

1. Basics of research work

1.4. Ethical code of scientific work

Personal motivation to become a scientist

- Creative activity, uncovering yet unexplored facts and rules, there is no manual for the solution
- Research might be understood as a kind of craft
- Private hobby for which one might be payed for
- Making „carrier“ is usually not the reason

How is the particular topic selected and determined?

- Following the teacher or professor, respected authority in the field
- Private interest
- Public acceptance and scientific relevance - phenomenon of the „scientific fashion“
- By the provider of the money

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When doing research one should:

- start from existing knowledge - groundbreaking discovery can be made by falsifying an accepted theory
- avoid the repetitive discovery of already discovered facts
- do not formulate hypothesis without a good knowledge of the literature
- bring the public good, reduce the private interest and regularly publish results
this is even promised during graduation

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1.4. Ethical code of scientific work

Although there does not exist the universal well-established ethical codex for the experimental research work, there exist several rules that should be followed. **What are they?**

- **honestly communicating all results and methods**
- **accepting the priority of scientific discovery**
- **acknowledging ideas and results of others**
- **avoiding excessive editing, fabrication or hiding of results**

[Ethics | Biology | FuseSchool - YouTube](#)

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The most frequent mistakes:

- intentional ignorance of already known facts
- hiding the intellectual source
- „suitable“ adjusting of results - e.g. hiding of unclear results
- premature publishing or repeated publishing of the same results
- pretending the practical applicability
- plagiarism - both in case of original contributions and projects

1. Basics of research work

Examples of retracted scientific reports

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Advanced

Format: Abstract Send to

RETRACTED ARTICLE

See: [Retraction Notice](#)

Nature, 2008 Dec 18;456(7224):962-6. doi: 10.1038/nature07409. Epub 2008 Oct 26.

Generation of cell polarity in plants links endocytosis, auxin distribution and cell fate decisions.

Dhonukshe P¹, Tanaka H, Goh T, Ebine K, Mähönen AP, Prasad K, Blilou I, Geldner N, Xu J, Uemura T, Chory J, Ueda T, Nakano A, Scheres B, Friml J.

[Author information](#)

Retraction in
Retraction: Generation of cell polarity in plants links endocytosis, auxin distribution and cell fate decisions. [Nature. 2014]

Abstract
Dynamically polarized membrane proteins define different cell boundaries and have an important role in intercellular communication—a vital feature of multicellular development. Efflux carriers for the signalling molecule auxin from the PIN family are landmarks of cell polarity in plants and have a crucial involvement in auxin distribution-dependent development including embryo patterning, organogenesis and tropisms. Polar PIN localization determines the direction of intercellular auxin flow, yet the mechanisms generating PIN polarity remain unclear. Here we identify an endocytosis-dependent mechanism of PIN polarity generation and analyse its developmental implications. Real-time PIN tracking showed that after synthesis, PINs are initially delivered to the plasma membrane in a non-polar manner and their polarity is established by subsequent endocytic recycling. Interference with PIN endocytosis either by auxin or by manipulation of the Arabidopsis Rab5 GTPase pathway prevents PIN polarization. Failure of PIN polarization transiently alters asymmetric auxin distribution during embryogenesis and increases the local auxin response in apical embryo regions. This results in ectopic expression of auxin pathway-associated root-forming master regulators in embryonic leaves and promotes homeotic transformation of leaves to roots. Our results indicate a two-step mechanism for the generation of PIN polar localization and the essential role of endocytosis in this process. It also highlights the link between endocytosis-dependent polarity of individual cells and auxin distribution-dependent cell fate establishment for multicellular patterning.

PMID: 18953331 PMCID: [PMC2692841](#) DOI: [10.1038/nature07409](#)

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Retraction | Published: 16 July 2014

Retraction: Generation of cell polarity in plants links endocytosis, auxin distribution and cell fate decisions

[Pankaj Dhonukshe](#), [Hirokazu Tanaka](#), [Tatsuaki Goh](#), [Kazuo Ebine](#), [Ari Pekka Mähönen](#), [Kalika Prasad](#), [Ikram Blilou](#), [Niko Geldner](#), [Jian Xu](#), [Tomohiro Uemura](#), [Joanne Chory](#), [Takashi Ueda](#), [Akihiko Nakano](#), [Ben Scheres](#) & [Jiří Friml](#)

Nature **511**, 370 (17 July 2014) | [Download Citation](#)

