We claim:

1. A polynucleotide cassette for the regulation of the expression of a target gene comprising a riboswitch wherein the riboswitch comprises an effector stem loop and an aptamer, wherein the effector stem comprises a polyadenylation signal, and wherein the aptamer and effector stem loop are linked by an alternatively shared stem arm comprising sequence that is complementary to the unshared arm of the aptamer stem and to the unshared arm of the effector stem loop.
2. The polynucleotide cassette of claim 1, wherein the aptamer binds a small molecule ligand.
3. The polynucleotide cassette of claim 1, wherein the portion of the alternatively shared stem arm that is complementary to sequence in the aptamer stem and to sequence in the effector stem loop is 4 to 8 nucleotides, 5 to 7 nucleotides, 5 nucleotides, or 6 nucleotides.
4. The polynucleotide cassette of claim 1, wherein the aptamer stem is 6 to 12 base pairs, 7 to 10 base pairs, 8 base pairs, or 9 base pairs.
5. The polynucleotide cassette of claim 1, wherein the stem of the effector stem loop is 4 to 24 base pairs, 5 to 20 base pairs, 9 to 14 base pairs, 9 base pairs, 10 base pairs, 11 base pairs or 12 base pairs.
6. The polynucleotide cassette of claims 1 to 5, wherein the effector stem loop is positioned 3′ of the aptamer such that the alternatively shared stem arm comprises all or a portion of the 3′ aptamer stem arm and all or a portion of the 5′ arm of the effector stem.
7. The polynucleotide cassette of claim 6, wherein the polyadenylation signal is AATAAA or ATTAAA.
8. The polynucleotide cassette of claims 1 to 5, wherein the effector stem loop is positioned 5′ of the aptamer such that the alternatively shared stem arm comprises all or a portion of the 5′ aptamer stem arm and all or a portion of the 3′ arm of the effector stem.
9. The polynucleotide cassette of claim 8 wherein the polyadenylation signal is a downstream element (DSE).
10. A polynucleotide cassette comprising two riboswitches of claims 1-5, wherein the effector stem loop of the first riboswitch comprises all or part of the polyadenylation

signal AATAAA or ATTAAA and the effector stem loop of the second riboswitch comprises all or part of the downstream element (DSE).

11. The polynucleotide cassette of claim 10, wherein the two riboswitches each comprise an aptamer that binds the same ligand.

12. The polynucleotide cassette of claim 10, wherein the two riboswitches comprise different aptamers that bind different ligands.

13. A method of modulating the expression of a target gene comprising

    a. inserting one or more of the polynucleotide cassettes of claims 1 to 5 into the 3′ untranslated region of a target gene,

    b. introducing the target gene comprising the polynucleotide cassette into a cell, and

    c. exposing the cell to a ligand that binds the aptamer in an amount effective to increase expression of the target gene.

14. The method of claim 13, wherein the ligand is a small molecule.

15. The method of claim 13, wherein the effector stem loop is positioned 3′ of the aptamer such that the alternatively shared stem arm comprises all or a portion of the 3′ aptamer stem arm and all or a portion of the 5′ arm of the effector stem.

16. The method of claim 15, wherein the polyadenylation signal is AATAAA or ATTAAA.

17. The method of claim 13, wherein the effector stem loop is positioned 5′ of the aptamer such that the alternatively shared stem arm comprises all or a portion of the 5′ aptamer stem arm and all or a portion of the 3′ arm of the effector stem.

18. The polynucleotide cassette of claim 17 wherein the polyadenylation signal is a downstream element (DSE).

19. The method of claim 13 or claim 14, wherein two riboswitches are inserted into the 3′ UTR of the target gene, wherein the effector stem loop of the first riboswitch comprises all or part of the polyadenylation signal AATAAA or ATTAAA and the effector stem loop of the second riboswitch comprises all or part of the downstream element (DSE).

20. The method of claim 19, wherein the two riboswitches each comprise an aptamer that binds the same ligand.

21. The method of claim 19, wherein the two riboswitches comprise different aptamers that

bind different ligands.

22. The method of claim 19, wherein the two or more polynucleotide cassettes comprise the same aptamer.

23. The method according to any of claims 13 to 22, wherein the target gene comprising the polynucleotide cassette is incorporated in a vector for the expression of the target gene.

24. The method of according to any of claims 13 to 22, wherein the target gene further comprises a gene regulation cassette that modulates target gene expression by aptamer-mediated regulation of alternative splicing.

25. The method of claim 23, wherein the vector is a viral vector.

26. The method of claim 25, wherein the viral vector is selected from the group consisting of adenoviral vector, adeno-associated virus vector, and lentiviral vector.

27. A vector comprising a target gene that contains a polynucleotide cassette of claims 1-12.

28. The vector of claim 27, wherein the vector is a viral vector.

29. The vector of claim 28, wherein the viral vector is selected from the group consisting of adenoviral vector, adeno-associated virus vector, and lentiviral vector.

30. The vector of claim 27, wherein the target gene further comprises a gene regulation cassette that modulates target gene expression by aptamer-mediated regulation of alternative splicing.