Volumetric Absorptive Microsampling (VAMS™) for blood collection in clinical studies of padsevonil

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Inspired by patients.
Driven by science.

Disclosures

- UCB Pharma-sponsored.
- H Chanteux, C Otoul, and C Rospo are employees of UCB Pharma.
- D Sciberras was an employee of UCB Pharma at the time of the analyses.
- G Lelij and B Van Den Steen are contractors for UCB Pharma.

Disclaimer

- Padsevonil is a pipeline compound in clinical development.
- The clinical significance of nonclinical findings discussed in this presentation is not known.
- The presentation may contain information about unapproved indications and/or use and/or products.
- Licenses may vary by country – please always refer to the Prescribing Information in your country before prescribing any drug.

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Agenda

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- Bioanalytical validation
- Bridging of clinical data

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Background information

Volumetric Absorptive Microsampling (VAMS™)

Novel technique

Enable accurate collection of small (10 µL) blood volumes

- Mitra® microsampler (Neoteryx LLC, Torrance, CA) is an absorbent polymeric tip
- Blood is collected by dipping the Mitra® microsampler into a blood bead after skin prick
- After blood collection, Mitra® is air-dried and stored at room temperature

Image source: Neoteryx LLC

Background information

Volumetric Absorptive Microsampling (VAMS™)

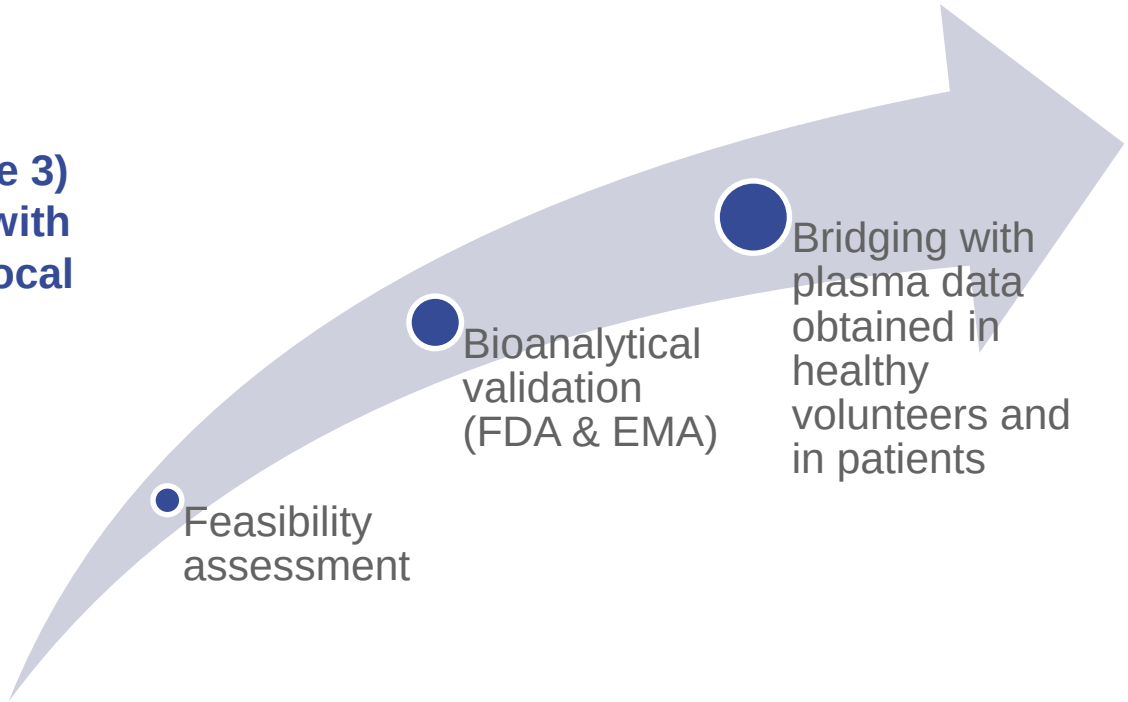
Added value of Mitra® for collection of PK samples in clinical studies

- Decreased patient burden
  - Less invasive technique (pediatric application) compared to venous method
  - Low blood volume (10µL) ⇔ conventional blood sampling (1mL)
- Reduced operational burden improving logistical feasibility
  - Storage and shipment at room temperature – No need for freeze-thaw cycles
  - No need for centrifugation, plasma separation, and aliquoting
- Flexibility in collection of PK data in Phase 2/3 studies
  - Home sampling possible → sparse PK sampling not limited to time window during clinical visit

Methodology

Implementation of Mitra® in a global drug development program

Padsevonil (PSL) is a drug in development (Phase 2b/Phase 3) for the treatment of patients with epilepsy and drug-resistant focal seizures



EMA, European Medicines Agency; FDA, United States Food and Drug Administration.

