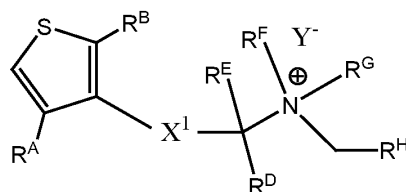


CLAIMS

What is claimed is:

1. A compound represented by Formula (I)



(I),

wherein:

Y^- is a pharmaceutically acceptable anion;

R^A and R^B are each independently selected from H, D, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted alkynyl, OR^I , $NR^J R^K$, $NR^L C(O)R^M$, $S(O)R^N$, $S(O)_2 R^N$, $SO_2 R^O R^P$, $SO_2 NR^Q R^R$, $SO_3 R^S$, $CO_2 R^T$, $C(O)R^U$, and $C(O)NR^V R^W$;

each of R^I , R^J , R^K , R^L , R^M , R^N , R^O , R^P , R^Q , R^R , R^S , R^T , R^U , R^V , and R^W is independently selected from H, substituted or unsubstituted alkyl, substituted or unsubstituted alkenyl, and substituted or unsubstituted alkynyl;

X^1 is selected from $-CR^X R^Y-$, $-NR^Z C(O)-$, $-NR^Z C(O)CR^X R^Y-OC(O)-$, $-SC(O)-$, $-C(O)NR^{1A}-$, $-C(O)O-$, $-(O)CS-$, $-NR^{1A} S(O)-$, $-S(O)NR^{1A}-$, $-NR^{1A} C(O)NR^{1A}-$, $-S(O)-$ and $-S(O)_2-$;

each of R^X , R^Y , R^Z , and R^{1A} is independently selected from H, D, substituted or unsubstituted alkyl, substituted or unsubstituted alkenyl, and substituted or unsubstituted alkynyl;

each of R^D and R^E is independently selected from H, D, substituted or unsubstituted alkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted alkynyl, and substituted or unsubstituted cycloalkyl; or R^D and R^E together with the carbon to which they are attached form a substituted or unsubstituted C_3-C_6 cycloalkyl, substituted or unsubstituted heterocyclic; or R^D and R^Z together with the carbon and the $-N-C(O)-$ to which they are attached form an optionally substituted 5-8-membered lactam;

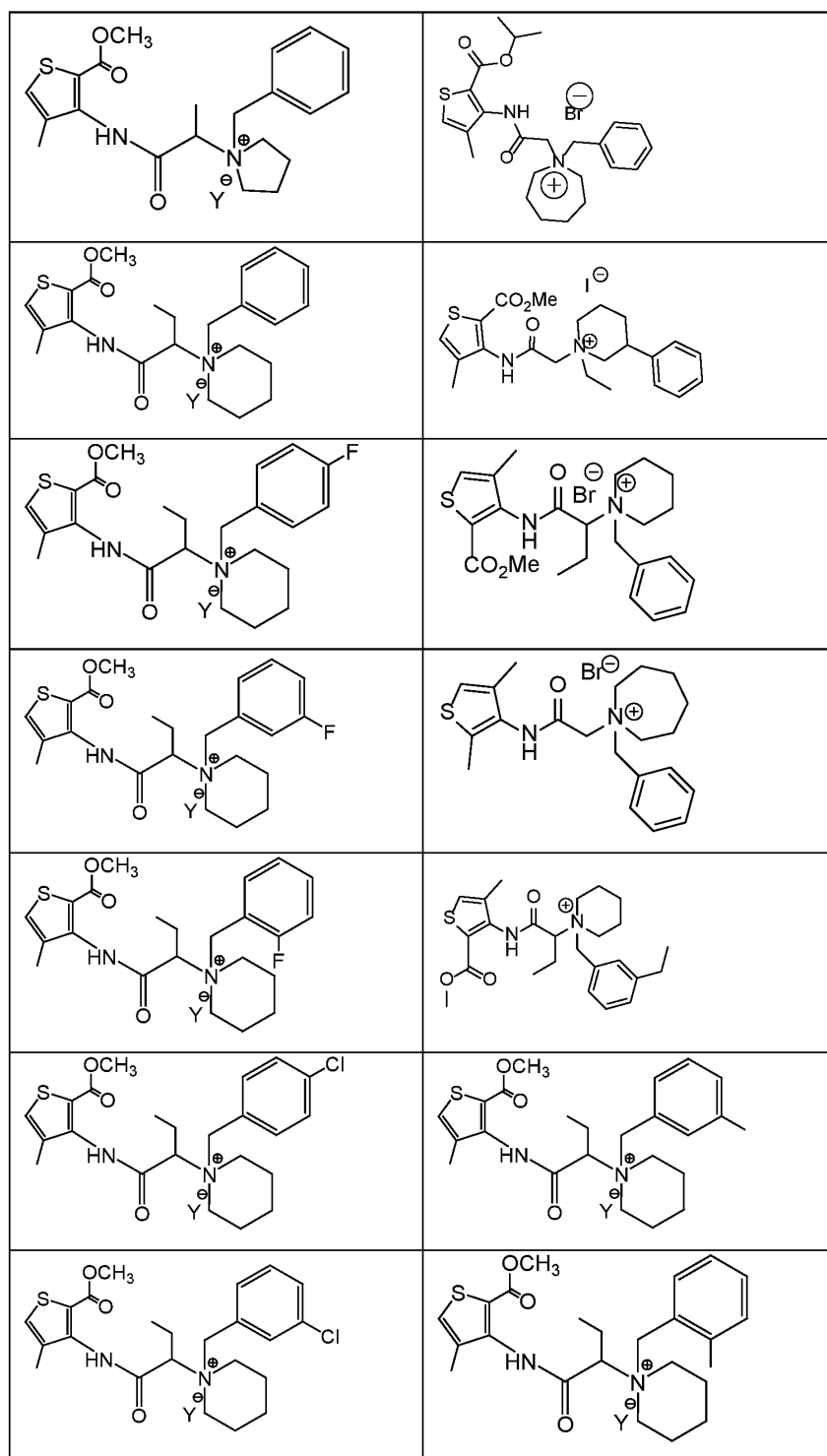
R^F and R^G together with the N^+ to which they are attached form an optionally substituted heterocyclic ring having zero, one or more nitrogen atoms in addition to the N^+ ; or, each of R^F and R^G is independently selected from substituted or unsubstituted alkyl,

