

# SEQUENCE LISTING

<110> Henkel Kommanditgesellschaft auf Aktien

<120> Verwendung von Superoxid-Dismutasen in Wasch- und Reinigungsmitteln

<130> H07493

<160> 13

<170> PatentIn version 3.3

<210> 1

<211> 609

<212> DNA

<213> Bacillus pumilus

<220>

<221> CDS

<222> (1)..(609)

<400> 1

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cca cat atc gac aag gaa aca atg acg att cac cac aca aaa cac cac	96
Pro His Ile Asp Lys Glu Thr Met Thr Ile His His Thr Lys His His	
20 25 30	

aac aca tac gta aca aac tta aac aaa gca atc gaa ggt gta tca gct	144
Asn Thr Tyr Val Thr Asn Leu Asn Lys Ala Ile Glu Gly Val Ser Ala	
35 40 45	

ctt gaa gat caa tca atc gaa gag cta gtg gct aac cta aac tct gtg	192
Leu Glu Asp Gln Ser Ile Glu Glu Leu Val Ala Asn Leu Asn Ser Val	
50 55 60	

cct gag aac atc cgt aca gct gta cgt aac aat ggc gga gga cat gct	240
Pro Glu Asn Ile Arg Thr Ala Val Arg Asn Asn Gly Gly Gly His Ala	
65 70 75 80	

aac cac tca tta ttc tgg acg ctt ctt tca cca aac ggt ggc ggc gca	288
Asn His Ser Leu Phe Trp Thr Leu Leu Ser Pro Asn Gly Gly Gly Ala	
85 90 95	

cca act ggt gaa ctt gca gat gca atc gaa aaa gaa tta ggc gga ttt	336
Pro Thr Gly Glu Leu Ala Asp Ala Ile Glu Lys Glu Leu Gly Gly Phe	
100 105 110	

gaa aaa ttc aaa tct gat ttc gct gca gca gct gca gga cgc ttt ggt	384
Glu Lys Phe Lys Ser Asp Phe Ala Ala Ala Ala Ala Gly Arg Phe Gly	
115 120 125	

tct ggt tgg gca tgg ctt gtt gtg aac aat ggc aaa ctt gaa atc aca	432
Ser Gly Trp Ala Trp Leu Val Val Asn Asn Gly Lys Leu Glu Ile Thr	
130 135 140	

agc acg cca aac caa gat tct cct tta act gaa gga aaa aca cca att	480
Ser Thr Pro Asn Gln Asp Ser Pro Leu Thr Glu Gly Lys Thr Pro Ile	
145 150 155 160	

cta gga ctt gac gtt tgg gag cat gct tac tac cta aac tac caa aac	528
Leu Gly Leu Asp Val Trp Glu His Ala Tyr Tyr Leu Asn Tyr Gln Asn	
165 170 175	

cgt cgt cct gat tac att tca gca ttc tgg aat gtt gtg aac tgg gat	576
Arg Arg Pro Asp Tyr Ile Ser Ala Phe Trp Asn Val Val Asn Trp Asp	
180 185 190	

gaa gtg gca cgc ctt tac agc gaa gca aaa taa	609
Glu Val Ala Arg Leu Tyr Ser Glu Ala Lys	
195 200	

<210> 2  
 <211> 202  
 <212> PRT  
 <213> Bacillus pumilus

<400> 2

Met Ala Tyr Lys Leu Pro Glu Leu Pro Tyr Ala Tyr Asp Ala Leu Glu
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Pro His Ile Asp Lys Glu Thr Met Thr Ile His His Thr Lys His His
20 25 30

