Supporting Information

Monitoring Enzymatic Reactions in Real Time using Venturi Easy Ambient Sonic-Spray Ionization Mass Spectrometry

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Figure S1. Photographs of the fused silica capillary setup used for studies of enzymatic reactions with V-EASI. (A) An inverted microscope (1.) is used with an xy-translational stage (2.) to move the microscope slide. A syringe pump (3.) is used to deliver substrate for the reaction taking place on the microscope slide. Micromanipulators (4.) are used to position the fused capillary tips on the glass slide. (B) A liquid junction (7.) is formed on the microscope slide (5.) by bringing the feeding capillary (6.) and the sampling capillary (8.) in close proximity. (C) The fused silica capillaries are held in place using micro-electrode holders (9.). The sampling capillary is threaded through a stainless-steel tee and a 10 cm stainless-steel capillary (10.). N₂-gas pushed through the tee causes the liquid to be pulled through the capillary.
Figure S2. Representative mass spectra taken (A) before and (B) after the liquid junction feeding acetylcholine (m/z 146.1166) was brought into contact with acetylcholinesterase immobilized on a surface resulted in production of choline (m/z 104.1062).

Figure S3. An example of how transient kinetics for the conversion of acetylcholine into choline was fitted with the form $1 - \exp(-kt)$. Data were fitted in the range from the immediate increase from initial levels of choline until steady-state was reached. The time for the first data point was set to zero and the maximum intensity of the extracted ion chromatogram for choline was set to unity.