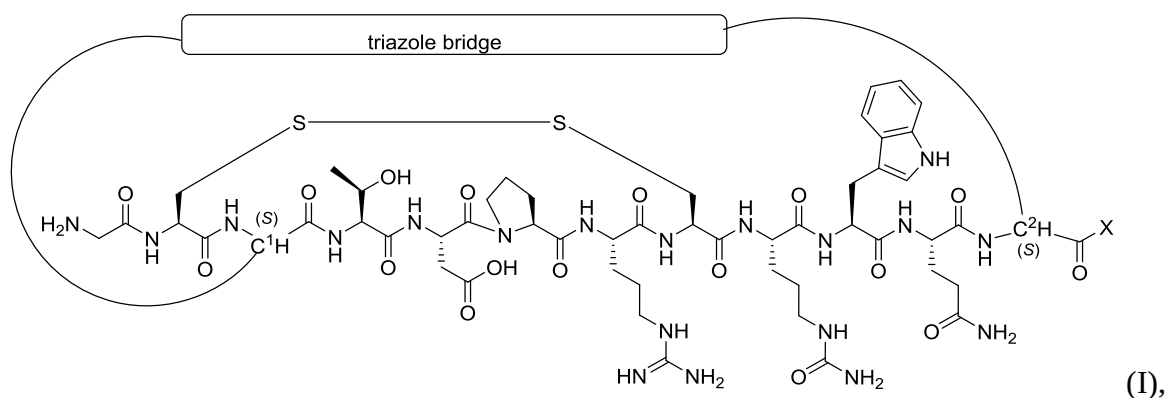


What is claimed is:

1. A PEGylated conotoxin peptide analog or pharmaceutically acceptable salt thereof, wherein the conotoxin peptide analog is of Formula (I) (SEQ ID NO:93):



wherein

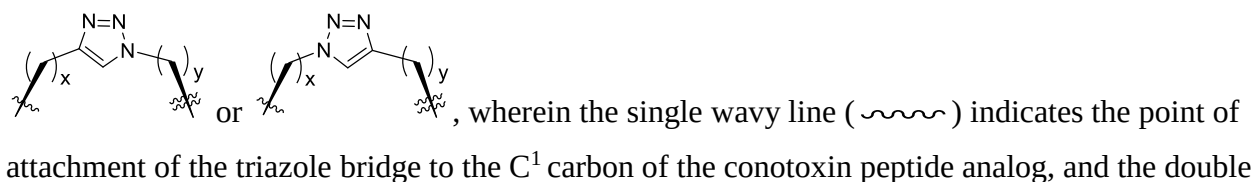
X is X_{AA}^1 or $X_{AA}^1X_{AA}^2$; wherein X_{AA}^1 is Tyr, Phe, Trp, or a D-isomer of Tyr, Phe, or Trp, and X_{AA}^2 is N-Me-Gly, D-Tyr, or N-Me-Tyr;

wherein the C-terminus of the conotoxin peptide analog is a carboxylic acid or an amide group;

and

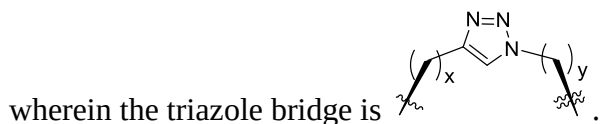
wherein the conotoxin peptide analog is covalently attached directly or via a linking group to one or more polyethylene glycol (PEG) polymers.

2. The PEGylated conotoxin peptide analog or pharmaceutically acceptable salt of claim 1, wherein the triazole bridge is

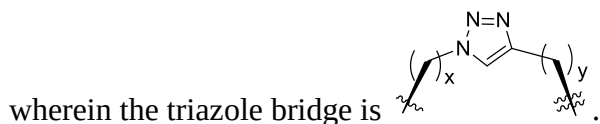


wavy lines () indicate the point of attachment of the triazole bridge to the C² carbon of the conotoxin peptide analog; and wherein x is 1, 2, 3, or 4; and y is 2, 3 or 4.

