



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : C12N 15/29, C07K 14/415, C12N 15/63, 5/10, C12Q 1/68	A3	(11) International Publication Number: WO 99/24573 (43) International Publication Date: 20 May 1999 (20.05.99)																																																																																																
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top; padding: 5px;"> (21) International Application Number: PCT/US98/23486 (22) International Filing Date: 4 November 1998 (04.11.98) (30) Priority Data: 60/065,459 12 November 1997 (12.11.97) US (71) Applicant (for all designated States except US): E.I. DU PONT DE NEMOURS AND COMPANY [US/US]; 1007 Market Street, Wilmington, DE 19898 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): ODELL, Joan, T. [US/US]; P.O. Box 826, Unionville, PA 19375 (US). HARDER, Patricia, A. [US/US]; 712 West 34th Street, Wilmington, DE 19802 (US). (74) Agent: MAJARIAN, William, R.; E.I. du Pont de Nemours and Company, Legal Patent Records Center, 1007 Market Street, Wilmington, DE 19898 (US). </td> <td style="width: 50%; vertical-align: top; padding: 5px;"> (81) Designated States: AL, AM, AU, AZ, BA, BB, BG, BR, BY, CA, CN, CU, CZ, EE, GD, GE, HR, HU, ID, IL, IS, JP, KG, KP, KR, KZ, LC, LK, LR, LT, LV, MD, MG, MK, MN, MX, NO, NZ, PL, RO, RU, SG, SI, SK, SL, TJ, TM, TR, TT, UA, US, UZ, VN, YU, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 15 July 1999 (15.07.99) </td> </tr> </table>			(21) International Application Number: PCT/US98/23486 (22) International Filing Date: 4 November 1998 (04.11.98) (30) Priority Data: 60/065,459 12 November 1997 (12.11.97) US (71) Applicant (for all designated States except US): E.I. DU PONT DE NEMOURS AND COMPANY [US/US]; 1007 Market Street, Wilmington, DE 19898 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): ODELL, Joan, T. [US/US]; P.O. Box 826, Unionville, PA 19375 (US). HARDER, Patricia, A. [US/US]; 712 West 34th Street, Wilmington, DE 19802 (US). (74) Agent: MAJARIAN, William, R.; E.I. du Pont de Nemours and Company, Legal Patent Records Center, 1007 Market Street, Wilmington, DE 19898 (US).	(81) Designated States: AL, AM, AU, AZ, BA, BB, BG, BR, BY, CA, CN, CU, CZ, EE, GD, GE, HR, HU, ID, IL, IS, JP, KG, KP, KR, KZ, LC, LK, LR, LT, LV, MD, MG, MK, MN, MX, NO, NZ, PL, RO, RU, SG, SI, SK, SL, TJ, TM, TR, TT, UA, US, UZ, VN, YU, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 15 July 1999 (15.07.99)																																																																																														
(21) International Application Number: PCT/US98/23486 (22) International Filing Date: 4 November 1998 (04.11.98) (30) Priority Data: 60/065,459 12 November 1997 (12.11.97) US (71) Applicant (for all designated States except US): E.I. DU PONT DE NEMOURS AND COMPANY [US/US]; 1007 Market Street, Wilmington, DE 19898 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): ODELL, Joan, T. [US/US]; P.O. Box 826, Unionville, PA 19375 (US). HARDER, Patricia, A. [US/US]; 712 West 34th Street, Wilmington, DE 19802 (US). (74) Agent: MAJARIAN, William, R.; E.I. du Pont de Nemours and Company, Legal Patent Records Center, 1007 Market Street, Wilmington, DE 19898 (US).	(81) Designated States: AL, AM, AU, AZ, BA, BB, BG, BR, BY, CA, CN, CU, CZ, EE, GD, GE, HR, HU, ID, IL, IS, JP, KG, KP, KR, KZ, LC, LK, LR, LT, LV, MD, MG, MK, MN, MX, NO, NZ, PL, RO, RU, SG, SI, SK, SL, TJ, TM, TR, TT, UA, US, UZ, VN, YU, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 15 July 1999 (15.07.99)																																																																																																	
(54) Title: SOYBEAN HOMOLOG OF SEED-SPECIFIC TRANSCRIPTION ACTIVATOR FROM <i>PHASEOLUS VULGARIS</i>																																																																																																		
