**Unveiling the mechanisms underlying photoperiod sensitivity**

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In 1920, Garner and Allard first elucidated the phenomenon of photoperiodism, a discovery that shed light on how plants regulate flowering in response to daylength. While photoperiod sensitivity is crucial for seasonal growth in plants, it also imposes limitations on the global adaptability of crops. To overcome these limitations, agronomists and plant breeders have been working to reduce the photoperiod sensitivity of crops. But what are the regulatory mechanisms underlying photoperiod sensitivity? Soybean, a short-day plant with photoperiod sensitivity, has complicated mechanism controlling its flowering time. Our research has revealed that the *J* gene, a key component of the evening complex (EC), plays a decisive role in soybean's photoperiod sensitivity. Employing reverse genetic approaches, we discovered that the simultaneous knockout of two *LUX* genes in soybean results in an extremely late flowering phenotype under any photoperiod, highlighting the central role of the EC in regulating photoperiod sensitivity. Furthermore, the *PHYA* gene, a pivotal regulator in the photoperiodic response, interacts directly with LUX proteins within the EC and promotes their degradation. The interaction between the E2 protein and the EC forms a complex regulatory loop, known as the photoperiod Taijiloop, which is essential for maintaining soybean's sensitivity to photoperiods. We have identified an increasing number of components involved in the regulation of photoperiod sensitivity and are unveiling the intricate web of their regulatory relationships...