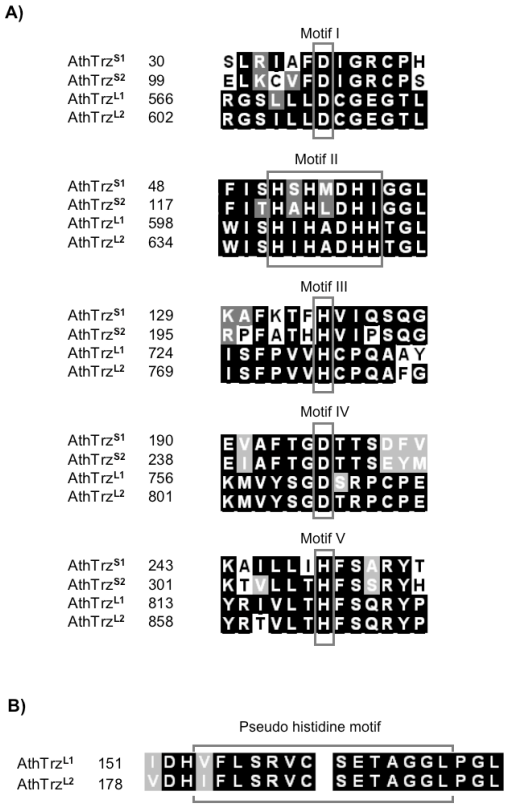
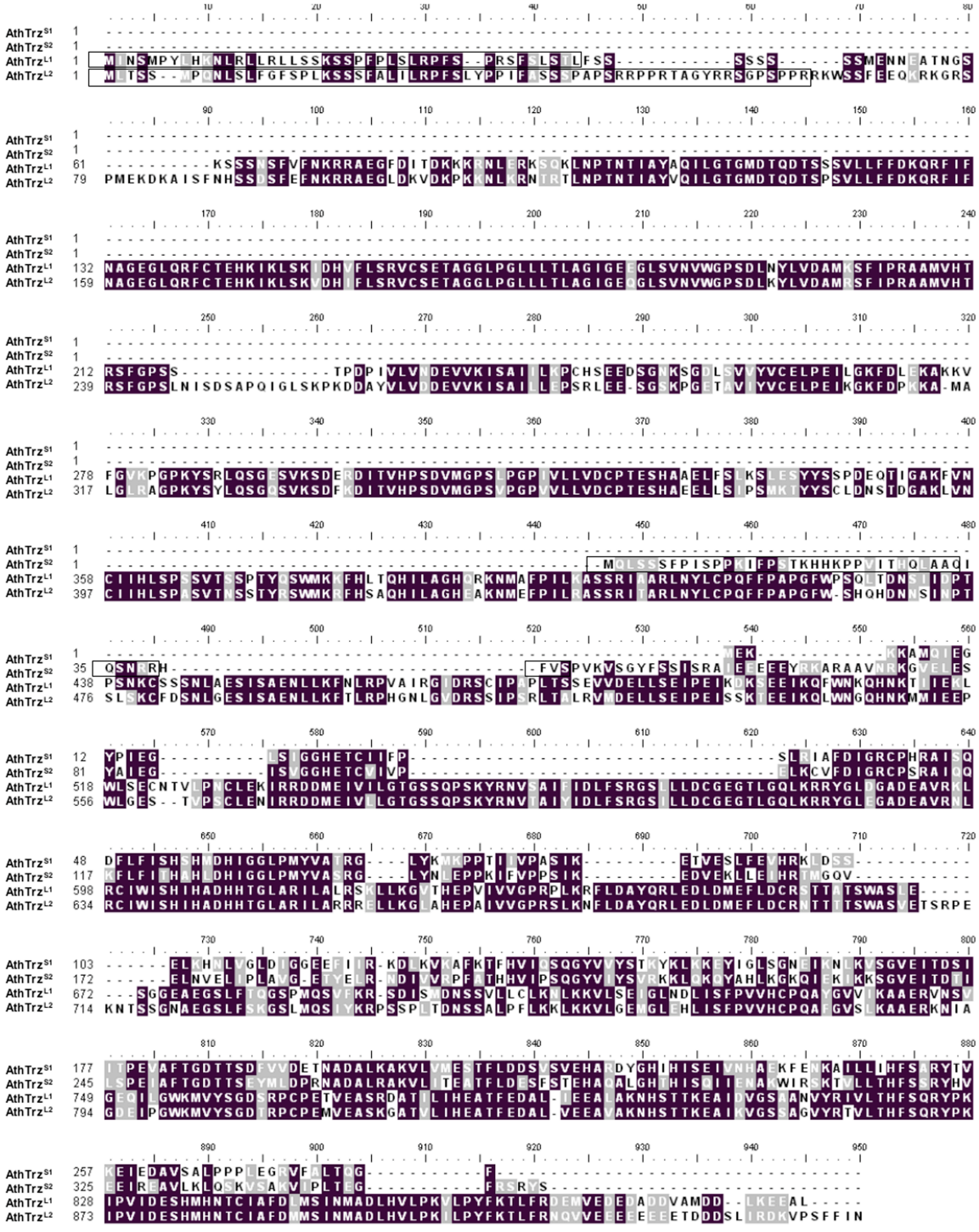
**Supplementary Figure 1**