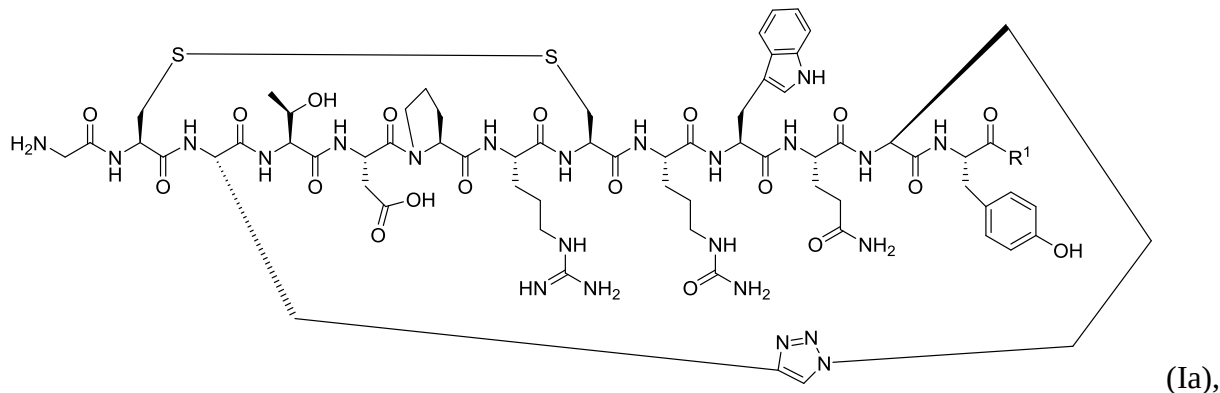
3. The PEGylated conotoxin peptide analog or pharmaceutically acceptable salt of claim 2,



4. The PEGylated conotoxin peptide analog or pharmaceutically acceptable salt of claim 2,



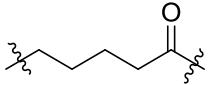
5. The PEGylated conotoxin peptide analog or pharmaceutically acceptable salt of claim 1,
wherein the conotoxin peptide analog is of Formula (Ia) (SEQ ID NO:94)



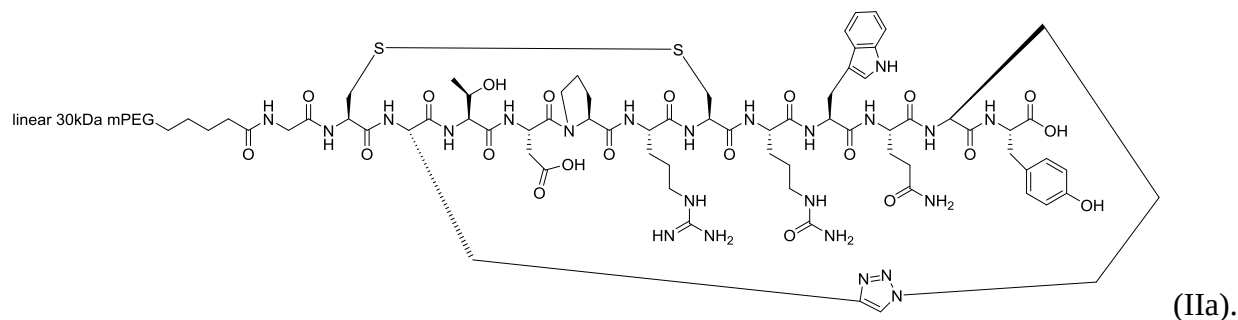
wherein R¹ is OH or NH₂.

