

FIG. 1

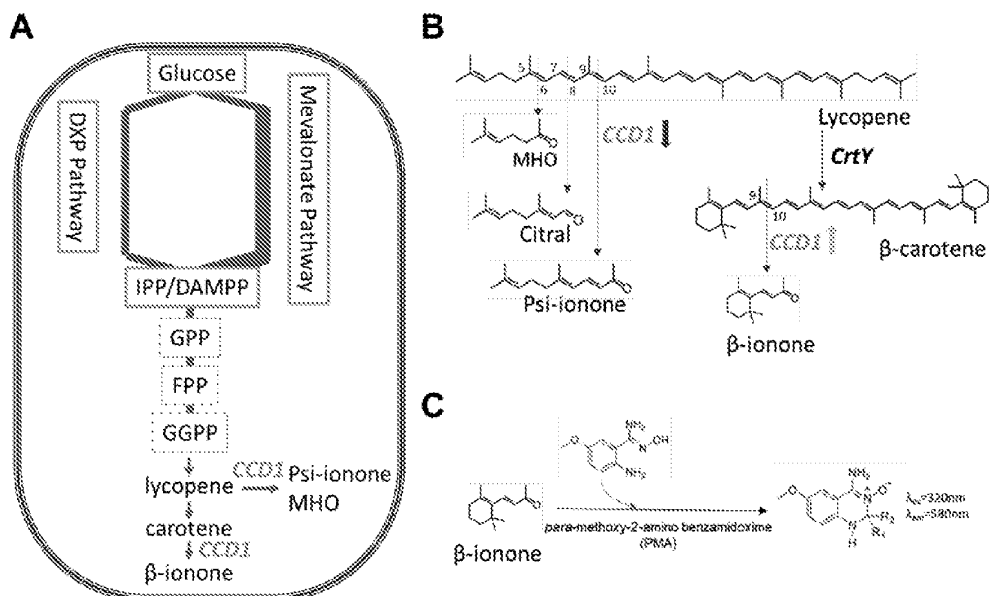


FIG. 2

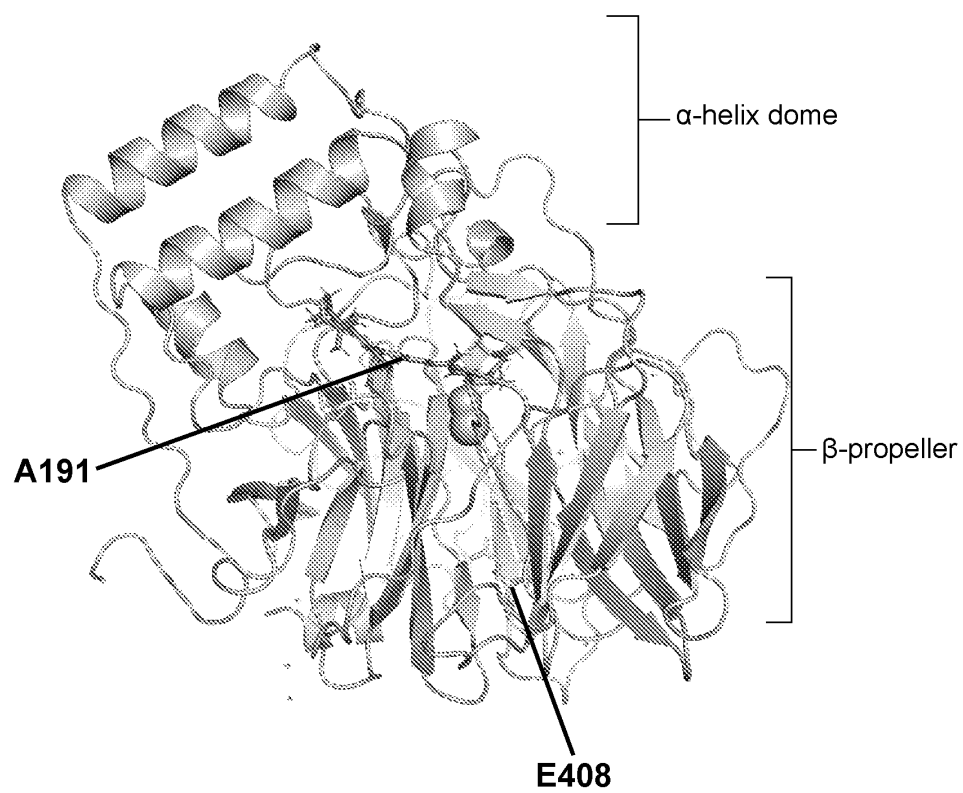


FIG. 3

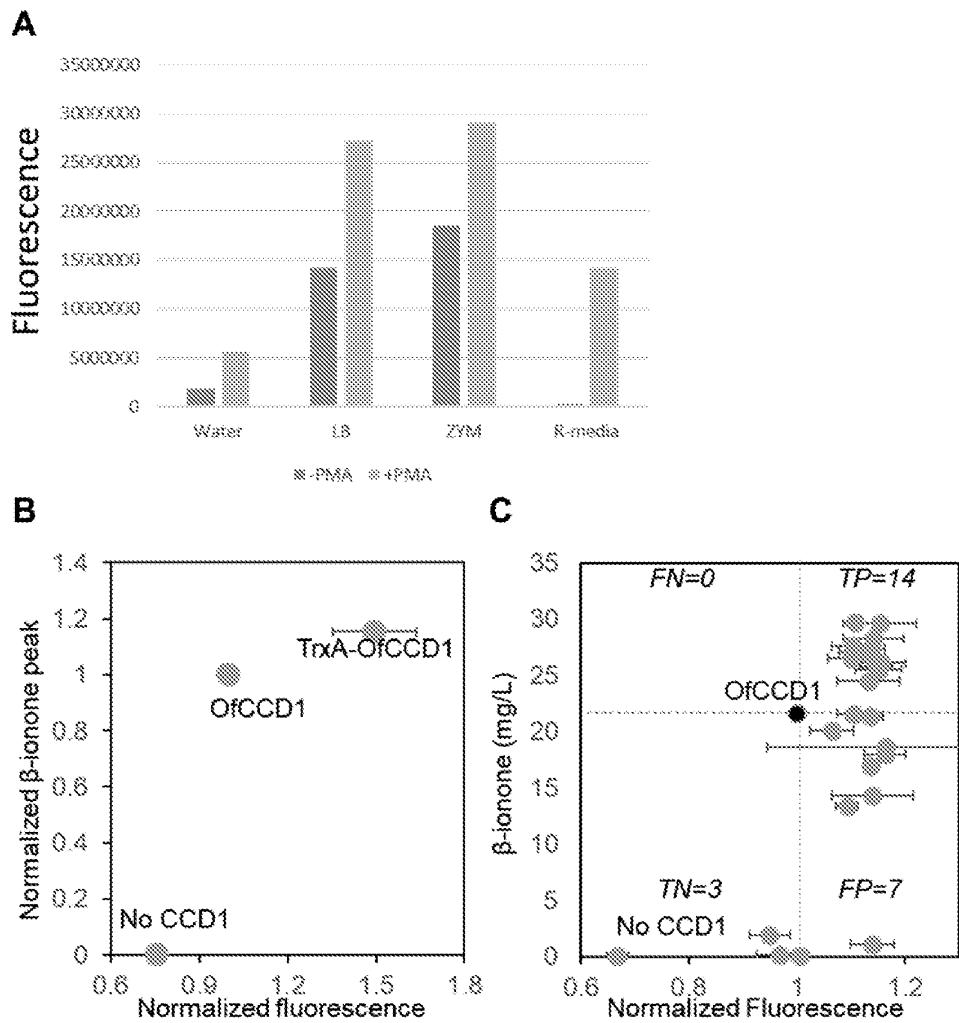


FIG. 4

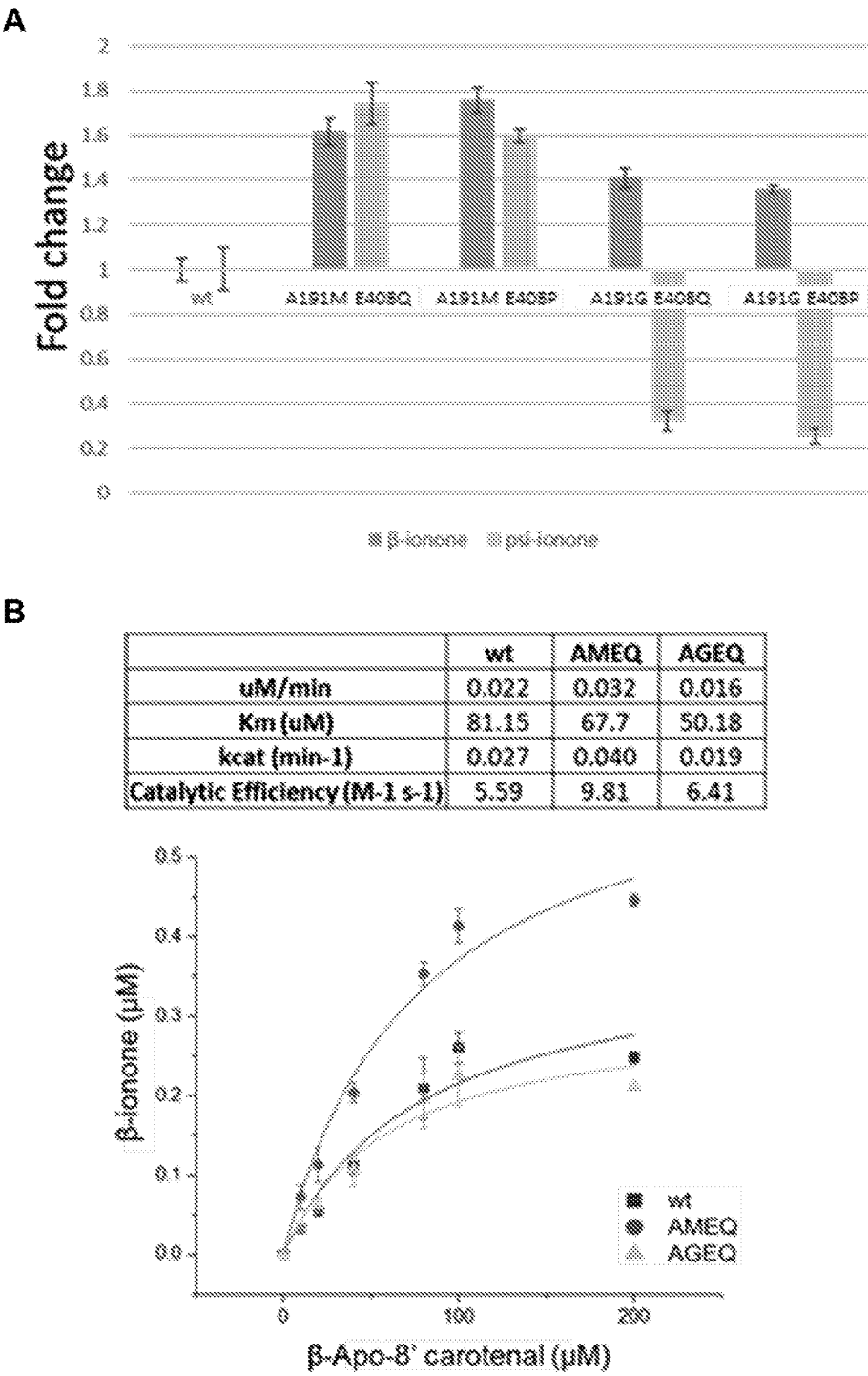


FIG. 5

A

CLUSTAL O(1.2.4) multiple sequence alignment

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PhCCD1      MGRKESDDGVVERIEGGVYVYNFFKFKGITAKAIDLEKVIIRLMHDSSEKPLHYLSGNFAP      60
OfCCD1      MGNQG---EDAQRIGNIVAVKPKFSQSLTSKAIDWLENLFVMMHDSKQPLHYLSGNFAP      57
VvCCD1      --MAE---KEEQGGAGVAVVDHPESEGETSEAVDWLEKLIIVELMYDSSQPLHYLSGNFAP      55
              ; . . . . * . * . * . * ; * ; * ; * * * ; ; * ; * . * ; * * * * *

PhCCD1      Y-DETFPLNDLPFINGHLPECLNGEFVVRVGFNPKFAPVAGYHWFDDGGMIHGLRIKDGKAT      119
OfCCD1      Y-DETFPLKDLFVTHGLPECLNGEFVVRVGFNPKFASIAGYHWFDDGGMIHGMRIKDGKAT      116
VvCCD1      YRDETFPKCNLFVIGLPECLNGEFVVRVGFNPKFSFVAGYHWFDDGGMIHGLRIKDGKAT      115
              , * * * * * ; ; * * * ; * ; * * * * * * * * * * ; * * * * * * ; * * * * *

