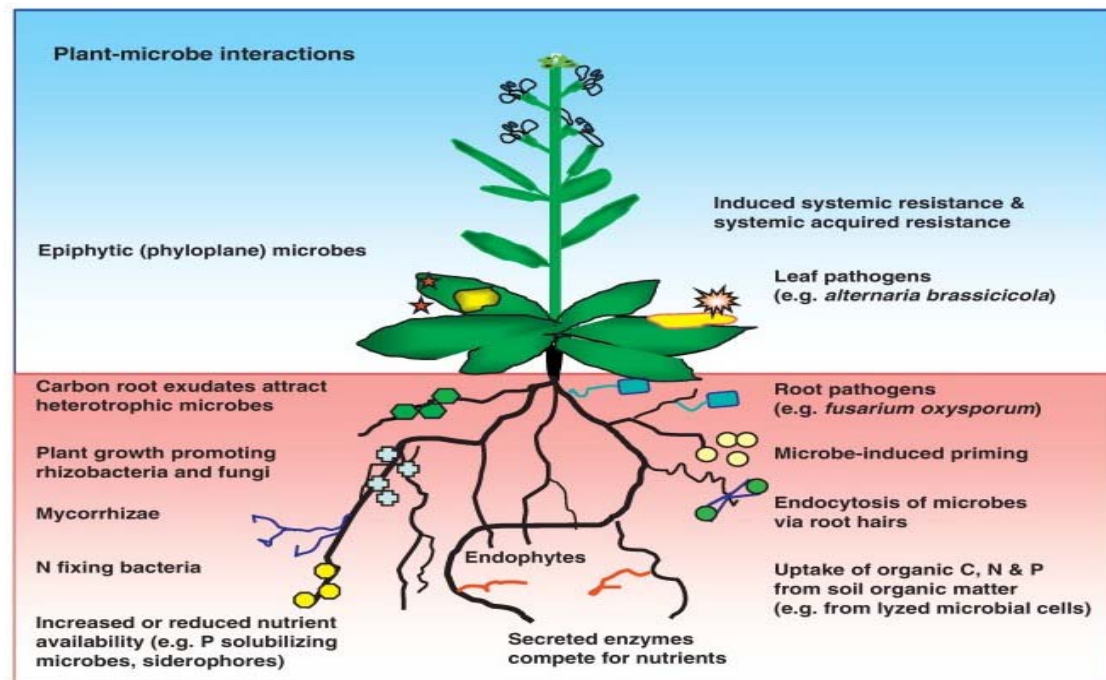


Molecular Plant-Pathogen Interactions

Diversity in plant-microbe interactions

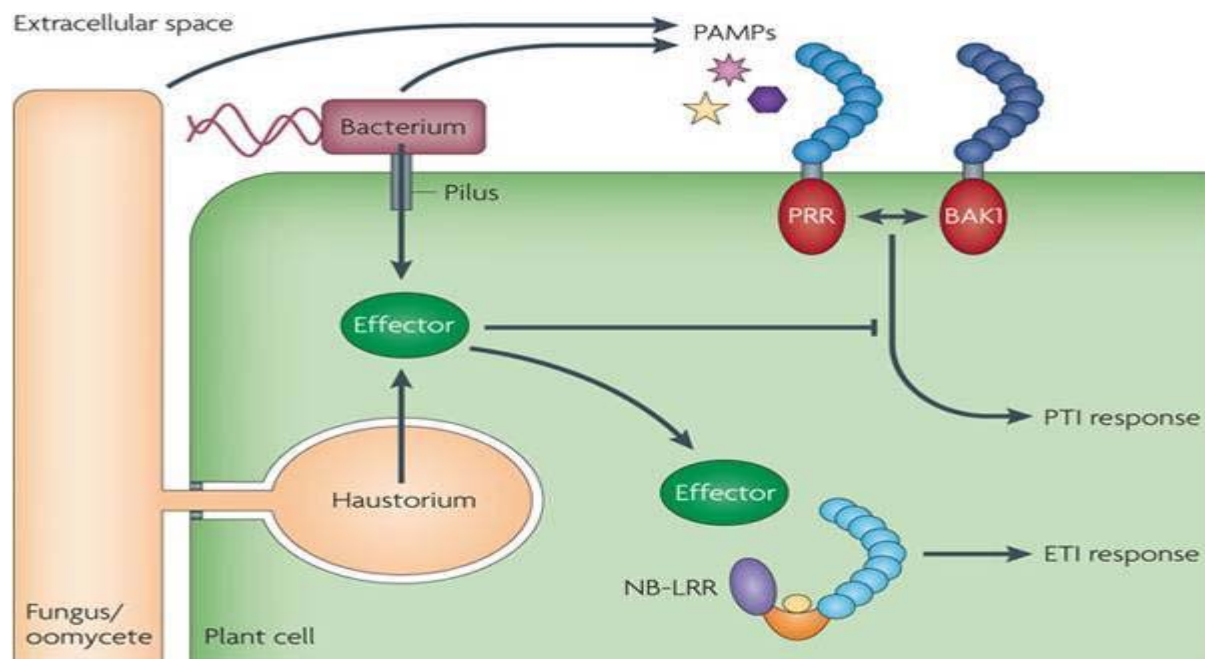


- Plant disease is the exception rather than the rule
