Table 4.3 Idealized binding and rate constants

Ion	k_{on} (s^{-1})	k_{off}(s^{-1})	K	Function
Na^+, K^+, Cl^-	$>10^9$	$>10^6$	$<10^3$	Electrolytic message
Ca^{2+}	10^9	10^3	10^6	Mechanical trigger
Mg^{2+}	10^5	10^2	10^3	Phosphate transfer
Zn^{2+}, Fe^{2+}	10^8	10^{-2}	10^{10}	'Hormone' communication
Cu^{2+}	$>10^8$	$<10^{-7}$	$>10^{15}$	No exchange
C, H, N, O	Covalent, enzymic control			Structure building
HPO_4^{2-} (RPO_4^{2-})	10^9	10^6(?)	10^3	Trigger
Protein PO_4 (phosphorylation)	Slow	Slow	Weak	Kinetic control faster than C, N, O bond breaking
H^+	$>10^{10}$	Slow to 10^{10}	Huge range	Catalysis, energy store
OH^-	$>10^{10}$	Slow to 10^{10}	Huge range	Catalysis, energy store