Patent protection and intellectual property: focus on the biomedical and biotech inventions

Cristina Freyria Fava
Buzzi, Notaro & Antonielli d’Oulx
Intellectual property and its forms of protection

- Invention patent
- Utility Model
- Design
- Trademark
- Industrial secret
- Copyright
The Patent

The patent protects an invention which is considered a technical solution to a technical problem.
A patent is an **exclusive right** granted by the law of a State to the inventor/applicant, right that allows the commercial exploitation of the invention for a limited period of time within the territory of the State; such a right **exhausts** with the first legitimate selling of the patented product.
The Patent

A patent is a **negative right** granted by the law of a State to the applicant of the patent, that allows the applicant **to stop third parties** from performing/commercially exploiting the invention for a limited period of time within the territory of the State.
The laws

- Paris Convention – 1883
- Patent Cooperation Treaty (PCT) – 1970
In the pharmaceutical field

- Council Regulation (EEC) N. 1768/92 (human and veterinary drugs)
- Council Regulation (EEC) N. 1610/96 (plant protection products)

In the biotechnological field

- European Directive 98/44 CE
- Budapest Treaty
Patentability requirements

An invention to be patentable must be:

- **new** (not disclosed in the prior art),
- **inventive** (for a person skilled in the art the invention must not be derived in an obvious way for the prior art),
- **industrially applicable**
- **sufficiently disclosed**
What **cannot** be patented

Art. 52 EPC

(a) discoveries, scientific theories and mathematical methods;

(b) aesthetic creations;

(c) schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers;

(d) presentations of information.
Exceptions to patentability

Art. 53 EPC

(a) inventions the commercial exploitation of which would be contrary to "ordre public" or morality; ....

(b) **plant or animal varieties** or essentially biological processes for the production of plants or animals; this provision shall not apply to microbiological processes or the products thereof;

(c) **methods for treatment of the human or animal body by surgery or therapy and diagnostic methods practised on the human or animal body**; this provision shall not apply to products, in particular substances or compositions, for use in any of these methods.
The prior art – Art. 54 EPC

(2) The state of the art shall be held to comprise everything made available to the public by means of a written or oral description, by use, or in any other way, before the date of filing of the European patent application.

(3) Additionally, the content of European patent applications as filed, the dates of filing of which are prior to the date referred to in paragraph 2 and which were published on or after that date, shall be considered as comprised in the state of the art.
Patentable biotechnological inventions – R. 27

Biotechnological inventions shall be patentable if they concern:
(a) biological material which is isolated from its natural environment or produced by means of a technical process even if it previously occurred in nature;
(b) plants or animals if the technical feasibility of the invention is not confined to a particular plant or animal variety;
(c) a microbiological or other technical process, or a product obtained by means of such a process other than a plant or animal variety.
Exceptions to patentability – R. 28

Under Article 53(a), European patents shall not be granted in respect of biotechnological inventions which, in particular, concern the following:
(a) processes for cloning human beings;
(b) processes for modifying the germ line genetic identity of human beings;
(c) uses of human embryos for industrial or commercial purposes;
(d) processes for modifying the genetic identity of animals which are likely to cause them suffering without any substantial medical benefit to man or animal, and also animals resulting from such processes.
The human body and its elements – R. 29

(1) The human body, at the various stages of its formation and development, and the simple discovery of one of its elements, including the sequence or partial sequence of a gene, cannot constitute patentable inventions.

(2) An element isolated from the human body or otherwise produced by means of a technical process, including the sequence or partial sequence of a gene, may constitute a patentable invention, even if the structure of that element is identical to that of a natural element.

(3) The industrial application of a sequence or a partial sequence of a gene must be disclosed in the patent application.
Requirements relating to nucleotide and amino acid sequences – R. 30

(1) If nucleotide or amino acid sequences are disclosed in the European patent application, the description shall contain a sequence listing conforming to the rules laid down by the President of the European Patent Office for the standardised representation of nucleotide and amino acid sequences.