- The majority of plants are resistant to infection by the majority of microbes.
- What are the hallmarks of a successful pathogen, and a plant that is resistant to disease?

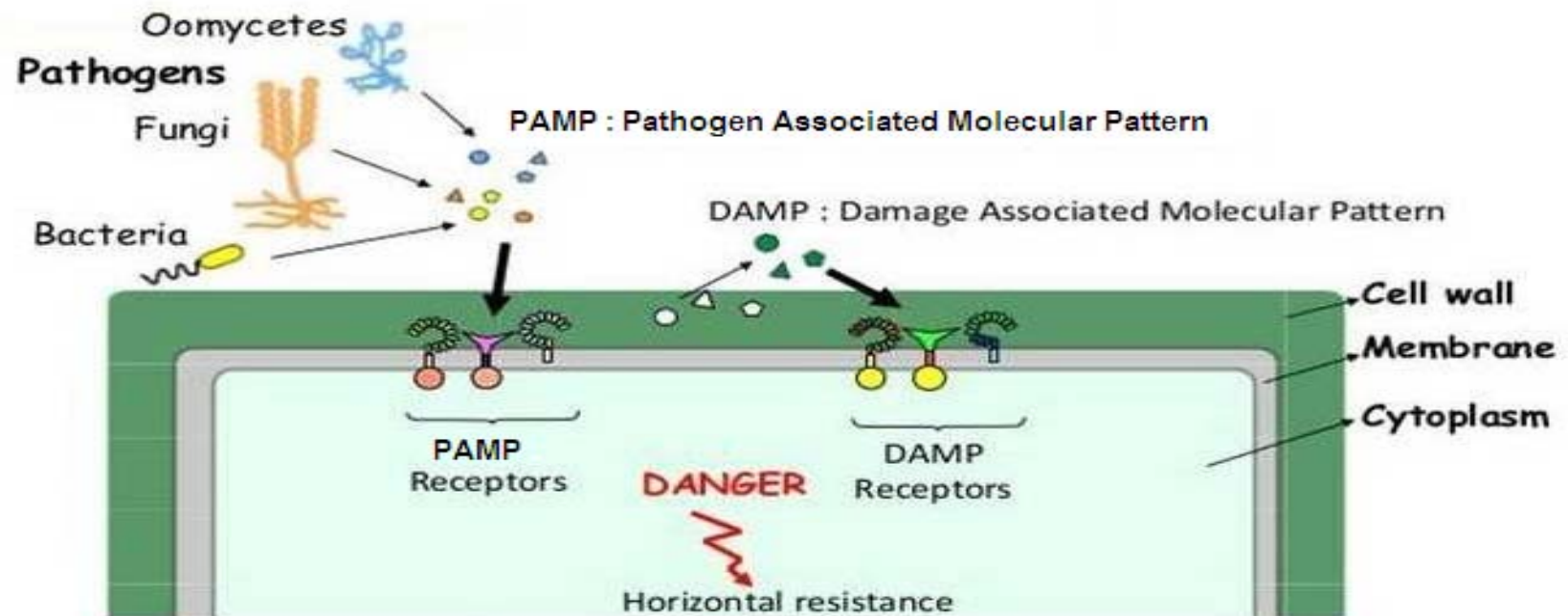
Innate immune system in plants - Two-tiered

