Table 1
Analytical method validation[a] and stability data for vinpocetine and apovincaminic acid in dam plasma, amniotic fluid, and fetal homogenate.

	Plasma	Amniotic fluid	Fetal homogenate
Vinpocetine			
Concentration range (ng/mL or ng/g)[b]	0.5 to 100	0.5 to 100	5–1000
Linearity (r)[c]	≥ 0.999	0.999	0.998
LOQ (ng/mL or ng/g)[d,e]	0.5	0.5	5
LOD (ng/mL or ng/g)[f]	0.05	0.05	0.7
Accuracy (%RE)			
Intra-day	− 3.3 to 4.3	− 7.5 to 12.7	− 7.3 to 5.1
Inter-day	− 2.3 to 2.3	NA	− 2.0 to 2.7
Precision (%RSD)			
Intra-day	0.7 to 9.6	0 to 4.7	0.5 to 8.9
Inter-day	1.7 to 6.1	NA	1.4 to 8.3
Absolute recovery (%)[g]	89.6 to 124.4	81.2 to 102.0	103.8 to 150.3
Dilution verification, n = 6 (% RE, %RSD)[h]	− 7.9, 5.9	4.0, 2.3	6.9, 7.6
Extracted sample stability, n = 4 (%RE)[i]			
Ambient temperature (7d)[j]	− 7.5 to − 12.9	− 0.2 to 12.4	− 8.8 to − 0.4
Freeze-thaw (3 cycles)	− 16.5 to − 6.0	0.4 to 8.6	− 8.8 to − 2.9
Matrix stability (%RE)[k]			
Freeze-thaw (3 cycles)	− 14.8 to − 14.7	− 8.7 to − 3.0	1.3 to 4.7
Storage (61d)	− 12.9 to − 8.4	− 13.9 to − 9.1	4.2 to 6.0
Apovincaminic acid			
Concentration range (ng/mL or ng/g)[b]	0.5 to 100	0.5 to 100	
Linearity (r)[c]	≥ 0.995	0.997	0.998
LOQ (ng/mL or ng/g)[d,e]	0.5	0.5	5
LOD (ng/mL or ng/g)[f]	0.0567	0.140	0.777
Accuracy (%RE)			
Intra-day	− 16.3 to 16.3	− 7.6 to 7.8	− 2.8 to 6.9
Inter-day	− 7.8 to 6.7	NA	− 1.6 to 2.0
Precision (%RSD)			
Intra-day	0 to 23.7	0–10.7	0.8 to 15.2
Inter-day	3.2 to 14.4	NA	2.8 to 9.8
Absolute recovery (%)[g]	160.2 to 249.7	131 to 172	119.3 to 159.3
Dilution verification, n = 6 (% RE, %RSD)[h]	3.9, 8.9	− 4.9, 8.5	− 2.9, 3.7
Extracted sample stability, n = 4 (%RE) [i]			
Ambient temperature (7d)[j]	− 2.4 to − 5.4	− 7.3 to 14.7	− 14.1 to − 2.4
Freeze-thaw (3 cycles)	− 13.7 to 3.6	− 10.5 to 5.7	− 9.8 to 2.7
Matrix stability (% RE)[k]			
Freeze-thaw (3 cycles)	− 7.6 to 10.6	5.2 to 10.2	− 9.1 to 2.2
Storage (61d)	− 22.0 to − 12.4	− 11.4 to − 1.9	− 7.5 to − 2.2

[a] Full validations were performed in plasma and fetal homogenate. A partial validation was performed for amniotic fluid using plasma method.
[b] Plasma and amniotic fluid concentrations are expressed as ng/mL and fetal homogenate as ng/g.
[c] For both vinpocetine and AVA, plasma and amniotic fluid curves were fitted with linear 1/x weighted regression and fetal homogenate curves were fitted with linear $1/x^2$ weighted regression.
[d] LOQ, limit of quantitation; LOD, limit of detection, RE, relative error; RSD, relative standard deviation; NA, not applicable.
[e] Experimental LOQ, is the lowest concentration used in standard curve. Target values are given.
[f] Estimated as the 3 times the standard deviation of the LOQ (n = 6 replicates).
[g] Values given are the range for the concentration range validated.
[h] Highest concentration verified were: plasma and amniotic fluid, 1000 ng/mL; fetal homogenate, 10,000 ng/g.
[i] Values given are the range for 3 QC concentrations at 1, 30 and 75 ng/mL in plasma and amniotic fluid and 7, 320 and 750 ng/g in fetal homogenate.
[j] Values given are mean percent recovered after refrigerator, autosampler or ambient temperature storage at least 7 days.
[k] Values given are for 2 target QC concentrations at 1 and 75 ng/mL in plasma and amniotic fluid and 7 and 750 ng/g in fetal homogenate.