Asn Thr Tyr Val Thr Asn Leu Asn Lys Ala Ile Glu Gly Val Ser Ala
35 40 45

Leu Glu Asp Gln Ser Ile Glu Glu Leu Val Ala Asn Leu Asn Ser Val
50 55 60

Pro Glu Asn Ile Arg Thr Ala Val Arg Asn Asn Gly Gly Gly His Ala
65 70 75 80

Asn His Ser Leu Phe Trp Thr Leu Leu Ser Pro Asn Gly Gly Gly Ala
85 90 95

Pro Thr Gly Glu Leu Ala Asp Ala Ile Glu Lys Glu Leu Gly Gly Phe
100 105 110

Glu Lys Phe Lys Ser Asp Phe Ala Ala Ala Ala Gly Arg Phe Gly
115 120 125

Ser Gly Trp Ala Trp Leu Val Val Asn Asn Gly Lys Leu Glu Ile Thr
130 135 140

Ser Thr Pro Asn Gln Asp Ser Pro Leu Thr Glu Gly Lys Thr Pro Ile
145 150 155 160

Leu Gly Leu Asp Val Trp Glu His Ala Tyr Tyr Leu Asn Tyr Gln Asn
165 170 175

Arg Arg Pro Asp Tyr Ile Ser Ala Phe Trp Asn Val Val Asn Trp Asp  
180 185 190

Glu Val Ala Arg Leu Tyr Ser Glu Ala Lys  
195 200

<210> 3  
<211> 609  
<212> DNA  
<213> Bacillus clausii KSM-K16

<220>  
<221> CDS  
<222> (1)..(609)

<400> 3  
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1 5 10 15  
ccg cat att gat gag gcg aca atg aac att cac cac ggc aaa cac cac 96  
Pro His Ile Asp Glu Ala Thr Met Asn Ile His His Gly Lys His His  
20 25 30  
aat acg tat gta aca aac tta aat gct gca ttg gaa ggg cat gca gcc 144  
Asn Thr Tyr Val Thr Asn Leu Asn Ala Ala Leu Glu Gly His Ala Ala  
35 40 45  
ctt gca gag aag agc att gaa gac ttg gtg gca aac ttg gat gct gtt 192  
Leu Ala Glu Lys Ser Ile Glu Asp Leu Val Ala Asn Leu Asp Ala Val  
50 55 60  
cca gaa aac att cgt aca gcg gtt cgc aac aat ggc gga ggc cat gca 240  
Pro Glu Asn Ile Arg Thr Ala Val Arg Asn Asn Gly Gly Gly His Ala  
65 70 75 80  
aac cac aca ttt ttt tgg caa att tta agt cca aat ggt ggc ggc gag 288  
Asn His Thr Phe Phe Trp Gln Ile Leu Ser Pro Asn Gly Gly Gly Glu  
85 90 95  
ccg act ggt gct cta gca gaa gat att aaa tca act ttc ggc agc gtt 336  
Pro Thr Gly Ala Leu Ala Glu Asp Ile Lys Ser Thr Phe Gly Ser Val  
100 105 110  
gaa gaa ttc aaa aac aaa ttt gca gac gca gca aaa ggg cgc ttt ggt 384  
Glu Glu Phe Lys Asn Lys Phe Ala Asp Ala Ala Lys Gly Arg Phe Gly  
115 120 125  
tca gga tgg gct tgg cta gtt gtc aac aac ggc aat tta gaa att aca 432  
Ser Gly Trp Ala Trp Leu Val Val Asn Asn Gly Asn Leu Glu Ile Thr  
130 135 140  
agc acg cct aac caa gat aca cct tta tct gaa ggg aaa acg cct atc 480  
Ser Thr Pro Asn Gln Asp Thr Pro Leu Ser Glu Gly Lys Thr Pro Ile  
145 150 155 160  
ctc gga ctt gac gtc tgg gaa cac gct tac tac ttg aac tac caa aac 528  
Leu Gly Leu Asp Val Trp Glu His Ala Tyr Tyr Leu Asn Tyr Gln Asn