(57) Abstract This invention relates to isolated nucleic acid fragments encoding all or a substantial portion of a soybean homolog of the <i>Phaseolus vulgaris</i> PvAlf transcription activator. The invention also relates to the construction of chimeric genes encoding all or a portion of a soybean homolog of the <i>Phaseolus vulgaris</i> PvAlf transcription activator, in sense or antisense orientation, wherein expression of the chimeric gene results in production of altered levels of a plant homolog of the <i>Phaseolus vulgaris</i> PvAlf transcription activator in a transformed host cell. The invention also relates to targeting of the soybean homolog of the <i>Phaseolus vulgaris</i> PvAlf transcription activator to a novel promoter region by the addition of either a DNA-binding domain or a protein-protein interaction domain, thus leading to a higher level of gene expression. <table style="width: 100%; border: none;"> <tr> <td style="width: 10%;"></td> <td style="width: 10%; text-align: right;">1</td> <td style="width: 80%;"></td> <td style="width: 10%; text-align: right;">60</td> </tr> <tr> <td>sbs20.PRO</td> <td></td> <td>ME.....DEHTLAVAEEREMWLNSDQDEFLGVNDASMEY</td> <td></td> </tr> <tr> <td>sbs12.PRO</td> <td></td> <td>.....</td> <td></td> </tr> <tr> <td>sb8a.PRO</td> <td></td> <td>ME.....NEHTLAVAEEREMWLNSDQDEFLGVNDASMEY</td> <td></td> </tr> <tr> <td>03d6.PRO</td> <td></td> <td>ME.....DEHTLAVAEEREMWLNSDQDEFLGVNDASMEY</td> <td></td> </tr> <tr> <td>pvalf.PRO</td> <td></td> <td>MECEVKLKGDLHAEGVTETNAVGFDAMEDECTLVAEEREMWLNSDQDEFLGVNEASMEY</td> <td></td> </tr> <tr> <td colspan="4" style="padding-top: 10px;">61</td> </tr> <tr> <td>sbs20.PRO</td> <td></td> <td>ADFFPLDPFCMSSSSSSSSSATPLVKTMTCTT.....TTTSSSSSSSSSWAVLKSDAEE.</td> <td></td> </tr> <tr> <td>sbs12.PRO</td> <td></td> <td>.....</td> <td></td> </tr> <tr> <td>sb8a.PRO</td> <td></td> <td>ADFFPLDPFCMSSSSSSSSSATPLVKTMTCTT.....TTTSSSSSSSSSWAVLKSDAEE.</td> <td></td> </tr> <tr> <td>03d6.PRO</td> <td></td> <td>ADFFPLDPFCMSSSSSSSSSATPLVKTMTCTT.....TTTSSSSSSSSSWAVLKSDAEE.</td> <td></td> </tr> <tr> <td>pvalf.PRO</td> <td></td> <td>ANFFPLDPFCMSSSSSSSSSATPLVKTMTCTT.....TTTSSSSSSSSSWAVLKSDVEEE</td> <td></td> </tr> <tr> <td colspan="4" style="padding-top: 10px;">121</td> </tr> <tr> <td>sbs20.PRO</td> <td></td> <td>DAKKNHCNRYMHDQLDNLCTPSTASMEYPCQONPDPGLGGTVGECMEDVMDTFGYMELLE</td> <td style="text-align: right;">180</td> </tr> <tr> <td>sbs12.PRO</td> <td></td> <td>.....</td> <td></td> </tr> <tr> <td>sb8a.PRO</td> <td></td> <td>DAKKNHCNRYMHDQLDNLCTPSTASMEYPCQONPDPGLGGTVGECMEDVMDTFGYMELLE</td> <td></td> </tr> <tr> <td>03d6.PRO</td> <td></td> <td>DAKKNHCNRYMHDQLDNLCTPSTASMEYPCQONPDPGLGGTVGECMEDVMDTFGYMELLE</td> <td></td> </tr> <tr> <td>pvalf.PRO</td> <td></td> <td>DVERNNHNGSMQDQFDALSSASMEYPCQONPDPGLGGTVGECMEDVMDTFGYMELLE</td> <td></td> </tr> <tr> <td colspan="4" style="padding-top: 10px;">181</td> </tr> <tr> <td>sbs20.PRO</td> <td></td> <td>ANDEFDPASIFQNEENENPLEEGTKEERAVFHEZQHAMVHQQKQAEEDHQVPCCEI</td> <td style="text-align: right;">240</td> </tr> <tr> <td>sbs12.PRO</td> <td></td> <td>.....</td> <td></td> </tr> <tr> <td>sb8a.PRO</td> <td></td> <td>ANDEFDPASIFQNEENENPLEEGTKEERAVFHEZQHAMVHQQKQAEEDHQVPCCEI</td> <td></td> </tr> <tr> <td>03d6.PRO</td> <td></td> <td>ANDEFDPASIFQNEENENPLEEGTKEERAVFHEZQHAMVHQQKQAEEDHQVPCCEI</td> <td></td> </tr> <tr> <td>pvalf.PRO</td> <td></td> <td>ANDEFDPASIFQNEENENPLEEGTKEERAVFHEZQHAMVHQQKQAEEDHQVPCCEI</td> <td></td> </tr> </table>				1		60	sbs20.PRO		ME.....DEHTLAVAEEREMWLNSDQDEFLGVNDASMEY		sbs12.PRO				sb8a.PRO		ME.....NEHTLAVAEEREMWLNSDQDEFLGVNDASMEY		03d6.PRO		ME.....DEHTLAVAEEREMWLNSDQDEFLGVNDASMEY		pvalf.PRO		MECEVKLKGDLHAEGVTETNAVGFDAMEDECTLVAEEREMWLNSDQDEFLGVNEASMEY		61				sbs20.PRO		ADFFPLDPFCMSSSSSSSSSATPLVKTMTCTT.....TTTSSSSSSSSSWAVLKSDAEE.		sbs12.PRO				sb8a.PRO		ADFFPLDPFCMSSSSSSSSSATPLVKTMTCTT.....TTTSSSSSSSSSWAVLKSDAEE.		03d6.PRO		ADFFPLDPFCMSSSSSSSSSATPLVKTMTCTT.....TTTSSSSSSSSSWAVLKSDAEE.		pvalf.PRO		ANFFPLDPFCMSSSSSSSSSATPLVKTMTCTT.....TTTSSSSSSSSSWAVLKSDVEEE		121				sbs20.PRO		DAKKNHCNRYMHDQLDNLCTPSTASMEYPCQONPDPGLGGTVGECMEDVMDTFGYMELLE	180	sbs12.PRO				sb8a.PRO		DAKKNHCNRYMHDQLDNLCTPSTASMEYPCQONPDPGLGGTVGECMEDVMDTFGYMELLE		03d6.PRO		DAKKNHCNRYMHDQLDNLCTPSTASMEYPCQONPDPGLGGTVGECMEDVMDTFGYMELLE		pvalf.PRO		DVERNNHNGSMQDQFDALSSASMEYPCQONPDPGLGGTVGECMEDVMDTFGYMELLE		181				sbs20.PRO		ANDEFDPASIFQNEENENPLEEGTKEERAVFHEZQHAMVHQQKQAEEDHQVPCCEI	240	sbs12.PRO				sb8a.PRO		ANDEFDPASIFQNEENENPLEEGTKEERAVFHEZQHAMVHQQKQAEEDHQVPCCEI		03d6.PRO		ANDEFDPASIFQNEENENPLEEGTKEERAVFHEZQHAMVHQQKQAEEDHQVPCCEI		pvalf.PRO		ANDEFDPASIFQNEENENPLEEGTKEERAVFHEZQHAMVHQQKQAEEDHQVPCCEI	
