



THE FLORIDA STATE UNIVERSITY OFFICE OF IP DEVELOPMENT & COMMERCIALIZATION



Technology Opportunity

Identification of Major Cashew and Walnut Allergens

Cashews and walnuts are commonly used in snack foods and as an ingredient in a variety of processed foods, such as bakery and confectionary products. For those who are allergic to these nuts, consuming them can lead to reactions ranging from dermatitis to deadly anaphylactic shock. FSU researchers have identified specific amino acid sequences in walnut and cashew proteins that produce allergic reactions in humans.

Applications

- Test for cashew and walnut allergies
- Generate vaccines for patients with nut allergies
- Development of genetic modifications of the proteins in cashew and walnut plants to generate hypoallergenic plants

Advantages

- Previous methods use crude extracts for allergy testing and treatment
- Better defined reagents for testing and vaccination would reduce the risk of side effects
- Increase the reliability of allergy tests
- Hypoallergenic nuts would lessen health risk to allergy sufferers and reduce potential liability of food processors



Technology

Researchers have identified allergens in cashews, walnuts, pecans, almonds, chestnuts, and pistachios using serum from allergic patients to screen cDNA expression libraries. Once cloned and expressed, the offending proteins are subjected to epitope mapping techniques and mutagenesis to generate a hypoallergenic version. At the same time, researchers are developing polyclonal and monoclonal antibodies to tree nut allergens to be used by the food industry in testing suspected foods for contamination with allergens.



The Inventors

Kenneth Roux

Dr. Roux received his PhD from Tulane University in 1974. After three years of postdoctoral training at the University of Illinois Medical Center he joined the Department of Biological Sciences at FSU where he rose through the ranks to full professor. In 2005 he received both the university's Distinguished Research Professor Award and was named the Kurt G. Hofer Professor of Biological Science. With 129 publications, in addition to his research on food allergens, he has published extensively on immunoglobulin structure and function and on the structure of HIV virus.



Shridhar Sathe

Dr. Sathe received his PhD from Utah State University in 1982. After six years of post-doctoral training at the University of Arizona (1981-1985) and Purdue University (1986-1988) he joined the Department of Nutrition, Food & Exercise Sciences at FSU where he attained full professor status in 1997. He is a recipient of several FSU awards including Undergraduate Teaching Excellence (2008, 1997), Distinguished Research Professor (2006), Advising (2003), Distinguished Teaching Professor (2002), D. K. Salunkhe Professor of Food Science (2002), and the Teaching Incentive Program (1998). In 2004, he received the Division Lecture Award of the Food Chemistry Division of the Institute of Food Technologists (IFT), the world's largest organization of food scientists and technologists. In 2004 he was elected to be a fellow of IFT and the World Innovation Foundation in the UK. In 2002, the Institute of Scientific Information (ISI) in Philadelphia, PA selected him as one of the 112 Most Highly Cited Researchers in Agricultural Sciences on a worldwide basis. He has extensively published over 130 publications on biochemical aspects of legume and tree nut proteins.

Suzanne Teuber

Dr. Teuber is an MD on faculty in the Department of Internal Medicine, School of Medicine at the University of California in Davis, CA, where she conducts research on food allergies.

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