6. The PEGylated conotoxin peptide analog or pharmaceutically acceptable salt of claim 5,
wherein R¹ is OH.

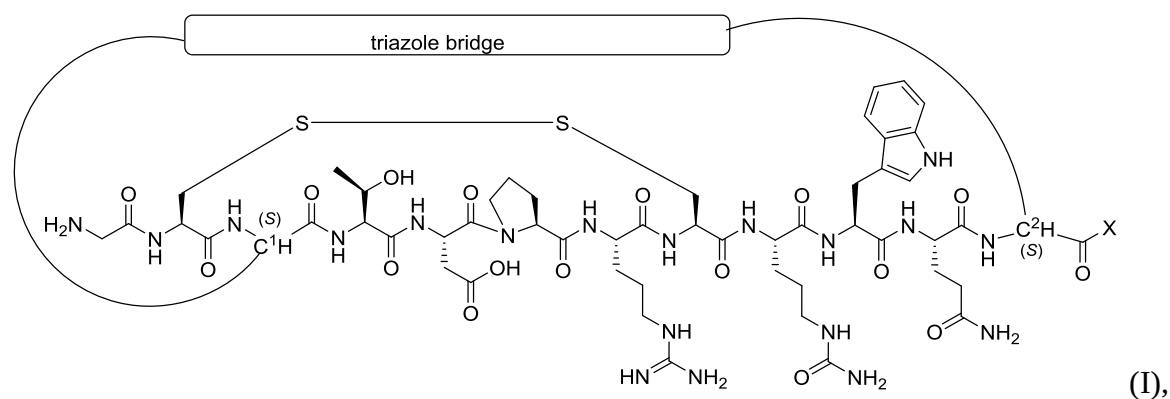
7. The PEGylated conotoxin peptide analog or pharmaceutically acceptable salt of any one of claims 1-6, wherein the conotoxin peptide analog is covalently attached to one PEG polymer.
8. The PEGylated conotoxin peptide analog or pharmaceutically acceptable salt of claim 7, wherein the PEG polymer is covalently attached to the N-terminus of the conotoxin peptide analog.
9. The PEGylated conotoxin peptide analog or pharmaceutically acceptable salt of claim 7 or 8, wherein the PEG polymer is covalently attached to the conotoxin peptide analog via a linking group.
10. The PEGylated conotoxin peptide analog or pharmaceutically acceptable salt of claim 9,

wherein the linking group is a valerate linker having a formula of .

11. The PEGylated conotoxin peptide analog or pharmaceutically acceptable salt of any one of claims 7-10, wherein the PEG polymer is a linear or branched PEG polymer.
12. The PEGylated conotoxin peptide analog or pharmaceutically acceptable salt of claim 11, wherein the PEG polymer is a linear PEG polymer.
13. The PEGylated conotoxin peptide analog or pharmaceutically acceptable salt of claim 12, wherein the PEG polymer has molecular weight in the range of 10 kDa and 40 kDa.
14. The PEGylated conotoxin peptide analog or pharmaceutically acceptable salt of claim 13, wherein the PEG polymer is a linear 30 kDa PEG polymer.
15. The PEGylated conotoxin peptide analog or pharmaceutically acceptable salt of claim 1, wherein the PEGylated conotoxin peptide analog is of Formula (IIa) (SEQ ID NO:83):



16. A conotoxin peptide analog of Formula (I) (SEQ ID NO:93):



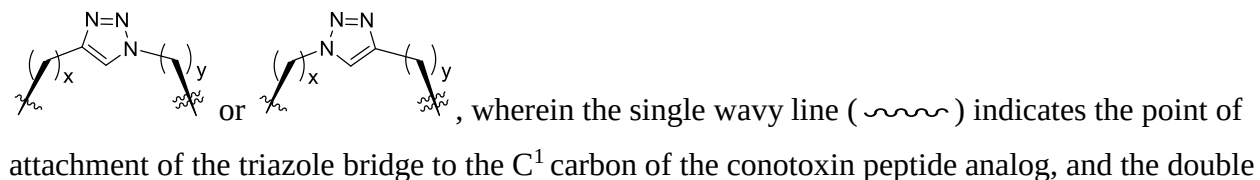
or a pharmaceutically acceptable salt thereof,

wherein

X is X_{AA}^1 or $X_{AA}^1X_{AA}^2$; wherein X_{AA}^1 is Tyr, Phe, Trp, or a D-isomer of Tyr, Phe, or Trp, and X_{AA}^2 is N-Me-Gly, D-Tyr, or N-Me-Tyr;

wherein the C-terminus of the conotoxin peptide analog is a carboxylic acid or an amide group.