(2) A sequence listing filed after the date of filing shall not form part of the description.
1) If an invention involves the use of or concerns biological material which is not available to the public and which cannot be described in the European patent application in such a manner as to enable the invention to be carried out by a person skilled in the art, the invention shall only be regarded as being disclosed as prescribed in Article 83 if:
Deposit of biological material – R.31

(a) a sample of the biological material has been deposited with a recognised depositary institution on the same terms as those laid down in the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure of 28 April 1977 not later than the date of filing of the application;

(b) the application as filed gives such relevant information as is available to the applicant on the characteristics of the biological material;

(c) the depositary institution and the accession number of the deposited biological material are stated in the application,
Availability of biological material - R. 33

(1) Biological material deposited in accordance with R. 31 shall be available upon request to any person from the date of publication of the European patent application and to any person having the right to inspect the files under Art. 128(2), prior to that date. Subject to R. 32, such availability shall be effected by the issue of a sample of the biological material to the person making the request (hereinafter referred to as "the requester").

(2) Said issue shall be made only if the requester has undertaken ….. to use that material for experimental purposes only, until such time as the patent application is refused or withdrawn …
(4) Paragraphs 2 and 3 shall not exclude the patentability of any substance or composition, comprised in the state of the art, for use in a method referred to in Article 53(c), provided that its use for any such method is not comprised in the state of the art.
Inventive Step – Art. 56 EPC

An invention shall be considered as involving an inventive step if, having regard to the state of the art, it is **not obvious to a person skilled in the art**. If the state of the art also includes documents within the meaning of **Article 54, paragraph 3**, these documents shall not be considered in deciding whether there has been an inventive step.
The person skilled in the art

The person skilled in the art should be presumed to be an ordinary practitioner aware of what was common general knowledge in the art at the relevant date (average skilled person). He should also be presumed to have had access to everything in the state of the art, in particular the documents cited in the search report, and to have had at his disposal the normal means and capacity for routine work and experimentation. The skilled person will be an expert in a technical field.

(Case Law of the Boards of Appeal – 2006)
The structure of a patent

- Title
- Abstract
- Description
  - Introduction to the technical field
  - Discussion of the prior art and the related disadvantages
  - Detailed description of the invention
  - Biological material deposit
- Claims
  
  they define the field of protection conferred by the patent
European Patent

First filing

Publication

Extension
• Europe
• USA

Examination

Grant

Opposition

Appeal

Final Decision

The (European) patent expires after 20 years from its filing date
PCT application

PCT extension
Possibility to designate more than 130 countries

National phase entry:
- EP
- US
- JP
- CN
Nullity of a patent – Art. 99 EPC

- Lack of novelty, inventive step, industrial applicability
- Insufficiency of disclosure
- The subject-matter extends beyond the content of the application as filed
- Invention belongs to a category excluded from patentability
Right to a European patent – Art. 60 EPC

(1) The right to a European patent shall belong to the inventor or his successor in title. If the inventor is an employee, the right to a European patent shall be determined in accordance with the law of the State in which the employee is mainly employed; …

(2) If two or more persons have made an invention independently of each other, the right to a European patent therefor shall belong to the person whose European patent application has the earliest date of filing, provided that this first application has been published.
Moral Right – Art. 62 CPI

(1) The right to be mentioned as the author of the invention can be enforced by the inventor, …

Patrimonial Rights – Art. 62 CPI

(1) Rights deriving from industrial inventions, except for the right to be recognized as the inventor, are alienable and transferable.
(2) The right to a patent belongs to the inventor and to his successors
Extent of protection – Art. 69 EPC

(1) The extent of the protection conferred by a European patent or a European patent application shall be determined by the claims. Nevertheless, the description and drawings shall be used to interpret the claims.

