

In the news

CHITIN MIGHT HOLD KEY TO ASTHMA

A recent study from Richard Locksley's group (Nature.com, 22 April 2007) reveals how chitin, the substance that is present in the protective shells of crabs and beetles, might cause asthma.

Previous studies have linked chitin to the development of asthma, and the current study describes how chitin induces an allergic reaction in mice. Mice that produce more chitinase (an enzyme that breaks down chitin) than normal had a reduced immune response after exposure to chitin. Furthermore, mice exposed to chitin that had been pretreated with chitinase developed a less severe response than mice exposed to untreated chitin.

Individuals working in the shellfish industry have higher rates of asthma and, according to Locksley, "It is possible that afflicted workers have forms of the chitinase that function less well than the other common genetic variants" (BBC News, 22 April 2007). Leanne Male, Assistant Director of research at Asthma UK, said that although more work was needed to confirm these findings in humans, "this study reveals a mechanism by which chitin can trigger allergic inflammation" (BBC News, 22 April 2007).

Because chitin is widespread in the environment, Locksley says, "Now that we've demonstrated that chitin can trigger this kind of allergic inflammation in mice, we want to determine whether chitin naturally present in the environment can contribute to allergic or inflammatory responses" in humans (UCSF News Release, 22 April 2007).

Locksley is now working with Esteban Burchard at the University of California, San Francisco (UCSF) to investigate whether patients with asthma have defective forms of the chitinase gene that would result in decreased efficiency in breaking down chitin.

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