What is claimed is:

1. A device for isolating or concentrating one or more target analytes, the device comprising:

    i) a porous material;

    ii) aqueous two phase system (ATPS) components , wherein said components form a first phase solution and a second phase solution; and

    iii) one or more phase separation behavior modifying agents;

    wherein said components and said phase separation behavior modifying agents are embedded in said porous material, wherein when a solution containing said target analytes flows through said porous material, an aqueous two-phase system comprising said first phase solution and said second phase solution is generated, wherein the separation behavior of the two phase solutions is altered by said phase separation behavior modifying agents, and said target analytes are isolated or concentrated on said porous material, or

    wherein one or more of said components and said phase separation behavior modifying agents are embedded in said porous material, wherein the balance of said components and said phase separation behavior modifying agents are to be mixed with a solution containing said target analytes, thereby forming a mixed solution, wherein when said mixed solution flows through said porous material, an aqueous two-phase system comprising said first phase solution and said second phase solution is generated, wherein the separation behavior of the two phase solutions is altered by said phase separation behavior modifying agents, and said target analytes are isolated or concentrated on said porous material,

    wherein said one or more phase separation behavior modifying agents are selected from the group consisting of:

    a) compounds carrying one or more acidic functional groups;

    b) compounds carrying one or more amine functional groups;

    c) compounds carrying both hydrophilic and hydrophobic groups;

    d) chaotropic agents: and

    e) kosmotropic agents.

2. The device of claim 1, wherein said one or more phase separation behavior modifying agents are present in some regions of the porous material, and not present in other regions of the porous material.

3. The device of claim 1, wherein said one or more phase separation behavior modifying agents are evenly distributed on said porous material or present in an increasing amount from one end to the other end of said porous material.

4. The device of claim 1, wherein said one or more phase separation behavior modifying agents are present in varying amounts in different regions of the porous material.

5. The device of claim 1, wherein said one or more target analytes partition into the first phase solution or the second phase solution, or accumulate at an interface between the first phase solution and the second phase solution.

6. The device of claim 1, wherein the porous material and said components are selected so that said first phase solution and second phase solution flow through the porous material at different rates.

7. The device of claim 1, wherein said compounds carrying one or more acidic functional groups are selected from the group consisting of saccharides, polysaccharides, sorbates, polysorbates, carboxylates, polycarboxylates, phosphates, polyphosphates, sulfates, polysulfates and polyols.

8. The device of claim 1, wherein said compounds carrying one or more amine functional groups are selected from the group consisting of amines, polyamines, amine salts and polyamine salts.

9. The device of claim 1, wherein said compounds carrying both hydrophilic and hydrophobic groups are selected from the group consisting of lipids, surfactants, nucleic acids, hormones, proteins, and amino acids.

10. The device of claim 1, wherein said phase separation behavior modifying agents comprise sucrose, potassium phosphates, dextran, Tween-20 or Triton-X114.

11. The device of claim 1, wherein said one or more phase separation behavior modifying agents are selected to:
    a) reduce fluctuations in the total volume of the first phase solution, the second phase solution, or both during or after phase separation;
    b) increase or decrease the total volume of the solution containing said target analytes that undergoes a phase separation;
    c) reduce fluctuations in the volume ratio between the first phase solution and the second phase solution; or
    d) increase or decrease the volume ratio between the first phase solution and the second phase solution.

12. The device of claim 1, wherein said one or more phase separation behavior modifying agents are selected to:
    a) reduce fluctuations in the concentrations of one or more components within the first phase solution;
    b) reduce fluctuations in the concentrations of one or more components within the second phase solution;
    c) increase or decrease the concentration of one or more components within the first phase solution; or
    d) increase or decrease the concentration of one or more components within the second phase solution.

13. The device of claim 1, wherein said one or more phase separation behavior modifying agents are selected to induce phase separation when the concentrations of said components are not sufficient to induce phase separation without the presence of said modifying agents.

14. The device of claim 1, wherein said one or more phase separation behavior modifying agents are:
    a) a charged surfactant or protein that reduces fluctuations in the rate of domain coalescence;

b) a charged surfactant or protein that increases the rate of domain coalescence; or

c) a surfactant that decreases the rate of domain coalescence.

15. The device of claim 1, wherein said one or more phase separation behavior modifying agents are:

a) a compound carrying both hydrophilic and hydrophobic groups that reduces fluctuations in the flow rate of the first phase solution within the porous material;

b) a compound carrying both hydrophilic and hydrophobic groups that reduces fluctuations in the flow rate of the second phase solution within the porous material;

c) a compound carrying hydrophilic groups that increases the flow rate of the first phase solution within the porous material;

d) a compound carrying hydrophobic groups that decreases the flow rate of the first phase solution within the porous material;

e) a compound carrying hydrophilic groups that increases the flow rate of the second phase solution within the porous material; or

f) a compound carrying hydrophobic groups that decreases the flow rate of the second phase solution within the porous material.

16. The device of claim 1, wherein said one or more phase separation behavior modifying agents are:

a) agents that reduce fluctuations in the partitioning of said target analytes between the first phase solution and the second phase solution;

b) chaotropic agents that increase the partitioning of said target analytes to the first phase solution;

c) kosmotropic agents that decrease the partitioning of said target analytes to the first phase solution;

d) chaotropic agents that increase the partitioning of said target analytes to the second phase solution; or

e) kosmotropic agents that decrease the partitioning of said target analytes to the second phase solution.

17. The device of claim 1, wherein said device is further integrated with a second device such that a leading fluid within the porous material would transfer into said second device.

18. A method of using the device of any one of claims 1-17 for isolating or concentrating one or more target analytes from a sample solution.

19. The method of claim 18, wherein the target analytes isolated or concentrated on the porous material are extracted to generate an extract solution to be subsequently used in another method or process.