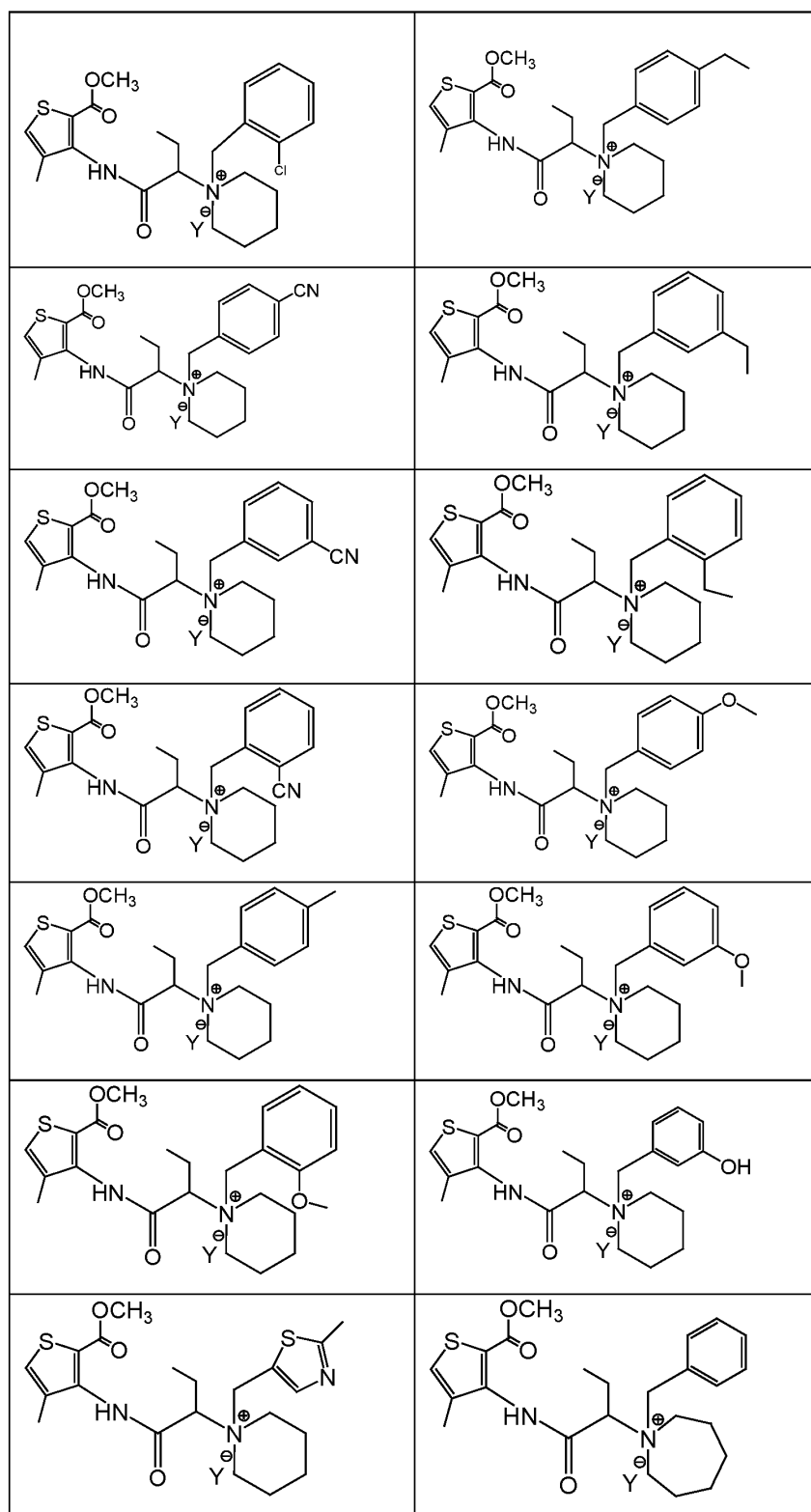
substituted or unsubstituted alkenyl, substituted or unsubstituted alkynyl, substituted or unsubstituted heterocyclyl, and substituted or unsubstituted C₃-C₆ cycloalkyl; and