	165		170		175	
cgt cgc cca gac tac att gca gct ttc tgg aat gtc gtc aat tgg gac						576
Arg Arg Pro Asp Tyr Ile Ala Ala Phe Trp Asn Val Val Asn Trp Asp						
	180		185		190	
gag gtt agc aaa cgt tac gaa gca gca aaa taa						609
Glu Val Ser Lys Arg Tyr Glu Ala Ala Lys						
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Pro His Ile Asp Glu Ala Thr Met Asn Ile His His Gly Lys His His						
	20		25		30	
Asn Thr Tyr Val Thr Asn Leu Asn Ala Ala Leu Glu Gly His Ala Ala						
	35		40		45	
Leu Ala Glu Lys Ser Ile Glu Asp Leu Val Ala Asn Leu Asp Ala Val						
	50		55		60	
Pro Glu Asn Ile Arg Thr Ala Val Arg Asn Asn Gly Gly Gly His Ala						
65	70		75		80	
Asn His Thr Phe Phe Trp Gln Ile Leu Ser Pro Asn Gly Gly Gly Glu						
	85		90		95	
Pro Thr Gly Ala Leu Ala Glu Asp Ile Lys Ser Thr Phe Gly Ser Val						
	100		105		110	
Glu Glu Phe Lys Asn Lys Phe Ala Asp Ala Ala Lys Gly Arg Phe Gly						
	115		120		125	
Ser Gly Trp Ala Trp Leu Val Val Asn Asn Gly Asn Leu Glu Ile Thr						
	130		135		140	
Ser Thr Pro Asn Gln Asp Thr Pro Leu Ser Glu Gly Lys Thr Pro Ile						
145	150		155		160	
Leu Gly Leu Asp Val Trp Glu His Ala Tyr Tyr Leu Asn Tyr Gln Asn						
	165		170		175	
Arg Arg Pro Asp Tyr Ile Ala Ala Phe Trp Asn Val Val Asn Trp Asp						

180

185

190

Glu Val Ser Lys Arg Tyr Glu Ala Ala Lys  
195 200

&lt;210&gt; 5

&lt;211&gt; 609

&lt;212&gt; DNA

<213> *Bacillus licheniformis* DSM 13

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(609)

&lt;400&gt; 5

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Met Ala Tyr Lys Leu Pro Glu Leu Pro Tyr Ala Tyr Asp Ala Leu Glu  
1 5 10 15

cct cac atc gac aaa gag acg atg aat att cac cat acg aag cac cat 96  
Pro His Ile Asp Lys Glu Thr Met Asn Ile His His Thr Lys His His  
20 25 30

aac aca tat gtt aca aaa ttg aac gaa gcg gtg gca ggc aaa cag gat 144  
Asn Thr Tyr Val Thr Lys Leu Asn Glu Ala Val Ala Gly Lys Gln Asp  
35 40 45

ctt gaa agc aaa tct gtt gaa gag ctt gtt gca aac ctt gat gca gta 192  
Leu Glu Ser Lys Ser Val Glu Glu Leu Val Ala Asn Leu Asp Ala Val  
50 55 60

ccg gaa aac atc cgt aca gct gtc cgc aac aat ggc gga ggg cat gcc 240  
Pro Glu Asn Ile Arg Thr Ala Val Arg Asn Asn Gly Gly Gly His Ala  
65 70 75 80

aac cac tca ttg ttc tgg aaa ctt ctt tct cca aac gga gga ggc gct 288  
Asn His Ser Leu Phe Trp Lys Leu Leu Ser Pro Asn Gly Gly Gly Ala  
85 90 95

cca act ggt gaa ttg gca gaa gcc atc aac agc aaa ttc ggc agc ttc 336  
Pro Thr Gly Glu Leu Ala Glu Ala Ile Asn Ser Lys Phe Gly Ser Phe  
100 105 110

gat caa ttc aaa gaa gac ttt gcg gct gca gca gca ggc cgt ttc ggc 384  
Asp Gln Phe Lys Glu Asp Phe Ala Ala Ala Ala Gly Arg Phe Gly  
115 120 125

tcc ggc tgg gca tgg ctt gtt gtc aat aac gga gag ctt gaa atc aca 432  
Ser Gly Trp Ala Trp Leu Val Val Asn Asn Gly Glu Leu Glu Ile Thr  
130 135 140