PhCCD1      YVSRVYVTSRLKQREFFEGAKFMKISDLGSLFGLFTVVMQMLRAKLIKILTSYGNSTANT      179
OfCCD1      YVSRVYVTSRLKQREFFEGAKFMKISDLGSLFGLFTVVMQMLRAKLIKILTSYGNSTANT      178
VvCCD1      YVSRVYVTSRLKQREFFEGAKFMKISDLGSLFGLFTVVMQMLRAKLIKILTSYGNSTANT      175
              * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

PhCCD1      ALVHHNGKLLALSSEKPYALKVLEDGDLQTLGMLDYDNRLLHSFTAHPEVDVPTGEMFT      239
OfCCD1      ALVHHNGKLLALSSEKPYALKVLEDGDLQTLGMLDYDNRLLHSFTAHPEVDVPTGEMFT      236
VvCCD1      ALVHHNGKLLALSSEKPYALKVLEDGDLQTLGMLDYDNRLLHSFTAHPEVDVPTGEMFT      235
              * * * * * ; * * * * * * * * * * * * * * * * * * * * * * * * * * * *

PhCCD1      FGYAHEPPYITYRVISKDGIMQDPVPITIFELAIMHDFAITENYAIEMDLPLCYPRKEMV      299
OfCCD1      FGVSHTPFYVITYRVISKDGAMNDPVPITIVSGPINMHDFAITENYAIEMDLPLCYPRKEMV      296
VvCCD1      FGVSHTPFYVITYRVISKDGFMHPEVPITISSPINMHDFAITENYAIEMDLPLCYPRKEMV      295
              * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

PhCCD1      KNNQLAFTFDTTKKARFGVLFPRYAKSEALINWFELPNCFIHNNANAEEGDEVVLITCRL      359
OfCCD1      KKKKFIFSFQATQKARFGILFPRYAKNELLIKWFELPNCFIHNNANAEEGDEVVLITCRL      356
VvCCD1      KKKLIFTFQATKARFGVLFPRYAKNELHIKWFELPNCFIHNNANAEEGDEVVLITCRL      355
              * ; ; ; * ; * ; * ; * * * * * * * * * * * * * * * * * * * * * *

PhCCD1      EHFDLGMVNGEVKENLENFSNELYEMRFNMSSGAASQKHLSESSVDFPRINENYTGKQR      419
OfCCD1      ENFDLGMVNSTVKEPLDNFKNELYEMRFNLQNELASQKHLSESSVDFPRVNESYTGKQR      416
VvCCD1      EHFDLGLVGGGVKEKLENFGNELYEMRFNMKTGIASQKHLSESSVDFPRVNESYTGKQR      415
              ; * * * * * * . * * * * * * * * * * * * * * * * * * * * * * * * * *

PhCCD1      YVVGTTILNSIAKVTGIKFDLHAEPTGKSKLEVGGNVQGIIFDLGPRGFGSEAVFVPSQP      479
OfCCD1      YVVGTTLDKIAKVTGIKFDLHAEPTGKSKLELGONVKGIFDLGPRGFGSEAVFVPRHP      476
VvCCD1      YVVGTTILDSIAKVTGIKFDLHAEPTGKSKLEVGGNVQGIIFDLGPRGFGSEAVFVPREP      475
              * * * * * * * ; * * * * * * * * * * * * * * * * * * * * * * * * * *

PhCCD1      GTECEEEDGVLIFVVDENTGKSAVNVIDAKTMSAEFVAVVELEKRVFYGFHAFVYIEEQ      539
OfCCD1      GITEEEDGVLIFVVDENTGKSAVNVIDAKTMSAEFVAVVELEKRVFYGFHAFVYIEEQ      536
VvCCD1      GITEEEDGVLIFVVDENTGKSYVNVIDAKTMSAEFVAVVELEKRVFYGFHAFVYIEEQ      535
              * , * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

PhCCD1      IQEQAKL      546 SEQ ID NO: 2
OfCCD1      LQEQAFV      543 SEQ ID NO: 1
VvCCD1      LKEQAKL      542 SEQ ID NO: 3
              ; * * * * ;

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FIG. 5

