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(54) Title: COMPOSITIONS OF PROKARYOTIC PHENYLALANINE AMMONIA-LYASE AND METHODS OF USING SAID COMPOSITIONS

FIGURE 1A

Gene Sequence of Nostoc punctiforme PAL

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1     atgaatataa catctctaca acagaacata acgcgttctt ggcaaatacc tttcactaat
61    agttcagatt caatcgtaac tgtaggcgat cgcaatctga caatcgacga ggttgtaaat
121   gttgctcgtc atggaacaca ggtgcgctta actgataatg cagatgtcat tcggggtgtt
181   caagcatctt gtgattacat taacaatgca gtcgaaacag cacagccaat ttacggggtg
241   acatctggct ttggcggtat ggcagatgtt gtcatctctc gcgaacaagc agcggaactt
301   cagactaatt taatttggtt tctgaaatcc ggcgcaggaa acaaattatc gttagcagac
361   gtgcgtgcag ctatgctctt acgtgcaaat tcacatttgt atggtgcgtc tggtatacga
421   ctcgaacttg ttcagcggat tgaaactttc ctcaacgctg gcgtgacacc ccatgtctat
481   gagtttggct ctatcggtgc tagcggcgat ttggtgccat tatcctacat tactggggca
541   ctaatcggtc tagatcctag ctttacagtt gacttcgacg gtaaagaaat ggatgccgtt
601   acagccttgt ctcgtattgg tttgccaaag ttgcaattgc aaccgaaaga aggtttagca
661   atgatgaatg gcaccatcagt catgacaggt attgcagcta actgtgtgta cgatgcgaaa
721   gtattgctcg ctctgacaat gggtgtacac gccttagcca tccaaggttt atacggaacg
781   aatcaatctt tccacccgtt tattcatcag tgcaagccac atcccggtca actatggaca
841   gcagatcaaa tgtttttctct gctgaaagat tcatctttag ttcgtgaaga gttggatggt
901   aaacacgaat accgtggtaa agatctgata caggatcgtt attctctccg ctgtctggca
961   cagttcatag ggccaatcgt tgatggggta tcagagatta ccaagcaaat cgaggtagaa
1021  atgaactcag tcaccgataa cccattgatt gatgtcgaga accaagttag ttatcacggc
1081  ggcaattttc tcggacagta tgtgggtgtg acaatggatc gcctacgtta ttacataggg
1141  ctattggcca aacacatcga tgtgcagatt gcacttcttg tctcgccaga gtttagcaac
1201  ggcttaccac cctctttagt tggtaatagc gatcgcaaag ttaatatggg actcaaaggt
1261  ttgcaaatca gtggaaactc gattatgcca ctgttgagct tctatggaaa ttccctagcc
1321  gatcgctttc ctacccacgc cgagcaattt aatcaaaata ttaacagcca aggctatatt
1381  tccgcaaatt tgacacgtcg ttccgtagac atatttcaga attatatggc gatcgcgttg
1441  atgtttggag ttcaagctgt tgacctccgc acatataaga tgaaaggtca ttatgatgca
1501  cgtacatgcc tctcacccaa tactgtgcag ttatacacag cagtccgcga ggtagttgga
1561  aagccactaa cgtctgtgcg tccatacatt tggaacgaca acgagcaatg tttagatgag
1621  catattgccc ggatttcagc tgatatcgct ggtggtggtt taattgtgca agcagttgag
1681  catatttttt cgagcttaaa gtcaacgtaa
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(57) Abstract: The present invention is directed to phenylalanine ammonia-lyase (PAL) produced by prokaryotes, wherein such prokaryotic PAL wherein the PAL variant has a greater phenylalanine-converting activity and/or a reduced immunogenicity as compared to a wild-type PAL. The invention thus provides compositions of bacterial PAL and biologically active fragments, mutants, variants and analogs thereof, as well as methods for the production, purification, and use of such compositions for therapeutic and industrial purposes.

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