

CSAC  
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## **Voltammetric nanodiamond-coated screen-printed immunosensor for the determination of a peanut allergen in commercial food products**

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# 1. PEANUT ALLERGY

➔ Food allergies affect up to:  
10% of young children and 2-3% of adults.

**CONTAINS: PEANUTS AND SOY. PRODUCED ON EQUIPMENT THAT ALSO PROCESSES TREE NUTS AND MILK.**

MADE IN A FACILITY THAT PROCESSES MILK, EGGS, ALMONDS, COCONUT, OR OTHER TREE NUTS.

**ALLERGENS: CONTAINS ALMONDS, COCONUTS AND IS MADE IN A FACILITY THAT PROCESSES PEANUTS, SOY, MILK, WHEAT, EGG & TREE NUTS**

Made in a facility that handles peanuts, eggs, soy, wheat and milk. Made on equipment that processes milk chocolate.

**ALLERGEN INFORMATION: CONTAINS SOY. MANUFACTURED ON EQUIPMENT THAT ALSO PROCESSES PRODUCTS CONTAINING PEANUTS, TREE NUTS, MILK AND EGG.**

May contain traces of milk, tree nuts, peanuts.

MADE ON THE SAME EQUIPMENT THAT PROCESSES MILK.

Manufactured on equipment used to process Dairy, Peanut, Tree Nuts and Soy Protein.

Manufactured On Equipment Used To Process Dairy, Peanut, Almond, Walnut, Pecan, Nutmeg, And Soy Protein

MAY CONTAIN TRACES OF MILK SOLIDS.

**MANUFACTURED ON EQUIPMENT THAT PROCESSES MILK, SOY, TREE NUTS.**

\*Manufactured in a facility that also processes Peanut, Tree Nut, Soy, Milk and Egg.

**ALLERGEN WARNING: PRODUCED ON SHARED EQUIPMENT THAT ALSO PROCESSES MILK, SOY, OTHER TREE NUTS, PEANUT AND EGG.**

➔ Peanut allergy is particularly important because of the low amounts of peanut proteins that can induce severe allergic reactions.

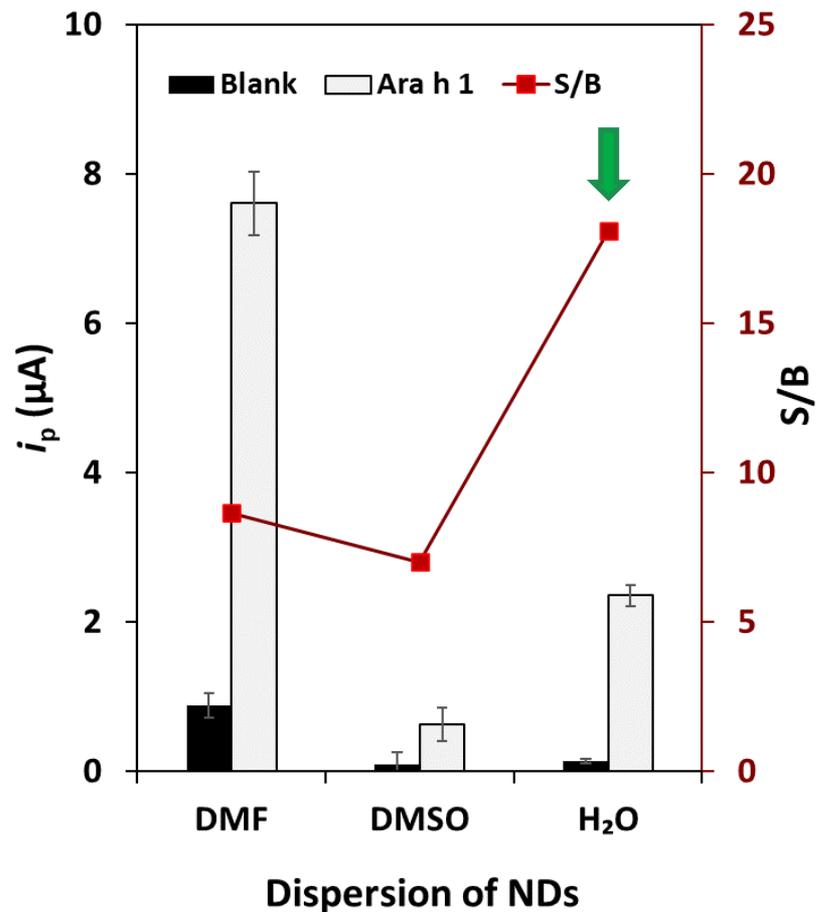
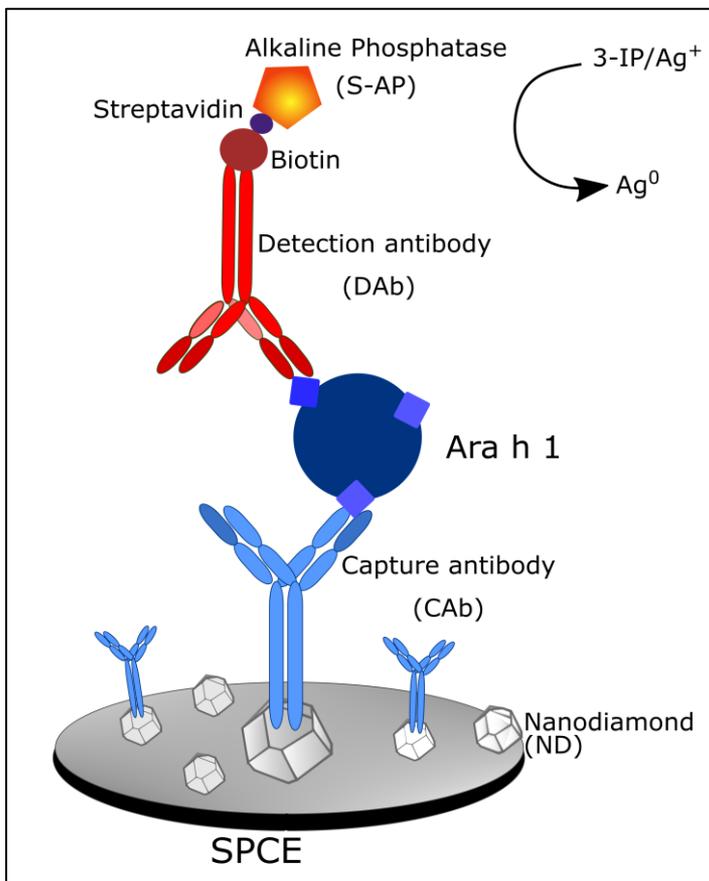
## Symptoms:

