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<110> National University Corporation Tokyo Medical and Dental University

<120> Agent for promoting osteogenesis

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<150> 2011-108642

<151> 2011-05-13

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<223> Inventor: Takayanagi, Hiroshi ;Negishi, Takako

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 Gly Ala Ser Ala Tyr Phe Leu Phe Leu Arg Arg Asp Leu Gln Ala Gln

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

Ser Cys Ala Gln His Leu Asp Cys Ala Ser Cys Leu Ala His Arg Asp
 485 490 495

Pro Tyr Cys Gly Trp Cys Val Leu Leu Gly Arg Cys Ser Arg Arg Ser
 500 505 510

Glu Cys Ser Arg Gly Gln Gly Pro Glu Gln Trp Leu Trp Ser Phe Gln
 515 520 525

Pro Glu Leu Gly Cys Leu Gln Val Ala Ala Met Ser Pro Ala Asn Ile
 530 535 540

Ser Arg Glu Glu Thr Arg Glu Val Phe Leu Ser Val Pro Asp Leu Pro
 545 550 555 560

Pro Leu Trp Pro Gly Glu Ser Tyr Ser Cys His Phe Gly Glu His Gln
 565 570 575

Ser Pro Ala Leu Leu Thr Gly Ser Gly Val Met Cys Pro Ser Pro Asp
 580 585 590

Pro Ser Glu Ala Pro Val Leu Pro Arg Gly Ala Asp Tyr Val Ser Val
 595 600 605

Ser Val Glu Leu Arg Phe Gly Ala Val Val Ile Ala Lys Thr Ser Leu
 610 615 620

Ser Phe Tyr Asp Cys Val Ala Val Thr Glu Leu Arg Pro Ser Ala Gln
 625 630 635 640

Cys Gln Ala Cys Val Ser Ser Arg Trp Gly Cys Asn Trp Cys Val Trp
 645 650 655

Gln His Leu Cys Thr His Lys Ala Ser Cys Asp Ala Gly Pro Met Val
 660 665 670

Ala Ser His Gln Ser Pro Leu Val Ser Pro Asp Pro Pro Ala Arg Gly
 675 680 685

Gly Pro Ser Pro Ser Pro Pro Thr Ala Pro Lys Ala Leu Ala Thr Pro

690	695	700
Ala Pro Asp Thr Leu Pro Val Glu Pro Gly Ala Pro Ser Thr Ala Thr 705 710 715 720		
Ala Ser Asp Ile Ser Pro Gly Ala Ser Pro Ser Leu Leu Ser Pro Trp 725 730 735		
Gly Pro Trp Ala Gly Ser Gly Ser Ile Ser Ser Pro Gly Ser Thr Gly 740 745 750		
Ser Pro Leu His Glu Glu Pro Ser Pro Pro Ser Pro Gln Asn Gly Pro 755 760 765		
Gly Thr Ala Val Pro Ala Pro Thr Asp Phe Arg Pro Ser Ala Thr Pro 770 775 780		
Glu Asp Leu Leu Ala Ser Pro Leu Ser Pro Ser Glu Val Ala Ala Val 785 790 795 800		
Pro Pro Ala Asp Pro Gly Pro Glu Ala Leu His Pro Thr Val Pro Leu 805 810 815		
Asp Leu Pro Pro Ala Thr Val Pro Ala Thr Thr Phe Pro Gly Ala Met 820 825 830		
Gly Ser Val Lys Pro Ala Leu Asp Trp Leu Thr Arg Glu Gly Gly Glu 835 840 845		
Leu Pro Glu Ala Asp Glu Trp Thr Gly Gly Asp Ala Pro Ala Phe Ser 850 855 860		
Thr Ser Thr Leu Leu Ser Gly Asp Gly Asp Ser Ala Glu Leu Glu Gly 865 870 875 880		
Pro Pro Ala Pro Leu Ile Leu Pro Ser Ser Leu Asp Tyr Gln Tyr Asp 885 890 895		
Thr Pro Gly Leu Trp Glu Leu Glu Glu Ala Thr Leu Gly Ala Ser Ser 900 905 910		
Cys Pro Cys Val Glu Ser Val Gln Gly Ser Thr Leu Met Pro Val His 915 920 925		

Val Glu Arg Glu Ile Arg Leu Leu Gly Arg Asn Leu His Leu Phe Gln
930 935 940

Asp Gly Pro Gly Asp Asn Glu Cys Val Met Glu Leu Glu Gly Leu Glu
945 950 955 960

Val Val Val Glu Ala Arg Val Glu Cys Glu Pro Pro Pro Asp Thr Gln
965 970 975

Cys His Val Thr Cys Gln Gln His Gln Leu Ser Tyr Glu Ala Leu Gln
980 985 990

Pro Glu Leu Arg Val Gly Leu Phe Leu Arg Arg Ala Gly Arg Leu Arg
995 1000 1005

Val Asp Ser Ala Glu Gly Leu His Val Val Leu Tyr Asp Cys Ser
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Val Gly His Gly Asp Cys Ser Arg Cys Gln Thr Ala Met Pro Gln
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Tyr Gly Cys Val Trp Cys Glu Gly Glu Arg Pro Arg Cys Val Thr
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Arg Glu Ala Cys Gly Glu Ala Glu Ala Val Ala Thr Gln Cys Pro
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Ala Pro Leu Ile His Ser Val Glu Pro Leu Thr Gly Pro Val Asp
1070 1075 1080

