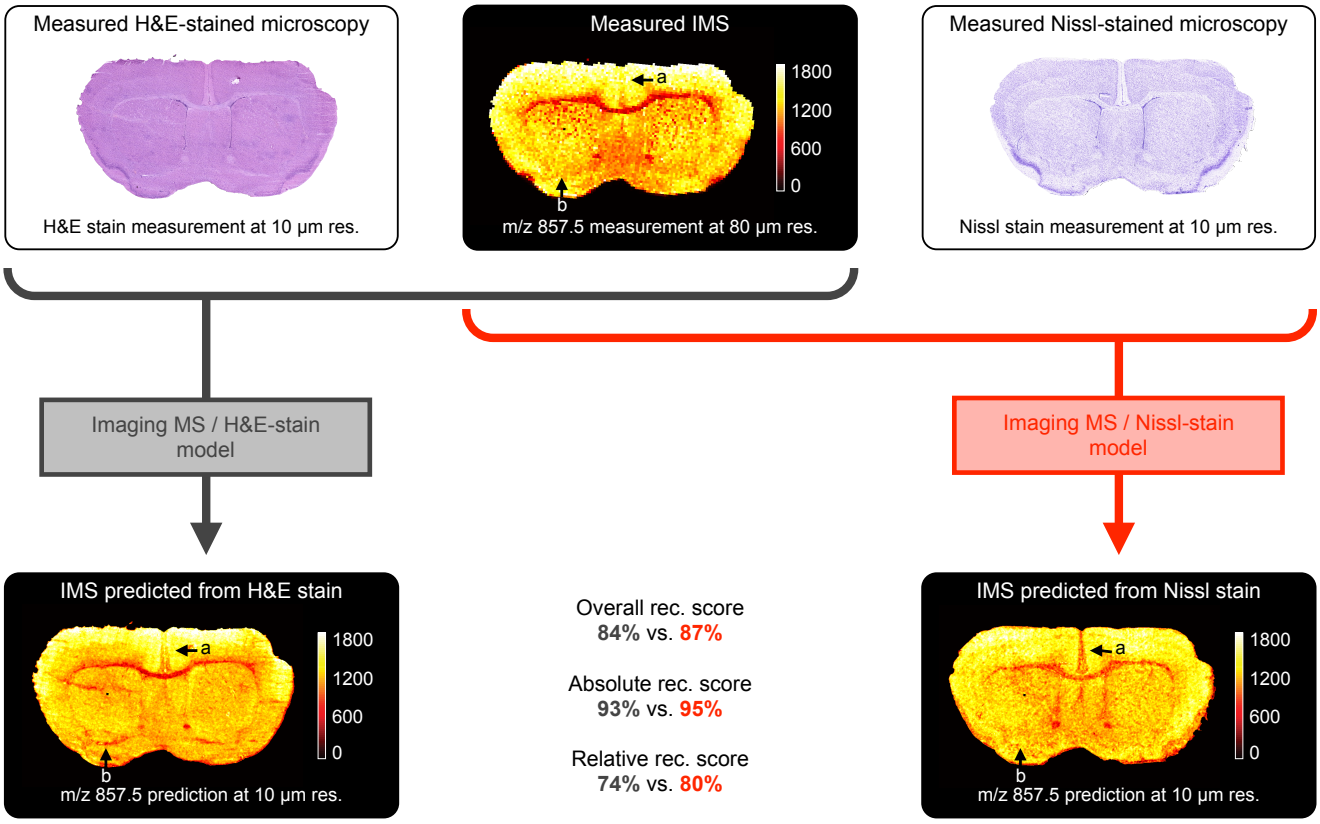
Supplementary Figure 13 Prediction of the ion distribution of m/z 462.3 in mouse brain at 10 µm resolution from 80 µm IMS and 10 µm H&E versus Nissl stained microscopy measurements (sharpening). (**left**) A measured ion image for m/z 462.3 at 80 µm spatial resolution is fused with a measured H&E stained microscopy image at 10 µm resolution, predicting the ion distribution of m/z 462.3 at 10 µm resolution (reconstr. score 86%). (**right**) An identical fusion procedure using a measured Nissl stained microscopy image at 10 µm resolution, instead of the H&E stain, delivers an ion distribution prediction for m/z 462.3 at 10 µm resolution with a reconstruction score of 77% at the native IMS resolution (80 µm).



Supplementary Figure 14 Prediction of the ion distribution of m/z 719.5 in mouse brain at 10 µm resolution from 80 µm IMS and 10 µm H&E versus Nissl stained microscopy measurements (sharpening). (**left**) A measured ion image for m/z 719.5 at 80 µm spatial resolution is fused with a measured H&E stained microscopy image at 10 µm resolution, predicting the ion distribution of m/z 719.5 at 10 µm resolution (reconstr. score 82%). (**right**) An identical fusion procedure using a measured Nissl stained microscopy image at 10 µm resolution, instead of the H&E stain, delivers an ion distribution prediction for m/z 719.5 at 10 µm resolution with a reconstruction score of 85% at the native IMS resolution (80 µm). Ion m/z 719.5 is identified as PA(38:6).



Supplementary Figure 15 Prediction of the ion distribution of m/z 762.5 in mouse brain at 10 µm resolution from 80 µm IMS and 10 µm H&E versus Nissl stained microscopy measurements (sharpening). (**left**) A measured ion image for m/z 762.5 at 80 µm spatial resolution is fused with a measured H&E stained microscopy image at 10 µm resolution, predicting the ion distribution of m/z 762.5 at 10 µm resolution (reconstr. score 85%). (**right**) An identical fusion procedure using a measured Nissl stained microscopy image at 10 µm resolution, instead of the H&E stain, delivers an ion distribution prediction for m/z 762.5 at 10 µm resolution with a reconstruction score of 87% at the native IMS resolution (80 µm). Ion m/z 762.5 is identified as PE(16:0/22:6).



Supplementary Figure 16 Prediction of the ion distribution of m/z 857.5 in mouse brain at 10 µm resolution from 80 µm IMS and 10 µm H&E versus Nissl stained microscopy measurements (sharpening). (**left**) A measured ion image for m/z 857.5 at 80 µm spatial resolution is fused with a measured H&E stained microscopy image at 10 µm resolution, predicting the ion distribution of m/z 857.5 at 10 µm resolution (reconstr. score 84%). (**right**) An identical fusion procedure using a measured Nissl stained microscopy image at 10 µm resolution, instead of the H&E stain, delivers an ion distribution prediction for m/z 857.5 at 10 µm resolution with a reconstruction score of 87% at the native IMS resolution (80 µm). Ion m/z 857.5 is identified as PI(16:0/20:4).