Claims

1. A nuclear targeting tag comprising:

a phenylboronate targeting moiety,

a linker, and

a chemically linkable end group.

2. The nuclear targeting tag of claim 1 wherein

i) the phenylboronate targeting moiety is selected from a phenylboronic acid group and a phenylboronic acid pinacol ester group;

ii) the linker is selected from the group consisting of carbamate, ether, C_1-C_{20} alkylenyl, and -[-O-CH_2CH_2-]$_n$-, wherein *n* is 1-12;

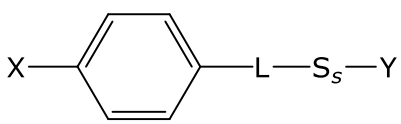
iii) the nuclear targeting tag further comprises a spacer, the spacer is selected from the group consisting of C_1-C_{20} alkylenyl and -[-O-CH_2CH_2-]$_n$-, wherein *n* is 1-12; and/or

iv) the chemically linkable end group is selected from the group consisting of halo, amino, carboxyl, C_2-C_{10} alkynyl, hydroxyl, C_1-C_{10} alkoxy, azido, sulfinate, thiol, fluorosulfate, and boronic acid.

3. The nuclear targeting tag of claim 1 or claim 2 further comprising a molecule covalently bound to the chemically linkable end group.

4. The nuclear targeting tag of claim 3 wherein the molecule is selected from the group consisting of drugs, probes, dyes, peptides, proteins, drug candidates and natural products.

5. A compound of Formula I



I

wherein

X is a boronic acid or boronic ester,

L is a linker,

S is a spacer, *s* is 0 to 10, and

Y is a chemically linkable end group.

6. The compound of claim 5 wherein

i) X is selected from a boronic acid group and a boronic acid pinacol ester group;

ii) L is selected from the group consisting of carbamate, ether, C_1-C_{20} alkylenyl and -[-O-CH_2CH_2-]$_n$-, wherein n is 1-12;

iii) S is selected from the group consisting of C_1-C_{20} alkylenyl and -[-O-CH_2CH_2-]$_n$-, wherein

n is 1-12, and

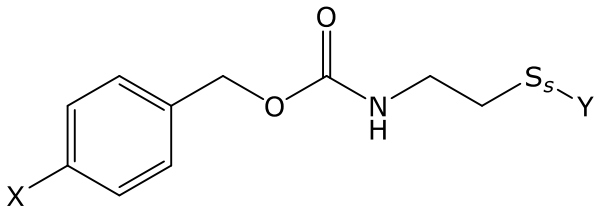
s is 1-10; and/or

iv) Y is selected from the group consisting of halo, amino, carboxyl, C_2-C_{10} alkynyl, hydroxyl, C_1-C_{10} alkoxy, azido, sulfinate, thiol, fluorosulfate, and boronic acid.

7. The compound of claim 5 or claim 6 further comprising a molecule conjugated to the chemically linkable end group.

8. The compound of claim 7 wherein the molecule is selected from the group consisting of drugs, probes, dyes, peptides, proteins, drug candidates and natural products.

9. A compound of Formula II



II

wherein

X is a boronic acid or boronic ester,

S is a spacer, *s* is 0 to 10, and

Y is a chemically linkable end group.

10. The compound of claim 9 wherein

i) X is selected from a boronic acid group and a boronic acid pinacol ester group;

ii) S is selected from the group consisting of C_1-C_{20} alkylenyl and -[-O-CH_2CH_2-]$_n$-, wherein

n is 1-12 and

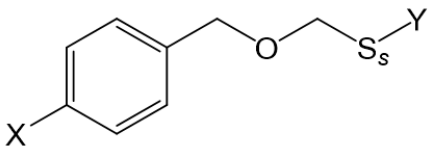
s is 1-10; and/or

iii) Y is selected from the group consisting of halo, amino, carboxyl, C_2-C_{10} alkynyl, hydroxyl, C_1-C_{10} alkoxy, azido, sulfinate, thiol, fluorosulfate, and boronic acid.

11. The compound of claim 9 or claim 10 further comprising a molecule conjugated to the chemically linkable end group.

12. The compound of claim 11 wherein the molecule is selected from the group consisting of drugs, probes, dyes, peptides, proteins, drug candidates and natural products.

13. A compound of Formula III



III

wherein

X is a boronic acid or boronic ester,

S is a spacer, *s* is 0 to 10, and

Y is a chemically linkable end group.

14. The compound of claim 13 wherein

i) X is selected from a boronic acid group and a boronic acid pinacol ester group;

ii) S is selected from the group consisting of C_1-C_{20} alkylenyl and -[-O-CH_2CH_2-]$_n$-, wherein

n is 1-12, and

s is 1-10; and/or

iii) Y is selected from the group consisting of halo, amino, carboxyl, C_2-C_{10} alkynyl, hydroxyl, C_1-C_{10} alkoxy, azido, sulfinate, thiol, fluorosulfate, and boronic acid.

15. The compound of claim 13 or claim 14 further comprising a molecule conjugated to the chemically linkable end group.

16. The compound of claim 15 wherein the molecule is selected from the group consisting of drugs, probes, dyes, peptides, proteins, drug candidates and natural products.

17. A compound selected from the group consisting of (4-((((2-aminoethyl)carbamoyl)oxy)methyl)phenyl)boronic acid hydrochloride, (4-((((2-

bromoethyl)carbamoyl)oxy)methyl)phenyl)boronic acid, 4-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)benzyl (bromoethyl)carbamate, 4-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)benzyl (2-aminoethyl)carbamate and 2-((4-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)benzyl)oxy)ethan-1-amine.

18. An *in vitro* method of delivering a molecule to a nucleus in a cell, the method comprising contacting a nuclear targeting tag of claims 3 or 4 or a compound of any of claims 7, 8, 11, 12, 15 or 16 with the cell.

19. The nuclear targeting tag of claims 3 or 4 or the compound of claims 7, 8, 11, 12, 15 or 16 for use in therapy.