Results

Bioanalytical validation

The bioanalytical method was demonstrated to be accurate, precise, and selective for quantification of PSL over a clinically relevant concentration range (2-2000 ng/mL)

Accuracy and precision of PSL intra-run and inter-run in Mitra® (N=18)

Nominal PSL concentration	2.0 ng/mL	6.0 ng/mL	1000 ng/mL	1600 ng/mL	2000 ng/mL
Mean intra-run precision, %CV	13.3	7.1	5.3	5.5	5.8
Mean intra-run bias, %	−7.0	0.4	1.5	1.3	3.7
Inter-run precision, %CV	13.2	6.9	5.7	5.9	6.2
Inter-run bias, %	−7.0	0.5	2.0	1.3	3.5

Haematocrit effect on PSL (N=6)

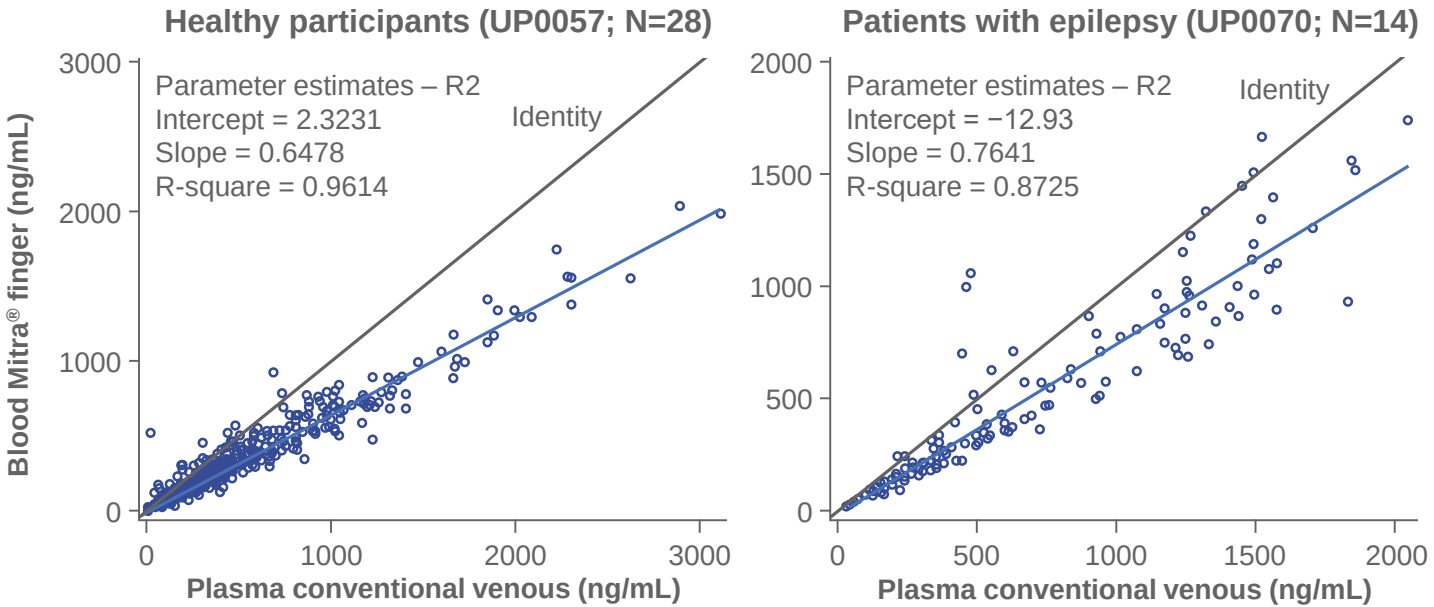
Concentration	6.0 ng/mL			1000 ng/mL			1600 ng/mL		
Haematocrit	30%	50%	70%	30%	50%	70%	30%	50%	70%
Precision, %CV	14.7	3.5	9.1	7.1	9.3	4.5	4.1	6.6	6.5
Bias, %	15.3	9.5	7.5	3.0	6.0	3.0	3.1	5.0	5.0

Study NCD3060
CV, coefficient of variation; PSL, padsevonil.