17. The conotoxin peptide analog or pharmaceutically acceptable salt of claim 16, wherein the triazole bridge is

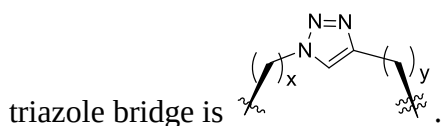


wavy lines () indicate the point of attachment of the triazole bridge to the C² carbon of the conotoxin peptide analog; and wherein x is 1, 2, 3, or 4; and y is 2, 3 or 4.

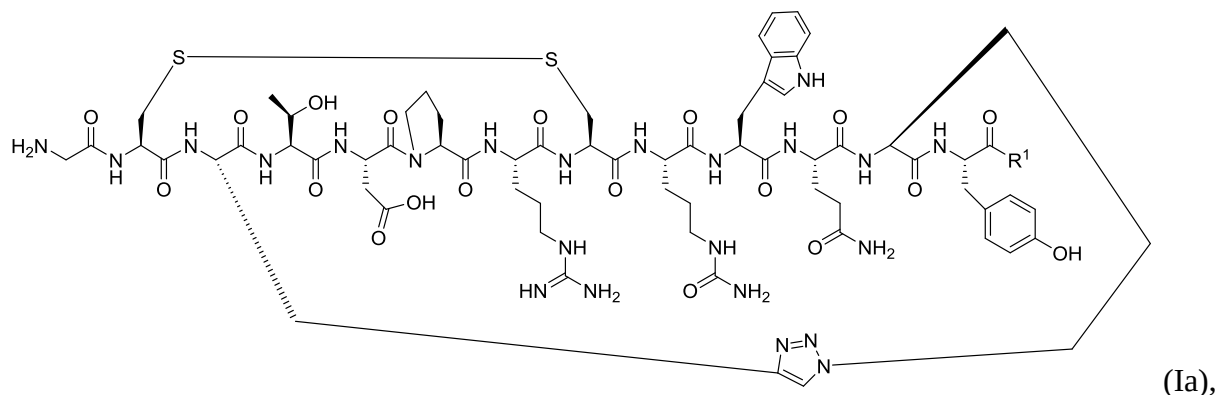
18. The conotoxin peptide analog or pharmaceutically acceptable salt of claim 17, wherein the



19. The conotoxin peptide analog or pharmaceutically acceptable salt of claim 17, wherein the



20. The conotoxin peptide analog or pharmaceutically acceptable salt of claim 16, wherein the conotoxin peptide analog is of Formula (Ia) (SEQ ID NO:94):



wherein R¹ is OH or NH₂.

