Emerging insights from the green world into growth and ageing

Unlike animals whose form and fate is largely determined a brief embryogenesis, plants typically elaborate variable forms more gradually, and in some cases can grow for thousands of years. These differences can be largely attributed to distinct strategies for survival. With a sessile habit, plants must adapt to their environment to maximise passive capture of energy and nutrient, whereas animals exploit their well-defined body plans to pursue shelter and sustenance. However, despite these differences, animals, plants, and even fungi share a core mechanism descended from single celled ancestors, known as the TOR signalling pathway, which coordinates growth and development with nutrient uptake and utilization. In animals, TOR signalling plays a pivotal role in supporting normal growth, but also is frequently seen as uncontrolled in many forms of cancer. More recently TOR signalling has been linked to metabolic factors that determine lifespan. The recently published review, *TOR signalling in Plants* provides the first in depth comparison of how this pathway operates in plants versus animals and fungi. Although many aspects are common to all three kingdoms, specific features of the TOR pathway in plants suggest novel adaptations that support more flexible programs for growth and the potential for extended life spans. A more comprehensive understanding of these linkages promises novel insights into growth and ageing in animals.

Publication

TOR signalling in plants.
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