	1		60																																																																																															
sbs20.PRO		ME.....DEHTLAVAEEREMWLNSDQDEFLGVNDASMEY																																																																																																
sbs12.PRO																																																																																																		
sb8a.PRO		ME.....NEHTLAVAEEREMWLNSDQDEFLGVNDASMEY																																																																																																
03d6.PRO		ME.....DEHTLAVAEEREMWLNSDQDEFLGVNDASMEY																																																																																																
pvalf.PRO		MECEVKLKGDLHAEGVTETNAVGFDAMEDECTLVAEEREMWLNSDQDEFLGVNEASMEY																																																																																																
61																																																																																																		
sbs20.PRO		ADFFPLDPFCMSSSSSSSSSATPLVKTMTCTT.....TTTSSSSSSSSSWAVLKSDAEE.																																																																																																
sbs12.PRO																																																																																																		
sb8a.PRO		ADFFPLDPFCMSSSSSSSSSATPLVKTMTCTT.....TTTSSSSSSSSSWAVLKSDAEE.																																																																																																
03d6.PRO		ADFFPLDPFCMSSSSSSSSSATPLVKTMTCTT.....TTTSSSSSSSSSWAVLKSDAEE.																																																																																																
pvalf.PRO		ANFFPLDPFCMSSSSSSSSSATPLVKTMTCTT.....TTTSSSSSSSSSWAVLKSDVEEE																																																																																																
121																																																																																																		
sbs20.PRO		DAKKNHCNRYMHDQLDNLCTPSTASMEYPCQONPDPGLGGTVGECMEDVMDTFGYMELLE	180																																																																																															
sbs12.PRO																																																																																																		
sb8a.PRO		DAKKNHCNRYMHDQLDNLCTPSTASMEYPCQONPDPGLGGTVGECMEDVMDTFGYMELLE																																																																																																
03d6.PRO		DAKKNHCNRYMHDQLDNLCTPSTASMEYPCQONPDPGLGGTVGECMEDVMDTFGYMELLE																																																																																																
pvalf.PRO		DVERNNHNGSMQDQFDALSSASMEYPCQONPDPGLGGTVGECMEDVMDTFGYMELLE																																																																																																
181																																																																																																		
sbs20.PRO		ANDEFDPASIFQNEENENPLEEGTKEERAVFHEZQHAMVHQQKQAEEDHQVPCCEI	240																																																																																															
sbs12.PRO																																																																																																		
sb8a.PRO		ANDEFDPASIFQNEENENPLEEGTKEERAVFHEZQHAMVHQQKQAEEDHQVPCCEI																																																																																																
03d6.PRO		ANDEFDPASIFQNEENENPLEEGTKEERAVFHEZQHAMVHQQKQAEEDHQVPCCEI																																																																																																
pvalf.PRO		ANDEFDPASIFQNEENENPLEEGTKEERAVFHEZQHAMVHQQKQAEEDHQVPCCEI																																																																																																