agc acg cca aac caa gat tct cct ctt tca gaa ggc aag act cct atc 480  
Ser Thr Pro Asn Gln Asp Ser Pro Leu Ser Glu Gly Lys Thr Pro Ile  
145 150 155 160

tta ggt ctt gat gta tgg gag cac gca tac tac ctg aat tat caa aac 528  
Leu Gly Leu Asp Val Trp Glu His Ala Tyr Tyr Leu Asn Tyr Gln Asn  
165 170 175

cgc cgt cca gat tac att aaa gca ttc tgg aac gtc gtt aac tgg gat 576

Arg Arg Pro Asp Tyr Ile Lys Ala Phe Trp Asn Val Val Asn Trp Asp  
180 185 190

gaa gtt gca cgc ctt tac agc gaa gca aaa taa 609  
Glu Val Ala Arg Leu Tyr Ser Glu Ala Lys  
195 200

<210> 6  
<211> 202  
<212> PRT  
<213> Bacillus licheniformis DSM 13

<400> 6

Met Ala Tyr Lys Leu Pro Glu Leu Pro Tyr Ala Tyr Asp Ala Leu Glu  
1 5 10 15

Pro His Ile Asp Lys Glu Thr Met Asn Ile His His Thr Lys His His  
20 25 30

Asn Thr Tyr Val Thr Lys Leu Asn Glu Ala Val Ala Gly Lys Gln Asp  
35 40 45

Leu Glu Ser Lys Ser Val Glu Glu Leu Val Ala Asn Leu Asp Ala Val  
50 55 60

Pro Glu Asn Ile Arg Thr Ala Val Arg Asn Asn Gly Gly Gly His Ala  
65 70 75 80

Asn His Ser Leu Phe Trp Lys Leu Leu Ser Pro Asn Gly Gly Gly Ala  
85 90 95

Pro Thr Gly Glu Leu Ala Glu Ala Ile Asn Ser Lys Phe Gly Ser Phe  
100 105 110

Asp Gln Phe Lys Glu Asp Phe Ala Ala Ala Ala Ala Gly Arg Phe Gly  
115 120 125

Ser Gly Trp Ala Trp Leu Val Val Asn Asn Gly Glu Leu Glu Ile Thr  
130 135 140

Ser Thr Pro Asn Gln Asp Ser Pro Leu Ser Glu Gly Lys Thr Pro Ile  
145 150 155 160

Leu Gly Leu Asp Val Trp Glu His Ala Tyr Tyr Leu Asn Tyr Gln Asn  
165 170 175

Arg Arg Pro Asp Tyr Ile Lys Ala Phe Trp Asn Val Val Asn Trp Asp  
180 185 190

Glu Val Ala Arg Leu Tyr Ser Glu Ala Lys  
 195 200

<210> 7  
 <211> 615  
 <212> DNA  
 <213> Bacillus stearothermophilus

<220>  
 <221> CDS  
 <222> (1)..(615)

