

TABLE 8.1 Rate enhancement by selected enzymes

| Enzyme | Nonenzymatic half-life | Uncatalyzed rate ($k_{un} s^{-1}$) | Catalyzed rate ($k_{cat} s^{-1}$) | Rate enhancement (k_{cat}/k_{un}) |
|----------------------------|------------------------|--------------------------------------|-------------------------------------|---------------------------------------|
| OMP decarboxylase | 78,000,000 years | 2.8×10^{-16} | 39 | 1.4×10^{17} |
| Staphylococcal nuclease | 130,000 years | 1.7×10^{-13} | 95 | 5.6×10^{14} |
| AMP nucleosidase | 69,000 years | 1.0×10^{-11} | 60 | 6.0×10^{12} |
| Carboxypeptidase A | 7.3 years | 3.0×10^{-9} | 578 | 1.9×10^{11} |
| Ketosteroid isomerase | 7 weeks | 1.7×10^{-7} | 66,000 | 3.9×10^{11} |
| Triose phosphate isomerase | 1.9 days | 4.3×10^{-6} | 4,300 | 1.0×10^9 |
| Chorismate mutase | 7.4 hours | 2.6×10^{-5} | 50 | 1.9×10^6 |
| Carbonic anhydrase | 5 seconds | 1.3×10^{-1} | 1×10^6 | 7.7×10^6 |

Abbreviations: OMP, orotidine monophosphate; AMP, adenosine monophosphate.

Source: After A. Radzicka and R. Wofenden. *Science* 267 (1995):90–93.