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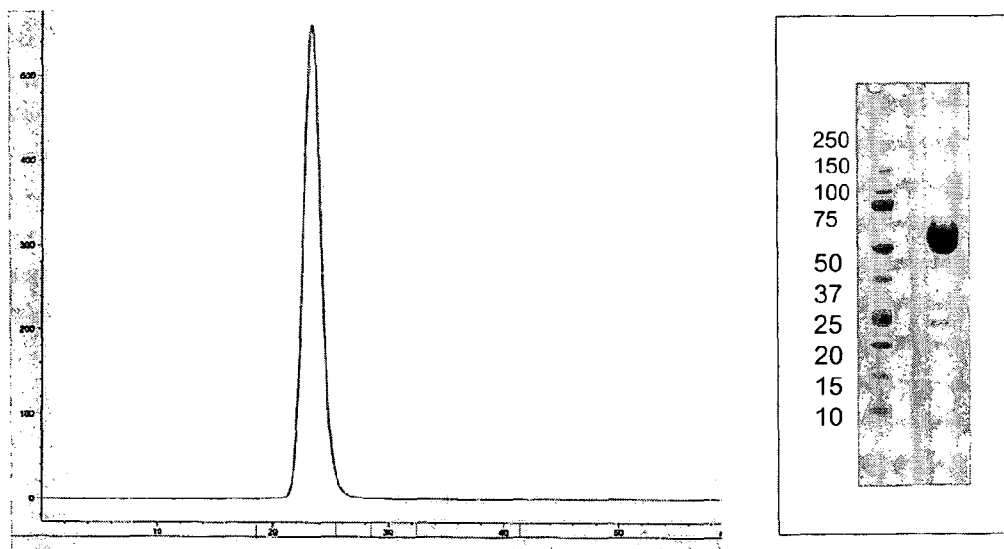


Figure 1

(57) Abstract: In certain aspects, the present invention provides compositions and methods for treating or preventing breast cancer in humans.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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B. FIELDS SEARCHED

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Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, BIOSIS, Sequence Search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P	WO 2007/062188 A (ACCELERON PHARMA INC [US]; KNOPF JOHN [US]; SEEHRA JASBIR [US]) 31 May 2007 (2007-05-31) claims 1-48 sequences 2,3,7 page 45, line 19 - line 23 page 44, line 5 - line 9 page 46, line 28	1,2,4-8
X	WO 2006/012627 A (ACCELERON PHARMA INC [US]; KNOPF JOHN [US]; SEEHRA JASBIR [US]) 2 February 2006 (2006-02-02) Y-document for claims 1-45sequences 1,3,17 claims 41-45,48,49 page 6, line 11 page 34, line 13 - line 19	30
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A document defining the general state of the art which is not considered to be of particular relevance	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2006/068468 A1 (KNOPF JOHN [US] ET AL) 30 March 2006 (2006-03-30) claims 1,8,9 page 16, paragraph 134 page 17, paragraph 135 page 17, paragraph 135 sequences 16,17 Y-document claims 1-45 -----	1,2,5-8, 14
Y	EP 1 174 149 A (KYOWA HAKKO KOGYO KK [JP]) 23 January 2002 (2002-01-23) claims 1-11,25 page 10, paragraph 107 -----	9-11, 16-23, 25, 27-29, 34,35, 37-39
Y	MCPHERSON S J ET AL: "GROWTH INHIBITORY RESPONSE TO ACTIVIN A AND B BY HUMAN PROSTATE TUMOUR CELL LINES LNCAP AND DU145" JOURNAL OF ENDOCRINOLOGY, BRISTOL, GB, vol. 154, 1 January 1997 (1997-01-01), pages 535-545, XP002929639 ISSN: 0022-0795 the whole document -----	9-11, 16-23, 25, 27-29, 34,35, 37-39
Y	GUPTA, V. ET AL: "Transforming growth factor-B superfamily: Evaluation as breast cancer biomarkers and preventive agents" CURRENT CANCER DRUG TARGETS, vol. 4, 2004, pages 165-182, XP009105398 the whole document -----	9-11, 16-23, 25, 27-29, 34,35, 37-39
Y	GAIL P. RIBRINDGER ET AL.: "Activins and inhibins endocrine and other tumors." ENDOCRINE REVIEWS, vol. 22, no. 6, 2001, pages 836-858, XP002494946 the whole document -----	9-11, 16-23, 25, 27-29, 34,35, 37-39
T	R. SCOTT PEARSALL ET AL.: "A soluble activin Type IIA receptor induces bone formation and improved skeletal integrity" PNAS, vol. 105, no. 19, 13 May 2008 (2008-05-13), pages 7082-7087, XP002494788 the whole document -----	1-45

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2008/001429

Patent document cited in search report	A	Publication date	Patent family member(s)	Publication date
WO 2007062188	A	31-05-2007	AU 2006318449 A1	31-05-2007
WO 2006012627	A	02-02-2006	AU 2005266875 A1 CA 2574777 A1 EP 1771470 A2 JP 2008507288 T	02-02-2006 02-02-2006 11-04-2007 13-03-2008
US 2006068468	A1	30-03-2006	NONE	
EP 1174149	A	23-01-2002	AU 777783 B2 AU 3839400 A CA 2365449 A1 WO 0062809 A1	28-10-2004 02-11-2000 26-10-2000 26-10-2000