<400> 7  
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 Met Pro Phe Glu Leu Pro Ala Leu Pro Tyr Pro Tyr Asp Ala Leu Glu  
 1 5 10 15  
 ccg cac atc gac aaa gaa acg atg aac att cac cac acg aag cac cat 96  
 Pro His Ile Asp Lys Glu Thr Met Asn Ile His His Thr Lys His His  
 20 25 30  
 aac aca tac gtt aca aat ttg aat gcg gcg ctt gaa gga cat ccg gat 144  
 Asn Thr Tyr Val Thr Asn Leu Asn Ala Ala Leu Glu Gly His Pro Asp  
 35 40 45  
 ttg caa aac aaa tcg ctc gaa gaa ctg ctc agc aat ttg gaa gcc ctt 192  
 Leu Gln Asn Lys Ser Leu Glu Glu Leu Leu Ser Asn Leu Glu Ala Leu  
 50 55 60  
 ccg gaa agc atc cgc acg gcg gtg cgc aac aac ggc ggc ggc cat gcg 240  
 Pro Glu Ser Ile Arg Thr Ala Val Arg Asn Asn Gly Gly Gly His Ala  
 65 70 75 80  
 aac cac tcg ctt ttc tgg acg att ttg tcg cca aat ggc ggc ggc gag 288  
 Asn His Ser Leu Phe Trp Thr Ile Leu Ser Pro Asn Gly Gly Gly Glu  
 85 90 95  
 ccg acg ggt gag ctg gct gac gcc atc aac aaa aaa ttc ggc agc ttc 336  
 Pro Thr Gly Glu Leu Ala Asp Ala Ile Asn Lys Lys Phe Gly Ser Phe  
 100 105 110  
 acc gcg ttc aaa gac gag ttt tcg aaa gca gcg gcc ggc cgt ttc ggt 384  
 Thr Ala Phe Lys Asp Glu Phe Ser Lys Ala Ala Ala Gly Arg Phe Gly  
 115 120 125  
 tcc ggt tgg gca tgg ctt gtt gtg aac aac ggc gag ctg gaa atc aca 432  
 Ser Gly Trp Ala Trp Leu Val Val Asn Asn Gly Glu Leu Glu Ile Thr  
 130 135 140  
 agc acg ccg aac caa gat tcg ccg att atg gaa ggc aaa acg ccg att 480  
 Ser Thr Pro Asn Gln Asp Ser Pro Ile Met Glu Gly Lys Thr Pro Ile  
 145 150 155 160  
 ctc ggc ttg gac gtt tgg gag cat gcg tac tac ttg aaa tac caa aac 528  
 Leu Gly Leu Asp Val Trp Glu His Ala Tyr Tyr Leu Lys Tyr Gln Asn  
 165 170 175  
 cgc cgt ccg gaa tac att gcc gca ttc tgg aac gtc gtc aac tgg gac 576  
 Arg Arg Pro Glu Tyr Ile Ala Ala Phe Trp Asn Val Val Asn Trp Asp  
 180 185 190

gaa gtg gcg aaa cgg tac agc gaa gcg aaa gca aaa taa  
 Glu Val Ala Lys Arg Tyr Ser Glu Ala Lys Ala Lys  
 195 200

615

<210> 8  
 <211> 204  
 <212> PRT  
 <213> Bacillus stearothermophilus

<400> 8

Met Pro Phe Glu Leu Pro Ala Leu Pro Tyr Pro Tyr Asp Ala Leu Glu  
 1 5 10 15

Pro His Ile Asp Lys Glu Thr Met Asn Ile His His Thr Lys His His  
 20 25 30

Asn Thr Tyr Val Thr Asn Leu Asn Ala Ala Leu Glu Gly His Pro Asp  
 35 40 45

Leu Gln Asn Lys Ser Leu Glu Glu Leu Leu Ser Asn Leu Glu Ala Leu  
 50 55 60

Pro Glu Ser Ile Arg Thr Ala Val Arg Asn Asn Gly Gly Gly His Ala  
 65 70 75 80

Asn His Ser Leu Phe Trp Thr Ile Leu Ser Pro Asn Gly Gly Gly Glu  
 85 90 95

Pro Thr Gly Glu Leu Ala Asp Ala Ile Asn Lys Lys Phe Gly Ser Phe  
 100 105 110

Thr Ala Phe Lys Asp Glu Phe Ser Lys Ala Ala Ala Gly Arg Phe Gly  
 115 120 125

Ser Gly Trp Ala Trp Leu Val Val Asn Asn Gly Glu Leu Glu Ile Thr  
 130 135 140

Ser Thr Pro Asn Gln Asp Ser Pro Ile Met Glu Gly Lys Thr Pro Ile  
 145 150 155 160

Leu Gly Leu Asp Val Trp Glu His Ala Tyr Tyr Leu Lys Tyr Gln Asn  
 165 170 175

Arg Arg Pro Glu Tyr Ile Ala Ala Phe Trp Asn Val Val Asn Trp Asp  
 180 185 190

Glu Val Ala Lys Arg Tyr Ser Glu Ala Lys Ala Lys  
 195 200



<210> 9  
 <211> 615  
 <212> DNA  
 <213> *Bacillus thermoleovorans*

<220>  
 <221> CDS  
 <222> (1)..(615)

