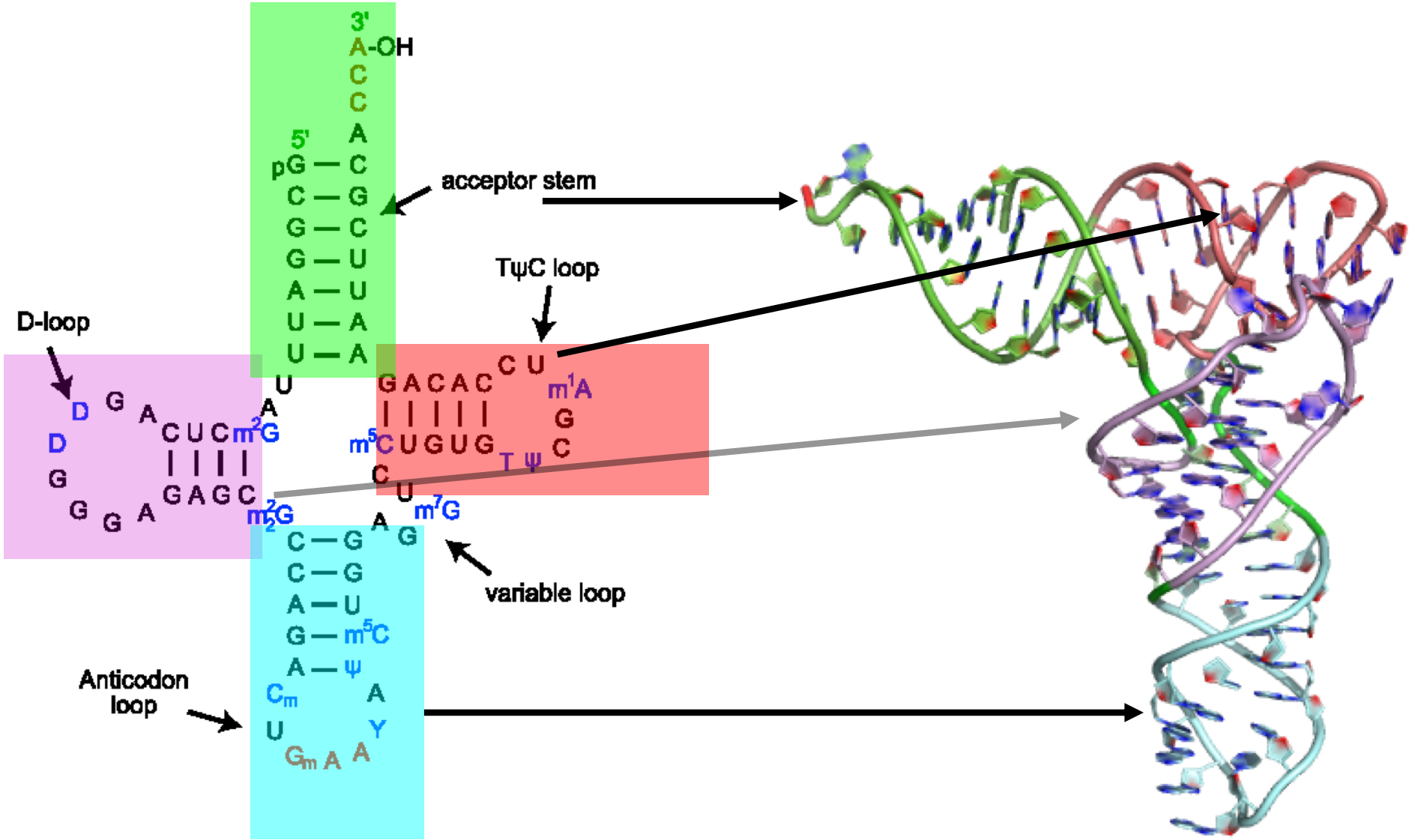
The Genetic Code

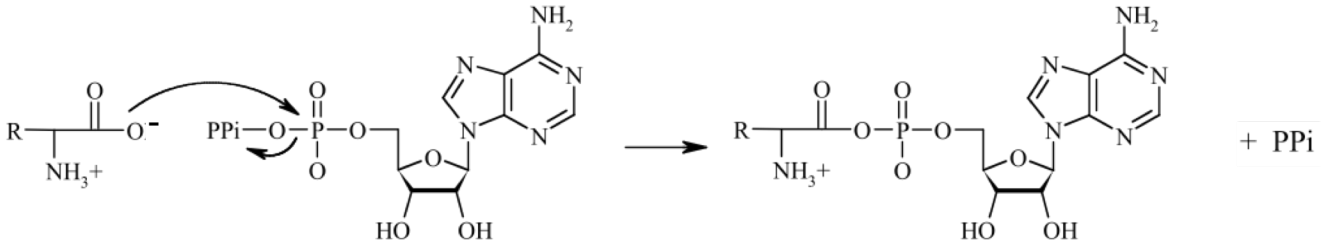
First Base in Codon	Second Base in Codon: U	Second Base in Codon: C	Second Base in Codon: A	Second Base in Codon: G	Third Base in Codon
U	Phe	Ser	Tyr	Cys	U
	Phe	Ser	Tyr	Cys	C
	Leu	Ser	STOP	STOP	A
	Leu	Ser	STOP	Trp	G
C	Leu	Pro	His	Arg	U
	Leu	Pro	His	Arg	C
	Leu	Pro	Gln	Arg	A
	Leu	Pro	Gln	Arg	G
A	Ile	Thr	Asn	Ser	U
	Ile	Thr	Asn	Ser	C
	Ile	Thr	Lys	Arg	A
	Met	Thr	Lys	Arg	G
G	Val	Ala	Asp	Gly	U
	Val	Ala	Asp	Gly	C
	Val	Ala	Glu	Gly	A
	Val	Ala	Glu	Gly	G

tRNA is the Adaptor Molecule



aaRS Catalyzes 2-Step Rxn

1.