- Cutaneous
- Respiratory
- Gastrointestinal
- Cardiovascular

**ALLERGEN WARNING: PRODUCED ON SHARED EQUIPMENT THAT ALSO PROCESSES MILK, SOY, OTHER TREE NUTS, PEANUT AND EGG.**

➔ Analysis of food allergens is required for consumer protection and food fraud identification.

## 2. PEANUT ALLERGEN ARA H 1 - DETECTION

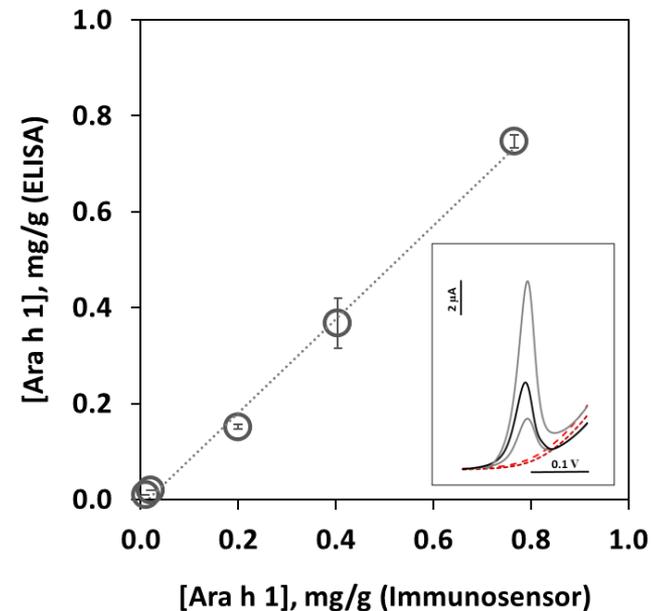


SPCE nanostructured with NDs dispersed in H<sub>2</sub>O

### 3. PEANUT ALLERGEN ARA H 1 – ANALYSIS AND QUANTIFICATION

#### Food samples

Food	ELISA (mg/g)	Immunosensor (mg/g)
Cereal bar (no peanut)	ND	ND
Energy bar containing peanut	$0.40 \pm 0.04$	$0.37 \pm 0.05$
Cookie that “may contain peanut”	ND	ND
Granola	$0.20 \pm 0.01$	$0.15 \pm 0.01$
Pineapple cookie containing 8% of peanut	$0.77 \pm 0.03$	$0.75 \pm 0.01$



The absence of Ara h 1 was clearly observed in:

- Cereal bar (no peanut);
- Cookie that “may contain peanut”.

## ACKNOWLEDGMENTS

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**THANK YOU FOR YOUR ATTENTION**

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