[The original article](#) was published on 26 October 2008

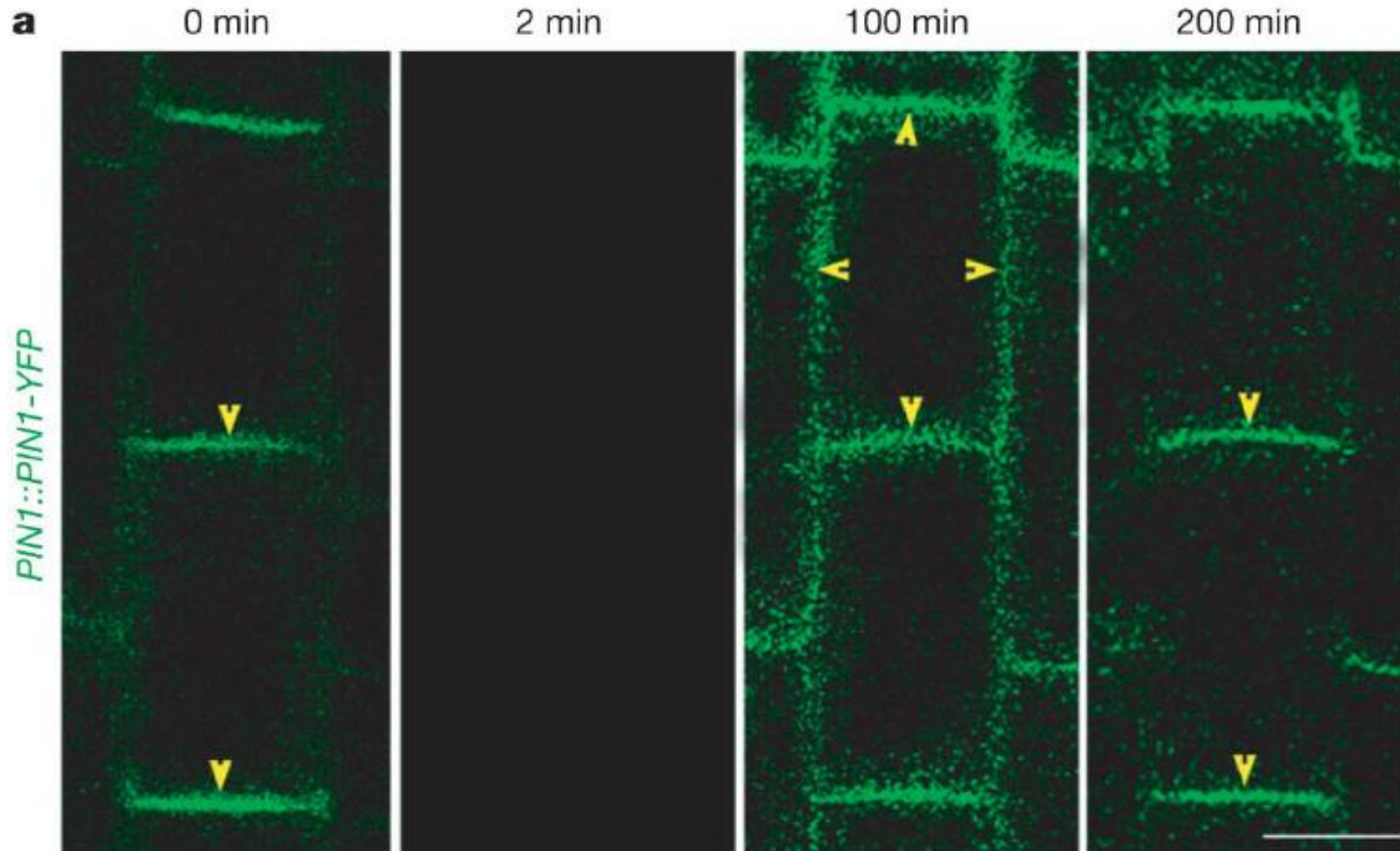
Access provided by Charles University Faculty of Science

Nature **456**, 962–966 (2008); doi:10.1038/nature07409

Our Letter reported that PIN transporters for the plant hormone auxin are initially delivered to the plasma membrane in a non-polar manner and that their polar distribution requires endocytosis. Abolishing PIN



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Retraction of 19-year-old Nature paper reveals hidden cameras, lab break-in, evidence tampering

We've often found that when some authors refuse to sign retraction notices, there's a much bigger story than terse notices let on. And a retraction in this week's *Nature* of a 19-year-old paper is a shining example of that.



