



# Consistent excellence for bioanalysis

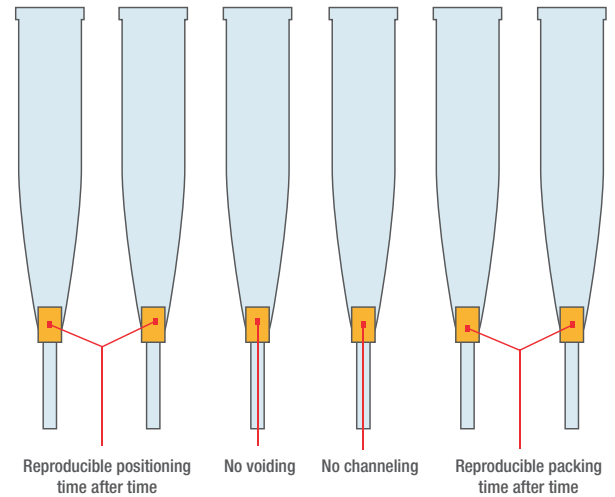
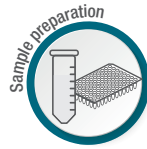
SOLA Solid Phase Extraction products

# Meet the demands for bioanalysis with consistent excellence

Thermo Scientific™ SOLA™ products are designed for bioanalytical and clinical research analysts who are tasked with providing high quality analytical results from complex biological samples in a high throughput environment, while complying with strict legislation. These demands are compounded by the continued push to higher efficacy drugs and long acting formulations which continue to drive sensitivity requirements to lower levels to enable accurate quantification.

**In order to meet these demands, bioanalytical methods must provide:**

- Robustness – low analytical failure rates
- Ability to process low sample volumes
- High sensitivity
- High reproducibility
- Ease of use
- High throughput processing
- Efficient and fast processes



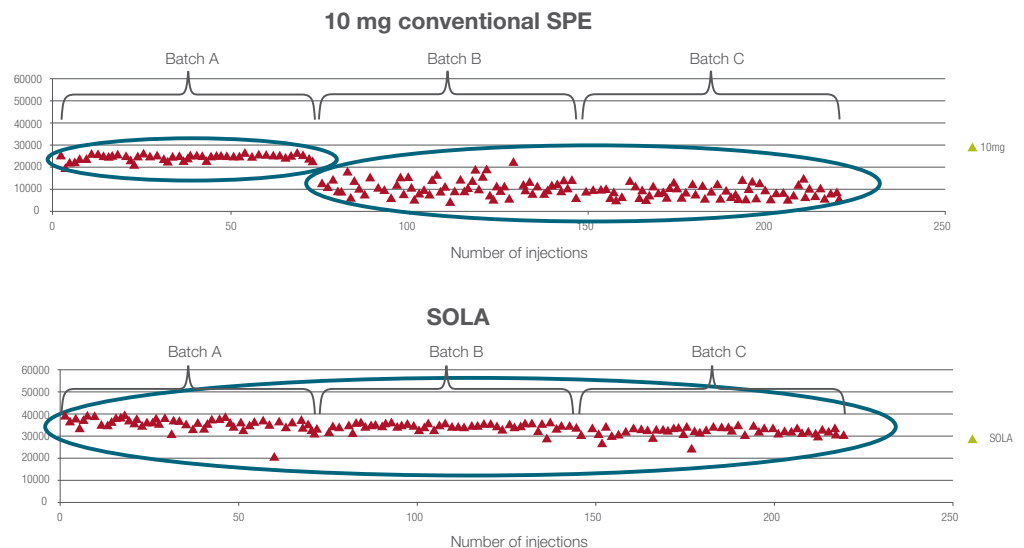
**Figure 1: SOLA $\mu$  SPE fritless design – limiting issues associated with conventional SPE formats**

The SOLA Solid Phase Extraction (SPE) range is designed to meet these demands with the unique and innovative frit-less SPE technology, which eliminates the issues with traditional loose-packed SPE formats. The combination of the support material and active media components into a solid, uniform sorbent bed delivers stable and controllable flow-through characteristics and provides an added advantage when dealing with viscous biological samples – it reduces blocking and enables high throughput processing.

