

- The Chip-Mate™ nano-LC ion source is the latest in nano-ESI chip-based technology from Advion who is (re)defining mass spectrometry products to enhance analysis performance as well as biochemistry workflows.

Chip-Mate

Robust & reliable nano-LC ion source

The Chip-Mate is a nano-electrospray ion source that uses the ESI Chip® technology and couples it to a nano-LC column. The proven ESI Chip performance along with automated spray sensing and next nozzle switching capabilities improves the sample analysis workflow and reduces the number of failed nano-LC runs.

Compatible with any nano-LC pump system with flow rates of 100 nL/min to 800 nL/min, the Chip-Mate is based on Advion's ESI Chip technology for proteomics, small molecule quantification and biomarker/biosimilar sample analysis.



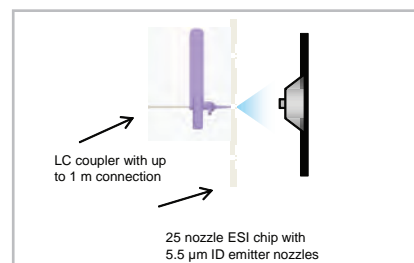
The Advion Chip-Mate™ nano-ESI ion source

Benefits

- **Robustness and Reliability.**
Automatic spray sensing and next-nozzle capability reduces the number of failed runs.
- **Reproducibility.**
Identical nozzles offer identical performance.
- **Ease of use.**
Much simpler to set up and change nozzles than with conventional pulled capillary devices.
- **Performance.**
Spray stability and peak shape.
- **Versatility.**
Coupled to any column and nano-LC system allowing a greater range of applications.



30 nozzle ESI Chip with integrated SD card



Schematic of core Chip-Mate technology

ESI Chip Performance Case Study of a CRO Biomarker group

- Run failures/Spray failures in FDA regulated environment require time consuming and costly re-runs that are not acceptable
- The biomarker assay group has three dedicated systems using ESI Chip technology running 24/7
- The ion source is coupled to a 3D-LC setup, with the final dimension being a C18 nano-LC. They are typically loaded up with multiple sample runs (3 blocks of 96 wells, 10 min runtime each) for overall runs lasting >24 hours.
- The Biomarker assay group chose the chip-based ion source over other nano-spray sources because of performance advantages and robustness.
- This group has run >20,000 samples over a 2.5 year period with great internal and client satisfaction, their re-run rate is only 2% whereas the core LC/MS, running high flow HPLC/MS, is an average 11% and the CRO industry average is close to 20 %.

On-line nano-ESI nozzle switching - Example during a 48 h run sequence

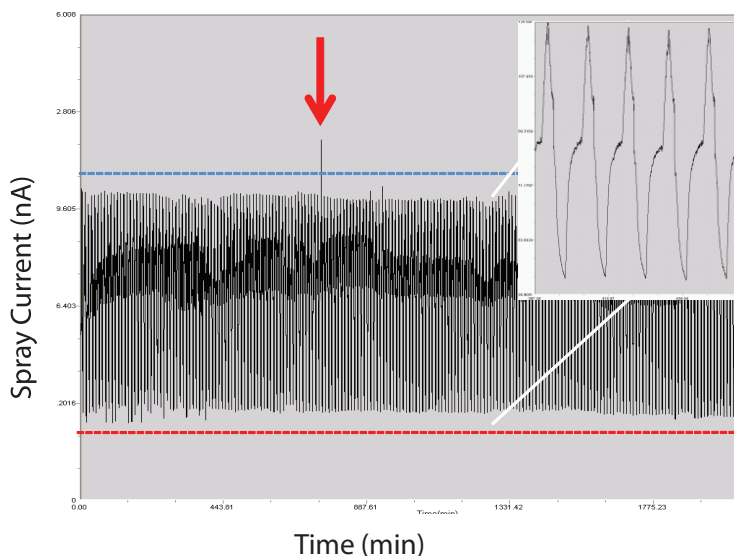


Figure 5: Spray current monitored during a 48 h run time. Blue line shows upper current sensing trigger level, red line shows lower current sensing trigger level. Insert is a magnification of the spray current monitored during five example runs of 10 min each, red arrow marks a 'next nozzle event'

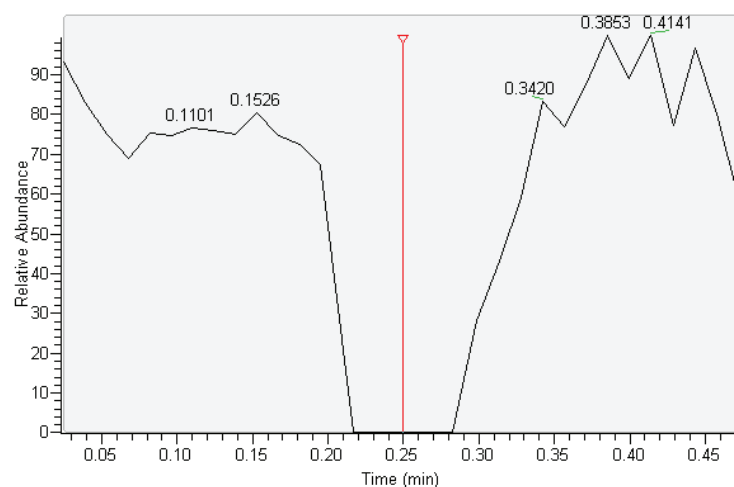


Figure 6: Example for a next nozzle event. Total ion chromatogram shows the spray recovery after a next nozzle trigger within 4 sec total (decision time and mechanical movement)