

Sequence Listing

SEQUENCE LISTING

<110> Evonik Röhm GmbH

<120> Verwendung eines zu einem MeaB-Protein homologen Proteins zur Erhöhung der enzymatischen Aktivität einer 3-Hydroxycarbonsäure-CoA-Mutase

<130> 200900208

<160> 22

<170> PatentIn version 3.4

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<211> 327

<212> PRT

<213> Aquincola tertiari carbonis

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Asn Thr Trp Ala Leu Gly Arg Leu Ile Ser Arg Ala Glu Ala Gly Val
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Ala Glu Ala Arg Pro Ala Leu Ala Glu Val Tyr Arg His Ala Gly Ser
35 40 45

Ala His Val Ile Gly Leu Thr Gly Val Pro Gly Ser Gly Lys Ser Thr
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Leu Val Ala Lys Leu Thr Ala Ala Leu Arg Lys Arg Gly Glu Lys Val
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Gly Ile Val Ala Ile Asp Pro Ser Ser Pro Tyr Ser Gly Gly Ala Ile
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Leu Gly Asp Arg Ile Arg Met Thr Glu Leu Ala Asn Asp Ser Gly Val
100 105 110

Phe Ile Arg Ser Met Ala Thr Arg Gly Ala Thr Gly Gly Met Ala Arg
115 120 125

Ala Ala Leu Asp Ala Val Asp Leu Leu Asp Val Ala Gly Tyr His Thr
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Ile Ile Leu Glu Thr Val Gly Val Gly Gln Asp Glu Val Glu Val Ala
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His Ala Ser Asp Thr Thr Val Val Val Ser Ala Pro Gly Leu Gly Asp
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Glu Ile Gln Ala Ile Lys Ala Gly Val Leu Glu Ile Ala Asp Ile His
180 185 190

Sequence Listing

Val Val Ser Lys Cys Asp Arg Asp Asp Ala Asn Arg Thr Leu Thr Asp
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Leu Lys Gln Met Leu Thr Leu Gly Thr Met Val Gly Pro Lys Arg Ala
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Trp Ala Ile Pro Val Val Gly Val Ser Ser Tyr Thr Gly Glu Gly Val
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Asp Asp Leu Leu Gly Arg Ile Ala Ala His Arg Gln Ala Thr Ala Asp
245 250 255

Thr Glu Leu Gly Arg Glu Arg Arg Arg Val Ala Glu Phe Arg Leu
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Gln Lys Thr Ala Glu Thr Leu Leu Leu Glu Arg Phe Thr Thr Gly Ala
275 280 285

Gln Pro Phe Ser Pro Ala Leu Ala Asp Ser Leu Ser Asn Arg Ala Ser
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Asp Pro Tyr Ala Ala Ala Arg Glu Leu Ile Ala Arg Thr Ile Arg Lys
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Glu Tyr Ser Asn Asp Leu Ala
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<213> Aquincola tertiari carbonis

<400> 3

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Asn Thr Trp Ala Leu Gly Arg Leu Ile Ser Arg Ala Glu Ala Gly Val
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Ala Glu Ala Arg Pro Ala Leu Ala Glu Val Tyr Arg His Ala Gly Ser
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Sequence Listing

Ala His Val Ile Gly Leu Thr Gly Val Pro Gly Ser Gly Lys Ser Thr
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Leu Val Ala Lys Leu Thr Ala Ala Leu Arg Lys Arg Gly Glu Lys Val
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Gly Ile Val Ala Ile Asp Pro Ser Ser Pro Tyr Ser Gly Gly Ala Ile
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Leu Gly Asp Arg Ile Arg Met Thr Glu Leu Ala Asn Asp Ser Gly Val
100 105 110

Phe Ile Arg Ser Met Ala Thr Arg Gly Ala Thr Gly Gly Met Ala Arg
115 120 125

Ala Ala Leu Asp Ala Val Asp Leu Leu Asp Val Ala Gly Tyr His Thr
130 135 140

Ile Ile Leu Glu Thr Val Gly Val Gly Gln Asp Glu Val Glu Val Ala
145 150 155 160

His Ala Ser Asp Thr Thr Val Val Val Ser Ala Pro Gly Leu Gly Asp
165 170 175

Glu Ile Gln Ala Ile Lys Ala Gly Val Leu Glu Ile Ala Asp Ile His
180 185 190

Val Val Ser Lys Cys Asp Arg Asp Asp Ala Asn Arg Thr Leu Thr Asp
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Leu Lys Gln Met Leu Thr Leu Gly Thr Met Val Gly Pro Lys Arg Ala
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Trp Ala Ile Pro Val Val Gly Val Ser Ser Tyr Thr Gly Glu Gly Val
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Asp Asp Leu Leu Gly Arg Ile Ala Ala His Arg Gln Ala Thr Ala Asp
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Thr Glu Leu Gly Arg Glu Arg Arg Arg Val Ala Glu Phe Arg Leu
260 265 270