(2) For the period up to grant of the European patent, the extent of the protection conferred by the European patent application shall be determined by the claims contained in the application as published. However, the European patent as granted or as amended in opposition, limitation or revocation proceedings shall determine retroactively the protection conferred by the application, in so far as such protection is not thereby extended.
Unity of invention – Art. 82 EPC

The European patent application shall relate to one invention only or to a group of inventions so linked as to form a single general inventive concept.
Disclosure of the invention – Art. 83 EPC

The European patent application shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.
Claims – Art. 84 EPC

The claims shall define the matter for which protection is sought. They shall be clear and concise and be supported by the description.
Priority right – Art. 87 EPC

(1) Any person who has duly filed, in or for

(a) any State party to the Paris Convention for the Protection of Industrial Property or

(b) any Member of the World Trade Organization, an application for a patent, a utility model or a utility certificate, or his successor in title, shall enjoy, for the purpose of filing a European patent application in respect of the same invention, a right of priority during a period of twelve months from the date of filing of the first application.

........
Effect of priority right – Art. 89 EPC

The right of priority shall have the effect that the date of priority shall count as the date of filing of the European patent application for the purposes of Article 54, paragraphs 2 and 3, and Article 60, paragraph 2.
Case studies
**EUROPEAN PATENT SPECIFICATION**

<table>
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<th>Date of publication and mention of the grant of the patent:</th>
<th>03.12.2008 Bulletin 2008/49</th>
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<tr>
<td>Application number:</td>
<td>02808278.2</td>
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<td>19.12.2002</td>
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**MELUSIN, A MUSCLE SPECIFIC PROTEIN, AS A DRUG TARGET FOR PREVENTION AND TREATMENT OF HEART FAILURE, AND APPLICATIONS THEREOF**

**MELUSIN, EIN MUSKELSPEZIFISCHES PROTEIN, ALS ZIELMOLEKÜL FÜR WIRKSTOFFE ZUR VORBEUGUNG UND BEHANDLUNG VON HERZINSUFFIZIENZ, UND VERWENDUNGEN DAVON**

**MELUSINE, UNE PROTEINE SPECIFIQUE DU MUSCLE, COMME MEDICAMENT CIBLE POUR PREVENIR ET TRAITER L’INSUFFISANCE CARDIAQUE, ET SES USAGES**

<table>
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<tr>
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<th>AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LU MC NL PT SE SI SK TR</th>
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<tr>
<td>Date of publication of application:</td>
<td>21.09.2005 Bulletin 2005/38</td>
</tr>
<tr>
<td>Proprietor:</td>
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<td>Inventors:</td>
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<td>Representative:</td>
<td>Freyria Fava, Cristina Buzzi, Notaro &amp; Antonielli d’Oulx Srl Via Maria Vittoria, 18 10123 Torino (IT)</td>
</tr>
</tbody>
</table>

**References cited:**

- BRANCACCIO M. ET AL.: "Melusin, a muscle-specific integrin beta1-interacting protein, is
Claims

1. A non-human transgenic laboratory mammal susceptible to develop heart failure under hypertensive conditions, wherein the melusin gene expression is reduced or inactivated.

6. A non-human transgenic mammal in which heart failure under hypertensive conditions is prevented or improved, characterized in that a melusin transgene is expressed or over-expressed.

18. A cell derivable from a transgenic mammal according to any one of claims 1 to 5 or 7, characterized in that the melusin expression is reduced or inactivated.

20. Use of a transgenic mammal according to any of the claims 1 to 17 or of a cell according to any of the claims 18 or 19 for the selection of compounds pharmacologically active in the prevention and/or treatment of heart failure.

21. Use of a transgenic mammal according to any of claims 1 to 17 as a model for the study of heart pathologies selected from the group consisting of: heart failure, congestive heart failure, dilated cardiomyopathy, hypertensive cardiomyopathy, hypertrophic cardiomyopathy, heart infarct.

22. Method for the preparation of a transgenic mammal according to claim 1 comprising essentially the steps of:

   i) preparing a transgenic parent animal carrying an inactivated melusin allele;
   ii) breeding the parent transgenic mammal with a non transgenic mammal;
   iii) selecting transgenic mammals heterozygote for the melusin gene mutation.
24. Method for screening compounds able to interact with melusin, said compounds being melusin agonists and pharmacologically active in the prevention and/or treatment of heart failure, wherein said method comprises using melusin, fragments and/or derivatives thereof.

