CLAIMS

1. A derivative of IL-22 comprising a fatty acid covalently attached to an IL-22 protein.

2. A derivative as claimed in claim 1, wherein the fatty acid is covalently attached to the IL-22 protein by a linker.

3. A derivative as claimed in claim 1 or claim 2, wherein the fatty acid is:
   (i) of Formula I:
   $$HOOC\text{-}(CH_2)_x\text{-}CO\text{-}*,$$
   wherein x is an integer in the range of 10-18, optionally 12-18, 14-16 or 16-18, and * designates a point of attachment to the IL-22 protein or linker;
   (ii) a fatty diacid;
   (iii) a C12, C14, C16, C18 or C20 diacid;
   (iv) a C16 or C18 diacid; and/or
   (v) a C18 diacid.

4. A derivative as claimed in any of the preceding claims, wherein the IL-22 protein is native mature human IL-22 (hIL-22; SEQ ID NO. 1) or a variant thereof.

5. A derivative as claimed in claim 4, wherein the variant:
   (i) is a substituted form of hIL-22;
   (ii) is substituted at position 1, 21, 35, 64, 113 and/or 114 of hIL-22;
   (iii) comprises a substitution of hIL-22 selected from the group consisting of A1C, A1G, A1H, N21C, N21D, N21Q, N35C, N35D, N35H, N35Q, N64C, N64D, N64Q, N64W, Q113C, Q113R, K114C and K114R; and/or
   (iv) comprises a Cys residue at position 1 of hIL-22.

6. A derivative as claimed in claim 4 or claim 5, wherein the variant:
   (i) is an extended form of hIL-22;
   (ii) comprises an N-terminal peptide;

(iii) comprises an N-terminal trimer; and/or

(iv) comprises an N-terminal G-P-G.

7. A derivative as claimed in any of claims 2-6, wherein the linker comprises:

(i) one or more amino acids, optionally including Glu and/or Lys;

(ii) an oxyethylene glycine unit or multiple linked oxyethylene glycine units, optionally 2-5 such units;

(iii) one or more oligo(ethylene glycol) (OEG) residues;

(iv) an ethylenediamine (C_2DA) group;

(v) an acetamide (Ac) group;

(vi) γGlu-OEG-OEG-C_2DA-Ac;

(vii) γGlu-γGlu-γGlu-γGlu-OEG-OEG-εLys-αAc; and/or

(viii) γGlu-OEG-OEG-εLys-αAc

8. A derivative as claimed in any of claims 2-6, wherein the linker is:

(i) a Cys-reactive linker attached to a Cys residue in the hIL-22 or variant thereof;

(ii) attached at position -7, -5, 1, 6, 33, 113, 114 or 153 of the hIL-22 or variant thereof;

(iii) attached to a Cys residue substituted at position 1, 6, 33, 113 or 114 of hIL-22;

(iv) attached to a Cys residue at position -5, -7 or 153 relative to hIL-22; and/or

(v) attached to a Cys residue substituted at position 1 of hIL-22.

9. A derivative as claimed in any of the preceding claims, wherein the derivative comprises a C14, C16, C18 or C20 diacid covalently attached by a linker to a variant of hIL-22, wherein the variant comprises an N-terminal G-P-G and a Cys residue at position 1 of hIL-22 and the linker is optionally attached to said Cys residue.

10. A derivative as claimed in any of the preceding claims, wherein the derivative is Derivative 1-10 as identified herein.

11. A process for preparing a derivative as claimed in any of the preceding claims, comprising covalently attaching a fatty acid to an IL-22 protein.

12. A pharmaceutical composition comprising a derivative as claimed in any of claims 1-10 and a pharmaceutically acceptable vehicle.

13. A derivative as claimed in any of claims 1-10 or a pharmaceutical composition as claimed in claim 12, for use in therapy.

14. A derivative as claimed in any of claims 1-10 or a pharmaceutical composition as claimed in claim 12, for use in a method of treating a metabolic, liver, pulmonary, gut, kidney or skin disease, disorder or condition.

15. A derivative or pharmaceutical composition as claimed in claim 14, wherein:

(i) the metabolic disease, disorder or condition is obesity, diabetes type 1, diabetes type 2, hyperlipidemia, hyperglycemia or hyperinsulinemia;

(ii) the liver disease, disorder or condition is non-alcoholic fatty liver disease (NAFLD), non-alcoholic steatohepatitis (NASH), cirrhosis, alcoholic hepatitis, acute liver failure, chronic liver failure, acute-on-chronic liver failure (ACLF), acetaminophen induced liver toxicity, acute liver injury, sclerosing cholangitis, biliary cirrhosis or a pathological condition caused by surgery or transplantation;

(iii) the pulmonary disease, disorder or condition is chronic obstructive pulmonary disease (COPD), cystic fibrosis, bronchiectasis, idiopathic pulmonary fibrosis, acute respiratory distress syndrome, a chemical injury, a viral infection, a bacterial infection or a fungal infection;

(iv) the gut disease, disorder or condition is inflammatory bowel disease (IBD), ulcerative colitis, Crohn's disease, graft-versus-host-disease (GvHD), a chemical injury, a viral infection or a bacterial infection;

(v) the kidney disease, disorder or condition is acute kidney disease or chronic kidney disease; or

(vi) the skin disease, disorder or condition is a wound, inflammatory disease or GvHD.