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29. A cell sorting apparatus for manipulation of cells comprising:

an array of geometric sites arranged across a substrate in a defined pattern, each site being dimensioned and configured to hold a single cell, wherein each site includes a capture mechanism comprising a non-uniform electric field trap that is capable of producing a potential energy well for selectively capturing the single cell, and a release mechanism for selectively releasing the single cell from the site.

30. The apparatus of claim 29, wherein the electric field trap comprises electrodes arranged in a trapezoidal configuration.

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31. The apparatus of claim 29, wherein the electric field trap is three-dimensional.

32. The apparatus of claim 29, wherein the electrodes are thin-film poles.

33. The apparatus of claim 29, wherein the electrodes are formed from gold.

34. The apparatus of claim 29, wherein the release mechanism is configured to release the captured single cell by removing the potential energy well produced by the non-uniform electric field trap.

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