

### **Description of Additional Supplementary Information**

**Supplementary Movie 1:** Movie summarizing human mitochondrial pre-tRNA maturation. The video shows our model of the pre-tRNA binding by TRMT10C/SDR5C1 subcomplex and PRORP recruitment to form the mitochondrial RNase P complex, the exchange of PRORP with ELAC2 to form the RNase Z complex and the exchange with TRNT1 to complete tRNA maturation at the 3'-end. Protein subunits are shown in cartoon, pre-tRNA is shown as ribbon and sticks, subunit coloring is the same as in Fig. 1.