Gln Lys Thr Ala Glu Thr Leu Leu Leu Glu Arg Phe Thr Thr Gly Ala
275 280 285

Gln Pro Phe Ser Pro Ala Leu Ala Asp Ser Leu Ser Asn Arg Ala Ser
290 295 300

Asp Pro Tyr Ala Ala Ala Arg Glu Leu Ile Ala Arg Thr Ile Arg Lys
305 310 315 320

Sequence Listing

Glu Tyr Ser Asn Asp₃₂₅ Leu Ala Cys Ala Lys₃₃₀ Leu Thr Ile Thr Trp₃₃₅ Leu

Glu Pro Gln Ile₃₄₀ Lys Ser Gln Leu Gln₃₄₅ Ser Glu Arg Lys Asp₃₅₀ Trp Glu

Ala Asn Glu₃₅₅ Val Gly Ala Phe Leu₃₆₀ Lys Lys Ala Pro Glu₃₆₅ Arg Lys Glu

Gln Phe₃₇₀ His Thr Ile Gly Asp₃₇₅ Phe Pro Val Gln Arg₃₈₀ Thr Tyr Thr Ala

Ala Asp Ile Ala Asp₃₉₀ Thr Pro Leu Glu Asp₃₉₅ Ile Gly Leu Pro Gly Arg₄₀₀

Tyr Pro Phe Thr Arg₄₀₅ Gly Pro Tyr Pro Thr₄₁₀ Met Tyr Arg Ser Arg₄₁₅ Thr

Trp Thr Met Arg₄₂₀ Gln Ile Ala Gly Phe₄₂₅ Gly Thr Gly Glu Asp₄₃₀ Thr Asn

Lys Arg Phe₄₃₅ Lys Tyr Leu Ile Ala₄₄₀ Gln Gly Gln Thr Gly₄₄₅ Ile Ser Thr

Asp Phe₄₅₀ Asp Met Pro Thr Leu₄₅₅ Met Gly Tyr Asp Ser₄₆₀ Asp His Pro Met

Ser Asp Gly Glu Val Gly₄₇₀ Arg Glu Gly Val Ala₄₇₅ Ile Asp Thr Leu Ala₄₈₀

Asp Met Glu Ala Leu₄₈₅ Leu Ala Asp Ile Asp₄₉₀ Leu Glu Lys Ile Ser Val₄₉₅

Ser Phe Thr Ile₅₀₀ Asn Pro Ser Ala Trp₅₀₅ Ile Leu Leu Ala Met₅₁₀ Tyr Val

Ala Leu Gly₅₁₅ Glu Lys Arg Gly Tyr₅₂₀ Asp Leu Asn Lys Leu₅₂₅ Ser Gly Thr

Val Gln Ala Asp Ile Leu Lys₅₃₅ Glu Tyr Met Ala Gln₅₄₀ Lys Glu Tyr Ile

Tyr Pro Ile Ala Pro Ser₅₅₀ Val Arg Ile Val Arg₅₅₅ Asp Ile Ile Thr Tyr₅₆₀

Ser Ala Lys Asn Leu₅₆₅ Lys Arg Tyr Asn Pro Ile Asn Ile Ser Gly₅₇₅ Tyr

His Ile Ser Glu₅₈₀ Ala Gly Ser Ser Pro₅₈₅ Leu Gln Glu Ala Ala₅₉₀ Phe Thr

Sequence Li st i ng

Leu Ala Asn Leu Ile Thr Tyr Val Asn Glu Val Thr Lys Thr Gly Met
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His Val Asp Glu Phe Ala Pro Arg Leu Ala Phe Phe Phe Val Ser Gln
 610 615 620

Gly Asp Phe Phe Glu Glu Val Ala Lys Phe Arg Ala Leu Arg Arg Cys
 625 630 635 640

Tyr Ala Lys Ile Met Lys Glu Arg Phe Gly Ala Arg Asn Pro Glu Ser
 645 650 655

Met Arg Leu Arg Phe His Cys Gln Thr Ala Ala Ala Thr Leu Thr Lys
 660 665 670

Pro Gln Tyr Met Val Asn Val Val Arg Thr Ser Leu Gln Ala Leu Ser
 675 680 685

Ala Val Leu Gly Gly Ala Gln Ser Leu His Thr Asn Gly Tyr Asp Glu
 690 695 700

Ala Phe Ala Ile Pro Thr Glu Asp Ala Met Lys Met Ala Leu Arg Thr
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Gln Gln Ile Ile Ala Glu Glu Ser Gly Val Ala Asp Val Ile Asp Pro
 725 730 735

