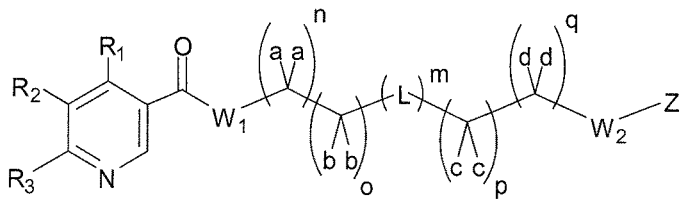
CLAIMS

1. A molecular conjugate comprising a niacin and a fatty acid selected from *all-cis*-7,10,13-hexadecatrienoic acid, α-linolenic acid (ALA or *all-cis*-9,12,15-octadecatrienoic acid), stearidonic acid (STD or *all-cis*-6,9,12,15-octadecatetraenoic acid), eicosatrienoic acid (ETE or *all-cis*-11,14,17-eicosatrienoic acid), eicosatetraenoic acid (ETA or *all-cis*-8,11,14,17-eicosatetraenoic acid), eicosapentaenoic acid (EPA or *all-cis*-5,8,11,14,17-eicosapentaenoic acid), docosapentaenoic acid (DPA, clupanodonic acid or *all-cis*-7,10,13,16,19-docosapentaenoic acid), docosahexaenoic acid (DHA or *all-cis*-4,7,10,13,16,19-docosahexaenoic acid), tetracosapentaenoic acid (*all-cis*-9,12,15,18,21-docosahexaenoic acid), or tetracosahexaenoic acid (nisinic acid or *all-cis*-6,9,12,15,18,21-tetracosenoic acid) ~~omega-3 fatty acids or fatty acids metabolized *in vivo* into omega-3 fatty acids~~, and wherein the conjugate comprises at least two amides.

2. A compound of **Formula I**:



Formula I

or a pharmaceutically acceptable salt, hydrate, ~~solvate, prodrug,~~ enantiomer or stereoisomer thereof;

wherein

R_1, R_2, and R_3 are each independently selected from the group consisting of -H, -D, -Cl, -F, -CN, $-NH_2$, $-NH(C_1\text{-}C_3$ alkyl), $-N(C_1\text{-}C_3$ alkyl)$_2$, $-NH(C(O)C_1\text{-}C_3$ alkyl), $-N(C(O)C_1\text{-}C_3$ alkyl)$_2$,-C(O)H, $-C(O)C_1\text{-}C_3$ alkyl, $-C(O)OC_1\text{-}C_3$ alkyl, $-C(O)NH_2$, $-C(O)NH(C_1\text{-}C_3$ alkyl), $-C(O)N(C_1\text{-}C_3$ alkyl)$_2$, $-C_1\text{-}C_3$ alkyl, $-O\text{-}C_1\text{-}C_3$

alkyl, -S(O)C_1-C_3 alkyl, and -S(O)$_2C_1$-C_3 alkyl;

W_1 and W_2 are each independently null, S, NH, NR, or W_1 and W_2 can be taken together can form an imidazolidine or piperazine group;,

each a, b, c, and d is independently -H, -D, -CH_3, -OCH_3, -OCH_2CH_3, or -C(O)OR, -O-Z, or benzyl, or two of a, b, c, and d can be taken together along with the single carbon to which they are bound to form a cycloalkyl selected from the group consisting of cyclopropyl, cyclobutyl, cyclopentyl and cyclohexyl optionally substituted with halogen, C_1-C_3 alkyl, hydroxyl, alkoxy or cyano group or heterocycle selected from the group consisting of aziridine, oxirane, thiirane, azetidine, oxetane, thietane, pyrrolidine, tetrahydrofuran, tetrahydrothiophene, piperidine, tetrahydropyran, thiane, imidazolidine, oxazolidine, thiazolidine, dioxolane, dithiolane, piperazine, oxazine, dithiane, and dioxane;

each n, o, p, and q is independently 0 or 1;