25. Use of melusin, fragments and/or derivatives thereof for the manufacture of a medicament for the prevention and/or treatment of heart failure.

26. Use of melusin, fragments and/or derivatives thereof for the screening of compounds pharmacologically active for the prevention and/or treatment of heart failure.

28. Use of a DNA vector for the manufacture of a medicament for use in the prevention and/or treatment of heart failure, said vector comprising a transgene coding for the melusin protein or fragments thereof and expressing said transgene in the myocardium.

31. Pharmaceutical compositions comprising melusin, fragments and/or derivatives thereof for the prevention and/or treatment of heart failure.
(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
17 November 2005 (17.11.2005)

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WO 2005/108424 A1

(51) International Patent Classification: C07K 14/475,
G06F 19/00, 17/50, C07K 14/71, C12N 15/12

(21) International Application Number:
PCT/US2005/016025

(22) International Filing Date:
6 May 2005 (06.05.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/568,865 6 May 2004 (06.05.2004) US


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(54) Title: CRYSTAL STRUCTURE OF THE COMPLEX OF HEPATOCYTE GROWTH FACTOR BETA CHAIN WITH MET RECEPTOR AND METHODS OF USE

(57) Abstract: The disclosure provides a crystal structure of a complex of the HGF β-chain with an extracellular fragment of the Met receptor, as well as use of the crystal structure in the design, identification, and selection of ligands that modulate the Met Receptor and the interaction of HGF with the Met receptor.
6. **Methods for Identification of Modulators of HGF β:Met**

Potent and selective ligands that modulate activity (antagonists and agonists) are identified using the three-dimensional model of the Met binding site for HGF β and/or other structural features produced using the coordinates of a cocrystal of HGF β with Met or a fragment thereof, such as provided in Table 2. Using this model, ligands that interact with the Met binding site for HGF β are identified, and the result of the interactions is modeled. In some embodiments, agents identified as candidate molecules for modulating the activity of HGF, Met and/or HGF β:Met can be screened against known bioassays. For example, the ability of an agent to inhibit the anti-apoptotic effects of Met can be measured using assays known in the art, or for example, the assays disclosed in the Examples. Using the modeling information and the assays described, one can identify agents that possess HGF, Met and/or HGF β:Met -modulating properties.
1. A crystal of HGF β complexed with Met comprising a human hepatocyte growth factor beta chain comprising an amino acid sequence of SEQ ID NO:1 or conservative substitutions thereof complexed with an extracellular fragment of a Met Receptor comprising an amino acid sequence of SEQ ID NO:3 or conservative substitutions thereof.

13. A machine-readable data storage medium comprising a data storage material encoded with machine-readable data, wherein a machine programmed with instructions for using such data displays a graphical three-dimensional representation of at least one molecule or molecular complex comprising at least a portion of a Met binding site for HGF β, the binding site defined by a set of points having a root mean square deviation of less than about 0.05 Å from points representing the atoms of the amino acids as represented by the structure coordinates listed in Table 2.

17. A method for identifying an agent that modulates Met activity comprising:
   (a) providing a computer modeling application with a set of structure coordinates of a crystal of claim 5 defining at least a portion of a Met binding site for HGF β and/or a HGF β binding site for Met;
   (b) providing the computer modeling application with a set of structure coordinates for a test agent; and
   (c) modeling the structure of (a) complexed with (b) to determine if the test agent associates to the Met binding site for HGF β and/or the HGF β binding site for Met.
24. A method of assessing agents that are antagonists or agonists of HGF and/or Met comprising:
applying at least a portion of the crystallography coordinates of a crystal of claim 5 to a computer algorithm that generates a 3 dimensional model of HGF β:Met or of the Met binding site for HGF β suitable for designing molecules that are antagonists or agonists; and searching a molecular structure database to identify potential antagonists or agonists of Met or HGF β:Met.