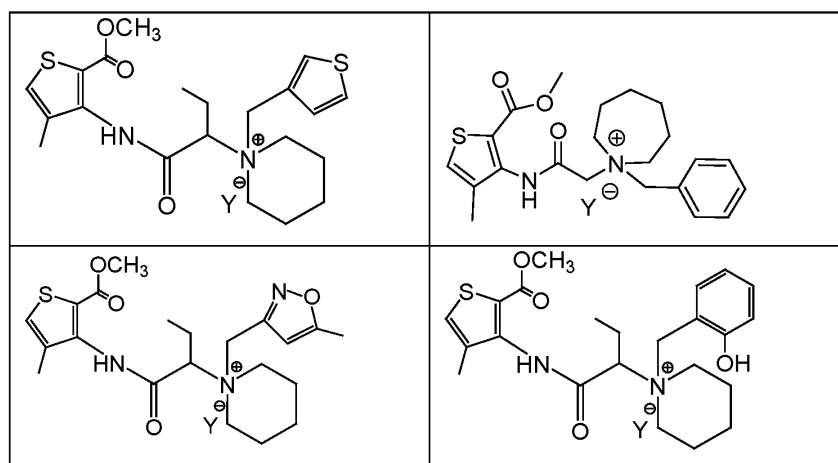
R^H is a substituted or unsubstituted aryl, or a substituted or unsubstituted heteroaryl.

- 5 2. The compound of claim 1, wherein Y⁻ is bromide, chloride, or iodide.
3. The compound of claim 1, wherein X¹ is —NHC(O)—.
4. The compound of claim 1, wherein R^H is selected from a C₆₋₁₀ aryl or a C₅₋₁₀
10 heteroaryl, each optionally substituted with C₁₋₆ alkyl, C₃₋₆ cycloalkyl,
heterocyclyl, phenyl, substituted phenyl, heteroaryl, substituted heteroaryl,
hydroxyl, amide, ester, sulfonamide, urea, nitrile, or halogen.
5. The compound of claim 1, wherein R^H is a C₆₋₁₀ aryl or a 5- to 10-membered
15 heteroaryl, each optionally substituted with a substituted or unsubstituted C₁-C₆
alkyl, halo, nitrile, hydroxyl, and alkoxy.
6. The compound of claim 1, wherein each of R^A and R^B is independently selected from
H, halogen, C₁₋₄ alkyl, and CO₂R^T; R^T is selected from H or C₁₋₄ alkyl.
20
7. The compound of claim 1, wherein R^A and R^B are each independently selected from
H, D, halogen, OR^I, substituted or unsubstituted C₁-C₄ alkyl, and CO₂R^T; wherein
each of R^I and R^T is independently selected from H and substituted or unsubstituted
C₁-C₄ alkyl.
25
8. The compound of claim 1, wherein R^A is CH₃, and R^B is selected from —CO₂CH₃
and —C(O)OCH₂CH₃.
9. The compound of claim 1, wherein R^D is C₁₋₄ alkyl optionally substituted with
30 halogen, oxygen, C₃₋₈ cyclic alkyl, aryl, or heteroaryl, and wherein R^E is H, D, or C₁-
4 alkyl.
10. The compound of claim 1, wherein R^D is selected from hydrogen and ethyl and R^E is
hydrogen.

