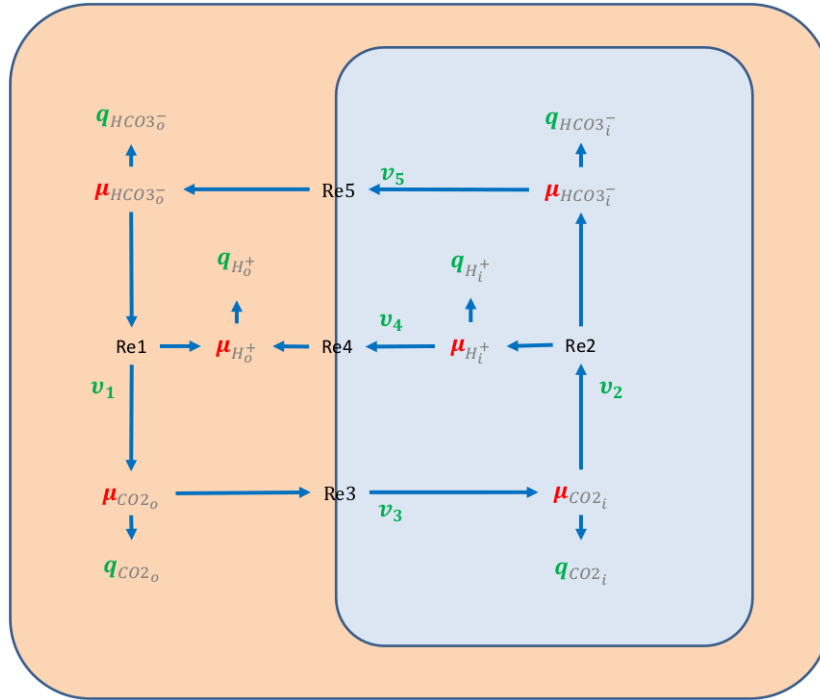


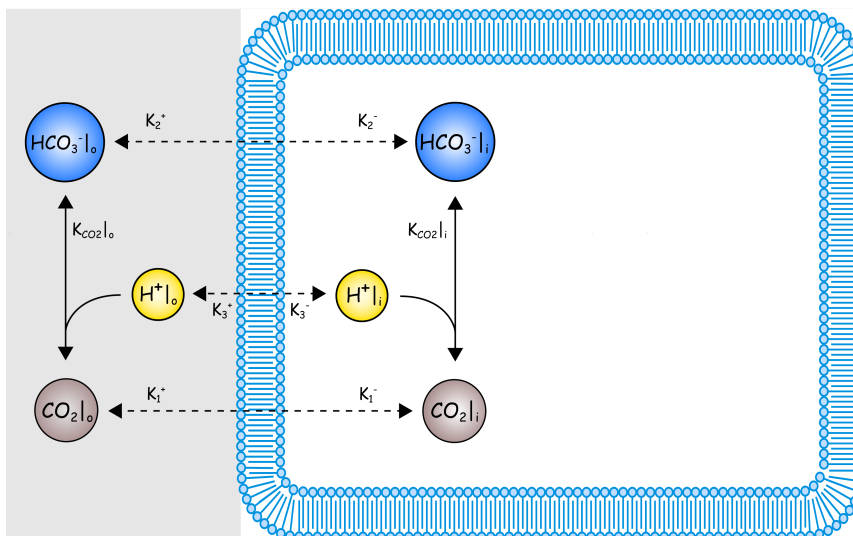
Acid-Base Physiology

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1 Bond Graph Modelling



1.1 The biomolecular cycle



1.2 Causal analysis

1.3 Parameters

2 Simulation

Table 1: Reaction Parameters

Reaction	k_f	k_r	$K_{eq} = k_f/k_r$	κ
Re1	0.0375	1	$7.94\text{e-}7$	0.5071
Re2	567.8	1	$5.6\text{e-}10$	289136
Re3	100000	20		
Re4	100000	20		
Re5	100000	20		

Table 2: Species Parameters

Species	K
$\text{CO}_2(int)$	0.0375
$\text{HCO}_3^-(int)$	567.8
$\text{H}^+(int)$	100000
$\text{CO}_2(ext)$	100000
$\text{HCO}_3^-(ext)$	100000
$\text{H}^+(ext)$	100000

