



#### Conditions for robust perfect adaptation in A:

$k_9$  and  $k_{10}$  should be both very low, leaving  $E_{\text{set}}$  at a practically constant concentration.  $E_{\text{set}}$  has to work under zero-order conditions, i.e., the  $K_M$  value of  $E_{\text{set}}$  should be much lower than its substrate concentration  $[E_{\text{adapt}}]$ . The 'set-value' of  $A$  is determined by  $[A]_{\text{set}} = V_{\text{max}}[E_{\text{set}}]/k_6 = k_{13} \cdot [E_{\text{set}}]/k_6$ .

**AD8**