Innovative Non-invasive Test for Food Based, Non-IgE-mediated, Allergic Reactions

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The purpose of this research was to create a new non-invasive test that could detect food based non-IgE mediated food allergies using saliva and antigens. A convenience sample of four individuals was gathered with known food allergies. These allergens included shrimp, mango, coconut, soy and peanuts. Each allergen was placed into a separate hole created in a petri dish of agar gel 0.5 cm in depth. The holes were each an equal distance apart from each other and 0.2 cm to 2 cm away from the center hole. The center hole contained the participant's saliva. The petri dishes were sealed and left undisturbed for approximately 48 hours. A thin transparent white line, precipitate, formed between the hole containing the saliva and the hole or holes that contained what the participant is allergic to, indicating a positive test result. Results revealed that this non-invasive test detected the shrimp allergy in one participant's saliva. The test, however, is not working all of the time yet, but does show promise as a low-cost, effective, and safe alternative to current invasive and time consuming procedures. Further research is needed using different depths of agar gel, modifying the amount of liquid allergen and testing additional food based non-IgE mediated food allergens with a much larger sample. The test has the potential to drastically change the way food allergy testing occurs and could even be developed into a kit used in common households.