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(71) Applicant: **MAX-PLANCK-GESELLSCHAFT ZUR
FÖRDERUNG DER WISSENSCHAFTEN E.V.**
[DE/DE]; Hofgartenstraße 8, 80539 München (DE).

(72) Inventors: **CHARI, Ashwin**; Zur Hohen Warte 9c, 37077
Göttingen (DE). **STARK, Holger**; Oberes Feld 2, 37136
Waake (DE). **SINGH, Kashish**; Immanuel-Kant-Str. 34,
37083 Göttingen (DE). **GRAF, Benjamin, Moritz**; David-
Hilbert-Straße 7, 37085 Göttingen (DE).

(74) Agent: **GRAMM, LINS & PARTNER PATENT- UND
RECHTSANWÄLTE PARTGMBB**; Freundallee 13a,
30173 Hannover (DE).

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(54) Title: FATTY ACID SYNTHASE, INHIBITORS AND MODIFICATIONS THEREOF AND ITS USE

(57) Abstract: In a first aspect, the present invention relates to new recombinant polypeptides derived from the newly identified gamma subunit of the fatty acid synthase protein complex. In addition, a fatty acid synthase protein complex comprising these new recombinant polypeptides are disclosed as well as nucleic acid molecules encoding these polypeptides. Further, a host cells containing the nucleic acid molecule encoding the polypeptides according to the present invention or expressing the polypeptide according to the present invention are described. In addition, an isolated fatty acid synthase protein complex is disclosed containing the newly identified gamma subunit thereof. Moreover, methods for determining the suitability of candidate compounds capable of inhibiting either the ketoreductase, enoylreductase or malonyl/palmitoyl transferase present in the FAS protein complex and methods for designing inhibitors of said enzymes are disclosed. Finally, the present invention relates to the inhibitors and their use in medicinal applications.