Leu Gly Gly Ser Tyr Tyr Val Glu Ala Leu Thr Thr Glu Tyr Glu Lys
 740 745 750

Lys Ile Phe Glu Ile Leu Glu Glu Val Glu Lys Arg Gly Gly Thr Ile
 755 760 765

Lys Leu Ile Glu Gln Gly Trp Phe Gln Lys Gln Ile Ala Asp Phe Ala
 770 775 780

Tyr Glu Thr Ala Leu Arg Lys Gln Ser Gly Gln Lys Pro Val Ile Gly
 785 790 795 800

Val Asn Arg Phe Val Glu Asn Glu Glu Asp Val Lys Ile Glu Ile His
 805 810 815

Pro Tyr Asp Asn Thr Thr Ala Glu Arg Gln Ile Ser Arg Thr Arg Arg
 820 825 830

Val Arg Ala Glu Arg Asp Glu Ala Lys Val Gln Ala Met Leu Asp Gln
 835 840 845

Leu Val Ala Val Ala Lys Asp Glu Ser Gln Asn Leu Met Pro Leu Thr
 850 855 860

Sequence Li st i ng

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Leu Lys Gly I l e Trp Gly Thr Tyr Arg Gl u Thr Pro Val Phe
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<213> Aquincola tertiari carboni s
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20 25 30

Gly Met Asp Val I l e Tyr Ser Gly Leu Hi s Arg Thr Pro Gl u Gl u Val
35 40 45

Val Asn Thr Ala I l e Gl n Gl u Asp Val Asp Val Leu Gly Val Ser Leu
50 55 60

Leu Ser Gly Val Gl n Leu Thr Val Phe Pro Lys I l e Phe Lys Leu Leu
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Asp Gl u Arg Gly Ala Gly Asp Leu I l e Val I l e Ala Gly Gly Val Met
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Pro Asp Gl u Asp Ala Ala Ala I l e Arg Lys Leu Gly Val Arg Gl u Val
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Leu Val Ala Ala Arg Gly Ala Arg
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Sequence Listing

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Sequence Li sti ng

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Sequence Li st i ng

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<210> 8
<211> 26
<212> DNA
<213> Arti fi ci al

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<220>
<223> Pri mer

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<400> 8
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<210> 9
<211> 27

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Sequence Li st i ng

<212>	DNA		
<213>	Arti fi ci al		
<220>			
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<211>	32		
<212>	DNA		
<213>	Arti fi ci al		
<220>			
<223>	Primer		
<400>	11		
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<211>	30		
<212>	DNA		
<213>	Arti fi ci al		
<220>			
<223>	Primer		
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<212>	DNA		
<213>	Arti fi ci al		
<220>			
<223>	Primer		
<400>	13		
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<210>	14		
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<212>	DNA		
<213>	Arti fi ci al		
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<400>	14		
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Sequence Li st i ng

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 <213> Arti fi ci al

 <220>
 <223> Pri mer

 <400> 15
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 <213> Arti fi ci al

 <220>
 <223> Pri mer

 <400> 16
 aaaaagctta ccataacctg gcttgagccg 30

<210> 17
 <211> 32
 <212> DNA
 <213> Arti fi ci al

 <220>
 <223> Pri mer

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 <220>
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 <400> 18
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 <400> 19
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<210> 20
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Sequence Listing

<223> Primer

<400> 20
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37

<210> 21
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<213> Aquincola tertiari carbonis

<400> 21

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Lys Asp Trp Glu Ala Asn Glu Val Gly Ala Phe Leu Lys Lys Ala Pro
20 25 30

