

# Improving Compound Extraction Efficiency using the Precellys24

Stiefel, a GSK Company, North Carolina, USA

## CONTEXT

Determining the skin penetration profile of active pharmaceutical ingredients present in creams, gels, lotions, and ointments is an important aspect of preclinical dermatological research and key to optimizing the selection of formulation prototypes. The aim of this study is to evaluate the use of a high throughput, automated method *versus* a traditional liquid extraction (LE) technique to extract compounds of interest from skin tissues in a more efficient manner for downstream LC-MS/MS analysis [1]

## MATERIAL

- Precellys®24 Homogenizer
- Precellys lysing kit: MK28-R\_2mL (KT03961-1-008.2) for use with a Biocap® decapper
- Samples: Dermatomed human abdominal skin (1.5 cm<sup>2</sup>, 500 µm thickness, and <300 mg) after a 6-hr skin penetration study
- Solvent: 500 µl of 1:1 methanol:water + 1% formic acid

## PROTOCOL

- Precellys24: 6500 rpm, 1x30 sec (epidermis) and 6500 rpm, 2x60 sec each, 30 sec pause (dermis)
- Implemented automation methods by using a decapper, customized tubes, and liquid handling for sample preparation prior to LC-MS/MS
- LE: Samples placed in glass vials with 8mL of solvent were incubated for 15 or 48 hours before LC-MS/MS analysis.

[1] Santos L, Paul A, Yu V. *Improving Compound Extraction Efficiency*. GEN 2013 33 (11): 24-25



03712-810-DU079



## CONCLUSION

The **Precellys24 homogenizer** enhances the high-throughput screening of topical formulations by significantly decreasing the sample processing time and volume of solvent used and increasing extraction efficiency. The incorporation of automation methodology (**Precellys tubes customized to fit into a decapper**) is ideal for processing hundreds of samples/study

## RESULTS

The dermis and epidermis values were compared between the three different extraction methods. The five minute Precellys homogenization procedure showed increased extraction of compound SB-275833 from the dermis samples for all three formulations compared to LE (Figure 1A). For epidermis samples, similarly higher extraction was observed for formulations B and C (Figure 1B).

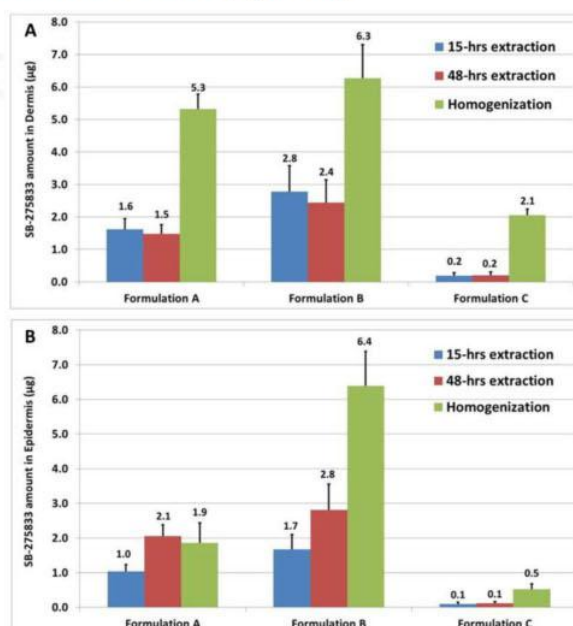


Figure 1. Dermal (A) and epidermal (B) amount (µg) of SB-275833 after a 15 and 48 hour liquid extraction (LE) versus homogenization using the Precellys

For more details, please contact [precellys@bertin.fr](mailto:precellys@bertin.fr)



エムエス機器株式会社

<http://www.technosaurus.co.jp>

□東京 〒162-0805 東京都新宿区矢来町 113 番地 TEL (03) 3235-0661(代) / FAX (03) 3235-0669  
□大阪 〒532-0005 大阪市淀川区三国本町2丁目12番4号 TEL (06) 6396-0501(代) / FAX (06) 6396-0508  
□福岡 〒812-0054 福岡市東区馬出 1 丁目 2 番 23 号 TEL (092) 631-1012(代) / FAX (092) 641-1285