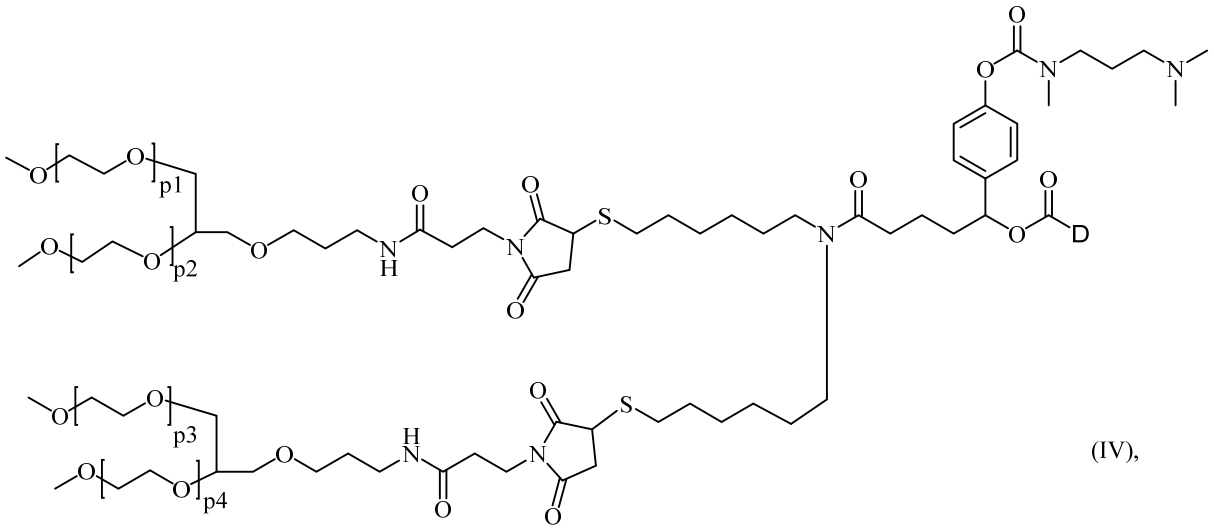


(IV),

wherein

D is a hGH moiety connected to the rest of the molecule through an amine functional group; and

p1, p2, p3, p4 are independently an integer ranging from 57 to 1420, even more preferably from 85 to 850.

In a preferred embodiment p1, p2, p3 and p4 of formula (IV) are an integer independently selected from 170 to 284, even more preferably from 198 to 255 and most preferably from 215 to 238.

In an equally preferred embodiment p1, p2, p3 and p4 of formula (IV) are an integer independently selected from 340 to 568, even more preferably from 398 to 510 and most preferably from 426 to 482.

Preferably, the long-acting growth hormone formulation comprises at least one long-acting growth hormone selected from the group consisting of ACP-001, ACP-011, VRS-317, MOD-4023, somatrogon, hGH-CTP, albutropin, ARX201, ALTU-238, PHA-794428, hGH-OctoDex, NNC126-0083, somapacitan, somavaratan, Nutropin Depot, LB03002, Somatropin Biopartners, LAPS-hGH, NNC0195-0092, Hytropin, GX-H9, Jintrolong, and TV-1106.

In certain embodiments the long-acting growth hormone is ACP-001. ACP-001 has the structure of formula (IV), in which p1, p2, p3 and p4 range from 398 to 510, meaning that the molecular weight of the four PEG moieties is about 80 kDa.