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Epigenetic mechanisms associated with drought tolerance in the desert plant *Zygophyllum dumosum boiss*

Plants thriving in harsh desert environments provide a suitable bio-system for unraveling novel mechanisms for survival under seasonal climate change and combination of temperature extremes, low water and nutrient availability and high salinity and radiation levels. The study of the desert plant Zygophyllum dumosum boiss in its the natural habitat of the Negev desert revealed that stress tolerance is achieved by a plethora of mechanisms (e.g. morphological, molecular and developmental mechanisms), which are probably regulated by multiple genes that act together to bring about tolerance of particular interest is the finding that Z. dumosum like other Zygophyllaceae species, most of which inhabit dry and semidry regions of the world, do not possess the repressive epigenetic markers of histone H3 di- and tri-methylated at lysine 9. I'll describe the phenology of the plant, the dynamic of its genome organization and the unique pattern of histone H3 methylation, which could have an adaptive value in variable desert environments.

Speaker Biography

Gideon Grafi [Ph.D.] is a professor of plant biology at the institutes for desert research of the Ben-Gurion University of the Negev, Israel. He received his Ph.D. from the Hebrew University of Jerusalem, faculty of agriculture, where he studied the translational regulation of human beta-interferon by poly (A) tail. Following a postdoctoral study on endoreduplication and the maize retinoblastoma protein at the Brian A. Larkins lab (University of Arizona). He joined in 1996 the department of plant sciences at the Weizmann Institute of Science, Israel, where he studied epigenetics and the control of cellular dedifferentiation in plants. In 2006, he moved to the Ben-Gurion University and his current research interest's center on the significance of dead organs enclosing embryo in seed biology and ecology, mechanisms underlying stress tolerance in desert plants and epigenetics of plant response to stress.

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