28. A method for evaluating the ability of a chemical agent to associate with a molecule or molecular complex comprising a binding site of Met for HGF β of a polypeptide comprising an amino acid sequence of SEQ ID NO:3 or conservative substitution thereof, comprising at least one amino acid residue corresponding to residues 124 to 128, 148, 167, 190 to 192, 218, 220 to 224, 229, 230, 286 or 414 or mixtures thereof said method comprising employing computational means to perform a fitting operation between the chemical agent and the binding site defined by the amino acids; and analyzing the results of the fitting operation and selecting those chemical agents that fit into the binding site as defined by favorable polar, nonpolar, electrostatic, shape complementarity or combination thereof after conformational adjustment to the binding site.
Reference is made to the following documents:


Novelty

The whole document D1 discloses the crystal structure by X-ray diffraction of HGF-beta chain in complex with the SEMA domain of the Met-Receptor and gives the atomic coordinates of the complex. Exactly the same domains of each protein as represented by sequences ID 1 and 3 have been chosen in D1 to make this crystal. Therefore the crystal of D1 must have the same characteristics as the one claimed in the present application. In view of D1 the subject-matter of claims 1-8,15-16 and 29 is not new in the sense of article 33(1) and (2) PCT. The method disclosed in claims 17-28 is new
Inventive step

The document D1 is regarded as being the closest prior art to the subject-matter of claims 17-28. D1 Discloses the same crystal of the complex HGF-beta: Met Receptor SEMA domain. The problem to be solved is the provision of a method to design, identify and assess agents or antagonists or agonists that bind to the Met binding site for HGF-beta. The solution is the use of the crystallographic data of the crystal complex HGF-beta: SEMA domain of the Met-receptor to identify and design said agents. Since the crystal of the same complex is known in the prior art (D1) and since D2 (claims 53-70) discloses a method using the crystal and the atomic coordinates of the HGF-Receptor Kinase domain to identify and design agents capable of binding and inhibiting the receptor, the person skilled in the art would therefore find it obvious to use the crystal data of D1 to identify and design antagonists or agonists of the HGF-beta and/or of the Met-Receptor.

Consequently, the subject-matter of claims 17-28 does not involve an inventive step in the sense of article 33(1)(3) PCT.
EUROPEAN PATENT SPECIFICATION

Date of publication and mention of the grant of the patent: 14.01.2009 Bulletin 2009/03

Application number: 05004289.4

Date of filing: 28.02.2005

Cardiac-valve prosthesis
Herzklappenprothese
Prothèse de valvule cardiaque

Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR

Priority: 03.03.2004 IT TO20040135

Date of publication of application: 07.09.2005 Bulletin 2005/36

Int Cl.: A61F 2/24 (2006.01)

Representative: Bosotti, Luciano c/o Buzzi, Notaro & Antonielli d'Oulx Srl, Via Maria Vittoria, 18 10123 Torino (IT)
Claims

1. A cardiac-valve prosthesis, comprising:

   - an armature (2) adapted for deployment in an expanded implantation position, and
   - a set of leaflets (3) coupled to said armature (2) for deployment therewith in said expanded position; said set of leaflets (3) being able to define, in said expanded position, a flow duct for the blood selectively obstructable by said set of prosthetic valve leaflets (30) as a result of the reversal of the direction of flow of said blood flow,

wherein said armature (2) comprises:

   - an external portion (5), adapted for deployment to enable the anchorage of the cardiac-valve prosthesis at the implantation site; and
   - an internal portion (6), which supports said prosthetic valve leaflets (30); said external portion (5) and said internal portion (6) being substantially axially coextensive with respect to one another.

characterized in that said external portion (5) of said armature (2) has a set of ribs (5) which, in said expanded position, are able to cooperate in a shape fit relationships, with the implantation site, wherein said ribs (5) in said external portion of said armature have terminal ends connected to coller parts (52).
The value of the patent information

How to search and get information from the national Patent Offices
Value of the patent information

- Most of technical information will neither be published elsewhere, nor in a such detailed manner
- Possibility to know the activity of your competitors

**Search before researching**
- Avoid to “re-invent” solutions already developed
- Avoid to fall in third parties patents
The patent databases

- Professional databases
  Limited access, by payment
- Free Databases available “ON-LINE”
  - esp@cenet
  - epoline
  - USPTO
  - JPO
The patent databases

1. www.epo.org
2. www.ep.espacenet.com
3. www.uspto.gov
4. www.uibm.gov.it
The grant procedure

Information on how to protect your invention by applying for a patent under national patent laws, the European Patent Convention and the Patent Co-operation Treaty.

