Supplement Material

Peak detection results of blank data:

Supplement Figure 1. Comparison of peak detection results of a blank SELDI-TOF spectrum
Supplement Figure 1 shows the peak detection results of three algorithms (with default settings) on a blank spectrum, which contains nothing but spike and random noise. The CWT-based peak detection algorithm detected one false peak at m/z = 11268.34. The SNR of this peak is 3.3, which is slightly above the default SNR threshold of 3. Both PROcess and Wavelet denoising-based peak detection algorithms reported much more false-positive peaks. One reason is that their baseline removal is not complete, especially for the wavelet denoising-based method.

The sensitivity-FDR relations of 60 spectra:

Supplement Figure 2 shows the sensitivity-FDR (False Discovery Rate) relations of 60 spectra (CAMDA, 2006) at various SNR thresholds. The red lines are the fitted sensitivity-FDR curves based on all the sensitivity-FDR points. These graphs clearly show the CWT-based peak detection algorithm is much more robust under varying baselines and noise levels. Please refer to the paper for other comparisons of the three algorithms.
Peak detection results of real clinical data:

Supplement Figure 3 shows the CWT-based peak detection results (default settings) of a real clinical QC serum SELDI-TOF spectrum of the CAMDA 2006 data set as described in the paper.

Supplement Figure 4 shows the CWT-based peak detection results with different SNR thresholds. The data is the same as Supplement Figure 3.
Supplement Figure 4 Peak detection results with different SNR thresholds