USE OF 1,3-PROPANEDISULFONIC ACID OR PHARMACEUTICALLY ACCEPTABLE SALTS THEREOF FOR THE TREATMENT OF SARCOIDOSIS

FIELD OF THE INVENTION

[0001] The present disclosure relates to methods for the treatment of sarcoidosis.

BACKGROUND OF THE INVENTION

[0002] PCT patent application publication WO 2007/004072 discloses methods of treating AA amyloidosis by administering 1,3 propanedisulfonic acid. PCT patent application publication WO 2007/0238788 discloses methods of treating diabetic neuropathy by administering 1,3 propanedisulfonic acid.

[0003] Sarcoidosis is a rare condition that causes small patches of red and swollen tissue, called granulomas that can develop in multiple organs in the body, but mostly the lungs and skin. Corticosteroids, the mainstay of therapy in sarcoidosis, nonspecifically suppress chronic granulomatous inflammation, often causing debilitating adverse effects but do not correct the underlying disease.

SUMMARY OF THE INVENTION

[0004] In one aspect, there is provided use of an effective amount of 1,3-propanedisulfonic acid or a pharmaceutically acceptable salt thereof in the manufacture of a medicament for treating a subject with sarcoidosis. In another aspect, there is provided a pharmaceutically acceptable composition for the treatment of sarcoidosis, said composition comprising 1,3-propanedisulfonic acid or a pharmaceutically acceptable salt thereof and a pharmaceutically acceptable carrier therefor. Disclosed are methods for treating a subject with sarcoidosis, that include administering to said subject an effective amount of 1,3-propanedisulfonic acid or a pharmaceutically acceptable salt thereof as well as relevant compositions for use in such methods. In certain examples, the 1,3-propanedisulfonic acid or pharmaceutically acceptable salt thereof is 1,3-propanedisulfonic acid. In certain examples of the disclosure, the 1,3-propanedisulfonic acid or pharmaceutically acceptable salt thereof is the disodium salt of 1,3-propanedisulfonic acid.

[0005] In some examples of the disclosure, the subject being treated has chronic sarcoidosis (as opposed to acute sarcoidosis). In certain examples of the disclosure the subject being treated has acute sarcoidosis.

[0006] In various examples of the disclosure, sarcoidosis may affect one or more of the lungs, liver, heart, nervous system (including the brain), skin, lymph glands, musculoskeletal system (e.g, bones, joints, muscles), spleen, eyes, sinuses, nasal mucosa, larynx, the gastrointestinal tract, reproductive organs, salivary glands and/or kidneys.

[0007] In certain examples of the disclosure, sarcoidosis specifically affects the lungs.

[0008] In some examples, the administration of 1,3-propanedisulfonic acid or pharmaceutically acceptable salt thereof results in the reduction in one or more inflammatory mediators selected from the group consisting of IL-18, IL-10 and TNF.

[0009] In some examples, the administration of 1,3-propanedisulfonic acid or pharmaceutically acceptable salt thereof results in the reduction and/or alleviation of sarcoidosis symptoms in the subject (e.g., granuloma formation, granulomatous inflammation, and the like).

[0010] In certain examples of the disclosure, the effective amount of 1,3-propanedisulfonic acid or pharmaceutically acceptable salt thereof comprises administration of at least 1mg/kg thereof to said subject per dose.

[0011] In certain examples of the disclosure, the effective amount of 1,3-propanedisulfonic acid or pharmaceutically acceptable salt thereof is administered more than once daily. Exemplary administration protocols contemplate administration of 1,3-propanedisulfonic acid or pharmaceutically acceptable salt thereof at least 2 times daily; at least 3 times daily; at least 4 times daily; at least 5 times daily; at least 6 times daily; or even more frequently, including continuous administration thereof. In certain examples the 1,3-propanedisulfonic acid is administered to a subject (for example orally) in a dose of 400 mg, or 800 mg, or 1,200 mg per administration. In some

embodiments the 1,3-propanedisulfonic acid is administered to a subject in a dose of 400 mg QID, or 600 mg QID, or 800 mg QID, or 1000 mg QID, or 1,200 mg QID per administration.