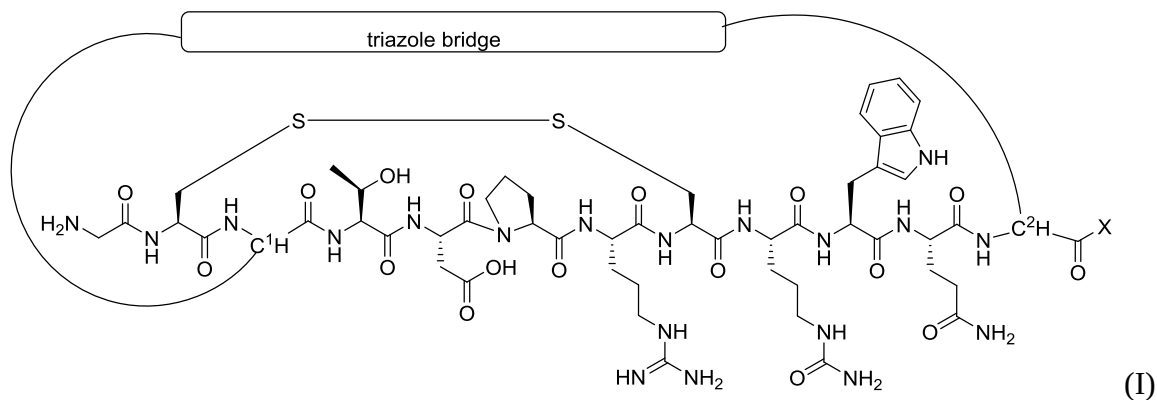
21. The conotoxin peptide analog or pharmaceutically acceptable salt of claim 20, wherein R¹ is OH.

22. A pharmaceutical composition comprising the PEGylated conotoxin peptide analog or pharmaceutically acceptable salt of any one of claims 1-15, or the conotoxin peptide analog

or pharmaceutically acceptable salt of any one of claims 16-21, and a pharmaceutically acceptable carrier.

23. Use of the PEGylated conotoxin peptide analog or pharmaceutically acceptable salt of any one of claims 1-15, or the conotoxin peptide analog or pharmaceutically acceptable salt of any one of claims 16-21, or the pharmaceutical composition of claim 22, in the manufacture of a medicament for a method of treating or preventing pain or inflammation in a subject, the medicament is to be administered to the subject.
24. Use of the PEGylated conotoxin peptide analog or pharmaceutically acceptable salt of any one of claims 1-15, or the conotoxin peptide analog or pharmaceutically acceptable salt of any one of claims 16-21, or the pharmaceutical composition of claim 22, in the manufacture of a medicament for a method of treating or preventing a condition conducive to treatment or prevention by inhibition of an $\alpha 9$ -containing nicotinic acetylcholine receptor (nAChR) in a subject, or a condition associated with activation of an $\alpha 9$ -containing nicotinic acetylcholine receptor (nAChR) in a subject, the medicament is to be administered to the subject.
25. The use of claim 24, wherein the condition conducive to treatment or prevention by inhibition of the $\alpha 9$ -containing nAChR is pain or inflammation.
26. The use of claim 25, wherein the condition is pain.
27. The use of claim 26, wherein the pain is selected from the group consisting of general pain, chronic pain, neuropathic pain, nociceptive pain, inflammatory pain, visceral pain, somatic pain, pain induced by peripheral nerve damage, pain induced by an inflammatory disorder, pain induced by a metabolic disorder, pain induced by cancer, pain induced by chemotherapy, pain induced by a surgical procedure, and pain induced by a burn.

28. The use of claim 24, wherein the condition conducive to treatment or prevention by inhibition of the $\alpha 9$ -containing nAChR is an inflammatory condition.
29. The use of any one of claims 24-28, wherein the condition conducive to treatment or prevention by inhibition of an $\alpha 9$ -containing nicotinic acetylcholine receptor (nAChR) is a condition conducive to treatment or prevention by inhibition of the $\alpha 9\alpha 10$ subtype of nAChR.
30. The use of any one of claims 23-29, wherein the subject is a human.
31. A method of making a conotoxin peptide analog of Formula (I) (SEQ ID NO:93) or a pharmaceutically acceptable salt thereof,



wherein

X is X_{AA}^1 or $X_{AA}^1X_{AA}^2$; wherein X_{AA}^1 is Tyr, Phe, Trp, or a D-isomer of Tyr, Phe, or Trp, and X_{AA}^2 is N-Me-Gly, D-Tyr, or N-Me-Tyr; and

wherein the C-terminus of the conotoxin peptide analog of Formula (I) is a carboxylic acid or an amide group;

comprising subjecting an intermediate conotoxin peptide analog or a salt thereof to triazole formation conditions, wherein the amino acid sequence of the intermediate conotoxin peptide analog is Gly-Cys- X_{AA}^3 -Thr-Asp-Pro-Arg-Cys- X_{AA}^9 -Trp-Gln- X_{AA}^{12} -X (SEQ ID NO:106), wherein

