Wedemeyer J & Vosskuhle K., *Best Pract Res Clin Gastroenterol*. 2008, 22:537-549. Further, in asthmatics, levels of eosinophil granule proteins such as eosinophil cationic protein (ECP) and eosinophil peroxidase (EPO) largely correlate with asthma severity. *See* Parra A, et al., *J Investig Allergol Clin Immunol*. 1999; 9:27-34. Eosinophilic inflammation of the upper airways may also occur independent of allergy, as observed in chronic rhinosinusitis (CRS) subjects. *See* Hutcheson PS, et al., *J Rhinol Allergy*. 2010, 24:405-408. Such individuals represent a unique subgroup who are largely resistant to medical and surgical interventions and who could show immediate benefit by therapy that targets eosinophilic expansion and effector functions.

SUMMARY

[0006] In some examples, provided herein respiratory treatments, such as asthma treatments, using salmonid oil. In some examples, the asthma is bronchial asthma. In certain examples, the treatments provided target a subgroup of patients that are largely resistant to medical and surgical interventions, including steroid therapies.

[0007] In certain examples, provided is a method for treating an inflammatory condition, disorder or disease in a human in need thereof, comprising: administering to the human an effective dose of a composition comprising salmonid oil or at least one biological active isolated from salmonid oil to treat the inflammatory condition, disorder or disease.

[0008] In certain examples, provided is a method for treating a respiratory condition, disorder or disease in a human in need thereof, comprising: administering to the human an effective dose of a composition comprising salmonid oil or at least one biological active isolated from salmonid oil to treat the inflammatory condition, disorder or disease.

[0009] In some variations of the methods provided herein, the condition, disorder or disease treated is an eosinophilic condition, disorder or disease. In some examples, an inflammatory condition, disorder or disease is an eosinophilic inflammatory condition, disorder or disease. In some examples, a respiratory condition, disorder or disease is an eosinophilic respiratory condition, disorder or disease. In one aspect, the present disclosure refers to use of an effective dose of a composition comprising salmonid oil or at least one biological active isolated from salmonid oil in the manufacture of a medicament for treating an eosinophilic inflammatory condition, disorder, or disease in a human in need thereof, wherein the salmonid oil is obtained from mild enzymatic hydrolysis of off-cuts of salmonid fish. In one aspect, the present disclosure refers to use of an effective dose of a composition comprising salmonid oil or at least one biological active isolated from salmonid oil in the manufacture of a medicament for treating an eosinophilic respiratory condition, disorder, or disease in a human in need thereof, wherein the salmonid oil is obtained from mild enzymatic hydrolysis of off-cuts of salmonid fish.

[0010] In certain examples, provided is a method for reducing eosinophil effector function in a human in need thereof, comprising administering to the human a composition comprising

salmonid oil or at least one biological active isolated from salmonid oil to reduce eosinophil effector function. In one aspect, the present disclosure refers to use of a composition comprising salmonid oil or at least one biological active isolated from salmonid oil in the manufacture of a medicament for reducing eosinophil effector function in a human in need thereof, wherein the salmonid oil is obtained from mild enzymatic hydrolysis of off-cuts of salmonid fish.

[0011] In some examples of the foregoing examples, the salmonid oil is enzymatically extracted salmonid oil. In certain variations, the salmonid oil is obtained from mild enzymatic hydrolysis of off-cuts of salmonid fish.

[0012] In some examples of the methods provided herein, the composition is administered orally. In some variations, the composition is inhaled. In some variations, the composition is administered nasally. In some variations, the composition is injected. In some variations, the composition is administered topically.

[0013] In certain examples, provided are also salmonid oil compositions comprising at least one biological active described herein. In certain examples, provided are compositions comprising at least one biological active isolated from salmonid oil. In another example, provided is the use of such compositions for treating the various conditions, disorders or diseases described herein.

[0014] In other examples, provided is an article of manufacture, comprising: a container comprising a composition comprising salmonid oil or at least one biological active isolated from salmonid oil; and a label containing instructions for use of such composition. In one aspect, the present disclosure refers to an article of manufacture, comprising: a container comprising a composition comprising salmonid oil or at least one biological active isolated from salmonid oil, wherein the salmonid oil is obtained from mild enzymatic hydrolysis of off-cuts of salmonid fish; and a label containing instructions for use directed to treatment of an eosinophilic inflammatory condition, disorder, or disease in a human in need thereof.

[0015] In yet other examples, provided is a kit, comprising: a dosage form of a salmonid oil composition or a composition comprising at least one biological active isolated from a salmonid oil composition; and a package insert containing instructions for use of such composition. In one aspect, the present disclosure refers to a kit, comprising: a dosage form of a composition comprising salmonid oil or at least one biological active isolated from salmonid oil, wherein the salmonid oil is obtained from mild enzymatic hydrolysis of off-cuts of salmonid fish; and a package insert containing instructions for use directed to treatment of an eosinophilic inflammatory condition, disorder, or disease in a human in need thereof.

[0016] In some variations of the foregoing examples, the dosage form is a syrup, chewable, capsule or soft gel.

DESCRIPTION OF THE FIGURES

[0017] The present application can be understood by reference to the following description taken in conjunction with the accompanying figures.

[0018] FIGS. **1** and **3** depict shape change (100% as baseline) of PMNL as a function of CCL11 concentration, with different pretreatment conditions.