[0012] In certain examples of the disclosure, no more than 20mg/kg of 1,3-propanedisulfonic acid or pharmaceutically acceptable salt thereof is administered to said subject per dose.

[0013] 1,3-propanedisulfonic acid or pharmaceutically acceptable salts thereof can be administered in a variety of ways, e.g., by oral, parenteral, intraperitoneal, intraspinal, intracerebral, nasal, mucosal, transdermal, intravascular, intraarterial, intramuscular, or subcutaneous delivery, or the like.

[0014] In certain examples of the disclosure, 1,3-propanedisulfonic acid or pharmaceutically acceptable salts thereof are administered by oral delivery.

[0015] In certain examples of the disclosure, there are provided pharmaceutically acceptable compositions for the treatment of sarcoidosis, said compositions comprising 1,3-propanedisulfonic acid or a pharmaceutically acceptable salt thereof and a pharmaceutically acceptable carrier therefor.

[0016] In certain examples of the disclosure, the above-described pharmaceutically acceptable compositions may further comprise a second agent traditionally employed for the treatment of sarcoidosis. An exemplary second agent is a corticosteroid.

BRIEF DESCRIPTION OF THE FIGURE

[0017] Figure 1 summarizes the protocol employed to evaluate the effect of 1,3-propanedisulfonic acid (or a pharmaceutically acceptable salt thereof) on SAA (serum amyloid A) stimulated inflammation in THP-1 cells.

That which is claimed is:

1. Use of an effective amount of 1,3-propanedisulfonic acid or a pharmaceutically acceptable salt thereof in the manufacture of a medicament for treating a subject with sarcoidosis.

2. The use of claim 1 wherein said subject has chronic sarcoidosis.

3. The use of claim 1 wherein said sarcoidosis affects the lungs, liver, heart, nervous system (including the brain), skin, lymph glands, musculoskeletal system (e.g, bones, joints, muscles), spleen, eyes, sinuses, nasal mucosa, larynx, the gastrointestinal tract, reproductive organs, salivary glands and/or kidneys.

4. The use of claim 3 wherein said sarcoidosis affects the lungs.

5. The use of claim 1 wherein at least 1mg/kg of 1,3-propanedisulfonic acid or pharmaceutically acceptable salt thereof is to be administered to said subject per dose.

6. The use of claim 5 wherein said 1,3-propanedisulfonic acid or pharmaceutically acceptable salt thereof is to be administered more than once daily.

7. The use of claim 5 wherein said 1,3-propanedisulfonic acid or pharmaceutically acceptable salt thereof is to be administered 2, 3, 4, 5 or 6 times daily.

8. The use of claim 5 wherein no more than 20mg/kg of 1,3-propanedisulfonic acid or pharmaceutically acceptable salt thereof is to be administered to said subject per dose.

9. The use of claim 1 wherein said 1,3-propanedisulfonic acid or pharmaceutically acceptable salt thereof is to be administered by oral, parenteral, intraperitoneal, intraspinal, intracerebral, nasal, mucosal, transdermal, intravascular, intraarterial, intramuscular, or subcutaneous delivery.

10. The use of claim 1 wherein said 1,3-propanedisulfonic acid or pharmaceutically acceptable salt thereof is to be administered by oral delivery.

11. The use of any one of the preceding claims wherein said 1,3-propanedisulfonic acid or pharmaceutically acceptable salt thereof is 1,3-propanedisulfonic acid.

12. The use of any one of claims 1 – 10 wherein said 1,3-propanedisulfonic acid or pharmaceutically acceptable salt thereof is the disodium salt of 1,3-propanedisulfonic acid.

13. A pharmaceutically acceptable composition for the treatment of sarcoidosis, said composition comprising 1,3-propanedisulfonic acid or a pharmaceutically acceptable salt thereof and a pharmaceutically acceptable carrier therefor.

14. The composition of claim 13 further comprising a second agent traditionally employed for the treatment of sarcoidosis.

15. The composition of claim 14 wherein said second agent is a corticosteroid.