

한림대학교 생명과학과/  
BK21/융복합유전체연구소  
세미나

일시: 2026. 3.19(목) 16시 30분  
장소: 생명과학관 8116호

# How Humans Shaped Crops from Wild Plants to Future Varieties

이윤경 교수

서울대학교 식물생산과학부/작물생명과학 전공



## Abstract

The human civilization coincides with the origins of agriculture, marking a dynamic history of co-evolution between humans and plants through domestication. Rice was domesticated from its wild ancestors, diverging into major subspecies to meet human needs. Even post-domestication, rice continued to develop independent genetic variations driven by regional environments and cultural preferences. Notably, molecular signatures of selective sweeps were observed between white and pigmented rice. While early crop improvement relied on passive selection dictated by environmental chance, it leaped forward into active breeding in the modern era. The Green Revolution introduced semi-dwarf genes into staple crops, drastically increasing yields and successfully mitigating global food crises. Nevertheless, monocropping high-yield varieties led to drastic reduction in genetic diversity within crop populations. Today, modern breeding has undergone a paradigm shift, moving beyond quantitative growth to complex traits like climate resilience, nutritional value, and eating quality. This lecture highlights recent research applying the advanced omics techniques to uncover the molecular mechanisms determining the eating quality of cooked rice. Through large-scale GWAS and the exploration of structural variations via de novo assembly, we functionally validated *pgi-b* gene and P5 locus, respectively. By applying the knowledge to MAS, we successfully developed 'Seonong 28', a novel high-quality rice variety. Ultimately, this talk aims to present a vision for the future of crop breeding, where a deep understanding of evolutionary and population genomics converges with cutting-edge data science.

주관: 한림대학교 생명과학과/ BK21 사업단/ 융복합유전체 연구소

문의: 정동훈 교수 (dhjeong73@hallym.ac.kr)

