TABLE I

Kinetic Parameters for Bicarbonate Transport at pH 7.8, 38°C
Modified Ping Pong Model (Self Inhibition Included)

Parameter	Unit	Experimental	Calculated	% dev.
$K^{o}_{1/2}(165)$	mM	10	—	—
$K^{s}_{1/2}$	mM	173	—	—
K_{I}	mM	172	—	—
$J^{eff,s}_{max}$	nmol cm^{-2} s^{-1}	122	—	—
A	—	—	0.13	—
$J^{eff,o}_{max}(165)$	nmol cm^{-2} s^{-1}	63*	63	0
$K^{o}_{1/2}(50)$	mM	3.8	4.9	29
$J^{eff,o}_{max}(50)$	nmol cm^{-2} s^{-1}	25*	30	20
$K^{i}_{1/2}(50)$	mM	116	110	5
$J^{eff,i}_{max}(50)$	nmol cm^{-2} s^{-1}	92	87	5

*Corrected for self inhibition. Four experimentally obtained parameters were used as input to the modified ping pong model. The model only needs two half saturation constants for a calculation of any other half saturation constant (if obtained from asymmetric series, the fixed concentrations of course must be different). As input values we chose $K^{o}_{1/2}$ (obtained for $C^{(i)}$ = 165 mM, $C^{(o)}$ varied: $K^{o}_{1/2}(165)$) and $K^{s}_{1/2}$. The third input parameter is K_I that accounts for self inhibition. We chose K_I = 172 mM obtained in the symmetric series. As we know the asymmetry factor and one asymmetric half saturation constant (which may also be one of the half saturation constants used to calculate A, e.g. $K^{o}_{1/2}(165)$) we only need one J^{eff}_{max} value to calculate the J^{eff}_{max} value under any other conditions. We chose $J^{eff,s}_{max}$. In the lower five rows we compare experimentally obtained flux parameters with those calculated by using the input parameters and the modified ping pong model. The last column shows the deviation of the calculated parameters (%dev. = 100 |(experimental − calculated)| / experimental).

TABLE II

Kinetic Parameters for Bicarbonate Transport at pH 7.8, 38°C
Simple Ping Pong Model (No Self Inhibition)

Parameter	Unit	Experimental	Calculated	% dev.
$K^{o}_{1/2}(165)$	mM	10	—	—
$K^{S}_{1/2}$	mM	46	—	—
$J^{eff,s}_{max}$	nmol cm^{-2} s^{-1}	39	—	—
A	—	—	0.37	—
$J^{eff,o}_{max}(165)$	nmol cm^{-2} s^{-1}	32	32	0
$K^{o}_{1/2}(50)$	mM	3.8	7.4	95
$J^{eff,o}_{max}(50)$	nmol cm^{-2} s^{-1}	20	23	15
$K^{i}_{1/2}(50)$	mM	13	27	107
$J^{eff,i}_{max}(50)$	nmol cm^{-2} s^{-1}	26	31	19

The strategy of Table I was also used in Table II except that self inhibition was ignored, and therefore K_I was not included in the calculations.