

Supplemental Data

Table S1. Precision, accuracy, recovery and stability of HPLC method validations for twelve coumarins.

Compound	QC (μM)	Precision RSD (%)		Accuracy (%)		Recovery (%)	Stability (%)
		Intra-Day	Inter-Day	Intra-Day	Inter-Day		
1	5	0.70	2.68	96.51 $\pm$ 1.34	97.42 $\pm$ 3.27	101.97 $\pm$ 0.54	100.51 $\pm$ 3.24
	50	1.01	1.53	91.73 $\pm$ 1.84	91.62 $\pm$ 1.55	95.74 $\pm$ 1.92	101.34 $\pm$ 1.24
	150	1.82	3.02	90.19 $\pm$ 4.09	91.73 $\pm$ 4.89	88.36 $\pm$ 4.00	103.01 $\pm$ 1.74
2	5	1.74	1.81	88.33 $\pm$ 1.80	87.68 $\pm$ 1.86	95.89 $\pm$ 6.97	96.28 $\pm$ 2.34
	50	1.40	2.70	85.95 $\pm$ 1.39	87.33 $\pm$ 2.32	89.09 $\pm$ 2.34	96.64 $\pm$ 3.32
	150	3.04	3.79	85.57 $\pm$ 2.13	87.35 $\pm$ 2.95	86.05 $\pm$ 3.29	100.15 $\pm$ 4.93
3	5	1.67	3.31	101.34 $\pm$ 0.68	99.17 $\pm$ 3.76	98.65 $\pm$ 8.13	98.38 $\pm$ 1.43
	50	2.09	2.67	85.18 $\pm$ 1.29	86.36 $\pm$ 2.89	92.92 $\pm$ 4.09	99.62 $\pm$ 0.71
	150	1.67	2.96	98.95 $\pm$ 2.00	96.41 $\pm$ 2.99	89.53 $\pm$ 2.86	100.79 $\pm$ 0.75
4	5	0.96	1.05	104.12 $\pm$ 1.09	96.41 $\pm$ 2.99	96.56 $\pm$ 6.00	100.53 $\pm$ 2.64
	50	0.45	0.53	88.35 $\pm$ 0.92	86.53 $\pm$ 3.38	86.86 $\pm$ 3.38	98.94 $\pm$ 1.55
	150	0.14	1.83	91.27 $\pm$ 0.37	92.24 $\pm$ 1.69	88.22 $\pm$ 1.51	99.74 $\pm$ 1.52
5	5	0.62	1.77	97.09 $\pm$ 3.12	96.73 $\pm$ 3.42	102.87 $\pm$ 3.31	97.51 $\pm$ 3.70
	50	1.12	1.89	93.13 $\pm$ 0.87	94.22 $\pm$ 1.22	87.11 $\pm$ 6.49	99.09 $\pm$ 1.19
	150	3.03	3.23	90.02 $\pm$ 2.64	89.92 $\pm$ 2.77	92.82 $\pm$ 2.72	100.48 $\pm$ 0.96
6	5	2.02	2.83	107.71 $\pm$ 2.24	107.38 $\pm$ 2.55	87.68 $\pm$ 1.85	100.40 $\pm$ 1.36
	50	3.41	3.63	99.75 $\pm$ 3.31	100.37 $\pm$ 3.90	89.13 $\pm$ 3.04	100.03 $\pm$ 0.78
	150	3.36	3.50	89.88 $\pm$ 2.79	90.09 $\pm$ 3.13	85.26 $\pm$ 2.96	99.76 $\pm$ 1.15
7	5	0.67	0.89	95.28 $\pm$ 0.56	95.51 $\pm$ 1.62	84.03 $\pm$ 1.12	98.18 $\pm$ 1.30
	50	2.36	3.11	92.15 $\pm$ 1.92	93.62 $\pm$ 3.93	92.03 $\pm$ 2.69	103.97 $\pm$ 0.62
	150	2.67	3.29	91.13 $\pm$ 1.83	89.88 $\pm$ 3.44	85.16 $\pm$ 6.24	99.63 $\pm$ 3.90
8	5	1.05	1.48	98.27 $\pm$ 1.05	99.65 $\pm$ 2.09	87.22 $\pm$ 1.13	98.15 $\pm$ 0.54
	50	2.83	2.87	100.20 $\pm$ 2.75	101.90 $\pm$ 2.91	84.52 $\pm$ 1.52	98.17 $\pm$ 0.19
	150	2.23	2.38	101.16 $\pm$ 2.26	101.51 $\pm$ 2.79	84.37 $\pm$ 2.08	100.18 $\pm$ 1.20

