Claims

1. A method of making an array for cell assays comprising the step of providing an array of structures that each extend from a substrate and having ~~a~~ pre-defined ~~topography~~ topographic formations thereon, the topographic formations on ~~wherein~~ at least one structure (A) ~~has a~~ is different from the topographic formations on ~~topography from~~ at least one other structure (B), wherein structure (A) is imprinted separately to structure (B), and wherein structure (A) is capable of being imprinted to an imprinting condition (A_c) that is different to imprinting condition (B_c) of structure (B).

2. The method as claimed in claim 1, wherein the structures are generally elongate and have a proximal end that extends from the substrate and a distal end that is opposite to said proximal end.

3. The method as claimed in claim 2, wherein ~~the topography~~ said topographic formations are ~~of said structure is~~ provided on said proximal end.

4. The method as claimed in claim 3, wherein the elongate structures have a longitudinal axis extending from their proximal end to their distal end and wherein said longitudinal axis is generally normal to a planar surface of said substrate.

5. The method as claimed in any one of the preceding claims, wherein the providing step comprises the step of adhering said structures to said substrate.

6. The method as claimed in claim 5, wherein said adhering step comprises the step of providing an adhesive layer on said substrate before said adhering step.

7. The method as claimed in claim 6, wherein said providing an adhesive layer on said substrate comprises the step of spin-coating a polymer solution onto said substrate.

8. The method as claimed in claim 7, removing the polymer solution while said array of structures are disposed in said polymer solution to form a polymer layer that adheres said structures to said substrate.

9. The method as claimed in any one of the preceding claims, wherein said ~~topography is formed by~~ topographic formations in the microscale or the nanoscale size range.

10. The method as claimed in claim 9, comprising, before said providing step, the step of forming said topographic formations on a sacrificial substrate.

11. The method as claimed in claim 10, wherein the step of forming said topographic formations on a substrate comprises an imprint lithography step.

12. The method as claimed in claim 11, wherein the step of forming said topographic formations comprises the step of providing the sacrificial substrate with an array of the topographic ~~substrates~~ formations in the microscale or nanoscale size range.

13. The method as claimed in claim 12, wherein the array of microscale or nanoscale topographic ~~structures~~ formations on said sacrificial substrate are selected from the group consisting of trenches, pillars, gratings, dimples, wells, and other 3-dimensional structures.

14. The method as claimed in claim 12 or 13, comprising the step of removing a portion of said microscale or nanoscale topographic ~~structures~~ formations while attached to said sacrificial substrate.

15. The method as claimed in any one of the preceding claims, wherein said providing step comprises providing an ordered array of structures on said substrate.

16. The method as claimed in any one of the preceding claims, wherein said structures are formed from a thermoplastic polymer.

17. The method as claimed in claim 16, wherein said thermoplastic polymer comprises monomers selected from the group consisting of acrylates, phthalamides, acrylonitriles, cellulosics, styrenes, alkyls, alkyls methacrylates, alkenes, halogenated alkenes, amides, imides, aryletherketones, butadienes, ketones, esters, acetals, carbonates and co-monomers thereof.

18. The method as claimed in any one of claims 13-17, wherein the gratings and dimples are imprinted under

an imprinting condition of a temperature of 180oC at 60 bars for 600 seconds.

19. The method as claimed in any one of claims 13-17, wherein the pillars are preheated, prior to imprinting, at 180oC for 120 seconds and imprinted under an imprinting condition of a temperature of 180oC at 40 bars for 300 seconds.

20. The method as claimed in any one of claims 13-17, wherein the topographic formations are hierarchically imprinted under a first imprinting condition of a temperature of 180°C at 60 bars for 600 seconds and a second imprinting condition of temperature of 140°C at 40 bars for 300 seconds, wherein the first imprinting condition and the second imprinting condition are performed sequentially.

21. An array made from the method of any one of claims 1 to 20 comprising a substrate having an array of structures projecting therefrom, wherein each of said structures have ~~a~~ pre-defined topographic formations ~~topography~~ thereon, the topographic formations on ~~and wherein~~ at least one structure (A) is ~~has a~~

different from the topographic formations on ~~topography from~~ at least one other structure (B).

22. The array as claimed in claim 21, wherein the structures are generally elongate and have a proximal end that extends from the substrate and a distal end that is opposite to said proximal end.

23. The array as claimed in claim 21 or claim 22, wherein said topography is on said proximal end.

24. The array as claimed in any one of claims 21 to 23, wherein the topographic formations are ~~topography is~~ dimensioned in at least one of the microscale or the nanoscale.

25. The array as claimed in any one of claims 21 to 24, wherein an adhesive layer is disposed between the structures and the substrate.

26. The array as claimed in any one of claims 21 to 25, wherein said structures are formed from a thermoplastic polymer.

27. The array as claimed in claim 26, wherein said thermoplastic polymer comprises monomers selected from the group consisting of acrylates, phthalamides, acrylonitriles, cellulosics, styrenes, alkyls, alkyls methacrylates, alkenes, halogenated alkenes, amides, imides, aryletherketones, butadienes, ketones, esters, acetals, carbonates and co-monomers thereof.

28. The array as claimed in any one of claims 21 to 27, wherein said structures are arranged in an ordered array.

29. The array as claimed in any one of claims 21 to 28, wherein said ~~topography is selected from~~ topographic formations are selected from the group consisting of trenches, pillars, gratings, dimples, wells ~~columns, circular holes~~ and other 3-dimensional structures.

30. The array as claimed in any one of the preceding claims, wherein the substrate is formed from silicon.