Table II: Kinetic Parameters for Amino Acid Transport under Various Conditions[a]

amino acid	pI	pH 5.5				pH 7.5[c]	
			V_{max} [nmol/(min mg of protein)]				
			driving force				
		K_m(app) (μM)	$\Delta\bar{\mu}_{H^+}$[b]	$\Delta\Psi$[c]	ΔpH[d]	K_m(app) (μM)	V_{max} [nmol/(min mg of protein)]
proline	6.10	0.7	1.6	0.7	1.2	0.7	1.9
glycine	5.97	2.0	0.9	0.6	0.6	2.5	0.6
alanine	6.02	4.4	1.7	1.4	0.9	4.4	1.1
serine	5.68	9.9	9.3	4.9	6.0	9.9	14.4
threonine	6.53	3.9	3.1	1.6	1.3	3.7	1.6
tyrosine	5.65	1.5	2.7	1.5	0.9	1.2	0.7
tryptophan	5.88	0.3	0.9	0.3	0.7	0.3	0.7
phenylalanine	5.98	1.0	3.6	1.6	2.3	1.0	3.0
glutamate	3.22	9.2	1.0	0.8	0.5	9.2	0.5
aspartate	2.97	6.8	1.8	0.9	1.4	6.8	1.8
lysine	9.74	0.5	0.6	0.5	0.3	1.0	0.7

[a] Experiments were performed as outlined in Methods and in Figures 1 and 6–9 by using the amino acids listed at the following specific activities and ranges of concentration: [U-^{14}C]proline (240.6 mCi/mmol) at 0.16–8.1 μM; [U-^{14}C]glycine (123 mCi/mmol) at 0.4–10.7 μM; [U-^{14}C]alanine (171.2 mCi/mmol) at 1.2–26.5 μM; [U-^{14}C]serine (147 mCi/mmol) at 2.7–26.4 μM; [U-^{14}C]threonine (185.2 mCi/mmol) at 0.5–20.8 μM; tyrosine (452 mCi/mmol) at 0.22–2.2 μM; [U-^{14}C]tryptophan (17.1 mCi/mmol) at 0.1–1.95 μM; [U-^{14}C]phenylalanine (464 mCi/mmol) at 0.15–8.9 μM; [U-^{14}C]glutamate (263 mCi/mmol) at 1.5–21.4 μM; [U-^{14}C]aspartate (208 mCi/mmol) at 0.18–18.5 μM; and [U-^{14}C]-lysine (280.9 mCi/mmol) at 0.14–21.4 μM. Kinetic parameters were determined by plotting initial velocity, V, as a function of V/S, where S represents solute concentration. Values for V_{max} were estimated from the y intercept of the plots, and the apparent K_m was estimated from the slope of the functions. [b] Assays performed in the absence of ionophores. [c] Assays performed in the presence of nigericin at a final concentration of 0.2 μM. [d] Assays performed in the presence of valinomycin at a final concentration of 2.0 μM.