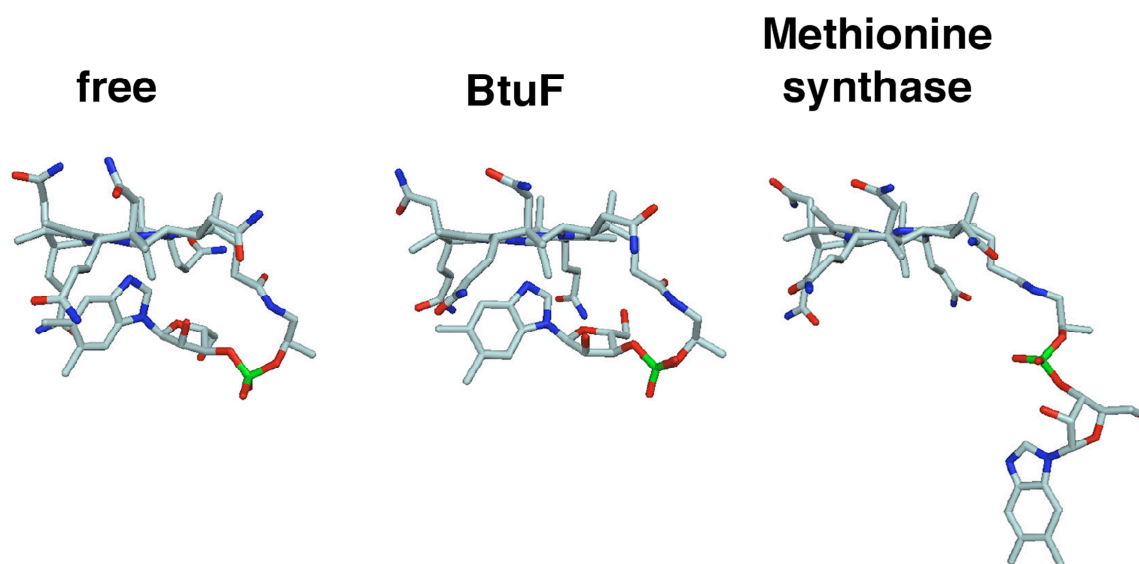
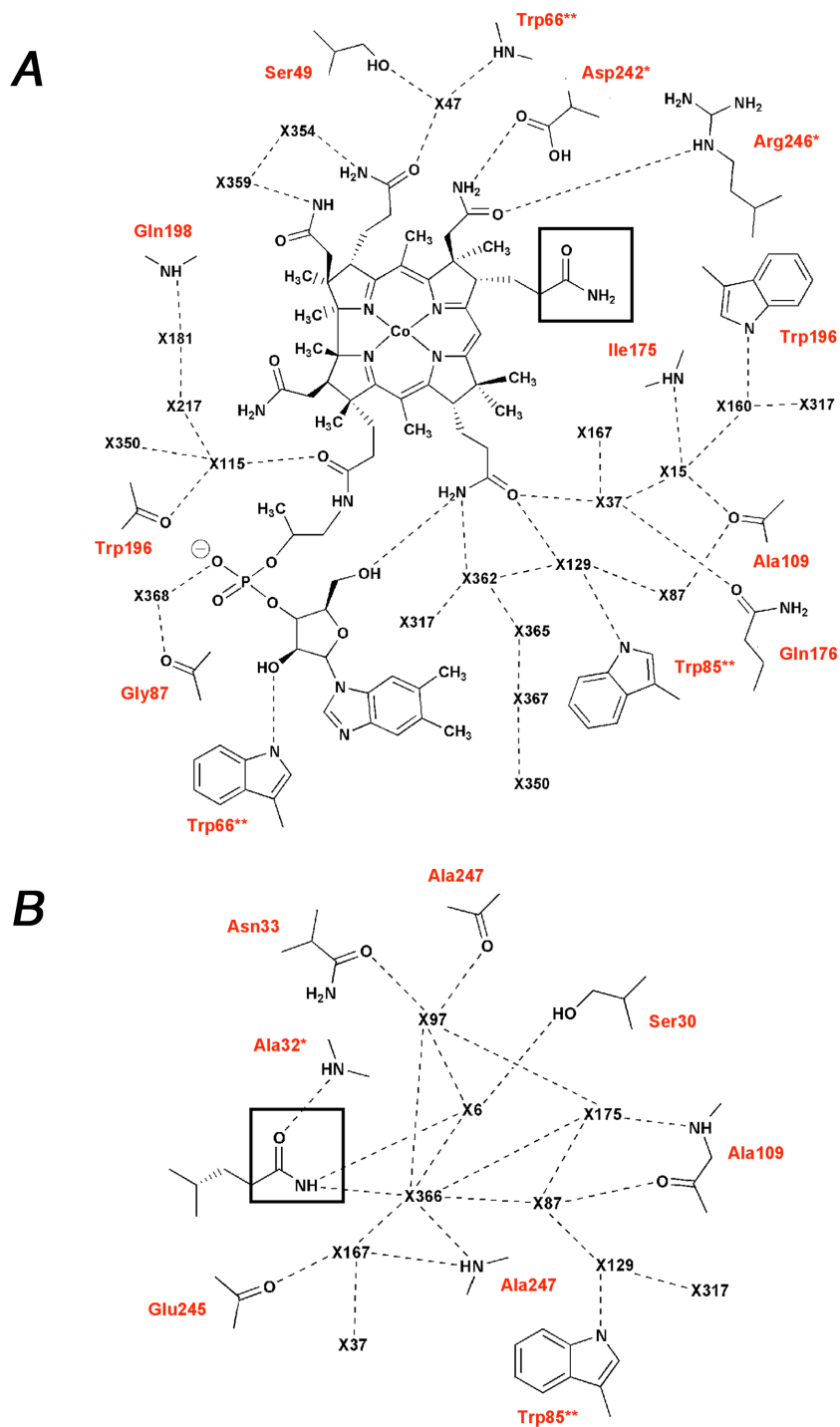


