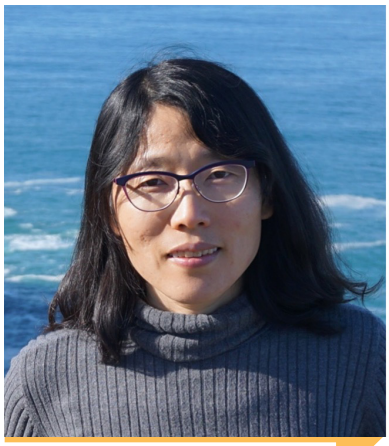
GDCB Seminar

Tuesday, September 27, 2022 — 1:10 p.m. * **1414 Molecular Biology Building**

'Specific control of sucrose phloem loading'

Abstract: Fixed carbon transport from photosynthetic tissues to non-photosynthetic ones is critical for plant growth, development and production. Sugar transporters are required to facilitate sugar transport for species using apoplasmic loading and/unloading strategies. SWEET sugar transporters are involved in many different biological processes. SWEET11 and 12 mediate sucrose export from leaf phloem parenchyma cells to the apoplasm as the first step in the two-step phloem-loading process, and then the proton-sucrose symporter SUC2 transports the sucrose into the sieve element/companion cell complex for the long-distance phloem transport. The sweet11;12 double mutant impairs sucrose export from the leaf, while the phenotype of sweet11;12 double mutants is not stunted as suc2, indicating more SWEET members may be involved in the phloem loading process. Indeed, the higher order of sweet mutants displayed comparable phenotypes with the suc2 mutant. In addition, the constitutive expression of either SWEET11 or SWEET12 results in a dwarf phenotype similar to sweet11;12, suggesting that precise control of sugar efflux mediated by SWEETs is critical. We have found that the phloem parenchyma specific expression of SWEET11 is determined by the native SWEET11 promoter and either one of the two evolutionarily conserved and duplicated regions in the SWEET11 CDS, which is an unusual mechanism underlying the specific gene expression.



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Host: Joe Aung, assistant professor in the Department of Genetics, Development and Cell Biology

**** Please note new time (1:10 p.m.) for GDCB Seminars.***