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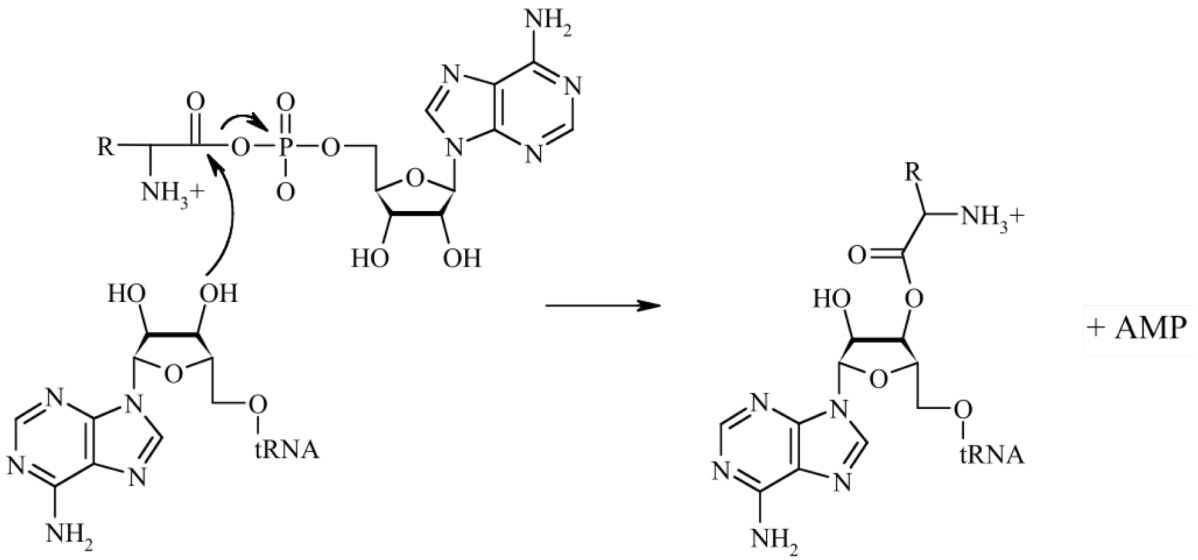