The manufacturing process also allows for high levels of reproducibility, not only from cartridge-to-cartridge or well-to-well but also batch-to-batch.

**Thermo Scientific™ SOLA $\mu$ ™ SPE range has the added benefit of being able to provide:**

- Up to a 20 fold increase in sensitivity
- Ability to process samples restricted in volume
- Increased workflow efficiency and sample integrity



**Figure 2: Batch-to-batch reproducibility of SOLA product compared to a conventional SPE product**

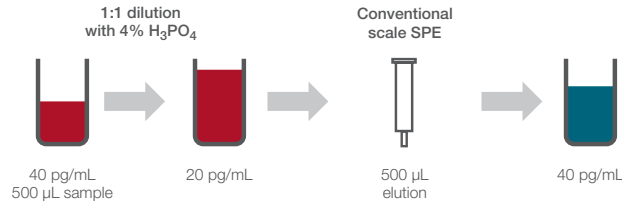
## Increase your MS sensitivity

Sensitivity can be increased up to 20 times by loading a large volume of sample and eluting in a low volume.

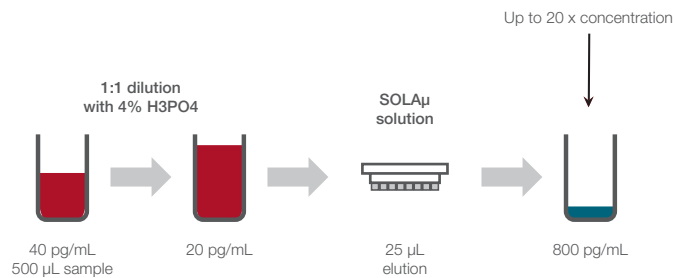
In the following example, 500  $\mu\text{L}$  of human plasma was loaded onto the SOLA $\mu$  plate for the analysis of niflumic acid. The compound was eluted in 25  $\mu\text{L}$ , delivering up to 20 times increase in concentration whilst maintaining excellent precision.



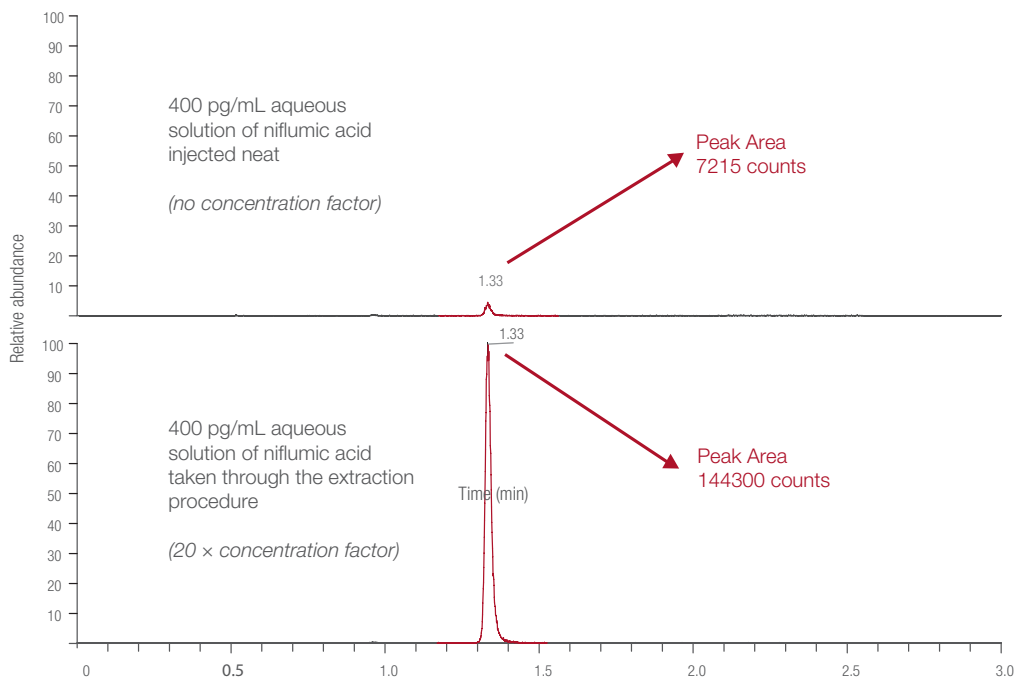
**The problem:**  
Improvement in assay  
sensitivity required



