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Molecular Interactions Controlling the Response to Abiotic Stress in Plants

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Abscisic acid (ABA) is a key hormone regulating plant growth, development and the response to biotic and abiotic stress. ABA binding to PYR/PYL/RCAR intracellular receptors promotes the formation of stable complexes with certain type 2C protein phosphatases (PP2Cs), leading to the activation of ABA signaling. The PYR/PYL/RCAR family contains 14 genes in Arabidopsis and is currently the largest plant hormone receptor family known. However, it is unclear whether functional differentiation exists among receptors or whether they play redundant roles. We will discuss how their structural and biochemical properties separate the PYR/PYL/RCAR proteins into two distinct classes of receptors with different intrinsic affinities for ABA. *In silico* modeling of the ABA pathway interactions reveals how these differential properties can contribute significant plasticity and adaptability to the ABA response.