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(54) **ACYL-COA: DIACYLGLYCEROL
ACYLTRANSFERASE 1-LIKE GENE
(PTDGAT1) AND USES THEREOF**

(58) **Field of Classification Search**

None

See application file for complete search history.

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(52) **U.S. Cl.**

CPC **C12N 9/1029** (2013.01); **C12N 9/18**
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(57) **ABSTRACT**

An isolated protein which is at least partially encoded by a
polynucleotide sequence encoding a novel acyl-CoA: diacyl-
glycerol acyltransferase 1-like gene (PtDGAT1) from the
diatom *Phaeodactylum tricornutum* is provided together with
a composition which includes the isolated protein and a trans-
genic organism transformed by a polynucleotide encoding
same. The invention also provides a method for producing or
enhancing the production of oil or triacylglycerols with high
saturated fatty acids content.

18 Claims, 20 Drawing Sheets