About patents

Find out which inventions are patentable under the European Patent Convention.

Filing an application

The different routes you can take to patent an invention are the European, the international and the national route. The EPO handles patent applications for the contracting states to the European Patent Convention (EPC) and certain extension states, and also international applications under the Patent Co-operation Treaty (PCT).

European applications
International applications
National application

Forms

European applications
International applications

Fees, expenses and prices

EPO Online Services

Electronic communication and transaction during the patent granting procedure.

Latest updates

8.1.2008
Warning: Beware of approaches and requests for payment from firms purporting to register European patents.

8.1.2008
K2E-PAT (Korean to English Automatic Machine Translation) service available via the EPO.

27.12.2007
Official Journal: Index 2007 is now available online.

24.12.2007
The boards of appeal decisions database has been updated.

21.12.2007
Availability of customer services during the holiday period.

Find a professional representative

Search our database for a professional representative in your area.

Search

The database of professional representatives before the EPO.

Frequently asked questions

Answers to the most frequently asked questions.
<table>
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<tr>
<th>Search</th>
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<th>Open recent</th>
<th>Publication No.</th>
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**Please enter**
- Date of Filing
- Date of Publication
- Priority No.
- Priority Date
- Applicant
- Inventor
- Representative
- Opponent

**Application**

- EP as Classification (IPC) with eight digits (e.g. 050203725)
- PCT application number (e.g. for PCT/US/1999/01441 please type WO/1999/01441)
- esp@cevent® data format (e.g. EP1998042085 or WO199801441)

**Publication numbers**

- EP (e.g. EP1023456)
- WOyyyymmnn for publications until WO0251230,
  WOyyyymmnn for WO0251231 - WO03100732,
  WOyyyymmnn for publications from 1 January 2004

**Dates**

- yyyy-mm-dd

**IPC classification codes**

- e.g. G09C6/00
- e.g. H01L20/06
- e.g. H01L25/49
EP070376 - ANTI-ANGIOGENIC COMPOSITIONS AND METHODS OF USE - Angiotech Pharmaceuticals, Inc.

Search: Publication No. EP070376

Open recent:

Status: Patent maintained as amended
Database last updated on: 16/01/2008


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[2007/32]

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04 / ARSENAULT, A., Larry
2004
<table>
<thead>
<tr>
<th><strong>Representative(s):</strong></th>
<th>Cowshall, Jonathan Valance, et al. FORRESTER &amp; BUEHMERT Pettenkoferstrasse 20-22 80336 München / DE [2000/44]</th>
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<td><strong>Application No., filing date:</strong></td>
<td>84920350.8 19/07/1994 [1996/16] WC01994CA00373</td>
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<td><strong>Priority No., dates:</strong></td>
<td>US19930094636 19/07/1993 [1996/16]</td>
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<td><strong>Procedural language:</strong></td>
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| **Publication:** | Type: A1 Application with search report  
No.: EP0706378  
Date: 02/02/1995 [1996/16]  
Type: WO9503836  
No.: 02/02/1995 [1996/16]  
Type: B1 Patent Specification  
No.: EP0706378  
Date: 25/06/1997 [1997/28]  
Type: B2 New Specification of the European patent  
No.: EP0706378  
Date: 08/08/2007 [2007/32] |
| **International search report:** | Date: 02/02/1995  
Authority: EP |
| **Classification:** | International: A81K9/16, A81K9/70, A81L31/00, A81K31/20, A81K31/335, A81K38/57 [1996/16] |
| **Designated Contracting States:** | AT, BE, CH, DE, DK, ES, FR, GR, IE, IT, LI, LU, MC, NL, PT, SE [1996/16] |
**Designated Contracting States:**
AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE [1996/16]