Glu Arg Lys Glu Gln Phe His Thr Ile Gly Asp Phe Pro Val Gln Arg
35 40 45

Thr Tyr Thr Ala Ala Asp Ile Ala Asp Thr Pro Leu Glu Asp Ile Gly
50 55 60

Leu Pro Gly Arg Tyr Pro Phe Thr Arg Gly Pro Tyr Pro Thr Met Tyr
65 70 75 80

Arg Ser Arg Thr Trp Thr Met Arg Gln Ile Ala Gly Phe Gly Thr Gly
85 90 95

Glu Asp Thr Asn Lys Arg Phe Lys Tyr Leu Ile Ala Gln Gly Gln Thr
100 105 110

Gly Ile Ser Thr Asp Phe Asp Met Pro Thr Leu Met Gly Tyr Asp Ser
115 120 125

Asp His Pro Met Ser Asp Gly Glu Val Gly Arg Glu Gly Val Ala Ile
130 135 140

Asp Thr Leu Ala Asp Met Glu Ala Leu Leu Ala Asp Ile Asp Leu Glu
145 150 155 160

Lys Ile Ser Val Ser Phe Thr Ile Asn Pro Ser Ala Trp Ile Leu Leu
165 170 175

Ala Met Tyr Val Ala Leu Gly Glu Lys Arg Gly Tyr Asp Leu Asn Lys
180 185 190

Leu Ser Gly Thr Val Gln Ala Asp Ile Leu Lys Glu Tyr Met Ala Gln
195 200 205

Lys Glu Tyr Ile Tyr Pro Ile Ala Pro Ser Val Arg Ile Val Arg Asp
210 215 220

Sequence Listing

Ile 225 Ile Thr Tyr Ser Ala 230 Lys Asn Leu Lys Arg 235 Tyr Asn Pro Ile Asn 240
 Ile Ser Gly Tyr His 245 Ile Ser Glu Ala Gly 250 Ser Ser Pro Leu Gln Glu 255
 Ala Ala Phe Thr 260 Leu Ala Asn Leu Ile 265 Thr Tyr Val Asn Glu 270 Val Thr
 Lys Thr Gly 275 Met His Val Asp Glu 280 Phe Ala Pro Arg Leu 285 Ala Phe Phe
 Phe Val 290 Ser Gln Gly Asp Phe 295 Phe Glu Glu Val Ala 300 Lys Phe Arg Ala
 Leu 305 Arg Arg Cys Tyr Ala 310 Lys Ile Met Lys Glu 315 Arg Phe Gly Ala Arg 320
 Asn Pro Glu Ser Met 325 Arg Leu Arg Phe His 330 Cys Gln Thr Ala 335 Ala Ala
 Thr Leu Thr Lys 340 Pro Gln Tyr Met Val 345 Asn Val Val Arg Thr 350 Ser Leu
 Gln Ala Leu 355 Ser Ala Val Leu Gly 360 Gly Ala Gln Ser Leu His Thr Asn 365
 Gly Tyr 370 Asp Glu Ala Phe Ala 375 Ile Pro Thr Glu Asp 380 Ala Met Lys Met
 Ala 385 Leu Arg Thr Gln Gln 390 Ile Ile Ala Glu Glu 395 Ser Gly Val Ala Asp 400
 Val Ile Asp Pro Leu 405 Gly Gly Ser Tyr Tyr 410 Val Glu Ala Leu Thr 415 Thr
 Glu Tyr Glu Lys 420 Lys Ile Phe Glu Ile 425 Leu Glu Glu Val Glu 430 Lys Arg
 Gly Gly Thr 435 Ile Lys Leu Ile Glu 440 Gln Gly Trp Phe Gln 445 Lys Gln Ile
 Ala Asp 450 Phe Ala Tyr Glu Thr 455 Ala Leu Arg Lys Gln 460 Ser Gly Gln Lys
 Pro Val 465 Ile Gly Val Asn 470 Arg Phe Val Glu Asn 475 Glu Glu Asp Val Lys 480
 Ile Glu Ile His Pro 485 Tyr Asp Asn Thr Thr 490 Ala Glu Arg Gln Ile Ser 495

Sequence Listing

Arg Thr Arg Arg Val Arg Ala Glu Arg Asp Glu Ala Lys Val Gln Ala
500 505 510

Met Leu Asp Gln Leu Val Ala Val Ala Lys Asp Glu Ser Gln Asn Leu
515 520 525

Met Pro Leu Thr Ile Glu Leu Val Lys Ala Gly Ala Thr Met Gly Asp
530 535 540

Ile Val Glu Lys Leu Lys Gly Ile Trp Gly Thr Tyr Arg Glu Thr Pro
545 550 555 560

Val Phe

<210> 22
<211> 136
<212> PRT
<213> Aquincola tertiari carbonis
<400> 22

Met Asp Gln Ile Pro Ile Arg Val Leu Leu Ala Lys Val Gly Leu Asp
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Gly His Asp Arg Gly Val Lys Val Val Ala Arg Ala Leu Arg Asp Ala
20 25 30

Gly Met Asp Val Ile Tyr Ser Gly Leu His Arg Thr Pro Glu Glu Val
35 40 45

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

Leu Ser Gly Val Gln Leu Thr Val Phe Pro Lys Ile Phe Lys Leu Leu
65 70 75 80

Asp Glu Arg Gly Ala Gly Asp Leu Ile Val Ile Ala Gly Gly Val Met
85 90 95

Pro Asp Glu Asp Ala Ala Ala Ile Arg Lys Leu Gly Val Arg Glu Val
100 105 110

Leu Leu Gln Asp Thr Pro Pro Gln Ala Ile Ile Asp Ser Ile Arg Ser
115 120 125

Leu Val Ala Ala Arg Gly Ala Arg
130 135