



**Figure S1.** Structures of eIF5B from *C. thermophilum* and *S. cerevisiae*. **A)** Structure of apo Ct-eIF5B(517C) containing residues 517-1116 comprising the G domain (domain I) and domains II, III and IV. The P-loop, switch 1 and 2 are colored pink. **B)** Structure of Ct-

eIF5B(870C) with residues 870-1116, comprising domains III and IV. **C)** Structure of apo Sc-eIF5B(401-852) comprising the G domain, domain II and domain III. Switch 1 and switch 2 are shown in pink. **D)** Structure of Ct-eIF5B(517-859) in the GTP-bound state comprising G domain and domain II. The switch regions and the P-loop are shown in yellow; the  $Mg^{2+}$  ion,  $Na^+$  ion and water molecules are shown as spheres in magenta, blue, and grey, respectively; GTP is shown as balls and sticks. **E)** Molecule B in the asymmetric unit of the Sc-eIF5B-GDP structure containing residues 401-852, comprising G domain and domains II and III. P-loop and the switch regions are colored cyan; the GDP molecule is shown as balls and sticks. **F)** Structure of Ct-eIF5B(520-970)-GDP comprising G domain, domain II and domain III. P-loop and switch regions are colored cyan, the GDP molecule is shown as balls and sticks. **G)** Molecule A in the asymmetric unit of the Sc-eIF5B-GDP structure containing residues 401-852, comprising the G domain, domain II and domain III. Same color code as in **F)**.