<400> 9  
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 1 5 10 15  
 ccg cac atc gac aaa gaa acg atg aac att cac cac acg aag cac cat 96  
 Pro His Ile Asp Lys Glu Thr Met Asn Ile His His Thr Lys His His  
 20 25 30  
 aac aca tac gtt aca aat ttg aat gcg gcg ctt gaa ggg cat ccg gat 144  
 Asn Thr Tyr Val Thr Asn Leu Asn Ala Ala Leu Glu Gly His Pro Asp  
 35 40 45  
 ttg caa aac aaa tcg ctc gaa gaa ttg ctc agc aat ttg gaa gcc ctt 192  
 Leu Gln Asn Lys Ser Leu Glu Glu Leu Leu Ser Asn Leu Glu Ala Leu  
 50 55 60  
 ccg gaa agc att cgc acg gcg gtg cgc aac aac ggc ggc ggt cat gca 240  
 Pro Glu Ser Ile Arg Thr Ala Val Arg Asn Asn Gly Gly Gly His Ala  
 65 70 75 80  
 aac cac tcg ctt ttc tgg acg att ttg tcg cca aat ggc ggc ggt gag 288  
 Asn His Ser Leu Phe Trp Thr Ile Leu Ser Pro Asn Gly Gly Gly Glu  
 85 90 95  
 ccg acg ggt gag ctg gct gag gcg atc aac aaa aaa ttc ggc agc ttc 336  
 Pro Thr Gly Glu Leu Ala Glu Ala Ile Asn Lys Lys Phe Gly Ser Phe  
 100 105 110  
 acc gcg ttt aaa gac gag ttt tcg aaa gca gcg gct ggc cgt ttc ggt 384  
 Thr Ala Phe Lys Asp Glu Phe Ser Lys Ala Ala Ala Gly Arg Phe Gly  
 115 120 125  
 tct ggc tgg gca tgg ctt gtc gtg aac aac ggc gag ctg gaa att acg 432  
 Ser Gly Trp Ala Trp Leu Val Val Asn Asn Gly Glu Leu Glu Ile Thr  
 130 135 140  
 agc acg ccg aac caa gac tcg ccg atc atg gaa ggc aaa acg ccg att 480  
 Ser Thr Pro Asn Gln Asp Ser Pro Ile Met Glu Gly Lys Thr Pro Ile  
 145 150 155 160  
 ctc ggc ttg gac gtt tgg gag cat gcg tac tac ttg aaa tac caa aac 528  
 Leu Gly Leu Asp Val Trp Glu His Ala Tyr Tyr Leu Lys Tyr Gln Asn  
 165 170 175  
 cgc cgt ccg gaa tac att gcc gca ttc tgg aac att gtc aac tgg gac 576  
 Arg Arg Pro Glu Tyr Ile Ala Ala Phe Trp Asn Ile Val Asn Trp Asp  
 180 185 190  
 gaa gtg gcg aaa cgg tac agc gaa gcg aaa gcg aag taa 615  
 Glu Val Ala Lys Arg Tyr Ser Glu Ala Lys Ala Lys  
 195 200

<210> 10  
<211> 204  
<212> PRT  
<213> Bacillus thermoleovorans

<400> 10

Met Pro Phe Glu Leu Pro Ala Leu Pro Tyr Pro Tyr Asp Ala Leu Glu  
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Pro His Ile Asp Lys Glu Thr Met Asn Ile His His Thr Lys His His  
20 25 30