CLAIMS

What is claimed is:

1. Use of a composition comprising salmonid oil or at least one biological active isolated from salmonid oil in the manufacture of a medicament for reducing eosinophil effector function in a human in need thereof, wherein the salmonid oil is obtained from mild enzymatic hydrolysis of off-cuts of salmonid fish.

2. Use of an effective dose of a composition comprising salmonid oil or at least one biological active isolated from salmonid oil in the manufacture of a medicament for treating an eosinophilic inflammatory condition, disorder, or disease in a human in need thereof, wherein the salmonid oil is obtained from mild enzymatic hydrolysis of off-cuts of salmonid fish.

3. The use of claim 2, wherein the eosinophilic inflammatory condition, disorder or disease is a chronic inflammatory disorder of the airways.

4. The use of claim 2, wherein the eosinophilic inflammatory condition, disorder or disease is asthma.

5. The use of claim 2, wherein the eosinophilic inflammatory condition, disorder or disease is bronchial asthma.

6. Use of an effective dose of a composition comprising salmonid oil or at least one biological active isolated from salmonid oil in the manufacture of a medicament for treating an eosinophilic respiratory condition, disorder, or disease in a human in need thereof, wherein the salmonid oil is obtained from mild enzymatic hydrolysis of off-cuts of salmonid fish.

7. The use of claim 6, wherein the eosinophilic respiratory condition, disorder or disease is a viral respiratory disease.

8. The use of claim 6, wherein the eosinophilic respiratory condition, disorder or disease is severe acute respiratory syndrome.

9. The use of claim 8, wherein the severe acute respiratory syndrome is caused by a coronavirus.

10. The use of any one of the preceding claims, wherein the human is largely resistant to medical and surgical interventions for treating the condition, disorder or disease.

11. The use of any one of the preceding claims, wherein the human exhibits or has resistance to steroid treatments.

12. The use of any one of the preceding claims, wherein the human has steroid treatment resistant asthma.

13. The use of any one of the preceding claims, wherein the effective dose of the composition comprising salmonid oil is between 4 g and 6 g per day.

14. The use of any one of the preceding claims, wherein the effective dose of the composition comprising at least one biological active isolated from salmonid oil is between 10 mg and 1000 mg per day.

15. The use of any one of the preceding claims, wherein the administration of the composition to the human reduces or delays the need to provide the human with assisted respiration.

16. The use of any one of the preceding claims, wherein the mild enzymatic hydrolysis uses enzymes with less than 1% lipase activity.

17. The use of any one of the preceding claims, wherein the salmonid oil comprises less than 0.5% free fatty acid.

18. The use of any one of the preceding claims, wherein the salmonid oil comprises microcolin.

19. The use of claim 18, wherein the salmonid oil comprises microcolin A.

20. The use of claim 18 or 19, wherein the salmonid oil further comprises:

(i) caproic acid, caprylic acid, capric acid, lauric acid, behenic acid, lignoceric acid, myrstoleic acid, heptadecenoic acid, elaidic acid, gadoleic acid, erucic acid, brassidic acid, nervonic acid, gamma linolenic acid, columbinic acid, stearidonic acid, mead acid, or dihomo gamma linolenic acid, or any combination thereof;

(ii) ligustilide, germacrene, thymol, eugenol, carvacrol, linalool, citronellol, terpineol, bisbalol, santalol, thujone, pinacamphone, italidone, linalyl acetate, geranyl acetate, citronellyl formate, helenalin, elecampane, furocoumarin, chavicol, sitosterol, stigmasterol, or 3-butyliden-4,5-dihydrophthalide, or any combination thereof;

(iii) iturin A, hoiamides, heronamides, laxaphycin, apramides, dragonamides, gageotetrins, lyngbyabellins, cyclodycidins, parguerine, pumilacidin, sulforeido lipopeptides, fengycins, mebamamides, microcolins, penicimutamides, sulfoglycolipids, halovir, kahalalide, or tuftsin, or any combination of the foregoing;

(iv) protectin; or

(v) lipoxin,

or any combination of (i)-(v).

21. The use of any one of the preceding claims, wherein the composition is to be administered orally, is to be inhaled, is to be injected, or is to be administered topically.

22. The use of any one of the preceding claims, wherein the composition is to be administered as a syrup, chewable, capsule, or soft gel.

23. An article of manufacture, comprising:

a container comprising a composition comprising salmonid oil or at least one biological active isolated from salmonid oil, wherein the salmonid oil is obtained from mild enzymatic hydrolysis of off-cuts of salmonid fish; and

a label containing instructions for use directed to treatment of an eosinophilic inflammatory condition, disorder, or disease in a human in need thereof.

24. The article of manufacture of claim 23, wherein the composition is provided in a dosage form.

25. The article of manufacture of claim 24, wherein the dosage form is a syrup, chewable, capsule, or soft gel.

26. A kit, comprising:

a dosage form of a composition comprising salmonid oil or at least one biological active isolated from salmonid oil, wherein the salmonid oil is obtained from mild enzymatic hydrolysis of off-cuts of salmonid fish; and

a package insert containing instructions for use directed to treatment of an eosinophilic inflammatory condition, disorder, or disease in a human in need thereof.

27. The kit of claim 26, wherein the dosage form is a syrup, chewable, capsule or soft gel.