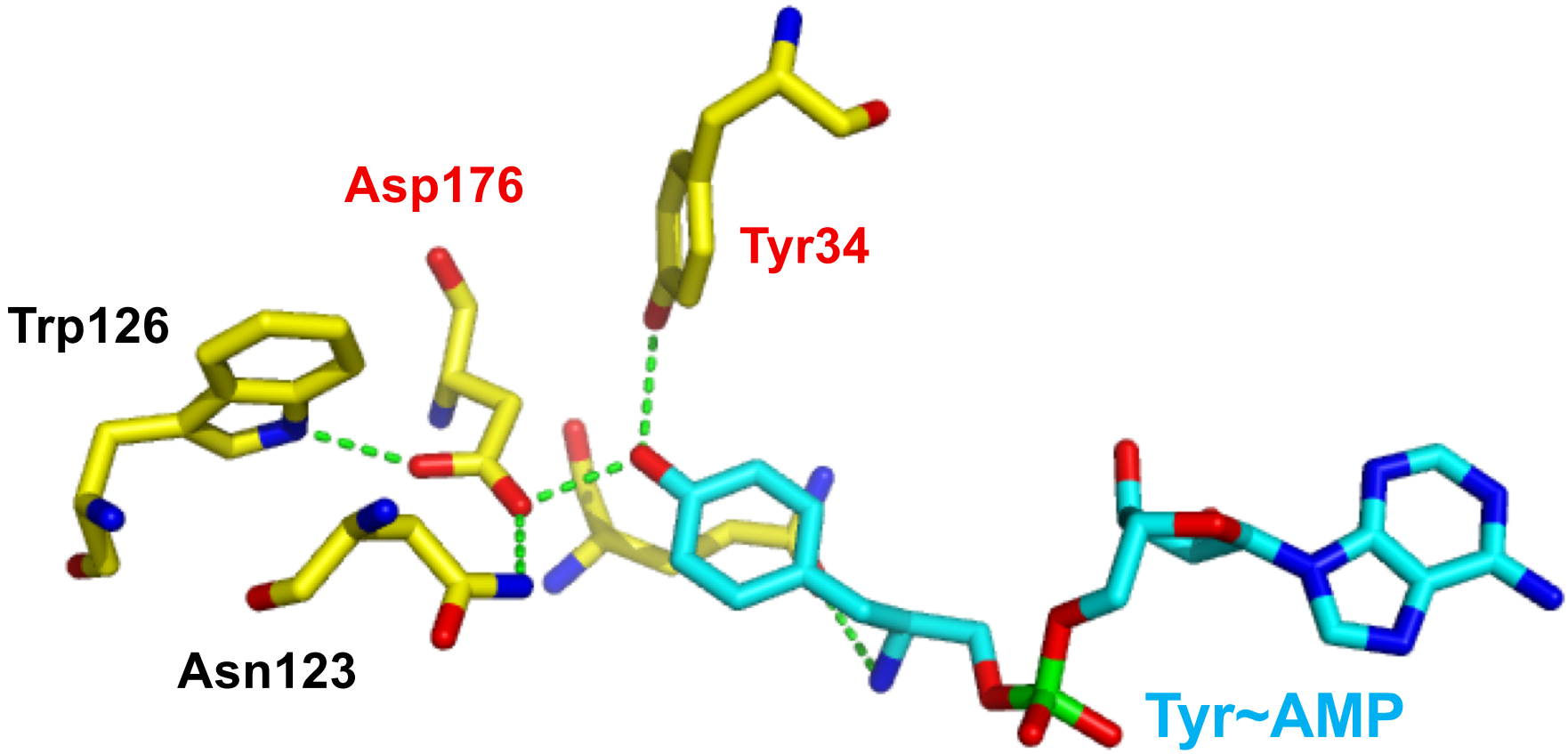
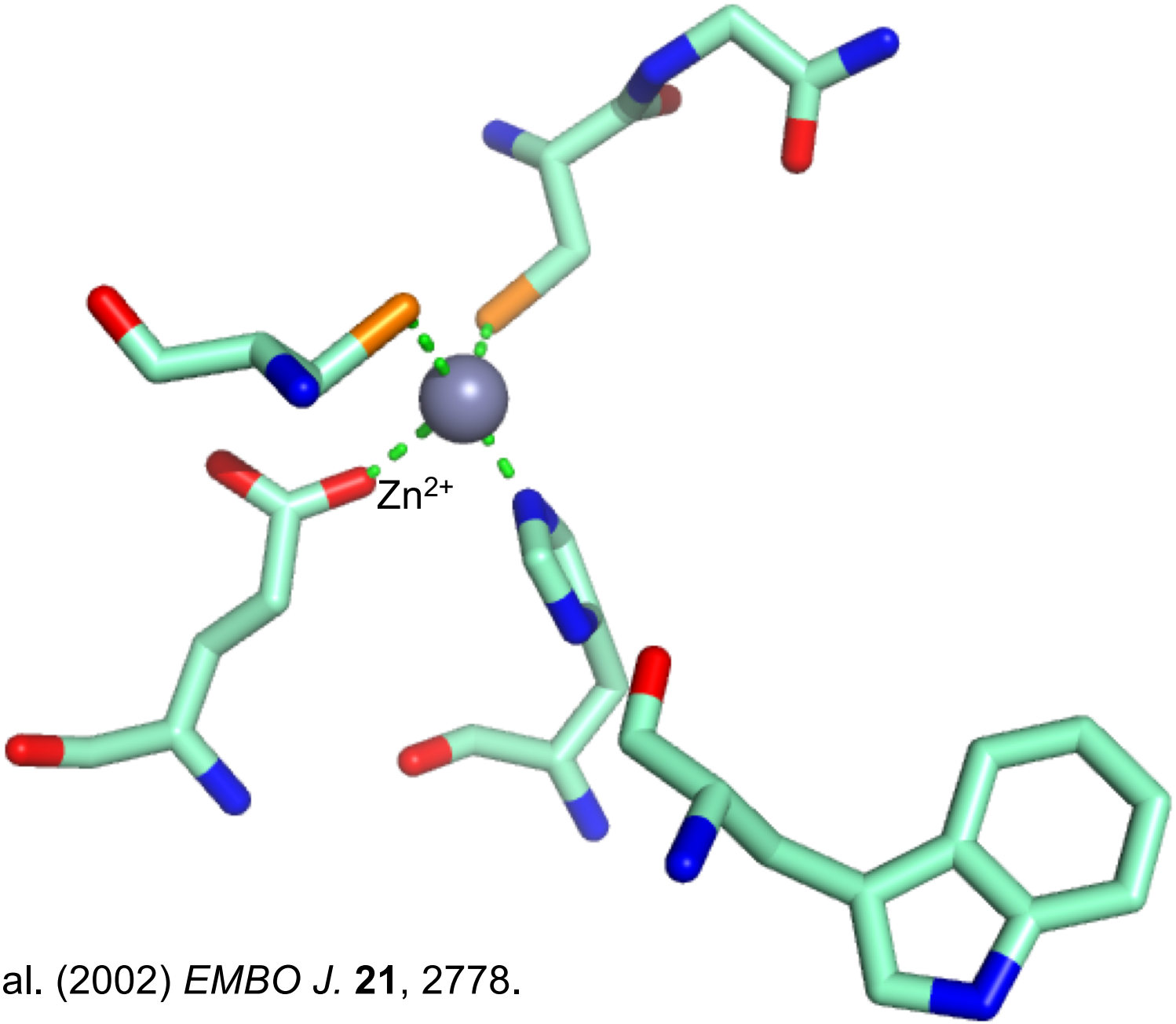


