

CLAIMS

1. A solid support appropriate for a multiplex analysis of at least one sample, said solid support comprising at least one compartment, said compartment comprising at least one control spot and at least two detection spots for an analyte, characterized in that said control spot is a spot for controlling the deposition of a sample or a spot for controlling the deposition of a detection ligand of an analyte and in that said control spot comprises at least one capture ligand, said capture ligand being specific to a control compound naturally present in the sample to be analyzed, and said capture ligand not being a nucleic acid.
2. The solid support according to claim 1, characterized in that said compartment further comprises at least one spot for controlling the deposition of a reporter.
3. The solid support according to claim 1 or 2, characterized in that said compartment comprises at least one spot for controlling the deposition of a sample and at least one spot for controlling the deposition of a detection ligand of an analyte.
4. The solid support according to one of claims 1 to 3, characterized in that the spot for controlling the deposition of a sample comprises at least one capture ligand of a control compound.
5. The solid support according to one of claims 1 to 4, characterized in that the spot for controlling the deposition of a detection ligand of an analyte comprises at least one capture ligand of an additive.
6. The solid support according to one of claims 2 to 5, characterized in that the spot for controlling the deposition of a reporter comprises an indirect marker or a carrier molecule coupled to an indirect marker.
7. A set of beads appropriate for a multiplex analysis of a sample, comprising at least one control bead and at least two detection beads for an analyte, characterized in that the control bead is a bead for controlling the deposition of a sample or a bead for controlling the deposition of a detection ligand of an analyte and in that said control bead comprises at least one capture ligand, said capture ligand being

specific to a control compound naturally present in the sample to be analyzed, and said capture ligand not being a nucleic acid.

5 **8.** The set of beads according to claim 7, comprising at least one bead for controlling the deposition of a sample, at least one bead for controlling the deposition of a detection ligand of an analyte and optionally at least one bead for controlling the deposition of a reporter.

10 **9.** A multiplex analysis method for detecting at least n analytes in at least one sample, n being an integer greater than or equal to 2, said method comprising at least steps a), c) and e) or at least steps a), b), c) and d) as follows:

a) providing at least one solid support comprising at least one compartment according to one of claims 1 to 6 or at least one set of beads according to one of claims 7 or 8,

15 b) placing, in the presence of the spots of said compartment or in the presence of said set of beads: l detection ligands of p analytes to be detected, and, if applicable, at least one additive, l preferably being greater than or equal to p ,

c) placing a sample to be analyzed in the presence of the spots of said compartment or of said set of beads,

20 d) placing, in the presence of the spots of said compartment or of said set of beads:

l' detection ligands of m analytes to be detected, and, if applicable, at least one detection ligand of said additive(s), l' preferably being greater than or equal to m , and

25 e) placing, in the presence of the spots of said compartment or of said set of beads:

at least one detection ligand of a control compound and l'' detection ligands of y analytes to be detected, l'' preferably being greater than or equal to y ,

30 l, l', l'', m, p and y being integers greater than or equal to 0 and the sum $m+p+y$ being greater than or equal to 1.

10. The multiplex analysis method according to claim 9, comprising a subsequent step f) consisting of placing at least one reporter in the presence of the spots of said compartment or of said set of beads.

- 5 **11.** The multiplex analysis method according to claim 10, characterized in that the reporter or at least one of the reporters in step f) is coupled to an indirect marker, for example an enzyme, and in that said method comprises a subsequent step g) consisting of placing at least one second reporter of said indirect marker coupled to said reporter of step f) in the presence of the spots of said compartment or of said set of beads, said second reporter for example being a substrate, preferably chosen from among the luminol, isoluminol or one of their derivatives.
- 10 **12.** Use of at least one control of the deposition of a sample and/or at least one control of the deposition of a detection ligand of an analyte, to secure a multiplex analysis of a sample, said control of the deposition comprising at least one capture ligand, said capture ligand being specific to a control compound naturally present in the sample to be analyzed, and said capture ligand not being a nucleic acid.
- 15 **13.** The use according to claim 12, further comprising at least one control of the deposition of a reporter.