

## MESOPOROUS SILICA NANOPARTICLES AND THEIR USE IN THE DIAGNOSIS OF ALLERGIES

### Description:

Currently, the *in vitro* detection of immunoglobulins in serum is a strategy used for the diagnosis of a multitude of pathologies, from infectious diseases to autoimmune and allergic diseases. The general objective of these techniques is the detection of specific antibodies for a certain antigen. The advantage of the *in vitro* technique over *in vivo* methods is a lower economic cost and avoiding the risk of hypersensitivity reactions in patients. Most of these *in vitro* allergy diagnostic techniques are based on the detection of allergen-specific immunoglobulin E (IgE). However, the amount of IgE present in serum is very low and may be below the detection limits of the technique. One of the main problems that limits the sensitivity of this technique is the high amount of IgG in serum compared to IgE, because IgG competes with IgE. Another problem that IgG causes is the generation of false positives. As a solution to this problem, this invention makes it possible to perform a pre-treatment of the samples that isolates IgG, which allows a better sensitivity for IgE in the *in vitro* detection of immunoglobulins.

### Keywords:

[Diagnosis](#), [Allergy](#), [In Vitro Method](#), [Nanoparticles](#), [Immunoglobulin E](#)

### Sectors:

[Health](#)

### Areas:

[Health Sciences](#), [Diagnosis](#)



### Advantages:

- Allows for improved sensitivity in IgE-dependent *in vitro* detection tests.
- Saves costs and risks compared to *in vivo* diagnostic methods.

### Uses and Applications:

The application of the invention in the field of clinical practice, specifically in the diagnosis of allergies. The *in vitro* detection of immunoglobulins in serum is a widely used strategy for the diagnosis of a great multitude of pathologies. Most of these techniques are based on the detection of immunoglobulin E (IgE), however, for certain types of allergies, since the amount of IgE in the serum is very low, it is necessary to resort to *in vivo* diagnostic methods that involve more cost and risk to the patient. The present invention solves this problem, since it allows the *in vitro* diagnosis of allergies, since improved results are obtained in immunoglobulin uptake.

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