TyrRS•Tyr~AMP Complex

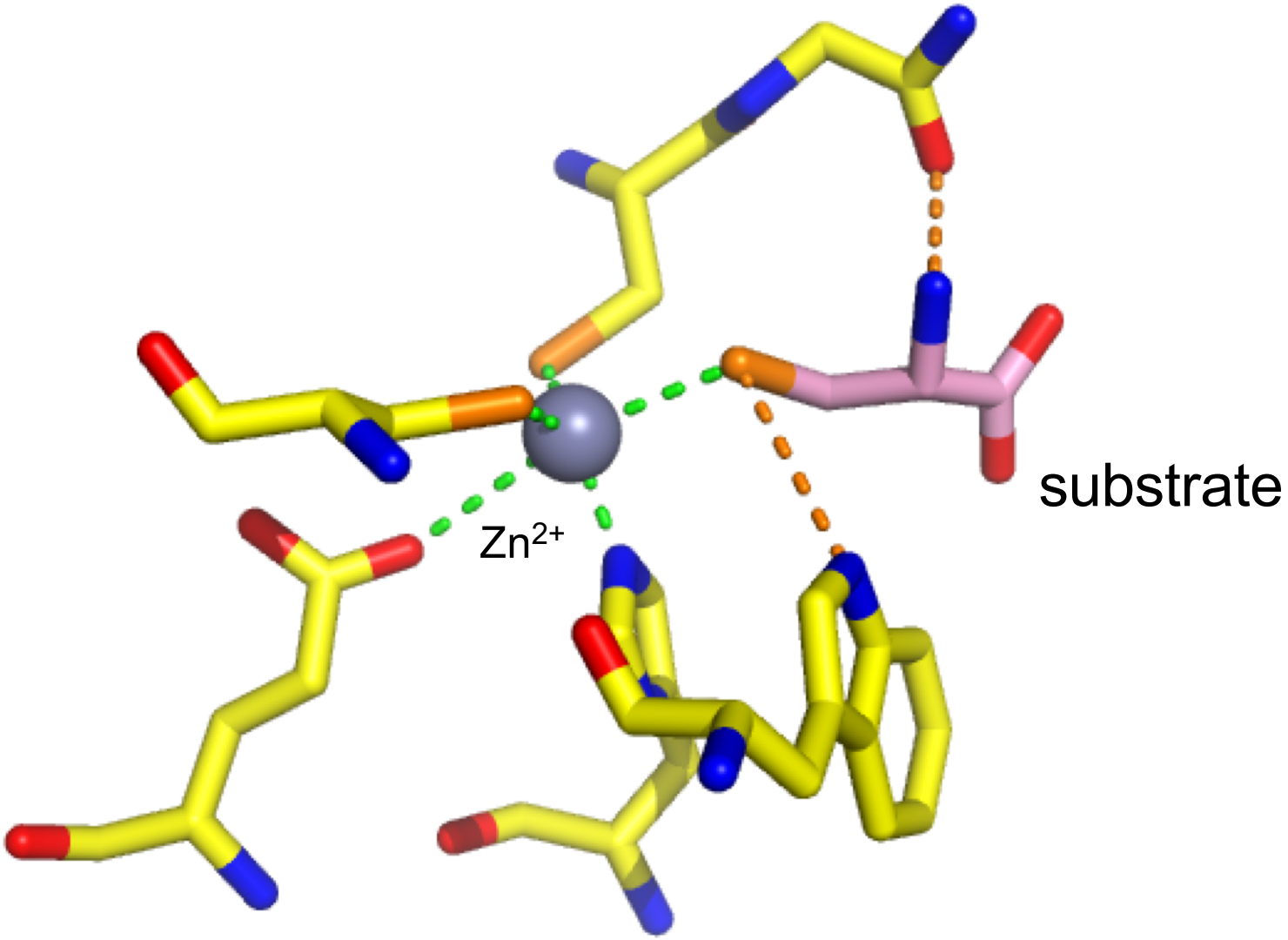


Cysteinyl-tRNA Synthetase



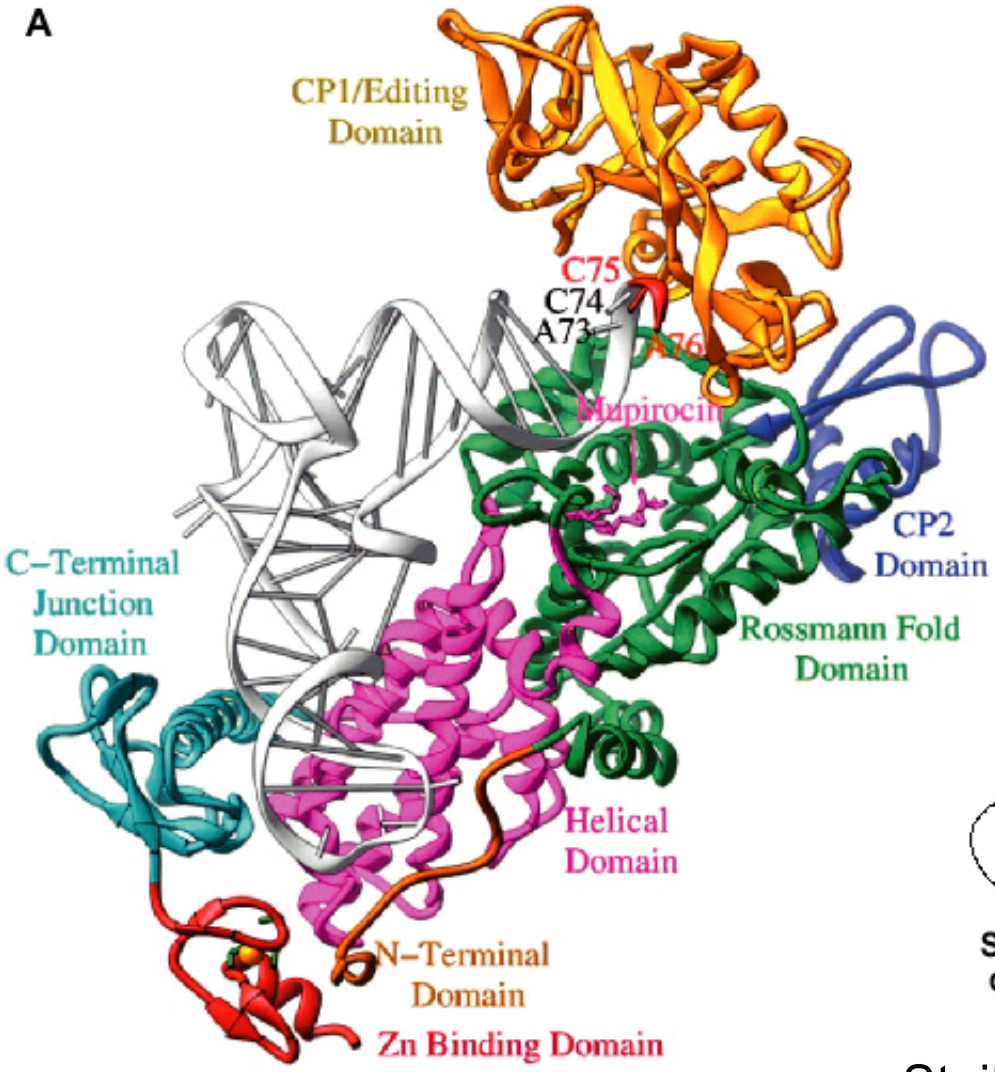
Newberry et al. (2002) *EMBO J.* **21**, 2778.

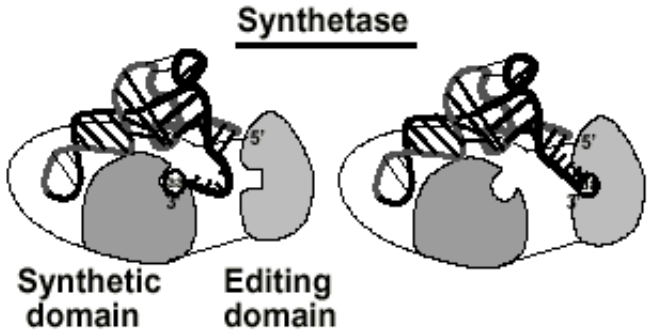
Cysteinyl-tRNA Synthetase



Newberry et al. (2002) *EMBO J.* **21**, 2778.

