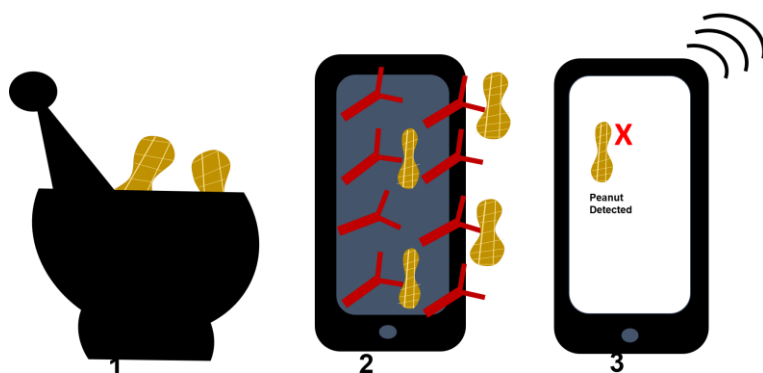


Gina Ross

Supervisor(s)	Prof. Dr. Michel Nielen, Dr. Ir. Monique Bremer
Project	Developing a rapid multiplex smartphone based immunoassay for food allergens
Fields of Interest	Immunoassays, rapid diagnostics, smartphone diagnostics, microfluidics
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Abstract

Food allergies affect around 17 million Europeans, with a proportion of these individuals experiencing more than one food allergy. Despite major food allergens being labelled in products, allergens can be unintentionally introduced into foods through cross contamination, which can lead to susceptible individuals experiencing allergic reactions. It is therefore essential that rapid, multiplex, consumer-friendly food allergen detection tests are developed. To combat this, a fast, multiplex food allergen immunoassay is being developed to detect multiple different allergens within a single sample. Initially the test developed will be in a lateral flow immunoassay in a sandwich format. This format of assay takes advantage of the complementary binding relationships between allergens and allergen specific antibodies. It works based on the colorimetric properties of the label used (e.g. colloidal gold, carbon nanoparticles etc). Later in the project the assay will be developed into a flow through assay to speed it up. A smartphone application will be developed to quantify the results of the screening assays.



Simple sample preparation, antibody based smartphone detection and smartphone read out.

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