PKC-DELTA-I INHIBITOR FORMULATIONS AND USES THEREOF

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of and priority to co-pending U.S. Provisional Patent Application No. 62/308,335, filed on Mar. 15, 2016, entitled "SMALL MOLECULE INHIBITOR OF PKC I AS THERAPEUTIC APPLICATION IN OBESITY, DIABETES, INSULIN RESISTANCE, AND METABOLIC SYNDROME," the contents of which is incorporated by reference herein in its entirety.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] This invention was made with government support under grant number awarded by the Veterans Affairs. The government has certain rights in the invention.

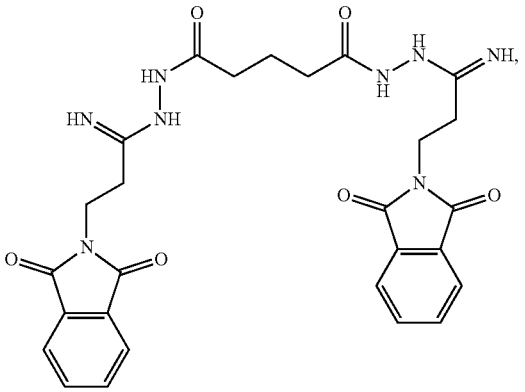
BACKGROUND

[0003] Obesity, diabetes, cancer, osteoarthritis, hepatosteatosis, cardiovascular diseases and metabolic syndrome are all significant health issues, particularly in developed countries. The causes are complex and there are relatively limited therapeutic and preventative pharmaceuticals. As such, there exists a need for improved pharmaceuticals for treating and preventing these diseases or symptoms thereof.

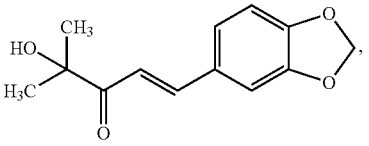
SUMMARY

[0004] In some aspects, provided herein are methods of treating a PKCδI disease or disorder in a subject in need thereof, that can include administering a pharmaceutical formulation comprising an effective amount of a PKCδI inhibitor to the subject in need thereof, wherein the PKCδI inhibitor is a compound having a structure as in any one of Formulas 1 and 3-7

Formula 1



Formula 3



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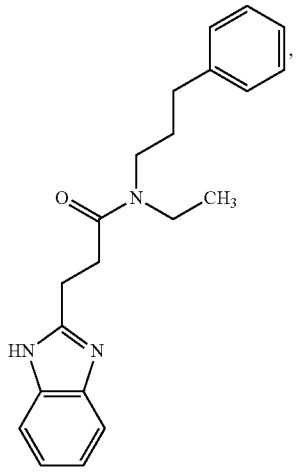
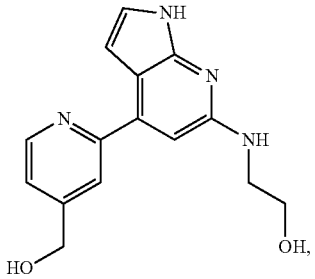
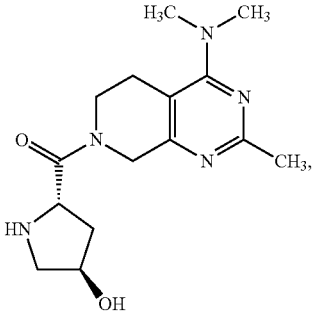
Formula 4



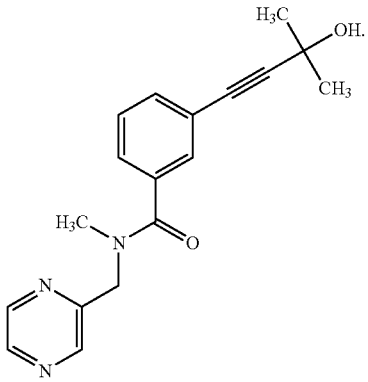
Formula 5



Formula 6



Formula 7



[0005] The PKCδI inhibitor can be effective to reduce PKCδI activity in the subject in need thereof. The PKCδI inhibitor can be effective to reduce PKCδI activity in an adipocyte in the subject in need thereof. The PKCδI inhibitor can be a compound according to Formula 1. The PKCδI