Asn Thr Tyr Val Thr Asn Leu Asn Ala Ala Leu Glu Gly His Pro Asp  
35 40 45

Leu Gln Asn Lys Ser Leu Glu Glu Leu Leu Ser Asn Leu Glu Ala Leu  
50 55 60

Pro Glu Ser Ile Arg Thr Ala Val Arg Asn Asn Gly Gly Gly His Ala  
65 70 75 80

Asn His Ser Leu Phe Trp Thr Ile Leu Ser Pro Asn Gly Gly Gly Glu  
85 90 95

Pro Thr Gly Glu Leu Ala Glu Ala Ile Asn Lys Lys Phe Gly Ser Phe  
100 105 110

Thr Ala Phe Lys Asp Glu Phe Ser Lys Ala Ala Ala Gly Arg Phe Gly  
115 120 125

Ser Gly Trp Ala Trp Leu Val Val Asn Asn Gly Glu Leu Glu Ile Thr  
130 135 140

Ser Thr Pro Asn Gln Asp Ser Pro Ile Met Glu Gly Lys Thr Pro Ile  
145 150 155 160

Leu Gly Leu Asp Val Trp Glu His Ala Tyr Tyr Leu Lys Tyr Gln Asn  
165 170 175

Arg Arg Pro Glu Tyr Ile Ala Ala Phe Trp Asn Ile Val Asn Trp Asp  
180 185 190

Glu Val Ala Lys Arg Tyr Ser Glu Ala Lys Ala Lys  
195 200

<210> 11  
<211> 612

<212> DNA  
 <213> Oceanobacillus iheyensis HTE831

<220>  
 <221> CDS  
 <222> (1)..(612)

<400> 11  
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 1 5 10 15  
 gaa ccg aca att gac aaa gaa aca atg aac att cat cat acg aaa cat 96  
 Glu Pro Thr Ile Asp Lys Glu Thr Met Asn Ile His His Thr Lys His  
 20 25 30  
 cac aac acg tat gta act aaa tta aat gat gca ttg gaa gga cat gca 144  
 His Asn Thr Tyr Val Thr Lys Leu Asn Asp Ala Leu Glu Gly His Ala  
 35 40 45  
 gac ctt caa agt aag tct gta gaa gaa tta att agt aat ctt gat gca 192  
 Asp Leu Gln Ser Lys Ser Val Glu Glu Leu Ile Ser Asn Leu Asp Ala  
 50 55 60  
 gtc cct gaa aat gca aaa act gca gta cgt aac aat ggt ggc gga cat 240  
 Val Pro Glu Asn Ala Lys Thr Ala Val Arg Asn Asn Gly Gly Gly His  
 65 70 75 80  
 gct aac cat agc cta ttt tgg aag tta tta tca cca aat ggc ggc ggt 288  
 Ala Asn His Ser Leu Phe Trp Lys Leu Leu Ser Pro Asn Gly Gly Gly  
 85 90 95  
 gag cca aca ggt gaa tta gct gat aaa att aat gct aaa ttt ggt tca 336  
 Glu Pro Thr Gly Glu Leu Ala Asp Lys Ile Asn Ala Lys Phe Gly Ser  
 100 105 110  
 tta gac aaa ttc aaa gaa gaa ttt gca gca gct gca gca gga cgt ttc 384  
 Leu Asp Lys Phe Lys Glu Glu Phe Ala Ala Ala Ala Gly Arg Phe  
 115 120 125  
 ggt tct gga tgg gct tgg cta att gtt aac aat ggt gaa cta gaa att 432  
 Gly Ser Gly Trp Ala Trp Leu Ile Val Asn Asn Gly Glu Leu Glu Ile  
 130 135 140  
 aca agc aca cca aac caa gat tca cca tta atg gaa gga aaa act cct 480  
 Thr Ser Thr Pro Asn Gln Asp Ser Pro Leu Met Glu Gly Lys Thr Pro  
 145 150 155 160  
 gta tta gga ctt gat gtt tgg gaa cac gct tat tat ctt aaa tat caa 528  
 Val Leu Gly Leu Asp Val Trp Glu His Ala Tyr Tyr Leu Lys Tyr Gln  
 165 170 175  
 aac aaa cgc cca gag tac att tca gca ttc tgg aat gta gtt aat tgg 576  
 Asn Lys Arg Pro Glu Tyr Ile Ser Ala Phe Trp Asn Val Val Asn Trp  
 180 185 190  
 gat caa gtt gca aaa aac tac gaa gaa gct aag taa 612  
 Asp Gln Val Ala Lys Asn Tyr Glu Glu Ala Lys  
 195 200

