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(62) Document number(s) of the earlier application(s) in
accordance with Art. 76 EPC:
00927035.6 / 1 177 289

(54) **Recombinant platelet collagen receptor glycoprotein VI and its pharmaceutical use**

(57) The invention relates to Glycoprotein VI (GPVI), its isolation, purification, and methods for recombinant production. Especially, the invention relates to the use of GPVI, preferably recombinant GPVI, in the treatment of disorders and pathological events correlated directly or indirectly to blood coagulation disorders such as

thrombotic and cardiovascular diseases. The extracellular recombinant protein can also be used for establishing screening assays to find potential inhibitors of the membrane bound GPVI in order to inhibit binding of thrombocytes and platelets, respectively, to collagen.

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	ISHIBASHI T ET AL: "Functional significance of platelet membrane glycoprotein p62 (GP VI), a putative collagen receptor." INTERNATIONAL JOURNAL OF HEMATOLOGY AUG 1995, vol. 62, no. 2, August 1995 (1995-08), pages 107-115, XP008092080 ISSN: 0925-5710	1,2,11	INV. C12N15/12 C07K14/705 A61K38/17 G01N33/68
Y	* abstract * * page 112 *	3,4	
X	----- KNIGHT C GRAHAM ET AL: "Collagen-platelet interaction: Gly-Pro-Hyp is uniquely specific for platelet Gp VI and mediates platelet activation by collagen" CARDIOVASCULAR RESEARCH, XX, XX, vol. 41, no. 2, 1 February 1999 (1999-02-01), pages 450-457, XP002425787 ISSN: 0008-6363 * abstract *	1,2,8,11	TECHNICAL FIELDS SEARCHED (IPC)
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 28 August 2008	Examiner Gurdjian, Didier
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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EPO FORM 1503 03.82 (P04C01)



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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Y	* abstract *	3,4	
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 28 August 2008	Examiner Gurdjian, Didier
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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EPO FORM 1503 03/82 (F04C01)



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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-The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 28 August 2008	Examiner Gurdjian, Didier
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EPO FORM 1503 03.82 (P04C01)



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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P,X	MIURA Y ET AL: "Cloning and expression of the platelet-specific collagen receptor glycoprotein VI." THROMBOSIS RESEARCH 15 MAY 2000, vol. 98, no. 4, 15 May 2000 (2000-05-15), pages 301-309, XP002481737 ISSN: 0049-3848 * the whole document *	1-4,11	
P,X	JANDROT-PERRUS M ET AL: "Cloning, characterization, and functional studies of human and mouse glycoprotein VI: A platelet-specific collagen receptor from the immunoglobulin superfamily" BLOOD, W.B.SAUNDERS COMPANY, ORLANDO, FL, vol. 96, no. 5, 1 September 2000 (2000-09-01), pages 1798-1807, XP002259594 ISSN: 0006-4971 * the whole document *	1-4,11	
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 28 August 2008	Examiner Gurdjian, Didier
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EPO FORM 1503 03.02 (P04C01)



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
P,X	<p>CHIANG THOMAS M ET AL: "The signal transduction pathway of the nonintegrin receptor of 65 kDa is different from glycoprotein VI." ARCHIVES OF BIOCHEMISTRY AND BIOPHYSICS 1 NOV 2002, vol. 407, no. 1, 1 November 2002 (2002-11-01), pages 10-14, XP002481738 ISSN: 0003-9861 * the whole document *</p> <p style="text-align: center;">-----</p>	1-4,11	
			TECHNICAL FIELDS SEARCHED (IPC)

The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 28 August 2008	Examiner Gurdjian, Didier
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p>		<p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>	

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EPO FORM 1503 03.82 (P04C01)

**CLAIMS INCURRING FEES**

The present European patent application comprised at the time of filing claims for which payment was due.

- Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):
- No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
1-9, 11
- None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:
- The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-4,11

DNA coding for Glycoprotein VI or biological active fragments or fragments thereof .