**Title:**
- **German:** ANTI-ANGIOGENE MITTEL UND VERFAHREN ZU DEREN VERWENDUNG [1996/16]
- **English:** ANTI-ANGIOGENIC COMPOSITIONS AND METHODS OF USE [1996/16]
- **French:** COMPOSITIONS ANTI-ANGIOGENIQUES ET LEURS PROCÉDÉS D'UTILISATION [1996/16]

**Application is treated in (fax no.):** MUNICH/(-49-89) 23934455

**Miscellaneous**
- EPS 1997/26: (deleted)
- EPS 1997/10: Divisional application 9619361.2 filed on 03/12/96

**Entry into regional phase:**
- 19/01/1996 Designation fee(s) paid
- 19/01/1996 Examination fee paid
- 19/01/1996 National basic fee paid

**Examination procedure:**
- 19/01/1996 Request for examination was made [1996/16]
- 30/01/1996 Request for accelerated examination filed
- 26/04/1996 Dispatch of examination report (Time limit: M/04)
- 26/04/1996 Decision about request for accelerated examination - accepted: Yes
- 26/05/1996 Reply to examination report
- 24/07/1996 Dispatch of communication of intention to grant (Approval: No)
- 10/12/1996 Dispatch of communication of intention to grant (Approval: later approval)
- 13/12/1996 Communication of intention to grant the patent
- 14/03/1997 Fee for grant paid
- 14/03/1997 Fee for printing paid

**Divisional application(s):**
- EP20010117883 / EP1155689
- EP20010117872 / EP1155680
- EP20010117873 / EP1159574
- EP20010117876 / EP1155691
- EP20010117882 / EP1159975
- EP20050033782 / EP1692539
- EP20050033783 / EP1695697
- EP20050033791 / EP1633259
- EP20050033792 / EP1695698
- EP19660119381 / EP0737386

**Opposition(s):**
- Opponent(s): 01 25/03/1998 06/04/1998 ADMISSIBLE
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Publication number: WO03075629
Application number: DE19971031696
Priority number: WO1995US15925
Publication date: yyyymmdd
Applicant(s): Institut Pasteur
Inventor(s): Smith
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International Patent Classification (IPC): H03M1/12

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1  STENT DELIVERY CATHETER

2  METHOD OF CUTTING MATERIALS WITH HYBRID LIQUID-JET/LASER SYSTEM
   Publication info: CA2554893 - 2005-08-11

3  PRESSURE LAMINATION METHOD FOR FORMING COMPOSITE
    EPTFE/TEXTILE AND EPTFE/STENT/TEXTILE PROSTHESES
   Publication info: CA2554631 - 2005-07-07

4  Stent having active release reservoirs
   Publication info: US2006217798 - 2006-09-28

5  STENT DELIVERY CATHETER
   Publication info: EP1706065 - 2006-10-04

6  Intravascular stent
   Publication info: US2006200227 - 2006-09-07

7  STENT TO BE DEPLOYED ON A BEND

8  STENT REDUCING SYSTEM

9  BIFURCATED STENT DELIVERY SYSTEM
   Publication info: EP1703855 - 2006-09-27

10 MEDICAL DEVICES
    Publication info: CA2552992 - 2005-08-11
STENT DELIVERY CATHETER

Abstract not available for EP1700065
Abstract of corresponding document: US2005165352

A self-expanding stent delivery assembly includes a shaft having a proximal end, a distal end, a distal region, a lumen, and a longitudinal axis. A retractable sheath having an outer surface, a proximal end and a distal end is coaxially disposed around the shaft distal region. A stent is disposed coaxially between the shaft and the retractable sheath. A tubular tapered tip is affixed to the retractable sheath distal end. The tubular tapered tip has an elongate region predisposed to fracturing. Methods of delivering a self-expanding stent are also described.
STENT DELIVERY CATHETER

Takes the place of EP1706665 (art.158 of the EPC)

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