SHIMADZU
Excellence in Science

Application Data Sheet

No.28

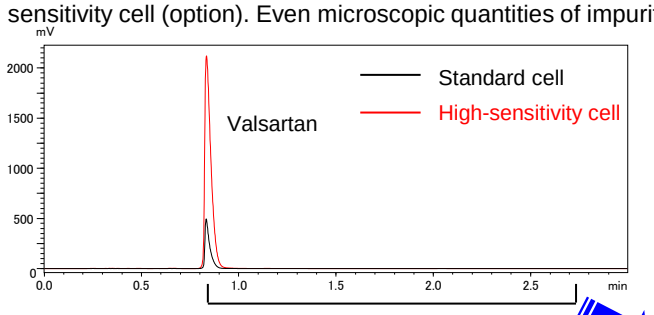
LC
Liquid Chromatograph

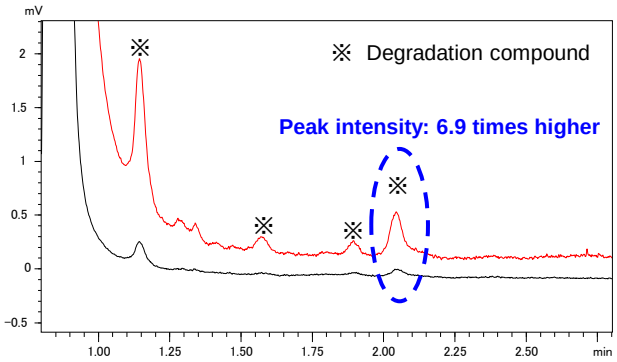
Ultra High-Sensitivity Analysis of Degradation products in Valsartan Using the SPD-M30A Photodiode Array Detector with High-Sensitivity Cell

The need for reliable separation and quantification of minute quantities of pharmaceutical impurities suspected of genetic toxicity continues to grow. Using the SPD-M30A high-sensitivity photodiode array detector permits high-sensitivity detection of extremely trace amounts of components.
Introduced here is an example of ultra-fast, high-sensitivity simultaneous analysis of valsartan degradation products.

Example of Analysis of Degradation products in Valsartan

Using the Nexera SR system, valsartan and its degradation products were analyzed with a standard cell and a high-sensitivity cell (option). Even microscopic quantities of impurities can be detected using the high-sensitivity cell.

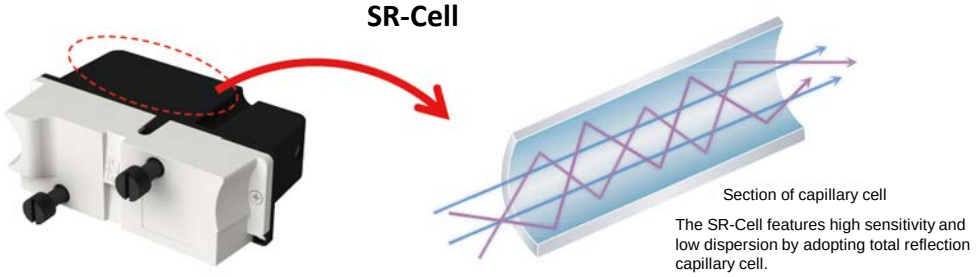




Column	: Kinetex 2.6um XB-C18 100A (100 mmL. x 3.0 mmI.D., 2.6µm)
Mobile Phase	: Acetic acid/Acetonitrile/Water =1/500/500
Flow Rate	: 1.5 mL/min
Column Temp.	: 30 ℃
Injection Volume	: 10 µL
Detection	: SPD-M30A at 290nm

Newly-Designed SR-Cell

If a conventional cell's optical path length is shortened, although scattering will be minimal, sensitivity will be reduced. Conversely, if the optical path length is extended, the peak width will increase, as will noise and drift. The new capilllary SR-Cell (Stability and Resolution Cell) overcomes these limitations. By optimizing the cell's optical path length and width, both low noise levels and high sensitivity have been achieved. It can be applied to analyses from UHPLC to HPLC replacing the flow cell.



The SR-Cell features high sensitivity and low dispersion by adopting total reflection capillary cell.

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