2. claims: 5-7,9

Pharmaceutical composition comprising Glycoprotein VI and use of recombinant GPVI for the manufacture of a medicament

3. claim: 8

Use of recombinant GPVI in a screening tool for detecting specific inhibitors of platelet- collagen interactions.

4. claim: 10

Fragment of a recombinant glycoprotein VI comprising a glycosylation site of glycoprotein VI.

5. claim: 12

Recombinant Glycoprotein VI exhibiting the biological activity characterized by variations of the amino acid sequence.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 08 00 4264

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

28-08-2008

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

专利名称(译)	重组血小板胶原受体糖蛋白VI及其药物用途		
公开(公告)号	EP1942186A3	公开(公告)日	2008-10-08
申请号	EP2008004264	申请日	2000-04-25
[标]申请(专利权)人(译)	赛诺菲-安万特德国有限公司		
申请(专利权)人(译)	SANOFI-AVENTIS DEUTSCHLAND GMBH		
当前申请(专利权)人(译)	SANOFI-AVENTIS DEUTSCHLAND GMBH		
[标]发明人	CLEMENTSON KENNETH J		
发明人	CLEMENTSON, KENNETH J.		
IPC分类号	C12N15/12 C07K14/705 A61K38/17 G01N33/68 G01N33/50 A61K38/00 A61P7/02 A61P9/10 C07K14/755 C12N15/09 G01N15/00 G01N33/15 G01N33/53 G01N33/86		
CPC分类号	A61K38/00 A61P7/02 A61P9/08 A61P9/10 C07K14/70503 C07K14/755 C07K16/2803 C07K2317/54 C07K2317/55 G01N33/86 G01N2015/0084 G01N2333/4728 G01N2333/78 G01N2500/02 G01N2800/222 C07K14/745 C07K16/28 C07K2317/20 C07K2317/76		
优先权	1999109094 1999-05-07 EP		
其他公开文献	EP1942186A2 EP1942186B1		
外部链接	Espacenet		

摘要(译)

本发明涉及糖蛋白VI (GPVI)，其分离，纯化和重组生产方法。特别地，本发明涉及GPVI，优选重组GPVI在治疗直接或间接与凝血障碍如血栓形成和心血管疾病相关的病症和病理事件中的用途。细胞外重组蛋白也可用于建立筛选试验。寻找膜结合GPVI的潜在抑制剂，以分别抑制血小板和血小板与胶原蛋白的结合。

DOCUMENTS CONSIDERED TO BE RELEVANT		Relevant to class	CLASSIFICATION OF THE APPLICATION (IPC)
X	ISHIBASHI T ET AL: "Functional significance of platelet membrane glycoprotein p62 (GP VI), a putative collagen receptor." INTERNATIONAL JOURNAL OF HEMATOLOGY AUG 1995, vol. 62, no. 2, August 1995 (1995-08), pages 107-115. XP008092080 ISSN: 0925-5710 = abstract = = page 112 =	1.2.11	INV C12N15/12 C07K14/705 A61K38/17 G01N33/68
Y	KNIGHT C GRAHAM ET AL: "Collagen-platelet interactions: Gly-Pro-Hyp is uniquely specific for platelet GP VI and mediates platelet activation by collagen." CARDIOVASCULAR RESEARCH, XX, XX, vol. 41, no. 2, February 1999 (1999-02-01), pages 480-487. XP00425787 ISSN: 0008-6363 = abstract =	3.4	1.2.8.11
X	CHANG T H ET AL: "Cloning, characterization, and functional studies of a nonintegrin platelet receptor for type I collagen." THE JOURNAL OF CLINICAL INVESTIGATION 1 AUG 1997, vol. 100, no. 3, 2 AUGUST 1997 (1997-08-01), pages 514-521. XP009481736 ISSN: 0021-9738 = abstract =	1.2.11	TECHNICAL FIELDS SEARCHED (IPC) C12N C07K
-The present search report has been drawn up for all claims-			
The Hague		28 August 2008	Gurdjian, Didier
CATEGORY OF CITED DOCUMENTS X particularly relevant if claim alone Y particularly pertinent if considered with another document of the same category Z non-written document ! non-written document * member of the same patent family, corresponding document			