Table S1. *Cont.*

Compound	QC (μ M)	Precision RSD (%)		Accuracy (%)		Recovery (%)	Stability (%)
		Intra-Day	Inter-Day	Intra-Day	Inter-Day		
9	5	1.24	2.12	90.56 $\pm$ 1.03	89.84 $\pm$ 2.03	89.46 $\pm$ 2.43	103.06 $\pm$ 1.07
	50	1.01	1.21	90.17 $\pm$ 0.19	90.36 $\pm$ 1.67	92.53 $\pm$ 3.09	95.71 $\pm$ 0.63
	150	1.35	2.06	88.86 $\pm$ 0.21	85.80 $\pm$ 3.49	88.28 $\pm$ 2.12	97.18 $\pm$ 2.96
10	5	1.80	2.95	102.14 $\pm$ 2.19	98.84 $\pm$ 3.01	88.51 $\pm$ 1.90	104.09 $\pm$ 0.54
	50	1.12	1.44	103.11 $\pm$ 2.04	104.71 $\pm$ 2.39	93.23 $\pm$ 2.61	103.31 $\pm$ 1.79
	150	0.99	1.85	98.31 $\pm$ 0.59	96.69 $\pm$ 3.25	86.02 $\pm$ 2.06	96.21 $\pm$ 2.29
11	5	1.82	2.74	104.03 $\pm$ 1.90	103.08 $\pm$ 2.83	85.75 $\pm$ 1.71	101.25 $\pm$ 2.29
	50	0.09	3.75	104.59 $\pm$ 3.10	105.58 $\pm$ 3.96	85.05 $\pm$ 2.52	100.11 $\pm$ 0.81
	150	1.01	3.52	97.61 $\pm$ 0.99	99.08 $\pm$ 3.48	86.85 $\pm$ 7.84	100.83 $\pm$ 2.47
12	5	0.76	1.95	89.06 $\pm$ 0.60	88.62 $\pm$ 0.67	92.96 $\pm$ 0.63	101.47 $\pm$ 2.58
	50	1.13	2.19	87.65 $\pm$ 0.99	86.93 $\pm$ 2.18	96.34 $\pm$ 1.58	102.19 $\pm$ 2.15
	150	0.23	2.96	87.28 $\pm$ 2.21	85.51 $\pm$ 2.72	85.90 $\pm$ 2.10	98.88 $\pm$ 2.87

Table S2. Cell accumulation and total recovery of twelve coumarins in the bidirectional transport experiment.

Compound	AP→BL		BL→AP	
	CA (%)	TR (%)	CA (%)	TR (%)
1	N.D.	99.34 ± 1.59	N.D.	96.70 ± 3.22
2	6.96 ± 1.50	104.93 ± 5.15	3.51 ± 0.68	95.63 ± 1.75
3	N.D.	87.47 ± 3.30	N.D.	92.15 ± 3.16
4	N.D.	102.79 ± 4.07	N.D.	102.81 ± 2.71
5	N.D.	93.57 ± 1.89	N.D.	94.93 ± 1.28
6	1.40 ± 0.16	86.17 ± 5.70	0.83 ± 0.09	88.83 ± 2.47
7	4.63 ± 0.13	89.89 ± 6.49	1.79 ± 0.03	94.73 ± 3.85
8	N.D.	95.17 ± 4.79	N.D.	88.69 ± 3.13
9	N.D.	99.15 ± 0.54	N.D.	107.04 ± 1.19
10	5.38 ± 1.14	90.19 ± 3.08	1.65 ± 0.36	86.64 ± 2.89
11	21.49 ± 4.56	67.63 ± 5.00	9.44 ± 1.01	64.11 ± 3.63
12	0.94 ± 0.11	96.97 ± 3.36	0.34 ± 0.03	96.54 ± 1.23

CA (Cell accumulation): the percent of the coumarins that accumulated in the cell monolayer after transport experiment relative to the initial amount. TR (Total recovery): the percent of the total amount of the coumarins recovered from both sides of the inserts and intracellular accumulation in MDCK-pHaMDR cell monolayer relative to the initial amount. N.D.: not detected. The concentration of all coumarins was 50 μ M. The incubation time was up to 90 min. Data are means $\pm$ S.D. ($n = 6$).