

COMPOUNDS AND THEIR USES AS HAPTENS TO DETECT *S. AUREUS*

ABSTRACT

The present invention refers to compounds from the bacterial wall of *Staphylococcus aureus* for their use as haptens, the antibodies and antisera generated, and their applications and methods for the detection of *S. aureus*. Therefore, the present invention can be included in the field developing new technologies for clinical medicine.

This invention presents, for the first time, a method for the detection of *S. aureus*, based on competitive ELISA, capable of detecting 10^4 UFC mL⁻¹ of this microorganism, without sample pre-enriching in cell culture.

It was developed by researchers belonging to the Spanish National Research Council (CSIC), and the Biomedical Research Networking Centre in Bioengineering, Biomaterials and Nanomedicine (CIBER-BBN).

DESCRIPTION

Haptens of the invention were designed and synthesized

This invention describes haptens of the bacterial wall of *S. aureus* useful to generate antibodies against said bacterium, and a method for the detection of *S. aureus* by means of using these antibodies.

Aspects of the present invention refer to compounds, their use as haptens and the use of their immunizing conjugates for the production of specific antibodies.

The antibodies can be bound, and immobilized, to solid supports. These can be particles, rods, plates, strips, membranes, etc. Their surfaces can be permeable or impermeable.

Labels bound to the antibodies allow them to be localized by spectroscopic, photochemical, biochemical, immunochemical or chemical means.

The invention comprises the use of the antibodies for the detection of *S. aureus* in a biological sample from a subject, food, or environment.

Thus, the invention refers to a method, and a kit or device, for the detection and quantification of *S. aureus*, or its analytes, in a sample using antibodies of this invention,

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APPLICATIONS

Diagnosis

Therapy

Safety in food, water, ground, surfaces.

Detection of *S. aureus* in food, environmental or biological samples (bronchial, sputum, saliva, blood, serum, plasma, or urine)

Immunoassays (ELISA, DAS-ELISA, lateral-flow immunoassay, Western or dot blot, immunosensor, microarrays, immunoprecipitation, radioimmunoassay, immunohistochemistry, flow cytometry, immunosorbents, immunoaffinity etc.)

INDUSTRIAL PROPERTY

Spanish Patent Application **P201530780**, filed on June 3, 2015

International Patent Application **PCT/ES2016/070390**, filed on May 24, 2016

IP STATUS

Patent pending

TECHNOLOGICAL OFFER

INNOVATIVE ASPECTS AND ADVANTAGES

For the first time, a method to detect *S. aureus*, based on competitive ELISA, is presented

Detection of *S. aureus* at 10^4 CFU mL⁻¹ without sample pre-enrichment in cell culture

S. aureus directly detected without sample pre-enrichment in cell culture

Easy to implement and perform

Short time of assay

Very small volume of sample

Sensitive and specific assay

High screening capacity

Robust and reproducible assay

DEVELOPMENT STATUS

Developed

Laboratory tested

AVAILABLE FOR

- Exclusive license agreement
- Non-exclusive license agreement
- Further research or development

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