**The SOLA $\mu$  product solution:**  
Delivers up to 20 times increase  
in concentration of sample  
without changes to workflow



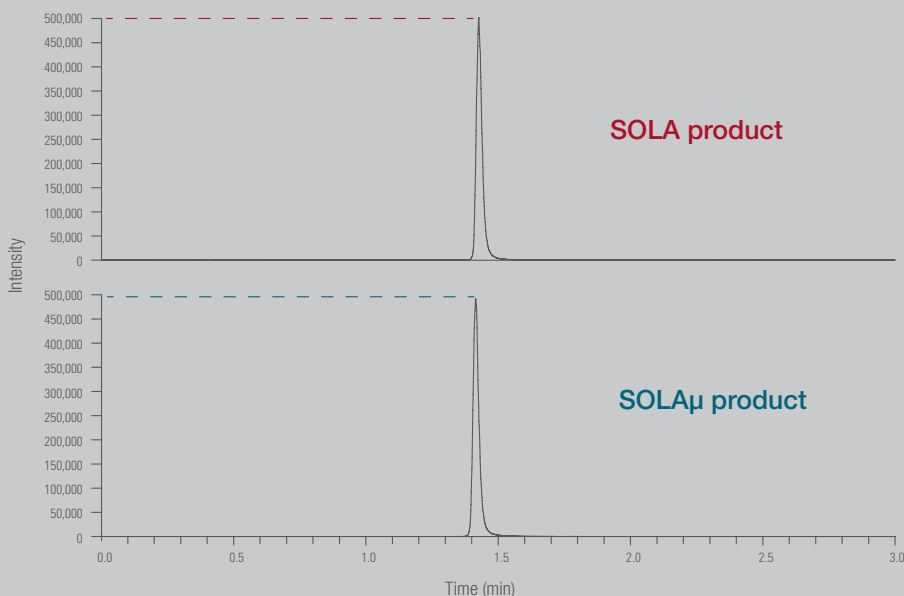
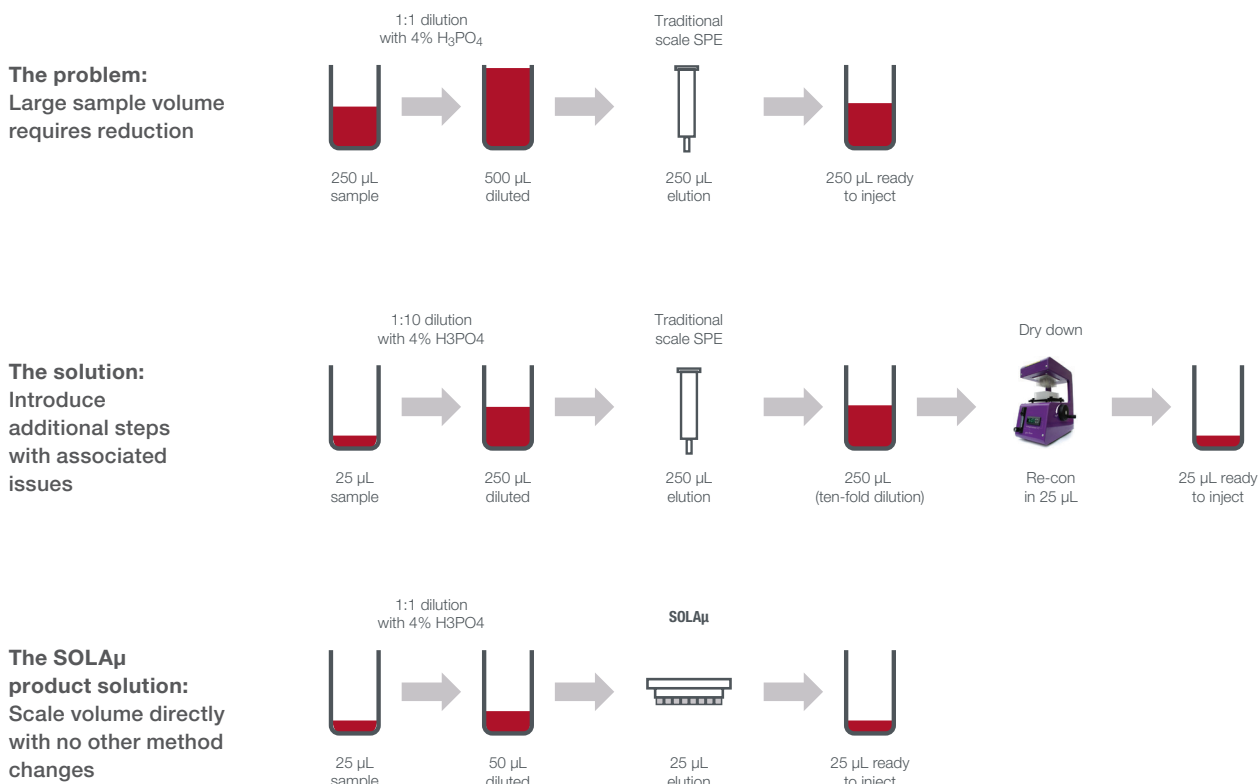
	Precision data for niflumic acid peak area ratio (%RSD) n = 18	Recovery of niflumic acid (%)	Matrix effects (%)
QC Low (0.4 ng/mL)	1.31	89.9	8.63
QC High (30 ng/mL)	1.06	94.0	3.21