- PTI (PAMP Triggered Immunity) (General and basal resistance)
- ETI (Effector Triggered Immunity)(Gene-for-gene interactions)
 - Gene-for-gene hypothesis was given by H.H. Flor in 1946 while working with rust (*Melampsora lini*) of flax (*Linum usitatissimum*)
 - Flor showed that the inheritance of both resistance in the host and parasite ability to cause disease is controlled by pairs of matching genes. One is a plant gene called the resistance (*R*) gene. The other is a parasite gene called the avirulence (*Avr*) gene. Plants producing a specific R gene product are resistant towards a pathogen that produces the corresponding *Avr* gene product.

Pathogen recognition by host

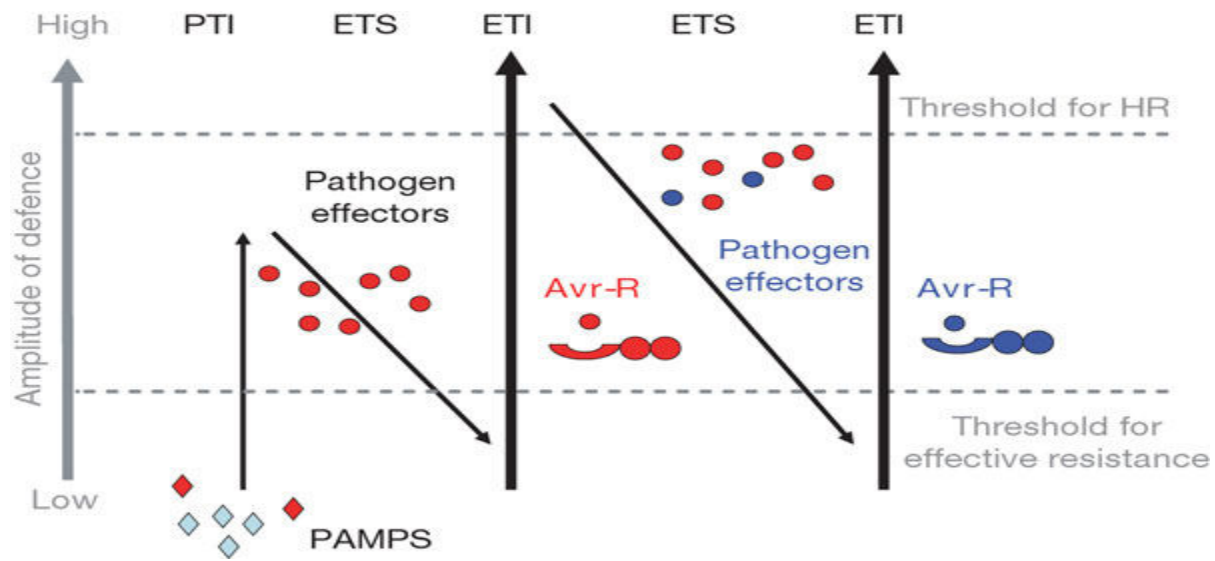


PTI - Basal resistance development



Is it a one step interaction?

Zigzag model of plant-pathogen interaction



PAMP - Pathogen Associated Molecular Patterns; **PTI** - PAMP Triggered Immunity;
ETS - Effector Triggered Susceptibility; **ETI** - Effector Triggered Immunity

Signalling by biotrophs and necrotrophs- Are they same?

