[0138] The invention is not limited to the embodiments described but may be varied in construction and detail in a manner that will be appreciated by those skilled in the art.

1-41. (canceled)

42. A microfluidic structure comprising:

a fluidic channel, configured to guide a flow of a fluid comprising a target analyte along a length of the fluidic channel in a first direction, the fluidic channel having a width in a second direction perpendicular to the first direction and a depth in a third direction perpendicular to the first direction and the second direction, the fluidic channel comprising a non-porous material;

a reagent pad of porous material located within the fluidic channel and having a size in the second direction substantially similar to the width of the fluidic channel; and

a sensor pad of porous material located within the fluidic channel and downstream from the reagent pad and having a size in the second direction substantially similar to the width of the fluidic channel, the reagent pad and the sensor pad being separated by a free space diffusion zone having a length in the first direction between 0.5 and 5 mm,

wherein the sensor pad comprises immobilized target analyte-specific receptors that can bind the target analyte and/or a labelled product of a displacement, competition or sandwich affinity assay.

43. The microfluidic structure of claim **42**, wherein the immobilized target analyte-specific receptors of the sensor pad can bind the target analyte and/or a labelled product of a displacement assay.

44. The microfluidic structure of claim **42**, wherein the immobilized target analyte-specific receptors of the sensor pad can bind the target analyte and/or a labelled product of a competition assay.

45. The microfluidic structure of claim **42**, wherein the immobilized target analyte-specific receptors of the sensor pad can bind the target analyte and/or a labelled product of a sandwich affinity assay.

46. The microfluidic structure of claim **44**, wherein the reagent pad comprises releasable target analyte-linker-label conjugates and the immobilized target analyte-specific receptors of the sensor pad can bind the target analyte and/or the target analyte-linker-label conjugates.

47. The microfluidic structure of claim **42** further comprising a top layer that covers the fluidic channel.

48. The microfluidic structure of claim **47**, wherein a portion of the top layer above the sensor pad comprises an optically clear inspection window allowing inspection of the sensor pad.

49. The microfluidic structure of claim **47**, wherein there is a gap between the reagent pad or the sensor pad and the top layer.

50. The microfluidic structure of claim **49**, wherein the gap is in the range of 0.05 to 0.5 mm.

51. The microfluidic structure of claim **47**, wherein there is no gap between the reagent pad or the sensor pad and the top layer.

52. The microfluidic structure of claim **42** further comprising an absorption pad of fluid absorbing material located within the fluidic channel and downstream from the sensor pad.

53. The microfluidic structure of claim **52**, wherein the sensor pad and the absorption pad are separated by a second diffusion zone.

54. The microfluidic structure of claim **42**, wherein the pads are held in place via recesses which form part of the fluidic channel.

55. The microfluidic structure of claim **42**, wherein the pads are held in place via a single or multiple discontinuous areas of adhesive coatings which form part of the fluidic channel.

56. The microfluidic structure of claim **42**, wherein the pads are integrated into the fluidic channel as part of a supporting assembly of non-porous material.

57. (canceled)

58. The microfluidic structure of claim **56**, wherein the pads are held in place via a single or multiple discontinuous areas of adhesive coatings which form part of the supporting assembly.

59. The microfluidic structure of claim **56**, wherein the supporting assembly is held in place via a recess which forms part of the fluidic channel.

60. The microfluidic structure of claim **56**, wherein the supporting assembly is held in place via a single or multiple discontinuous areas of adhesive coatings which form part of the fluidic channel.

61. The microfluidic structure of claim **42**, wherein the fluidic channel has an opening at the downstream end of the channel to act as a vent to assist fluid flow in the first direction.

62. The microfluidic structure of claim **61**, wherein the size of the opening of the vent is between about 0.1 and 5 mm.

63. The microfluidic structure of claim **42**, wherein the length of the fluidic channel is between about 25 and 50 mm, the width of the fluidic channel is between about 1.3 and 5 mm and the depth of the fluidic channel is between about 0.25 and 1 mm.

64. The microfluidic structure of claim **42**, wherein the cross-sectional area of the fluidic channel is between about 0.3 and 5 mm^2.

65. The microfluidic structure of claim **64**, wherein the pads have widths of between about 1.3 and 5 mm and lengths of between about 2 and 25 mm.

66. The microfluidic structure of claim **42**, wherein the labelled product of a displacement, competition or sandwich affinity assay includes a fluorescent label.

67. The microfluidic structure of claim **42**, wherein the immobilized target analyte-specific receptors are antibodies that bind the target analyte and/or the labelled product of a displacement, competition or sandwich affinity assay.

68. The microfluidic structure of claim **42**, wherein the immobilized target analyte-specific receptors are antigens that are bound by the target analyte and/or the labelled product of a displacement, competition or sandwich affinity assay.

69. The microfluidic structure of claim **42**, wherein the immobilized target analyte-specific receptors are molecularly imprinted polymers that bind the target analyte and/or the labelled product of a displacement, competition or sandwich affinity assay.

70. A fluidic chip comprising a plurality of separate microfluidic structures as defined in claim **42**.

71. The fluidic chip of claim **70**, further comprising a single top layer that covers the fluidic channels of the plurality of microfluidic structures.

72. (canceled)

73. The fluidic chip of claim **70**, wherein the plurality of separate microfluidic structures are spaced by between about 0.5 and 5 mm.