What is claimed:

1. A method of delivering a payload to a cell comprising

   a. providing a nanoneedle and a polynucleotide, wherein the nanoneedle is coated with binding particles,

      wherein a first end of the polynucleotide comprises an aptamer capable of binding a molecule endogenous to the cell,

      wherein the nanoneedle has a coating, and wherein the first end of the polynucleotide is conjugated to the nanoneedle coating through one or more mediating linker molecule, and

      wherein a second end of the polynucleotide comprises an oligonucleotide capable of hybridizing with the payload;

   b. contacting the payload with the polynucleotide, wherein the payload contains a nucleotide sequence that is complementary to a nucleotide sequence of the oligonucleotide;

   c. inserting the nanoneedle into the cell; and

   d. releasing the payload from the polynucleotide upon insertion of the needle into the cell.

2. The method of claim 1 wherein the aptamer is capable of binding to adenosine triphosphate.

3. The method of claim 1 wherein the payload is DNA or RNA.

4. The method of claim 1, wherein the payload comprises genetic material capable of stably integrating into a genome of the cell or transiently expressing a desired target protein, or genetic material that expresses a protein capable of functionally inhibiting a desired target.

5. The method of claim 1, wherein the payload inhibits expression of a target gene, or is capable of functionally inhibiting a protein.

6. The method of claim 1, wherein the payload is conjugated to a unique nucleotide sequence capable of hybridizing with the oligonucleotide.

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7. The method of claim 1, further comprising inserting the nanoneedle into an inner volume of a well that is configured to house the cell, wherein the nanoneedle is configured such that, upon insertion of the nanoneedle into the cell, the payload is released from the polynucleotide.

8. The method of claim 1, wherein the coating comprises particles, and wherein the aptamer is conjugated to one or more coating particles through the one or more mediating linker molecule.

9. The method of claim 8, wherein the coating comprises nanoparticles, or gold.

10. The method of claim 1, wherein the mediator linker comprises polyethylene glycol (PEG) or polyethylenimine (PEI).

11. The method of claim 10, wherein the PEG or PEI linker is thiolated, and the polynucleotide is thiolated to the coated nanoneedle.

12. A chip for delivering a payload to a cell, the chip comprising

a solid support, and

a nanoneedle attached to the solid support and conjugated to a polynucleotide,

wherein the nanoneedle has a coating;

wherein a first end of the polynucleotide comprises an aptamer capable of binding a molecule endogenous to the cell,

wherein the first end of the polynucleotide is capable of conjugating to the nanoneedle coating through one or more mediating linker molecule, and

wherein a second end of the polynucleotide comprises an oligonucleotide capable of hybridizing with one of a plurality of molecules of the payload.

13. The chip of claim 12, wherein the binding particles are gold atoms.

14. The chip of claim 12, wherein the aptamer is capable of binding to adenosine triphosphate.

15. The chip of claim 12, wherein the payload is a nucleotide-based molecule, a protein, or a small molecule.

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16. The chip of claim 12, wherein the payload comprises genetic material capable of stably integrating into a genome of the cell, transiently expressing a desired target protein, or genetic material that expresses a protein capable of functionally inhibiting a desired target.

17. The chip of claim 12, wherein the payload inhibits expression of a target gene or capable of functionally inhibiting a protein.

18. The chip of claim 12, wherein the payload is conjugated to a unique nucleotide sequence capable of hybridizing with the oligonucleotide.

19. The chip of claim 12, further comprising a plurality of nanoneedles attached to the solid support, wherein each of the plurality of nanoneedles is configured to receive a polynucleotide.

20. The chip of claim 12, wherein the coating comprises particles, and wherein the aptamer is conjugated to one or more coating particles through the one or more mediating linker molecule.

21. The chip of claim 20, wherein the coating comprises nanoparticles, or gold.

22. The chip of claim 12, wherein the mediator linker comprises polyethylene glycol (PEG) or polyethylenimine (PEI).

23. The chip of claim 22, wherein the PEG or PEI linker is thiolated, and the polynucleotide is thiolated to the coated nanoneedle.

24. A system for delivering a payload comprising of a plurality of molecules to a cell comprising

a. a plurality of nanoneedles, wherein the plurality of nanoneedles are coated with binding particles and a plurality of polynucleotides,

wherein a first end of a respective polynucleotide of a respective one of the plurality of polynucleotides comprises an aptamer capable of binding a molecule endogenous to the cell,

wherein each of the plurality of nanoneedles has a coating, and wherein the first

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end of the respective polynucleotide is conjugated to the coating of one of the plurality of nanoneedles through one or more mediating linker molecule, and

wherein a second end of the respective polynucleotide comprises an oligonucleotide capable of hybridizing with one of the plurality of molecules of the payload;

b. a plurality of wells; and
c. an injecting device that houses the plurality of nanoneedles thereon, and is configured to move the plurality of nanoneedles to within the plurality of wells.

25. The system of claim 24, wherein the aptamer is capable of binding to adenosine triphosphate.

26. The system of claim 24, wherein the payload is a nucleotide based molecule, a protein, or a small molecule.

27. The system of claim 24, wherein the payload comprises genetic material capable of stably integrating into a genome of the cell, transiently expressing a desired target protein, or genetic material that expresses a protein capable of functionally inhibiting a desired target.

28. The system of claim 24, wherein the payload inhibits expression of a target gene or capable of functionally inhibiting a protein.

29. The system of claim 24, wherein the payload is conjugated to a unique nucleotide sequence capable of hybridizing with the oligonucleotide.

30. The system of claim 24, wherein the each of the plurality of wells is configured to house a cell to be penetrated by a nanoneedle.

31. The system of claim 24, wherein the injecting device is configured to move the plurality of nanoneedles to within the plurality of wells.

32. The system of claim 24, wherein the coating comprises particles, and wherein the aptamer

is conjugated to one or more coating particles through the one or more mediating linker molecule.

33. The system of claim 32, wherein the coating comprises nanoparticles, or gold.

34. The system of claim 24, wherein the mediator linker comprises polyethylene glycol (PEG) or polyethylenimine (PEI).

35. The system of claim 34, wherein the PEG or PEI linker is thiolated, and the polynucleotide is thiolated to the coated nanoneedle.

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