Gly Gly Thr Arg Val Thr Ile Arg Gly Ser Asn Leu Gly Gln His
1085 1090 1095

Val Gln Asp Val Leu Gly Met Val Thr Val Ala Gly Val Pro Cys
1100 1105 1110

Ala Val Asp Ala Gln Glu Tyr Glu Val Ser Ser Ser Leu Val Cys
1115 1120 1125

Ile Thr Gly Ala Ser Gly Glu Glu Val Ala Gly Ala Thr Ala Val
1130 1135 1140

Glu Val Pro Gly Arg Gly Arg Gly Val Ser Glu His Asp Phe Ala

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Arg	Ala	Gly	Gly	Thr	Arg	Leu	Thr	Leu	Asn	Gly	Ser	Lys	Leu	Leu	
1175						1180					1185				
Thr	Gly	Arg	Leu	Glu	Asp	Ile	Arg	Val	Val	Val	Gly	Asp	Gln	Pro	
1190						1195					1200				
Cys	His	Leu	Leu	Pro	Glu	Gln	Gln	Ser	Glu	Gln	Leu	Arg	Cys	Glu	
1205						1210					1215				
Thr	Ser	Pro	Arg	Pro	Thr	Pro	Ala	Thr	Leu	Pro	Val	Ala	Val	Trp	
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Val	Val	Gln	Thr	Pro	Arg	Ile	Arg	Val	Thr	Val	Val	Ser	Arg	Met	
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Pro	Thr	Pro	Phe	Ser	Tyr	Glu	Ala	Asp	Pro	Thr	Leu	Gln	Pro	Leu
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Glu Ser 1625	Gln Arg Thr Phe Ser 1630	Ala Arg Asp Arg Ala 1635
Ser Leu 1640	Leu Thr Val Ala Leu 1645	His Gly Lys Leu Glu 1650
Asp Ile 1655	Leu Arg Thr Leu Leu 1660	Ser Asp Leu Val Ala 1665
Ala Lys 1670	Asn Pro Lys Leu Met 1675	Leu Arg Arg Thr Glu 1680
Glu Lys 1685	Leu Leu Thr Asn Trp 1690	Met Ser Ile Cys Leu 1695
Val Arg 1700	Asp Ser Val Gly Glu 1705	Pro Leu Tyr Met Leu 1710
Ile Lys 1715	His Gln Val Asp Lys 1720	Gly Pro Val Asp Ser 1725
Lys Ala 1730	Lys Tyr Thr Leu Asn 1735	Asp Asn Arg Leu Leu 1740
Val Glu 1745	Tyr Arg Pro Leu Thr 1750	Leu Asn Ala Leu Leu 1755
Pro Gly 1760	Ala Gly Glu Ala Gln 1765	Gly Val Pro Val Lys 1770
Cys Asp 1775	Thr Ile Ser Gln Ala 1780	Lys Glu Lys Met Leu 1785
Tyr Lys 1790	Gly Val Pro Leu Thr 1795	Gln Arg Pro Asp Pro 1800

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Val	Ile	Leu	Ser	Thr	Ser	Arg	Pro	Val	Pro	Leu	Ala	Val	Lys	Tyr
	1940					1945					1950			
Phe	Phe	Asp	Leu	Leu	Asp	Glu	Gln	Ala	Gln	Gln	His	Gly	Ile	Ser
	1955					1960					1965			
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	1970					1975					1980			
Arg	Phe	Trp	Ile	Asn	Ile	Ile	Lys	Asn	Pro	Gln	Phe	Val	Phe	Asp
	1985					1990					1995			
Val	Gln	Thr	Ser	Asp	Asn	Met	Asp	Ala	Val	Leu	Leu	Val	Ile	Ala
	2000					2005					2010			
Gln	Thr	Phe	Met	Asp	Ala	Cys	Thr	Leu	Ala	Asp	His	Lys	Leu	Gly

2015	2020	2025
Arg Asp Ser Pro Ile Asn Lys 2030 2035	Leu Leu Tyr Ala Arg 2040	Asp Ile Pro
Arg Tyr Lys Arg Met Val Glu 2045 2050	Arg Tyr Tyr Ala Asp 2055	Ile Arg Gln
Thr Val Pro Ala Ser Asp Gln 2060 2065	Glu Met Asn Ser Val 2070	Leu Ala Glu
Leu Ser Trp Asn Tyr Ser Gly 2075 2080	Asp Leu Gly Ala Arg 2085	Val Ala Leu
His Glu Leu Tyr Lys Tyr Ile 2090 2095	Asn Lys Tyr Tyr Asp 2100	Gln Ile Ile
Thr Ala Leu Glu Glu Asp Gly 2105 2110	Thr Ala Gln Lys Met 2115	Gln Leu Gly
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