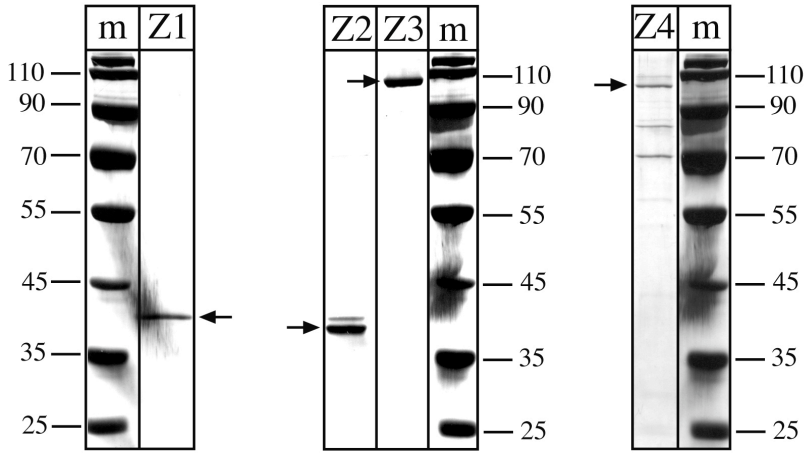



**Supplementary Figure 1. A. and B. Conserved metallo-β-lactamase motives of *Arabidopsis* tRNase Z proteins.** The five motives characterising the proteins of the metallo-β-lactamase superfamily are indicated for the four tRNase Z proteins (Panel A). In addition, the pseudo histidine domain located at the N-termini of the long tRNases Z, AthTrz $^{L1}$ and AthTrz $^{L2}$ is indicated in panel B. The number of the first amino acids for each protein shown is given.




**Supplementary Figure 1. C. Alignment of all four *Arabidopsis* tRNase Z proteins.** *Arabidopsis thaliana* has four tRNase Z genes, two coding for the short form and two for the long form of tRNase Z. Identical residues are shaded in black, similar residues are shaded in gray. The short forms, AthTrz$^{S1}$ and AthTrz$^{S2}$ are 44% identical, the long forms, AthTrz$^{L1}$ and AthTrZ$^{L2}$ share an identity of 69%. The homology between the short and the long form is located mostly at the C-terminal part of the long form. For AthTrz$^{S2}$, AthTrz$^{L1}$ and AthTrz$^{L2}$, the predicted N- terminal signal peptide is indicated by a black box.

**Supplementary Figure 2**




**Supplementary Figure 2. Recombinant tRNase Z proteins of *Arabidopsis***. tRNase Z enzymes were expressed in *E. coli* as fusion proteins with His- and S-tag (AthTrZ$^{S1}$ and AthTrZ$^{S2}$) or only S-tag (AthTrZ$^{L1}$ and AthTrZ$^{L2}$). After purification, the tag was removed from AthTrZ$^{S1}$ and AthTrZ$^{S2}$ and the purified proteins loaded on an SDS PAGE and visualized by silver staining. The calculated molecular weight for these proteins is 31 kDa (AthTrZ$^{S1}$), 32 kDa (AthTrZ$^{S2}$), 96 kDa (AthTrZ$^{L1}$) and 100 kDa (AthTrZ$^{L2}$). Lanes Z1, Z2, Z3 and Z4 are tRNase Z proteins AthTrZ$^{S1}$, AthTrZ$^{S2}$, AthTrZ$^{L1}$ and AthTrZ$^{L2}$. A protein size marker is indicated on the left.