8 Sjukdoms-resistens	**Bruk av CRISPR-teknologi for å utvikle sjukdomsresistent salat**
	Using CRISPR technology to develop pathogen resistant lettuce

Each year 30-40 % of global crop production is lost to pathogens like fungi, bacteria, insects, nematodes and oomycetes, and is thus a major threat to the farmer's economy and global food security. Successful pathogen infection involve targeting plant factors encoded by susceptibility (S) genes to manipulate host processes to their advantage. Some of the processes pathogens use to promote infection, are suppression of plant defenses, nutrient acquisition, and transport of pathogenic proteins in the host cell.

We have done RNA sequencing of lettuce (*L. sativa*) plants infected *S. sclerotiorum* and identified several highly up regulated genes that are candidate genes for susceptibility. In this project, we will transform different cultivars of lettuce with CRISPR-Cas9-constructs targeting genes potentially involved in susceptibility for *S. sclerotiorum*. Several different transformation methods will be used and modified to obtain optimized transformation frequency.

You will learn: Standard molecular techniques such, PCR, real-time qPCR as well as plant and pathogen specific techniques, CRISPR/Cas9 gene editing and bioinformatics. Optimization of methods for Agrobacterium-mediated transformation af plant tissue.

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