CLAIMS

1. A method for detecting at least one analyte in at least one sample comprising the following steps:

a) placing a sample to be analyzed in the presence of the spot(s) of the compartment of a solid support, said spot or at least one of said spots comprising at least one resistant control marker and at least one capture ligand of an analyte,

b) placing at least one detection ligand of an analyte in the presence of the spot(s) of said compartment, said detection ligand of an analyte being coupled to a direct or indirect detection marker,

c) when at least one detection ligand of an analyte is coupled to an indirect detection marker, placing a reporter of said indirect detection marker in the presence of the spot(s) of said compartment,

d) when the reporter used in step c) is coupled to an indirect detection marker, placing a reporter of the indirect detection marker coupled to said reporter used in step c) in the presence of the spot(s) of said compartment,

e) detecting at least one signal produced by at least one resistant control marker in said compartment,

f) defining at least one reading grid from the location of at least one signal detected in step e),

g) optionally, detecting a signal produced by at least one detection marker of a detection ligand of an analyte, and

h) optionally, reading the signal detected in step g) on the reading grid defined in step f),

wherein steps a) to d) are still done before steps e) to h).

2. The method according to claim 1, characterized in that the signal produced by at least one detection marker of a detection ligand of an analyte is a luminescent signal.

3. The method according to claim 1 or 2, characterized in that said or one of said resistant control marker(s) is a fluorophore.

4. The method according to claim 3, characterized in that said or one of said resistant control marker(s) is a fluorophore whereof the excitation spectrum does not overlap the emission spectrum of the signal emitted by or corresponding to the detection marker of said detection ligand(s) of an analyte and whereof the emission spectrum does not overlap, or partially overlaps, the emission spectrum of or corresponding to the detection marker of said detection ligand(s) of an analyte.

5. The method according to one of claims 1 to 4, characterized in that:

- the signal produced by at least one detection marker of a detection ligand of an analyte is the light emitted by a chemiluminescent compound obtained by reaction of a peroxidase with the luminol, an analogue of the luminol and/or of a derivative of the luminol or an analogue of the luminol, and
- the signal produced by the resistant control marker(s) is a light emitted outside the wavelengths from 375 to 550 nm.

6. A method for selecting a resistant control marker, comprising the following steps:

a) depositing a marker to be tested on the surface of a solid support, to form at least one spot,

b) optionally, saturating the surface of the solid support,

c) optionally, drying the surface of the solid support,

d) carrying out at least the following steps:

(i) performing one or more washing steps,

(ii) placing the spot(s) in the presence of at least one detection ligand,

(iii) placing the spot(s) in the presence of at least one reporter,

(iv) placing the spot(s) in the presence of at least one substrate,

e) selecting a marker that produces a signal at the end of step d).

7. A solid support for detecting at least one analyte in a sample, characterized in that said solid support comprises at least one compartment comprising at least one spot, said spot comprising at least one resistant control marker and at least one capture ligand, said resistant control marker(s) being markers that remain at least partially fixed at said spot on the surface of the solid support during the implementation of a method for detecting at least one analyte, so as to produce a detectable signal at the end of the detection method, characterized in that the resistant control marker is a fluorophore selected from the group consisting of a carbopyronine, a carbopyronine derivative, an oxazine, an oxazine derivative, a benzopyrylium derivative, and a phycoerythrin, and
the fluorophore can be coupled to a carrier molecule.

8. A method for preparing a solid support for detecting at least one analyte in a sample comprising the following steps:

a) depositing, on the surface of at least one compartment of a solid support, a mixture comprising at least one resistant control marker and at least one capture ligand, to obtain a spot, said resistant control marker(s) being markers that remain at least partially fixed at said spot on the surface of the solid support during the implementation of a method for detecting at least one analyte, so as to produce a detectable signal at the end of the detection method,

b) repeating step a) n-1 times, n being an integer greater than or equal to 1, to obtain n spots intended to detect an analyte on the surface of said compartment(s),

c) optionally, saturating the surface of said compartment(s), and

d) optionally, drying the surface of said compartment(s),

characterized in that the resistant control marker is a fluorophore selected from the group consisting of a carbopyronine, a carbopyronine derivative, an oxazine, an oxazine derivative, a benzopyrylium derivative, and a phycoerythrin, and
the fluorophore can be coupled to a carrier molecule.

9. The method according to claim 8, characterized in that said capture ligand(s) are selected from the group consisting of an antibody, an antigen, a nucleic acid and combinations thereof.

10. A device for detecting at least one analyte in a sample, said device comprising:

- means for detecting a signal produced by at least one resistant control marker and a signal produced by at least one detection marker of a detection ligand of an analyte at a solid support, said means comprising a lighting system, a telecentric objective, a filter wheel and a camera, and
- means for defining a reading grid from the location of the signal produced by at least one resistant control marker and for reading the signal produced by at least one detection marker of a detection ligand of an analyte at said reading grid,

wherein said at least one resistant control marker is capable to provide a detectable signal at the end of an analysis method.

11. A use of at least one resistant control marker in at least one spot intended to detect an analyte to secure a method for detecting at least one analyte in a sample, characterized in that it comprises:

- the reading of the signal produced by at least one detection marker of a detection ligand of an analyte to be detected on a reading grid defined from the location of the signal produced by said resistant control marker(s) and detected at the end of the analysis method,

wherein said at least one resistant control marker is capable to provide a detectable signal at the end of an analysis method.