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakhstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 98/23486

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 C12N15/29 C07K14/415 C12N15/63 C12N5/10 C12Q1/68

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	BOBB A J ET AL: "PVALF, AN EMBRYO-SPECIFIC ACIDIC TRANSCRIPTIONAL ACTIVATOR ENHANCES GENE EXPRESSION FROM PHASEOLIN AND PHYTOHEMAGGLUTININ PROMOTERS" PLANT JOURNAL, vol. 8, no. 3, September 1995, pages 331-343, XP002063683 see abstract; figure 1 see page 332	1-10
X	-& BOBB ET AL.: "PVALF, AN EMBRYO-SPECIFIC ACIDIC TRANSCRIPTIONAL ACTIVATOR ENHANCES GENE EXPRESSION FROM PHASEOLIN AND PHYTOHEMAGGLUTININ PROMOTERS" EMBL SEQUENCE DATABASE, 10 November 1995, XP002101501 Ac U28645 see the whole document -/--	1,2,5



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "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
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

30 April 1999

Date of mailing of the international search report

17/05/1999

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Ceder, O

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 98/23486

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 571 741 A (SUMITOMO CHEMICAL CO) 1 December 1993 see page 2, line 1 - line 24	3,4,6
A	GB 2 307 477 A (CANCER RES CAMPAIGN TECH ;UNIV DUKE (US)) 28 May 1997 see page 3, line 9 - line 21	7,8

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 98/23486

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0571741 A	01-12-1993	CA 2092069 A JP 6189777 A	28-09-1993 12-07-1994
GB 2307477 A	28-05-1997	AU 7635096 A CA 2238010 A EP 0858467 A WO 9719110 A	11-06-1997 29-05-1997 19-08-1998 29-05-1997