The European Patent Office

Protecting your biotechnological inventions in Europe
Our mission

As the patent office for Europe, we support innovation, competitiveness and economic growth across Europe through a commitment to high quality and efficient services delivered under the European Patent Convention.
Structure of the European Patent Organisation

**European Patent Organisation**

- **European Patent Office**
  - The executive body
    - responsible for examining patent applications

- **Administrative Council**
  - The legislative body
    - made up of delegates from the member states
    - supervises the activities of the Office
    - has a specific legislative function
Autonomy

- Second largest intergovernmental institution in Europe
- Not an EU institution
- Financially independent
- Self-financing, i.e. revenue from fees covers operating and capital expenditure
38 member states

Albania • Austria • Belgium • Bulgaria • Croatia • Cyprus • Czech Republic • Denmark • Estonia • Finland • France • Germany • Greece • Hungary • Iceland • Ireland • Italy • Latvia • Liechtenstein • Lithuania • Luxembourg • Former Yugoslav Republic of Macedonia • Malta • Monaco • Netherlands • Norway • Poland • Portugal • Romania • San Marino • Serbia • Slovakia • Slovenia • Spain • Sweden • Switzerland • Turkey • United Kingdom

European patent applications and patents can also be extended at the applicant’s request to the following states:

Bosnia-Herzegovina • Montenegro
The European Patent Convention

- The European Patent Convention (EPC)
  - provides the legal framework for the granting of European patents via a centralised procedure
  - establishes the European Patent Organisation

- 1973 – Diplomatic Conference in Munich › signature of the EPC by 16 countries

- 1977 – Entry into force of the EPC in 7 countries - marked as follows
Our role in the European patent system

- We provide patent protection in up to 40 European countries based on a single application in one of the three official languages (German, English, French)
  European patent applications can be filed:
  - direct with the EPO
  - via the national patent offices of the contracting states
  - based on an international (PCT) application

- We are also responsible for
  - limitation and revocation proceedings by patentees
  - opposition proceedings by third parties
  - appeal proceedings before the Boards of Appeal

- We will also be in charge of granting and administering the future Unitary Patent of the EU
Advantages of a European Patent

convenient
one application
one language (EN, FR or DE)
common procedure and law (EPC)
patent protection in up to 38 countries
a market of 600 million customers, ca. twice as in the US

cost-effective
costs less than three separate national patents
major costs (translation) delayed after grant!

strong patent
thorough search
stringent examination
sound legal protection = very high assumption of validity
central opposition and appeal
Biotechnological inventions
What is patentable at the EPO?

Art. 52(1) EPC

(1) European patents shall be granted for any inventions, in all fields of technology, provided that they are new, involve an inventive step and are susceptible of industrial application.
### What is patentable in biotechnology?

<table>
<thead>
<tr>
<th>All aspects of biotech:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>white/grey biotech</strong></td>
<td>enzymes, industrial processes</td>
</tr>
<tr>
<td><strong>red biotech</strong></td>
<td>medical</td>
</tr>
<tr>
<td><strong>green biotech</strong></td>
<td>agriculture and environment</td>
</tr>
<tr>
<td><strong>blue biotech</strong></td>
<td>products derived from marine life</td>
</tr>
<tr>
<td><strong>black biotech</strong></td>
<td>energy production</td>
</tr>
</tbody>
</table>
What does it really mean?

Products:
- polypeptides (enzymes, antibodies, etc.),
- nucleic acids (genes even human genes, promoters, vectors, antisense molecules, siRNAs, ribozymes, SNPs, etc.),
- chemicals (polymers, antibiotics, etc.)

Living organisms:
- (non-human) animals, plants, cells, bacteria, viruses

Methods:
- transformation, purification, production, *in silico* or *in vitro*
- screening, etc...

Medical uses:
"Compound X for the treatment of disease Y"
What about human genes?

Article 52(2)(a) EPC and Rule 29(2) EPC: 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.

Guidelines, C-IV, 2.3.1: to find a substance freely occurring in nature is mere discovery and therefore not patentable; if a substance found in nature is first to be isolated from its surroundings and a process for obtaining it is developed, that process is patentable. Moreover, if this substance can be properly characterised by its structure and it is new in the absolute sense of having no previously recognised existence, then the substance *per se* may be patentable.
Patent law versus bioethics

1992
The conflict between patent law and bioethics hits the headlines with for the first time the grant by the EPO of the first ever patent on a mammal (EP 169672).
Implanted with a human cancer gene, the so-called oncomouse has an increased disposition for developing tumours.
Opposition to stem cells

1999

The granting of the university of Edinburgh patent, which relates among other things to human embryonic stem cells, leads to wide-spread political debate about the boundaries of patent protection.
Decision of the Enlarged Board of Appeals

2009

The Enlarged Board of Appeals rules in its decision G2/06 that patents applications relating to methods or uses necessarily involving the destruction of human embryos are not patentable under ethical and moral considerations governed by Art. 53(a) EPC.

