How can I protect my research results?

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Common academic prejudices about patenting

- "patenting delays publishing/graduating/everything"
- "science can not be patented"
- "medical applications for sure can not be patented"
- "we are scientists, we don’t need patents"
Intellectual Property Rights (IPR)

- Patent
- Utility Model
- Trade Mark
- Design Model
Patent

- Gives to the *patent proprietor* a right
to *forbid others* from exploiting
the invention defined in the *claims*
during the *patent term*
in the *country* where the patent has been *granted*.
Patent

- A new solution to a *technical problem*
- Patent *may* be obtained by filing a *patent application*
- Patent is limited by time (max. 20 years) and geographically
- In return for the exclusive rights the invention will be published → huge data base available
Why to apply for a patent?

- To obtain exclusive rights to your own invention (to protect R&D)
- Patent is property: it may be sold, licensed, traded off
- To forbid a competitor to act
- To create freedom to operate
- To obtain financing
- To create an idea about a hi-tech company
- A "patent portfolio" is valuable for a company in case of conflicts and negotiations
- To play "strategy games"
- To make contacts
Patentable inventions

Generally any invention in all fields of technology may be patentable, provided that it is:

- Novel
- Inventive
- Industrially applicable
Excluded from patentability…

- *Mere* discoveries, scientific theories, mathematical methods
- Aesthetic creations
- Schemes, rules and methods for performing mental acts, playing games or doing business
- Presentation of information
- Computer programs *as such*

- Methods for treatment of human or animal body by surgery or therapy (except USA)
- Diagnostics methods practised on human or animal body
…but:

- When discovery, theory or mathematical method is applied in practical use, it may be patented
- A *product* used in treatment or diagnostic methods may be patentable
- A treatment or diagnostic *method* performed *in vitro* may be patentable
- A computer programmed to perform a certain method may be patentable
- A computer-readable data storage medium having computer-executable program code stored and operative to perform a certain method may be patentable
Novelty

- If the invention has been *disclosed* before filing the patent application in any country by means of written or oral description, by use, or in any other way, in any language.
- It can not be patented.
- The inventor may publish his/her own invention too early and destroy the novelty →

**DO NOT DISCLOSE YOUR INVENTION BEFORE FILING A PATENT APPLICATION!**
Inventive step

The invention is inventive, when, having regard to the state of the art, it is not obvious for a person skilled in the art.

- State of the art (prior art) = everything made available to the public in the same technical field
- Not obvious = surprising effect, not a logical conclusion
- Which problem does the invention solve?
- Would the ”person skilled in the art” think of the problem?
- Would he arrive at the inventive solution?
- Would he predict the result?
Industrial applicability

- The invention is a concrete solution to a technical problem
- Provides a technical effect
- Can be put into practice
- Must work as described
Patentable invention

- A *product* (a medicine, a fertilizer, a water purification agent)
- A *device* (a portable terminal, a paper machine, a car brake system)
- A *method* (a method for manufacturing paper, a method for power saving in a terminal, a diagnostic method)
- A new *use* of a known product or device (use of compound X as a pesticide, compound X for use as a medicament)

- **NOTE:** a method for treating disease $X = $ treatment method, only patentable in the USA
Who can apply for a patent?

- The inventor(s)
- A company (e.g. the employer)
- The employer may own the rights to the invention
- In many cases a patent attorney authorized by the applicant acts as a representative
Where to apply for a patent

- Patent is a regional right; patent may be applied:
  - in every country of interest
  - using patent systems, e.g.
    - European Patent Convention (EPC)
    - Eurasian Patent Convention (EAPC)
    - European Patent with Unitary Effect (coming soon…)
- Patent Cooperation Treaty (PCT)
  - international application system, does not grant patents
  - patent application is examined
  - gives 30 months time from the first filing to choose national filings
When to patent?

A *first* patent application for an invention should be filed

- **before disclosing the invention**
- after having *sufficient experimental evidence* supporting the invention
- **before a competitor has filed** his corresponding application
When to patent?

- When the first patent application has been filed, the invention may be published.
- During the 12 months from the first filing (=priority year) further patent applications may be filed claiming priority.
- The further applications are considered being made on the same date as the first application (concerning the same invention).
- For example: first a Finnish national application, then a PCT application during the priority year.
Patenting process

- Patent can protect only what is written in the patent application (the wording of the claims)
- Patent application is examined → Office Action
- If during examination any documents relevant to the patentability are found, the scope of the claims must be narrowed
- There must be a basis in the application text for any amendments
- During the process no new subject-matter can be added
  → the patent application must be prepared carefully
- The process may take years, e.g. 2-5 years in every country
Example of a timeline

- First filing
- 1. Office Action
- Priority year ends
- Patent granted
- Opposition period
- PCT application filed
- National Applications (US, EPO, CN...)

- months
  - 0
  - 6 - 10
  - 12
  - 18
  - n
  - n + 9

- 30
What can be patented? Examples

- A new human enzyme protein molecule was discovered, isolated and cloned
- High level thereof was found to be associated with a certain cancer type. It was also found to be an anti-tumour agent when administered directly to the tumour

- Diagnostic method (detecting the protein from a sample)
- Diagnostic kit
- The protein (DNA, vector, host cell…)
- The protein as a medicament
- The protein as a medicament for treating cancer
- *Treatment method only in USA*
What can be patented? Examples

- A new algorithm for processing digital signal was discovered
- It was found useful in certain wireless applications for improving the error correction capability of transmitted signal. This method is especially suitable for bluetooth device pairs.

- Method for improving error correction capability in a wireless device using said algorithm
- A wireless device arranged to process the transmitted digital signal with said method
- A wireless device pair arranged to process the transmitted digital signal with said method
- A bluetooth device arranged to process the transmitted digital signal with said method
Patent Databases

- Patent documents contain a huge amount of information not available anywhere else