X_{AA}^3 is selected from the group consisting of (S)-propargyl glycine, (S)-azidoalanine, (S)-homopropargyl glycine, (S)-azidohomoalanine, (S)-azidonorvaline and (S)-bishomopropargyl glycine;

X_{AA}^9 is Citrulline;

X_{AA}^{12} is selected from the group consisting of (S)-azidohomoalanine, (S)-homopropargyl glycine, (S)-azidonorvaline, and (S)-bishomopropargyl glycine;

wherein when X_{AA}^3 is selected from the group consisting of (S)-propargyl glycine, (S)-homopropargyl glycine, and (S)-bishomopropargyl glycine, X_{AA}^{12} is (S)-azidohomoalanine or (S)-azidonorvaline; when X_{AA}^3 is selected from the group consisting of (S)-azidoalanine, (S)-azidohomoalanine, and (S)-azidonorvaline, X_{AA}^{12} is (S)-homopropargyl glycine or (S)-bishomopropargyl glycine;

X is as defined above for the conotoxin peptide analog of Formula (I); and

wherein the C-terminus of the intermediate conotoxin peptide analog is as defined above for the conotoxin peptide analog of Formula (I); and

wherein under said triazole formation conditions X_{AA}^3 reacts with X_{AA}^{12} to form the triazole bridge in the conotoxin peptide analog of Formula (I).

32. A method of making a PEGylated conotoxin peptide analog or a pharmaceutically acceptable salt thereof, comprising contacting under reaction conditions a conotoxin peptide analog or a salt thereof, with one or more reactive polyethylene glycol (PEG) polymers to form a PEGylated conotoxin peptide analog, wherein the reactive PEG polymers each comprise a reactive group covalently linked, optionally via a linking group, to a PEG polymer, and wherein each reactive group reacts under the reaction conditions to form a covalent bond

with the conotoxin peptide analog whereby the conotoxin peptide analog is covalently attached directly or via a linking group to the one or more PEG polymers, wherein the amino acid sequence of the conotoxin peptide analog is Gly-Cys- X_{AA}^3 -Thr-Asp-Pro-Arg-Cys- X_{AA}^9 -Trp-Gln- X_{AA}^{12} -X (SEQ ID NO:106), wherein

X_{AA}^3 is selected from the group consisting of (S)-propargyl glycine, (S)-azidoalanine, (S)-homopropargyl glycine, (S)-azidohomoalanine, (S)-azidonorvaline and (S)-bishomopropargyl glycine;

X_{AA}^9 is Citrulline;

X_{AA}^{12} is selected from the group consisting of (S)-azidohomoalanine, (S)-homopropargyl glycine, (S)-azidonorvaline, and (S)-bishomopropargyl glycine;

wherein when X_{AA}^3 is selected from the group consisting of (S)-propargyl glycine, (S)-homopropargyl glycine, and (S)-bishomopropargyl glycine, X_{AA}^{12} is (S)-azidohomoalanine or (S)-azidonorvaline; when X_{AA}^3 is selected from the group consisting of (S)-azidoalanine, (S)-azidohomoalanine, and (S)-azidonorvaline, X_{AA}^{12} is (S)-homopropargyl glycine or (S)-bishomopropargyl glycine;

X is X_{AA}^1 or $X_{AA}^1X_{AA}^2$; wherein X_{AA}^1 is Tyr, Phe, Trp, or a D-isomer of Tyr, Phe, or Trp, and X_{AA}^2 is N-Me-Gly, D-Tyr, or N-Me-Tyr; and

wherein the C-terminus of the conotoxin peptide analog is a carboxylic acid or an amide group.