2012

Decision of the European Court of Justice substantially in line with the decision G2/06.
Need more information?

www.epo.org
info@epo.org
Tel. +49 (0)89 2399 - 4636

Or better yet, ask us on booth 2727, we are happy to help you further!
What about human genes?

**Article 52(2)(a) EPC and Rule 29(2) EPC**: 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.

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Decision of the European Court of Justice substantially in line with the decision G2/06.
Our role in the international (PCT) system

- We process international patent applications
  - we act as a receiving office for international applications (PCT)
  - We carry out more than 40% of all international search and preliminary examination procedures
PCT: Why should you chose the EPO as International Search Authority?
International applications - the PCT procedure

Inventions

are the object of

are filed with

PCT International Applications

Receiving Offices (national or regional patent offices or the International Bureau)

transmit applications to

International Authorities (ISA, SISA and IPEA)

transmit Reports to

WIPO

International Bureau

publishes

PCT International Applications

communicates to

Designated Offices (national and/or regional patent offices)

grant

Patents

Months from Priority Date:

0

12 16 18 19 22 28 30

International Phase

National Phase

Application filed with Patent Office (Priority Date)

PCT International Application filed with Receiving Office

Transmittal of ISR & Written Opinion

Publication of PCT International Application

Applicant requests Supplementary International Search (optional)

Applicant files a Demand for International Preliminary Examination (optional)

Transmittal of IPRP II or SISR (optional)

PCT National Phase Entry (where the applicant seeks protection)

Source: Wipo
PCT International Application Filings from 1990 to 2011

Note: The figures given for PCT applications filed in 2011 are WIPO estimates.

Source: WIPO Statistics Database, March 2012
US is the world's major user of the PCT procedure

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Source: WIPO Statistics Database, March 2012
The EPO as PCT authority

EPO as a **Receiving Office** for international applications (PCT)
EPO as **International Search Authority**
    also for US applications
    in any field of technology, including biotechnology
    without restriction in terms of numbers
EPO as International Preliminary **Examination** Authority
The EPO, the most popular International Search Authority

% of total filings

Source: WIPO aggregated data
Why?

high quality

timeliness

reduced cost
Quality

Same quality as for the European searches
background and expertise of the examiners
access to 600 millions records, more than 7,000 journals
largest patent database worldwide
constant investment in search tools
  machine translation tools
  sequence searches
  in-house software development
EPO best patent office in the world according to the users!

The EPO tops the quality table once again, as the USPTO and SIPO make forward strides

For the third year running respondents to the annual IP benchmarking survey conducted jointly by IAM magazine and the IP Solutions of Thomson Reuters have clearly stated that the European Patent Office has the highest standards of performance among the IP Five.

On the private practice side, 68% of respondents stated that the EPO’s quality is either "excellent" or "very good", that’s up from 62% in 2011. The results from the corporate side revealed that 55% regarded the office’s performance to be either "excellent" or "very good", while a further 37% considered it to be "good". Direct
Timeliness

Under the current framework, the EPO does not receive many search reports from the other IP5 Offices on time to be reused by EPO examiners.
Timeliness in transmitting ISRs

Note: Timeliness is calculated as the time elapsed between the priority date and the date on which the ISA transmits the ISR to the International Bureau.

Source: WIPO Statistics Database, March 2012
Reduced cost

The International Search Report issued by the EPO as ISA will be used as European search report.

Upon entry into the regional phase (European phase), no additional fee for a supplementary European search report.

Saving: 1.165 EUR
The Unitary Patent
Key facts about the unitary patent

- **Basic principles**
  - a European patent **granted under the EPC**
  - **unitary effect** for the territories of the 25 EU member states currently participating, at the applicant’s request
  - **co-existence with the existing European patent and national patents**
  - **validated in one single administrative step by the EPO** for all the participating states in the language in which it was granted
  - **language regime being finalised; transition measures foreseen**

- **Objective**
  European Council Presidency and EU Commission intend to have **the first unitary patent granted in 2014**
Advantages

- **For inventors**
  - protection in **one single step for the 25 states** currently participating
  - **significant cost savings** (translation, validation, administration)
  - **simplified validation procedure** (instead of up to 25 different procedures)
  - **simplified and more cost-efficient renewal** procedure
  - **increased legal certainty** due to uniform litigation system