Results

Bridging of clinical data

Mitra® blood vs plasma concentrations following oral administration of PSL

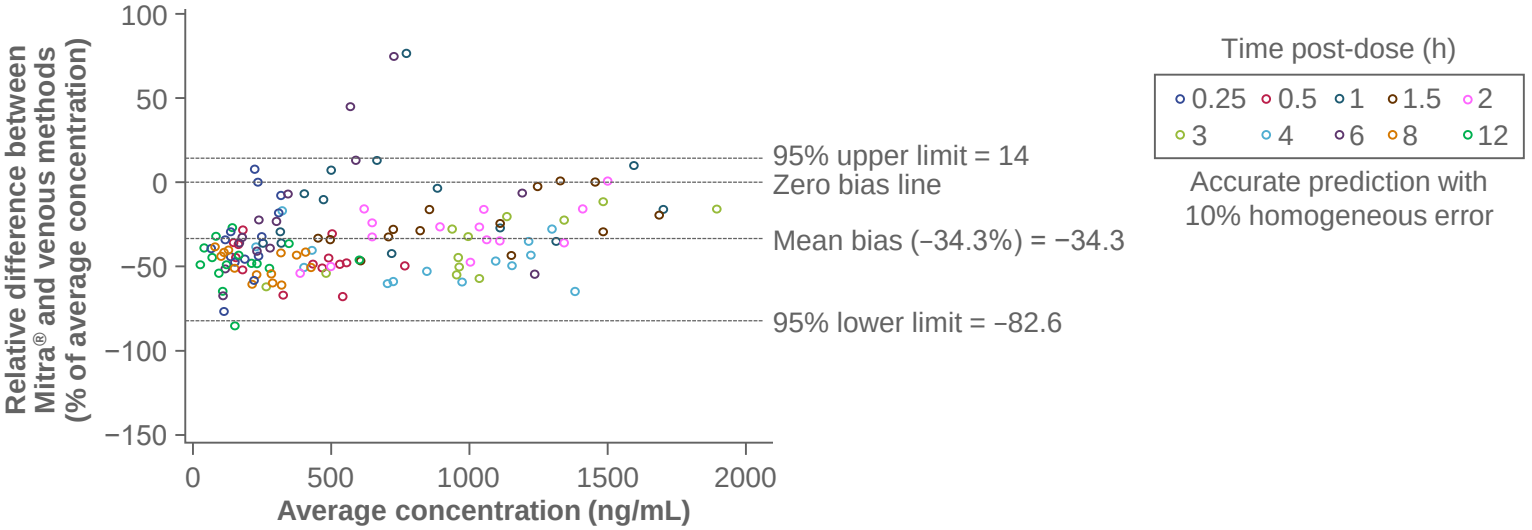


Study UP0057: NCT03480243; study UP0070: NCT03695094.
PSL, padsevonil.

Results

Bridging of clinical data

Bland-Altman plot comparing results from Mitra® and venous plasma sampling following oral administration of PSL in patients with epilepsy (UP0070; N=14)



Blood PSL exposure was ~34% lower than plasma exposure

This is in close agreement with the measured *in vitro* blood to plasma ratio of PSL (0.7)

Study UP0070: NCT03695094.
PSL, padsevonil.

Results

Bridging of clinical data

Analysis of variance of PK parameters of Mitra® vs venous sampling following single dose (100 mg) administration of PSL in healthy participants (UP0057; N=28)

PK parameter	Venous geometric mean (95% CI)	Mitra® geometric mean (95% CI)	Ratio (90% CI)
C_{max}, ng/mL	459 (408, 517)	315 (280, 355)	0.687 (0.597, 0.790)
$AUC_{(0\text{-}12\ h)}$, h*ng/mL	1780 (1560, 2040)	1130 (983, 1290)	0.632 (0.538, 0.741)

Blood PSL exposure was ~34% lower than plasma exposure

This is in close agreement with the measured *in vitro* blood to plasma ratio of PSL (0.7)

Study UP0057: NCT03480243

AUC, area under the curve; CI, confidence interval; C_{max}, maximum concentration; PK, pharmacokinetic; PSL, padsevonil.

Conclusions

Volumetric Absorptive Microsampling (VAMS™)

VAMS™ is a novel technology for collection of PK samples

- Reduced blood sampling volumes, ease of collection, transportation and storage compared with conventional plasma sampling

Bioanalytical method for quantification of PSL using VAMS™ has been successfully validated

PK data obtained with VAMS™ have been bridged with plasma in both healthy study participants and patients with epilepsy

UCB Pharma has implemented the use of VAMS™ (Mitra®) for collection of PK samples in global development studies

PK, pharmacokinetic; PSL, padsevonil.

Questions?

Thanks!