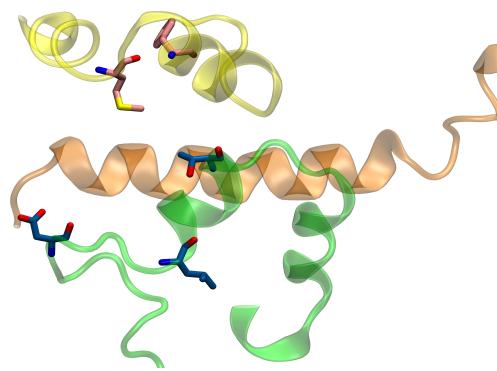
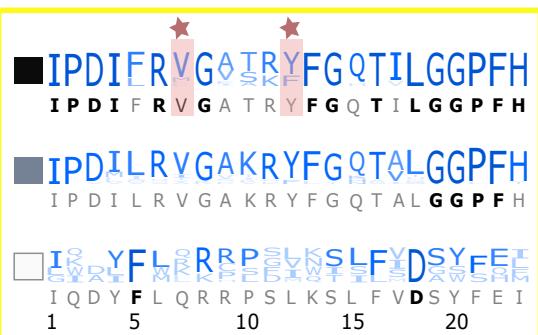
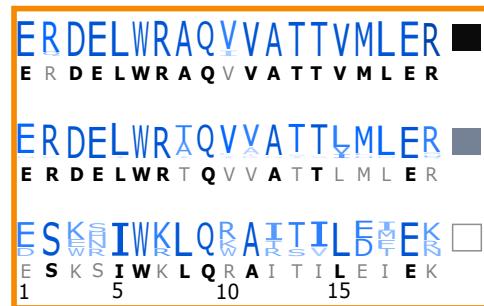


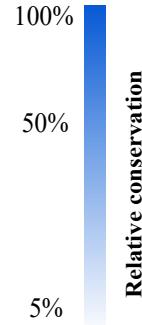
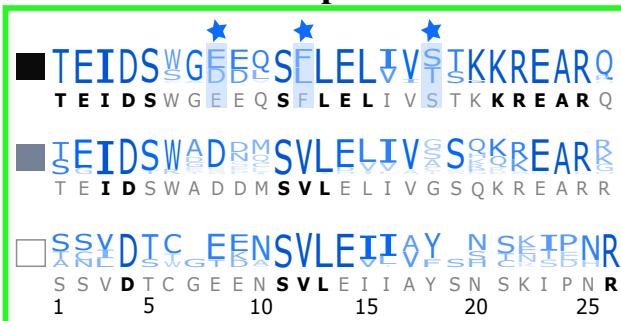
## S2-S3 linker



## TD-helix



## Helix-Loop-Helix



**Supplementary Figure 4.** Residue conservation (in blue shades) for the components of the structural triad. HLH domain (green), S2-S3 linker (yellow), and TD-Helix (orange) are depicted along with the conservation of three sets: mammalian and sauropsid (black box) data, amphibian and fish (gray box) data and the outer group TRPV1-4 (empty box). Residues highlighted in the S2-S3 linker (light pink shades and asterisk) and the HLH domain (blue shades and asterisk) have been directly related to the inactivation phenotype.