31. The compound of claim 2, wherein the compound is selected from the group consisting of (S)-6-((4Z,7Z,10Z,13Z,l6Z,19Z)-docosa-4,7 ,10,13,16, 19-hexaenamido)-2-(nicotinamido) hexanoic acid; (S)-2-((4Z,7Z, 10Z,13Z,16Z,l9Z)-docosa-4,7,10,13,16,19-hexaenamido)-6-(nicotinamido)hexanoic acid; (S)-6-((5Z,8Z, 11 Z, 14Z, 17Z)-eicosa-5,8, 11, 14,17-pentaenamido)-2-(nicotinamido)hexanoic acid; (S)-2-((5Z,8Z,11Z,l4Z,17Z)-eicosa-5,8,11,14, 17-pentaenamido)-6-(nicotinamido)hexanoic acid; and 2-(2-(4Z, 7Z, 10Z, 13Z, 16Z,19Z)-docosa-4,7, 10, 13, 16, 19-hexaenamidoethyl)-4-(nicotinamido)butanoicacid.

32. A compound selected from the group consisting of (S)-((R)-1-(nicotinamido)propan-2-yl) 2-((5Z,8Z,11Z,14Z,17Z)-eicosa-5,8,11,14,17-pentaenamido)propanoate; and (S)-((R)-1-(nicotinamido)propan-2-yl) 2-((5Z,8Z,11Z,14Z,17Z)-eicosa-5,8,11,14,17-pentaenamido)-3-methylbutanoate.

33. A pharmaceutical composition comprising a compound of claim 2 and a pharmaceutically acceptable carrier.

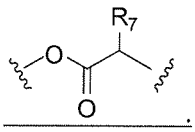
34. A method for treating a metabolic disease, the method comprising administering to a patient in need thereof an effective amount of a compound of claim 2.

35. The method of claim 34, wherein the metabolic disease is selected from hypertriglyceridemia, hypercholesterolemia, fatty liver disease, atherosclerosis, coronary heart disease, Type 2 diabetes, diabetic nephropathy, diabetic neuropathy, diabetic retinopathy, metabolic syndrome, or cardiovascular disease.

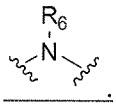
36. The compound of claim 6, wherein L is -S-S-.

37. The compound of claim 6, wherein L is -O-.

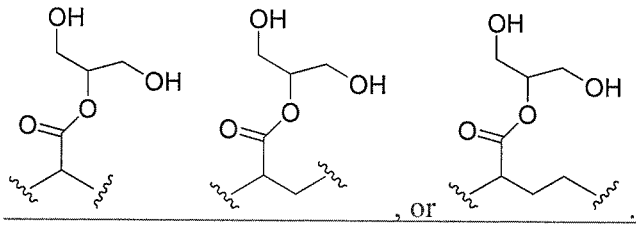
38. The compound of claim 6, wherein L is



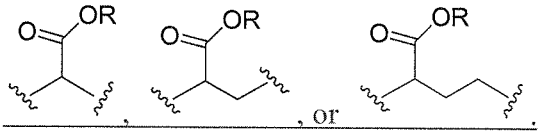
39. The compound of claim 6, wherein L is



40. The compound of claim 6, wherein L is



41. The compound of claim 6, wherein L is



42. The compound of claim 6, wherein one of n, o, p, and q is 1.

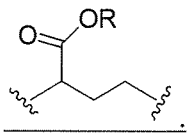
43. The compound of claim 6, wherein two of n, o, p, and q are each 1.

44. The compound of claim 6, wherein m is 1, n, o, p, and q are each 1, and L is O.

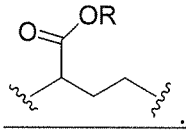
45. The compound of claim 6, wherein m is 1, n, o, p, and q are each 1, and L is –S-S-.

46. The compound of claim 6, wherein m, n, and o are each 0, and p and q are each 1.

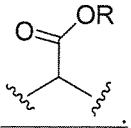
47. The compound of claim 6, wherein m is 1, n, o, p, and q are each 0, and L is



48. The compound of claim 6, wherein m is 1, n and o are each 1, p and q are each 0, and L is

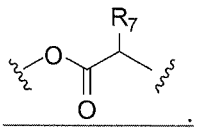


49. The compound of claim 6, wherein m is 1, n, o, p, and q are each 1, and L is



50. The compound of claim 6, wherein m is 1, n, o, p, and q are each 1, and L is NR_6.

51. The compound of claim 6, wherein m is 1, n and o are each 1, p and q are each 0, and L is



52. The compound of claim 6, wherein m is 0, n, o, are each 1, p and q are each 0, and a and b are each –H.