- **For Europe**
  - **optimal protection** in the participating states as a whole
  - better framework **conditions for innovative companies** and organisations
  - **simplified European protection mechanism** for companies from outside Europe
  - **improved competitiveness** of the European patent system
Overview of European patent grant procedure (I)

Applicant

European patent application

Filing and formalities examination

Search and search report together with preliminary opinion on patentability

Substantive examination

Grant of European patent

Refusal or withdrawal of application

Validation in designated states

Public domain

Publication of application and search report

Online access to application file and legal status information

Observations by third parties possible

Publication of patent specification
Overview of European patent grant procedure (II)

Applicant

- Refusal of application

EPO

- Substantive examination
- Grant of European patent
- Opposition by third parties possible
- Limitation or revocation proceedings
- Appeal proceedings
- Opposition proceedings
- Public domain
The unitary patent as a European patent

Same grant procedure as for classic European patent

European patent application

Filing and formalities examination

Search report with preliminary opinion on patentability

Substantive examination

Grant of European patent

Refusal or withdrawal of application

Limitation/revocation/opposition proceedings

Appeal proceedings

At the request of the patent proprietor

UNITARY PATENT for the territories of the 25 participating states

The unitary patent replaces the individual effects of the European patent in the 25 participating states.
Overview of European patent grant procedure (I)

- Applicant
  - European patent application
  - Filing and formalities examination
  - Search and search report together with preliminary opinion on patentability
  - Substantive examination
  - Refusal or withdrawal of application
  - Grant of European patent

- EPO
  - Publication of application and search report
    - Online access to application file and legal status information
      - Observations by third parties possible
  - Validation in designated states

- Public domain
  - Grant of European patent
  - Publication of patent specification
Overview of European patent grant procedure (II)

- Applicant: Refusal of application, Substantive examination, Grant of European patent, Opposition by third parties possible
- EPO: Limitation or revocation proceedings, Opposition proceedings, Appeal proceedings
- Public domain: Opposition by third parties possible

Opposition by third parties possible
Cooperative Patent Classification (CPC)
Cooperative Patent Classification - CPC

- The USPTO and the EPO agree to co-operate on a joint classification system based on ECLA (October 2010).

USPTO and EPO Work Toward Joint Classification System

"In view of the significant benefit to stakeholders of developing a transparent and harmonized approach to a global classification system for patent documents, in order to make the search process more effective, and in the belief that cooperation between their two offices will facilitate progress in undertaking classification harmonization projects under the IPS Common Hybrid Classification initiative, the USPTO and the EPO have agreed together to work towards the formation of a partnership to explore the development of a joint classification system based on the European Classification System (ECLA) that will incorporate the best classification practices of the two offices. This system would be aligned with the World Intellectual Property Organization (WIPO) classification standards and the International Patent Classification (IPC) structure. Accordingly, they have initiated discussions on governance and operational aspects of such a partnership.

The IPS partner offices will be continually apprised of progress at appropriate IPS forums. Stakeholders will receive regular updates on the substance and progress of classification partnership discussions between the two offices."

David J. Kappos

October 25, 2010
Cooperative Patent Classification - CPC

The USPTO and the EPO agree on a Joint Patent classification system based on ECLA

For the EPO:
- Improve file and document routing
- Saving resources on (re-)classification of US documents in the future
- Common base for future classification revisions
- Renumbering of ECLA

For the USPTO:
- Moving to an IPC-based classification system
- Enhanced access to non-US documentation
GLOBAL PATENT INDEX

EPO's patent information service for experts
Worldwide coverage (DOCDB)

先进 Prior art search

Weekly update

advanced patent watch
100 search criteria
detailed searches

complex queries
save/load for re-use

search history
check parsed queries

one index per criterion
control e.g. spelling, format
An electrical switching device that can be employed in a sliding button, a rotating button, in a position switch, or an impact sensor. This device includes: a permanent magnet creating a magnetic field and a microswitch controlled between at least two states, being aligned along two different orientations of field lines of the magnetic field of the permanent magnet. The microswitch and the permanent magnet are fixed relative to one another and a movable ferromagnetic part is moved between two positions so as to act on the orientation of the field lines generated by the permanent magnet so as to impose on the microswitch one or other of its two states.
TRY GPI ON THE EPO STAND!
Grant rate in biotech vs. EPO overall

![Bar chart showing the grant rate in biotech vs. EPO overall from 2007 to 2011.]
Withdrawals after European search
Biotechnology vs EPO overall

2007 2008 2009 2010 2011

EPO overall

Biotechnology
Numer of filed applications
Biotech vs. EPO overall