## Sample limited assays

SOLA $\mu$  allows you to directly scale down the volumes used in analytical methods, allowing for a reduction in sample usage and eliminating issues caused by evaporation, without compromising the sensitivity of your assay. This is also an important consideration when sample volumes are limited.

The following example shows that by loading 25  $\mu$ L of niflumic acid sample onto the SOLA $\mu$  plate and eluting in a total volume of 25  $\mu$ L, a ten-fold decrease in sample volume was achieved when compared to a traditional scale higher bed weight product. Equivalent method performance and high levels of reproducibility provided by SOLA technology were still maintained.



Precision data for niflumic acid		
	Analyte peak area (%RSD)	Peak area ratio (%RSD)
Low QC	7.32	0.356
High QC	5.33	0.195

**Figure 3:** Equivalent peak response achieved for niflumic acid with SOLA $\mu$  using 25  $\mu$ L of sample compared with 250  $\mu$ L of sample with a 10 mg SOLA SPE product



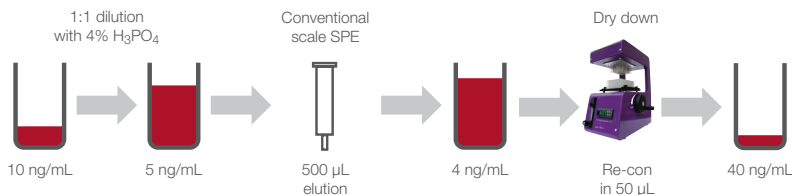
## Increased workflow efficiency

With traditional SPE the eluted sample is typically dried down to increase the concentration of the sample and thus improve the sensitivity. This causes an issue for certain compound types which can be lost during this step, resulting in reduced sensitivity.

SOLA $\mu$  products allow the sample to be extracted without the need for dry down and reconstitution. Not only does this maximize recovery of the analytes, it also improves workflow efficiency and increases productivity.

In the case of extraction of ibuprofen, a four-fold pre-concentration was achieved without the need for dry down by loading 200  $\mu$ L of sample onto the SOLA $\mu$  plate and eluting in a total of 50  $\mu$ L. The results demonstrate that even with this low elution volume, excellent reproducibility was achieved.

