



Wednesday, March 2, 2022

4:00 P.M.

Ackert Hall, Room 120

Biochemistry  
&  
Molecular  
Biophysics

Seminar

## **Sword and Shield:**

**Roles of Parasite Effectors and Plant Cell Wall during  
Parasite – Host Interactions**

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Successful parasites possess effector proteins that can compromise their hosts' defense ability. During coevolution, parasites have also gained the ability to change effector compositions rapidly to counter detrimental changes in hosts. Gall midges in *Mayetiola* including the Hessian fly are very successful in adaptation to changes in host defense. The Hessian fly devotes over 10% of its genes coding for effector proteins that have diverse functions. A programmed mechanism appears to exist to generate high rates of mutations specifically in effector-coding regions. To counter parasite attack, plants have developed several layers of defense. The most effective and the first layer of defense in wheat against Hessian fly is the rapid mobilization of adjacent resources to form a shield in cell wall to prevent insect effectors from spreading into un-attacked adjacent cells.