Here's the [brief notice](#) for "Oligosaccharide ligands for NKR-P1 protein activate NK cells and cytotoxicity," a 1994 paper by researchers from the UK and the Czech Republic that had already been subject to a [1996 correction](#):

We wish to retract this Article owing to an inability to reproduce the results. This retraction has not been signed by K.B. and A.F., and M.P. is deceased (J.O'B. cannot be traced).

K.B. is Karel Bezouska, then working in the lab of corresponding author Ten Feizi at The Glycosciences Laboratory at Northwick Park Hospital, Middlesex, UK. Bezouska, it turns out, was [found by an ethics committee at Charles University](#) (Google translation of a January 2013 press release from Czech) to have:



Známý vědec v noci vnikl do cizí laboratoře, měnil prý výsledky pokusu

19. dubna 2012 21:12

Tajně nainstalované kamery s nočním viděním zachytily profesora Karla Bezoušku v cizí laboratoři v areálu Mikrobiologického ústavu Akademie věd. Údajně manipuloval se vzorky, které měly nezávisle ověřit jeho dřívější pokusy, na nichž spolupracoval s britskou kolegyní. Ta se později od práce distancovala. Bezouška tvrdí, že jen kontroloval postup kolegů.



Profesor Karel Bezouška | foto: Přírodovědecká fakulta UK

Vzorky měly vyvrátit či naopak potvrdit pochybnosti nad staršími Bezouškovými pokusy. Kvůli podezření, že u své dřívější [práce](#) podváděl, už

Reklama

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Osobní odběr zd

Bořte hranice v

Research misconduct in plant science: infectious and toxic

Leonid Schneider,
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[Retraction watch](#) and [retraction watch database](#)

Our database has just reached a big milestone: 20,000 retractions. Will you help us with the next 20,000?



via [Wikimedia](#)


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36 minutes | **Modulation of Pulmonary Vascular Remodeling in Hypoxia: Role of 15-LOX-2/15-HETE-MAPKs Pathway** **Author response**

1. Basics of research work

1.5. Financing the scientific research

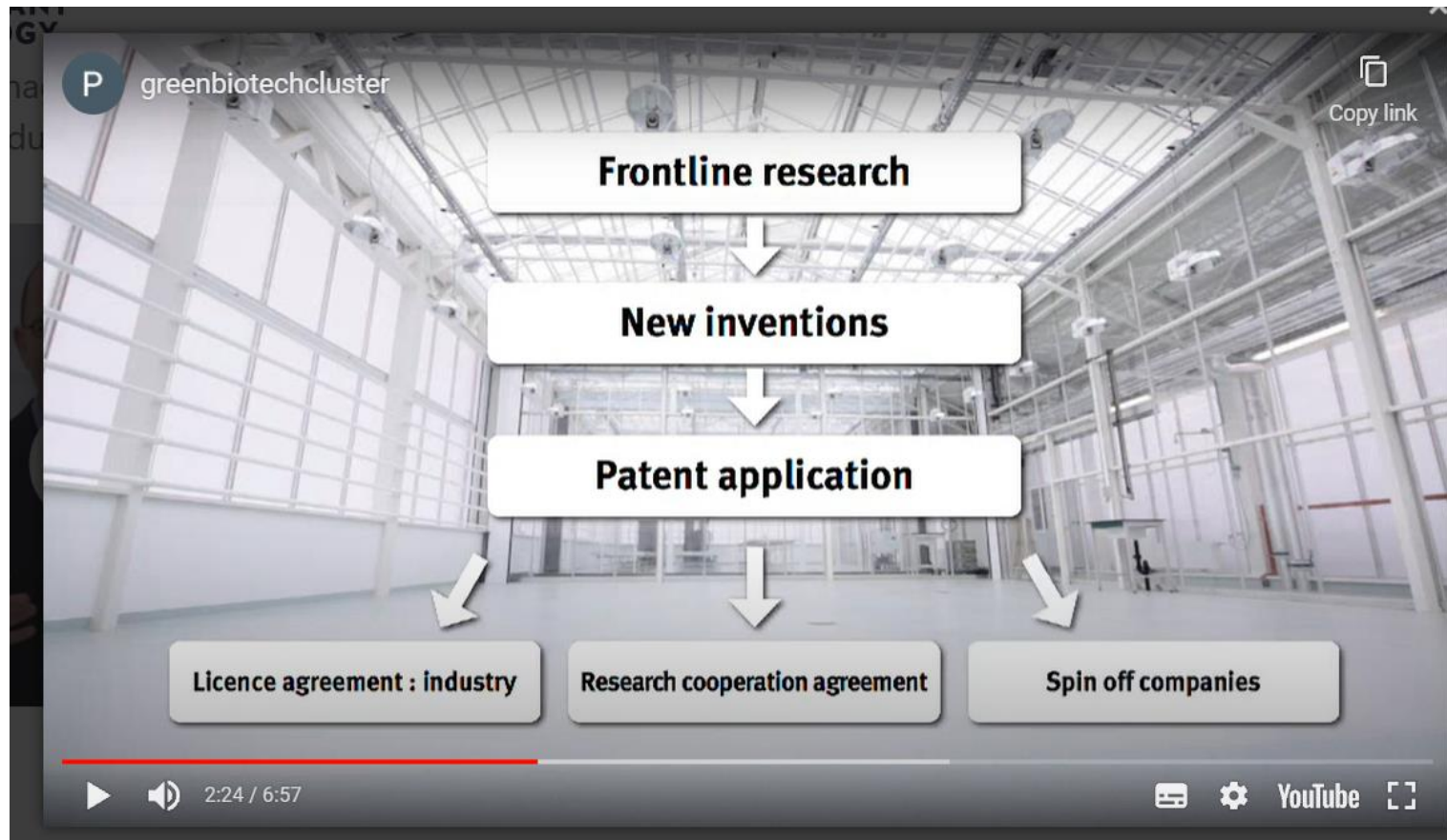
Financial resources	<ul style="list-style-type: none">- public (governmental)- private
Type of financing	<ul style="list-style-type: none">- direct support of research institutions- direct support of individual researchers