Isoleucyl tRNA Synthetase



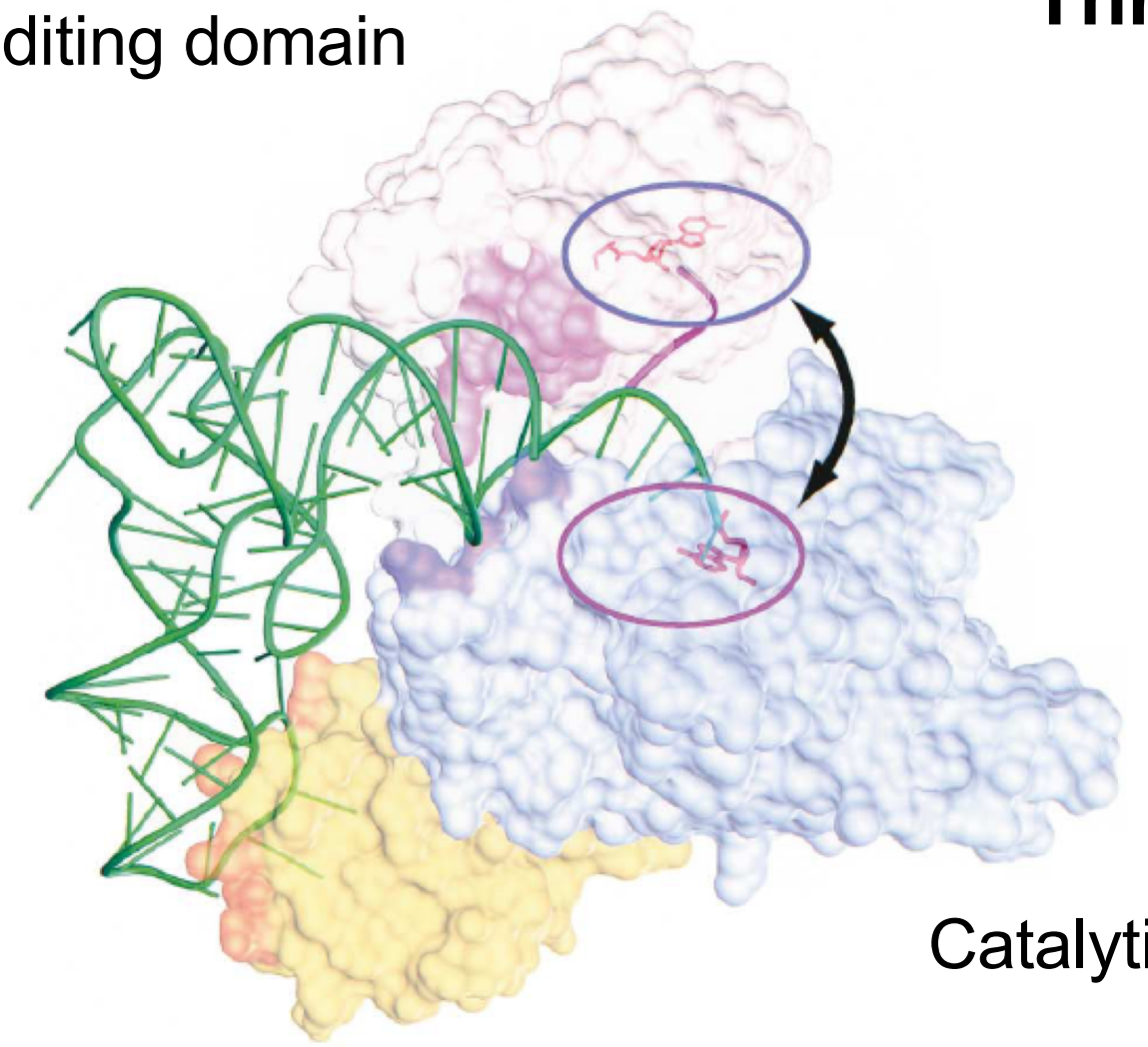


Steitz (1999) *Science* 285, 1074.

Editing vs. Catalytic Domain

ThrRS

Editing domain



Catalytic domain

Molecular Cell, Vol. 16, 375–386, November 5, 2004,

IleRS Editing Site