2018 Spring Life Sciences & IBB Semin

"Unveiling robustness and specialization among plant hormone transporters"

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Gibberellins (GAs) are plant hormones that promote plant growth and are commonly used in agriculture. While GA perception is well understood, little is known about the process of GA transport or the regulation of GA distribution in the plant. We have utilized a unique bioactive fluorescently-labeled GAs to screen for Arabidopsis mutants deficient in GA transport and identified NPF3 that efficiently transports GA across cell membranes both in vitro and in vivo. NPF3 belongs to an evolutionarily conserved but strongly expanded and diversified family of transporters with 53 members in Arabidopsis and 90 in Tomato. Plant genomes are highly redundant as over 80% of all protein-coding genes belong to families with at least two members. In order to reinforce functional redundancy, we have developed transportom-scale amiRNA multiplexing screens that aim to close the current gap in knowledge regarding the robust and specialized mechanisms used by plants to transport hormones. Our screens revealed multiple novel functionally redundant putative plant hormone transporters, among them the NPF and ABC families. On this basis, we propose that functionally redundant but specialized activity of the NPF and ABC families drive hormone distribution, activity and growth in Arabidopsis and Tomato.

- Date: 4:30PM/May. 11(Fri.)/2018
- Place: Auditorium(1F), Postech Biotech Center
- Inquiry: Prof. Youngsook Lee (279-2296)

*This seminar will be given in English.

*Please refrain from taking photos during seminars.