11. The compound of claim 1, wherein R^D is selected from hydrogen and ethyl and R^E is an alkyl.
- 5 12. The compound of claim 1, wherein R^D and R^E are taken together with the carbon to which they are attached to form a C_3 - C_6 cycloalkyl.
13. The compound of claim 1, wherein R^F and R^G together with the N^+ to which they are attached form a substituted or unsubstituted five, six, seven, or eight- membered
- 10 heterocyclic ring.
14. The compound of claim 1, wherein each of R^F and R^G is independently selected from unsubstituted C_1 - C_4 alkyl.
- 15 15. The compound of claim 1, wherein the compound is selected from the Table below:







16. The compound of claim 15, wherein Y^- is Br^- or Cl^- .
- 5 17. A pharmaceutical composition comprising the compound of claim 1 or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable excipient.
- 10 18. The composition of claim 17, wherein said composition is formulated for oral, intravenous, intramuscular, rectal, cutaneous, subcutaneous, topical, transdermal, sublingual, nasal, inhalation, vaginal, intrathecal, epidural, or ocular administration.
- 15 19. A method for treating pain, cough, itch, or a neurogenic inflammatory disorder in a patient, comprising administering to said patient an effective amount of the compound of claim 1.
- 20 20. The method of claim 19, wherein said pain is selected from the group consisting of pain due to back and neck pain, lower back pain, cancer pain, gynecological and labor pain, fibromyalgia, arthritis, rheumatoid arthritis, osteoarthritis, rheumatological pains, orthopedic pains, acute and post herpetic neuralgia and other neuropathic pains (including peripheral neuropathy), sickle cell crises, vulvodynia, peri-anal pain, irritable bowel disease, irritable bowel syndrome, inflammatory bowel disease, oral mucositis, esophagitis, interstitial cystitis, urethritis and other urological pains, dental pain, headaches, trigeminal trophic syndrome, erythromelalgia, abdominal wall pain, chronic abdominal wall pain, allergic rhinitis,
- 25

- muscle pain, rectal pain, Levator ani syndrome, proctalgia fugax, hemorrhoid pain, stomach pain, skin ulcers, stomach ulcers, burn pain, ophthalmic irritation, conjunctivitis (e.g., allergic conjunctivitis), eye redness, dry eye, dry eye syndrome (chronic ocular pain), complex regional pain syndrome, post-surgical ocular pain, postoperative pain, acute postoperative pain, and procedural pain (i.e., pain associated with injections, draining an abscess, surgery, dental procedures, ophthalmic procedures, ophthalmic irritation, conjunctivitis (e.g., allergic conjunctivitis), eye redness, dry eye, arthroscopies and use of other medical instrumentation, cosmetic surgical procedures, dermatological procedures, setting fractures, biopsies, and the like).
21. The method of claim 19, wherein said cough is selected from the group consisting of cough in patients with asthma, COPD, asthma-COPD overlap syndrome (ACOS), interstitial pulmonary fibrosis (IPF), idiopathic pulmonary fibrosis, post viral cough, post-infection cough, chronic idiopathic cough and lung cancer.
22. The method of claim 19, wherein said itch is selected from the group consisting of itch due to pruritus, brachioradial pruritus, chronic idiopathic pruritus, genital/anal pruritus, notalgia paresthetica, scalp pruritus, allergic dermatitis, contact dermatitis, atopic dermatitis, hand eczema, poison ivy, infections, parasites, insect bites, pregnancy, metabolic disorders, liver or renal failure, drug reactions, allergic reactions, eczema, genital and anal itch, hemorrhoid itch, and cancer.
23. The method of claim 19, wherein said neurogenic inflammatory disorder is selected from the group consisting of allergic inflammation, asthma, chronic cough, conjunctivitis, rhinitis, psoriasis, inflammatory bowel disease, interstitial cystitis, arthritis, colitis, contact dermatitis, diabetes, eczema, cystitis, gastritis, migraine headache, rosacea, sunburn, pancreatitis, chronic rhinosinusitis, traumatic brain injury, polymicrobial sepsis, tendinopathies, chronic urticaria, rheumatic disease, acute lung injury, exposure to irritants, inhalation of irritants, pollutants, chemical warfare agents, and atopic dermatitis.
24. The method of claim 19, wherein a compound represented by Formula (I) is used in combination with one or more exogenous large pore receptor agonists.