Appendix 2

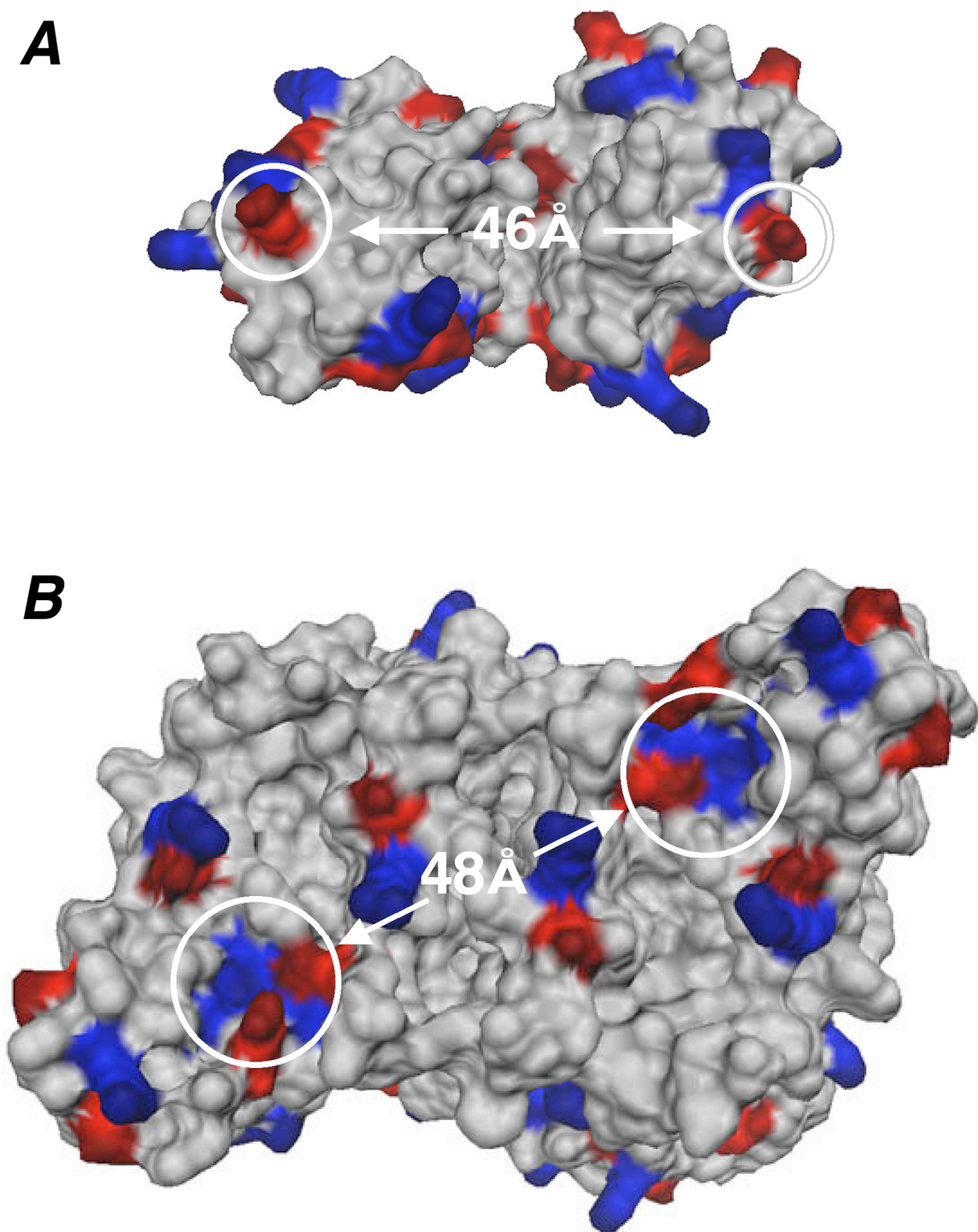
Supplemental Figures to Chapter 2



Supplemental Figure 1. Crystal structures of vitamin B₁₂ in the protein-free (base-on), BtuF-bound (base-on) and methionine synthase-bound (base-off) forms.



Supplemental Figure 2. (A) The hydrogen bond network surrounding vitamin B₁₂ in the BtuF binding site. H-bonds are indicated with dashed lines. Residues from BtuF that make direct or water-mediated contacts are labeled in red. Those residues making direct contact have one asterisk (*); aromatic residues that also make van der Waal's contacts with B₁₂ have two asterisks (**). Water molecules are designated with an X and a number. Interactions with the cobalamin side chain boxed in (A) are illustrated in (B) for clarity.



Supplemental Figure 3. (A) A GRASP electrostatic potential surface representation of BtuF looking down on the B₁₂ binding slot reveals the conserved glutamate “knobs” present on the N- and C-terminal sub-domains. The distance between the alpha carbons of Glu72 and Glu202 is indicated. (B) A GRASP electrostatic potential surface representation of the periplasmic surface of BtuC reveals the conserved arginine “pockets” present on each MSD. The approximate distance between the arginine pockets is indicated.