CLAIMS:

1. A composition comprising:
a therapeutically effective amount of a complex comprising deferoxamine (DFO-B), or a pharmaceutically acceptable salt thereof, and a metal; and a hydrophilic, non-ionic surfactant comprising polyethylene glycol (PEG) and a non-ionic triblock copolymer, wherein the metal is selected from the group consisting of Zn, Ga, Ag, Au, V,and Mo.

2. The composition according to claim 1, wherein the metal is Zn^{2+} or Ga^{3+}.

3. The composition according to claim 1, wherein the pharmaceutically acceptable salt is an acid addition salt.

4. The composition according to claim 3, wherein the acid is selected from the group consisting of 1-hydroxy-2-naphthoic acid, 2,2-dichloroacetic acid, 2-oxoglutaric acid, 4-acetamidobenzoic acid, 4-aminosalicylic acid, acetic acid, alkanesulphonic acid, alkenesulphonic acid, alkynesulphonic acid with any substitutions, adipic acid, ascorbic acid, aspartic acid, benzoic acid, camphoric acid, camphor-10-sulfonic acid, decanoic acid, hexanoic acid, octanoic acid, carbonic acid, cinnamic acid, citric acid, cyclamic acid,dodecylsulfuric acid, formic acid, fumaric acid, galactaric acid, gentisic acid, glucoheptonic acid, gluconic acid, glucuronic acid, glutamic acid, glutaric acid, glycerophosphoric acid, glycolic acid, hippuric acid, hydrobromic acid, hydrochloric acid, isobutyric acid, lactic acid, lactobionic acid, lauric acid, maleic acid, malic acid, malonic acid, mandelic acid, methanesulfonic acid or its derivates, a substituted hydrocarbyl sulphonic acid, nicotinic acid, nitric acid, oleic acid, oxalic acid, palmitic acid, pamoic acid, phosphoric acid, propionic acid, pyroglutamic acid, salicylic acid, sebacic acid, seleninic acid, selenonic acid, stearic acid, succinic acid, sulfuric acid, tartaric acid, thiocyanic acid, and undecylenic acid.

5. The composition according to claim 2, wherein the nonionic triblock copolymers are composed of a central hydrophobic chain of polyoxypropylene (poly(propylene oxide)) flanked by two hydrophilic chains of polyoxyethylene (poly(ethylene oxide)).

6. The composition according to claim 5, wherein the hydrophilic nonionic surfactant is a poloxamer.

7. The composition according to claim 5 wherein the concentration of the polyethylene glycol is in a range of 17-23%, and a concentration of the nonionic triblock copolymers composed of a central hydrophobic chain of polyoxypropylene (poly(propylene oxide)) flanked by two hydrophilic chains of polyoxyethylene (poly(ethylene oxide)) is in a range of 8-12%.

8. The composition according to claim 1, wherein the metal is Zn2+ and the hydrophilic, non-ionic surfactant is poloxamer.

9. The composition according to claim 1, wherein the metal is Ga3+ and the hydrophilic, non-ionic surfactant is poloxamer.

10. The composition according to claim 1, further comprising one or more pharmaceutically acceptable excipients selected from the group consisting of diluents, carriers, excipients.

11. The composition according to claim 1, wherein the composition is formulated for oral, gavage, topical, ocular. nasal, administration to the ear, administration by inhalation, by eye drops, systemic administration including parenteral, by injection, by suppositories, by patches, or by any other clinically accepted method and means.

12. The composition according to claim 1, wherein the composition is selected from the group consisting of a tablet, mini-tablet, pill, lozenge, pastille, capsule, drinkable preparation, oral suspension, soluble film, powder, ointment, cream, paste, encapsulated gel, patches, liposome, sprayable aerosol, and vapors.

13. The composition according to claim 1 for use in modulating the level of a cytokine in a subject, wherein the composition :

a) reduces at least one pro-inflammatory cytokines selected from the group consisting of IL-1α, IL-6, TNF-α, IL-17, and combinations thereof; and/or
b) elevates at least one anti-inflammatory cytokines selected from the group consisting of IL-13, IL-4, IL-10, and combinations thereof.

14. Use of the composition of claim 1 in the manufacture of a medicament for treating a disease, disorder, or condition in a subject in need thereof wherein the disease, disorder, or condition is selected from the group consisting of Type 2 diabetes, metabolic syndrome and any other diabetes-related conditions and complications, non-alcoholic fatty liver disease (NAFLD), non-alcoholic steatohepatitis (NASH), Wilson's disease; Type 1 diabetes and its complications; neoplastic diseases with inflammatory component in pathophysiology; diseases of the blood and blood-forming organs, involving the immune mechanism; metabolic disorders involving the inflammatory component; neurodegenerative and demyelinating disorders, such as multiple sclerosis, amyotrophic lateral sclerosis, age-related macular degeneration, Parkinson's disease, Alzheimer disease; inflammatory diseases of the central nervous system; immune-related disorders of circulatory and cardiovascular system; inflammatory diseases of respiratory system, especially asthma, cystic fibrosis, allergic rhinitis, nasal polyposis and COPD; skin inflammatory disorders, especially, psoriasis, rheumatic arthritis, psoriatic arthritis, wound healing, injury due to exposure to chemical agents, heat or cold; ischemia and reperfusion injury; stroke; immune-related diseases of digestive system, especially inflammatory bowel disease; thalassemia; hemochromatosis; autoimmune disorders; inflammatory diseases of oral cavity and salivary glands; and infectious diseases caused by Escherichia coli, Staphylococcus aureus, Alcaligenes faecalis, Neisseria meningitidis, Prevotella intermedia, Porphyromonas gingivalis, and species of Salmonella, Shigella, Proteus, Providencia, Enterobacter, Morganella and Pseudomonas.

15. The use according to claim 14, wherein the composition is administered at a dose within a range of 0.1 mg/kg to 10.0 mg/kg.