

Joint news release

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BASF and University of Göttingen scientists find new specific insecticide target protein

Research Triangle Park, USA and Göttingen, Germany - Scientists from BASF Crop Protection and the University of Göttingen in Germany have found a new insecticide target protein. The discovery marks the first identification of vanilloid receptors, the TRPV ion channels (transient receptor potential vanilloid), as insecticide targets. The results, published in the scientific journal *Neuron* on May 6, 2015, could help to better manage insecticide resistance and have implications for research and insecticide usage.

In their study, the scientists focused on the mode of action of the insecticides pymetrozine and pyriproxyfen. They identified a novel TRPV ion channel complex as the target protein of the two substances. In insects, two TRPV channels exist, which occur together in certain stretch receptors that are present in joints, for example in the antennae and legs. By sensing mechanical stimuli, these stretch receptors provide insects with their senses of balance, hearing and coordination. The two insecticides only act selectively on these stretch receptors because they activate an ion channel complex formed by the two TRPV channels. By activating this TRPV channel complex, the insecticides overstimulate the stretch receptors, disturbing insect locomotion and feeding. Substances with this mode of action are effective against many plant-sucking pests, particularly whiteflies and aphids.

By knowing the exact target of pymetrozine and pyriproxyfen, the industry can now provide better advice on spray programs to farmers. "For instance, we would not want to treat fields with these two substances one after the other. The more you attack one particular target site, the faster insects will become resistant. The findings help us to use insecticides more wisely and more sustainably," concluded Vincent Salgado, biologist at BASF Crop Protection.

“The fact that the two insecticides target a TRPV channel complex is particularly interesting,” says the Göttingen neuroscientist Prof. Dr. Martin Göpfert. “For a long time we thought that the two insect TRPVs might form a complex in those stretch receptors, but only the insecticides allowed us to show that this is what they do.”

The study thus encompasses exciting biology: It identifies a novel ion channel complex that plays a key role in the detection of mechanical stimuli. Furthermore, the methods employed by the study can be applied to other insecticides, and they may help in the identification of new insecticides with similar modes of action.

About University of Göttingen

Founded in 1737, Georg-August-University Göttingen is a research university of international renown with strong focuses in research-led teaching. The University is distinguished by the rich diversity of its subject spectrum particularly in the humanities, its excellent facilities for the pursuit of scientific research, and the outstanding quality of the areas that define its profile. From 2007 to 2012, Georg-August-University Göttingen was rewarded funding from the Initiative of Excellence of the German Federal and State Governments with its institutional strategy for the future entitled “Göttingen. Tradition – Innovation – Autonomy”. The University was able to realize all measures of the concept. Now Göttingen University is developing the successfully established measures further to continuously advance the University's positive developments in research and teaching.

About BASF's Crop Protection division

With sales of more than €5.4 billion in 2014, BASF's Crop Protection division provides innovative solutions in crop protection, seed treatment and biological control as well as innovations to manage nutrients and plant stress. Its portfolio also includes products for turf and ornamental plants, pest control and public health. BASF Crop Protection is a leading innovator that partners with growers to protect and enhance crop yields, enabling them to produce high quality food more efficiently. By delivering new technologies and know-how, BASF Crop Protection supports growers to make a better life for themselves, their families and communities. Further information can be found on the web at www.agro.basf.com or on our [social media channels](#).

About BASF

At BASF, we create chemistry – and have been doing so for 150 years. Our portfolio ranges from chemicals, plastics, performance products and crop protection products to oil and gas. As the world's leading chemical company, we combine economic success with environmental protection and social responsibility. Through science and innovation, we enable our customers in nearly every industry to meet the current and future needs of society. Our products and solutions contribute to conserving resources, ensuring nutrition and improving quality of life. We have summed up this contribution in our corporate purpose: We create chemistry for a sustainable future. BASF had sales of over €74 billion in 2014 and around 113,000 employees as of the end of the year. BASF shares are traded on the stock exchanges in Frankfurt (BAS), London (BFA) and Zurich (AN). Further information on BASF is available on the Internet at www.basf.com.

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