**The problem:**  
Workflow requires dry down to achieve sensitivity



**The SOLA $\mu$  product solution:**  
Low elution volume allows removal of dry down

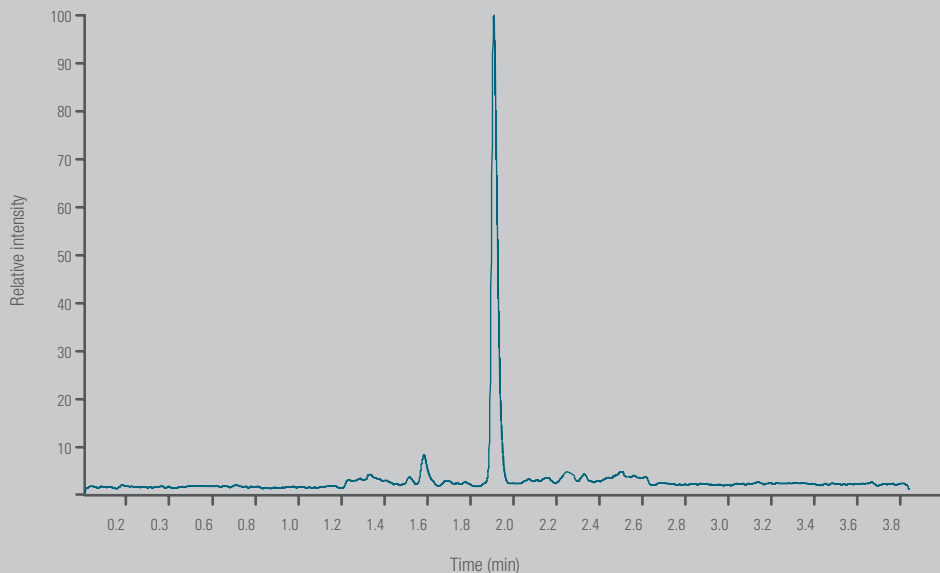
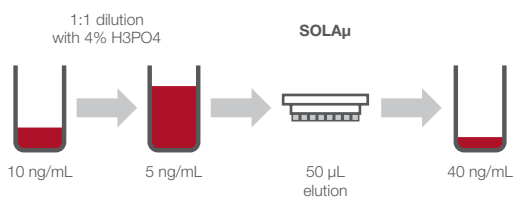


Figure 4: Peak response for ibuprofen

	Ibuprofen (%RSD) n=18	Ibuprofen recovery (%)
Low QC (25 ng/mL)	4.00	90
High QC (750 ng/mL)	1.70	95

## Ordering information

Product	Bed Weight (mg)	Column Volume (mL)	Quantity	Cat. no.
<b>Thermo Scientific™ SOLAμ™ Solid Phase Extraction (SPE) 96-Well Plates</b>				
SOLAμ HRP 96-Well Plate	2	1	1 each	60209-001
SOLAμ SCX 96-Well Plate	2	1	1 each	60209-002
SOLAμ SAX 96-Well Plate	2	1	1 each	60209-003
SOLAμ WCX 96-Well Plate	2	1	1 each	60209-004
SOLAμ WAX 96-Well Plate	2	1	1 each	60209-005
<b>Thermo Scientific™ SOLA™ Solid Phase Extraction (SPE) Cartridges</b>				
SOLA HRP SPE Cartridge	10	1	100 pack	60109-001
SOLA SCX SPE Cartridge	10	1	100 pack	60109-002
SOLA SAX SPE Cartridge	10	1	100 pack	60109-003
SOLA WCX SPE Cartridge	10	1	100 pack	60109-004
SOLA WAX SPE Cartridge	10	1	100 pack	60109-005
<b>Thermo Scientific™ SOLA™ Solid Phase Extraction (SPE) Plates</b>				
SOLA HRP 96-Well Plate	10	2	1 each	60309-001
SOLA SCX 96-Well Plate	10	2	1 each	60309-002
SOLA SAX 96-Well Plate	10	2	1 each	60309-003
SOLA WCX 96-Well Plate	10	2	1 each	60309-004
SOLA WAX 96-Well Plate	10	2	1 each	60309-005

Expect reproducible results with sample prep, columns and vials



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