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(54) Title: RECOMBINANT LIGASE COMPOSITION AND USES THEREOF

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ATCV_Ligase SEQ ID NO:1   MAIQKPLLAASLKKMSVDNLTFPVYATPKLDGIRALKIDGTLVSRTFKPIRNTTISKVLA  60
PBCV_Ligase SEQ ID NO:6   MAITKPLLAATLEN--IEDVQFPCLATPKIDGIRSVKQT-QMLSRTFKPIRNSVMNRLLT  57
                          *** ******:*::  :::: **  ****:*****::*    ::*********:.:.::*:

ATCV_Ligase SEQ ID NO:1   SLLPDGSDGEI-LSGKTFQDSTSTVMTTDAGIGSDTTFFWFDYVKDDPDKGYLDRIADMK  119
PBCV_Ligase SEQ ID NO:6   ELLPEGSDGEISIEGATFQDTTSAVMTGHKMYNAKFSYYWFDYVTDDPLKKYIDRVEDMK  117
                          .***:****** :.* ****:**:*** .   .:. :::******.*** * *:**: ***

ATCV_Ligase SEQ ID NO:1   TFVDQHPEILKDSCVTIVPLFPKKIDTPEELHVFEKWCLDQGFEGVMVRTAGGKYKFGRS  179
PBCV_Ligase SEQ ID NO:6   NYITVHPHILEHAQVKIIPLIPVEINNITELLQYERDVLSKGFEGVMIRKPDGKYKFGRS  177
                          .::  **.**:.: *.*:**:* :*:.  **  :*:  *.:******:*. .********

ATCV_Ligase SEQ ID NO:1   TEKEQILVKIKQFEDDEAVVIGVSALQTNTNDKKLNQLGEMRRTSHQDGKVDLDMLGALD  239
PBCV_Ligase SEQ ID NO:6   TLKEGILLKMKQFKDAEATIISMTALFKNTNTKTKDNFGYSKRSTHKSGKVEEDVMGSIE  237
                          * ** **:*:***:* **.:*.::** .*** *. :::*  :*::*:.***: *::*:::

ATCV_Ligase SEQ ID NO:1   VDWNGIRFSIGTGFDKDTREDLWKQRDSIVGKVVKFKYFSQGIKTAPRFPVFLGFRDEND  299
PBCV_Ligase SEQ ID NO:6   VDYDGVVFSIGTGFDADQRRDFWQNKESYIGKMVKFKYFEMGSKDCPRFPVFIGIRHEED  297

                          **::*: ******** * *.*:*::::* :**:******. * * .******:*:*.*:*
ATCV_Ligase SEQ ID NO:1   M     300
PBCV_Ligase SEQ ID NO:6   R     298
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FIG. 1

(57) Abstract: A recombinant ligase composition including a recombinantly-produced ligase isolated from Acanthocystis turfacea chlorella virus 1 (ATCV-1) fused to at least one polynucleotidebinding polypeptide is provided. Compositions containing the recombinant ligase composition, vectors encoding the recombinant ligase composition, and methods of making and using the recombinant ligase composition are also provided.

[Continued on next page]

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TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

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