Ideally,
grant, institutional support and resources from applied research, spin off companies,
they all should be combined.

1. Basics of research work

1.5. Financing the scientific research

Technology transfer - basic research institution could be financially supported through the licences, patents and foundation of spin off companies



1. Základní pravidla vědecké práce

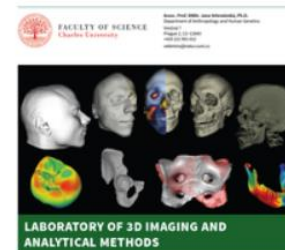
1.5. Financing the scientific research

Technology transfer at our faculty

- ▶ Faculty Administration
- ▶ Biology
- ▶ Chemistry
- ▶ Geography
- ▶ Geology
- ▶ Institute for Environmental Studies
- ▶ Faculty-Wide Institutions
- ▶ Dean's Office
- ▶ Alumni
- ▶ Job offers



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1. Basics of research work

1.5. Financing the scientific research

Grant projects:

Student, doctoral, starting or junior research projects - for one to three years, young student or freshly graduated scientists

- **Standard research projects** - the most frequent form, three to five years.
- **Specialized projects** - travel or publication expenses
- **Integration projects** - interconnection of several research groups, at least for five years. Overlap with the classical research projects.

1. Basics of research work

1.5. Financing the scientific research

Grant agencies:

- **Local (internal) Grant Agency** - serves as a money-distributing organization within a specific institution
- The grant agency of the Charles University (GAUK), <https://www.cuni.cz/UKEN-753.html>, students and employees are eligible for applications

- **Grant agency affiliated to ministry (government)** - support of science and research in specific areas, e.g. education, medicine, agriculture, culture, etc.
- Ministry of Education, Youth and Sports
<http://www.msmt.cz/vyzkum/pro-odborniky> in Czech,
<http://www.msmt.cz/research-and-development-1> in English
Supports mainly large, collaborative projects

1. Basics of research work

1.5. Financing of the scientific research

- **National Grant Agencies** - independent agency supported directly from the budget (separate chapter), all research areas are covered
 - [The Czech Science Foundation](#) - in all research areas, it supports research projects submitted by individual researchers
 - National Science Foundation (NSF; <http://www.nsf.gov>)
the largest and best organized grant agency in the USA

- **International Grant Agency**
 - founded in the frame EU convergence in the area of scientific research
 - CORDIS (Community research and development Information Service; <http://cordis.europa.eu/>)
 - European research council (ERC), <http://erc.europa.eu>), supports individual scientists all around EU