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Exploring the role of a new plant specific WG/GW protein family in response to heat stress

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Plants evolved to acquire sophisticated and specialized RNA silencing pathways, leading to sequence specific regulations through Argonaute effector proteins guided by small RNAs (sRNA), targeting either DNA or RNA. Our lab contributed to the development of an original aspect highlighting the existence of an evolutionary GW-rich conserved motif in factors implicated in AGO action, and defined as "Ago hook" proteins. In order to propose a systematic, cross-species approach to the identification of Ago-hook proteins, we developed a bioinformatic screen based on the presence of a GW/WG dipeptide in a compositionally-biased environment. Among candidates identified in A. thaliana, one protein family stands out from factors previously described. This new protein family, composed of two members, is conserved among angiosperms and presents no other known functional domain. Whereas first evidences confirm their AGO-hook properties, our last breakthroughs lead to us to reconsider their role at the crossroads of RNA silencing and abiotic stress regulation pathways, thereby raising many questions at this stage of our work.