<210> 12

<211> 203  
<212> PRT  
<213> Oceanobacillus iheyensis HTE831

<400> 12

Met Ala Lys Phe Glu Leu Pro Glu Leu Pro Tyr Ala Tyr Asp Ala Leu  
1 5 10 15

Glu Pro Thr Ile Asp Lys Glu Thr Met Asn Ile His His Thr Lys His  
20 25 30

His Asn Thr Tyr Val Thr Lys Leu Asn Asp Ala Leu Glu Gly His Ala  
35 40 45

Asp Leu Gln Ser Lys Ser Val Glu Glu Leu Ile Ser Asn Leu Asp Ala  
50 55 60

Val Pro Glu Asn Ala Lys Thr Ala Val Arg Asn Asn Gly Gly Gly His  
65 70 75 80

Ala Asn His Ser Leu Phe Trp Lys Leu Leu Ser Pro Asn Gly Gly Gly  
85 90 95

Glu Pro Thr Gly Glu Leu Ala Asp Lys Ile Asn Ala Lys Phe Gly Ser  
100 105 110

Leu Asp Lys Phe Lys Glu Glu Phe Ala Ala Ala Ala Ala Gly Arg Phe  
115 120 125

Gly Ser Gly Trp Ala Trp Leu Ile Val Asn Asn Gly Glu Leu Glu Ile  
130 135 140

Thr Ser Thr Pro Asn Gln Asp Ser Pro Leu Met Glu Gly Lys Thr Pro  
145 150 155 160

Val Leu Gly Leu Asp Val Trp Glu His Ala Tyr Tyr Leu Lys Tyr Gln  
165 170 175

Asn Lys Arg Pro Glu Tyr Ile Ser Ala Phe Trp Asn Val Val Asn Trp  
180 185 190

Asp Gln Val Ala Lys Asn Tyr Glu Glu Ala Lys  
195 200

<210> 13  
<211> 202  
<212> PRT  
<213> Bacillus subtilis subsp. subtilis str. 168

<400> 13

Met Ala Tyr Glu Leu Pro Glu Leu Pro Tyr Ala Tyr Asp Ala Leu Glu  
1 5 10 15

Pro His Ile Asp Lys Glu Thr Met Thr Ile His His Thr Lys His His  
20 25 30

Asn Thr Tyr Val Thr Asn Leu Asn Lys Ala Val Glu Gly Asn Thr Ala  
35 40 45

Leu Ala Asn Lys Ser Val Glu Glu Leu Val Ala Asp Leu Asp Ser Val  
50 55 60

Pro Glu Asn Ile Arg Thr Ala Val Arg Asn Asn Gly Gly Gly His Ala  
65 70 75 80

Asn His Lys Leu Phe Trp Thr Leu Leu Ser Pro Asn Gly Gly Gly Glu  
85 90 95

Pro Thr Gly Ala Leu Ala Glu Glu Ile Asn Ser Val Phe Gly Ser Phe  
100 105 110

Asp Lys Phe Lys Glu Gln Phe Ala Ala Ala Ala Ala Gly Arg Phe Gly  
115 120 125

Ser Gly Trp Ala Trp Leu Val Val Asn Asn Gly Lys Leu Glu Ile Thr  
130 135 140

Ser Thr Pro Asn Gln Asp Ser Pro Leu Ser Glu Gly Lys Thr Pro Ile  
145 150 155 160

Leu Gly Leu Asp Val Trp Glu His Ala Tyr Tyr Leu Asn Tyr Gln Asn  
165 170 175

Arg Arg Pro Asp Tyr Ile Ser Ala Phe Trp Asn Val Val Asn Trp Asp  
180 185 190

Glu Val Ala Arg Leu Tyr Ser Glu Arg Lys  
195 200