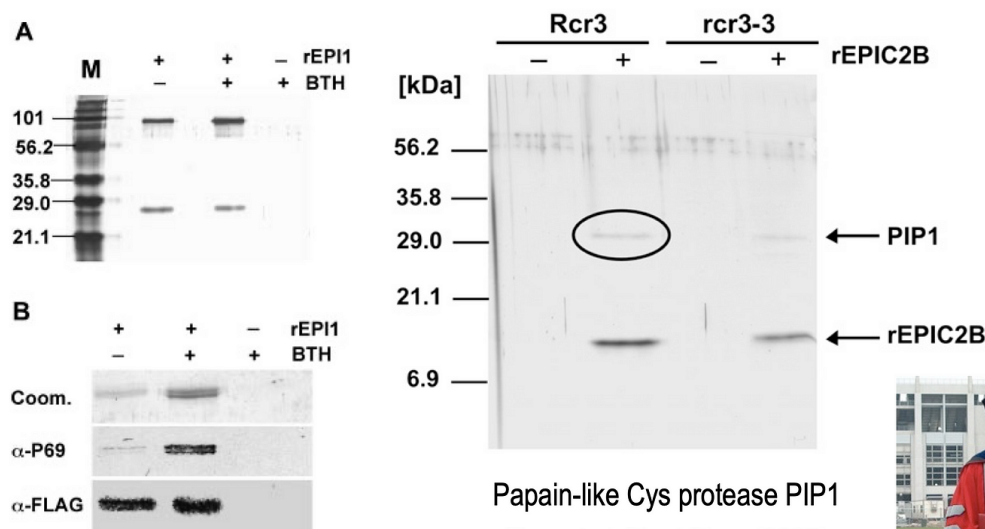

Your goal is to produce science that stands the test of time

A visit to Halle, 25 years later, and a workshop with early career researchers brought into focus what should be the primary mission of scientists.

Halle an Saale, December 1997

Twenty-five years ago, I was invited to the [IPB Halle](#) (Leibniz-Institut für Pflanzenbiochemie) by [Thorsten Nürnberger](#) and [Dierk Scheel](#). That visit was memorable, perhaps because it was fascinating to visit an Eastern German city that was about to undergo a massive transformation after reunification, and because the visit took place in December, which meant I could experience the Weihnachtsmarkt (Christmas market) complete with a snow blizzard. The most memorable aspect, however, was Thorsten and Dierk's kindness and hospitality. To me, they represented the best of the best in the field of biochemistry of plant immunity, a topic that was heavily dominated by geneticists. As I was about to start my own lab at Ohio State, it was inspiring to learn about their biochemical approach and how much it could complement classical genetics. A few years later, my PhD student, [Miaoying Tian](#)—now a Professor at University of Hawaii—identified our first plant targets of pathogen effectors, subtilisin and papain-like proteases, using a biochemical approach.



Subtilisin-like Ser protease P69B

Tian *et al.* JBC (2004)

Papain-like Cys protease PIP1
Tian *et al.* Plant Phys (2007)



Miaoying Tian, Ph.D.

Miaoying Tian identified the very first host targets of secreted effector proteins of the Irish potato famine pathogen *Phytophthora infestans* using a biochemical co-immunoprecipitation approach ([Tian *et al.* 2004](#); [Tian *et al.* 2007](#))

Halle an Saale, May 2023

This week, I'm back in Halle. This trip, more than 25 years after my first visit, was under solemn circumstances. We gathered to commemorate Dierk Scheel, [who had sadly passed away about a year prior](#). The IPB organized the 8th Leibnitz Plant Biochemistry Symposium in memory of Dierk. The theme was Plants as Masters of Resilience and included outstanding scientific talks. The event was also peppered with stories about Dierk's kindness, generosity, in addition to his scientific contributions. Is there a better way to be remembered?



Monday May 8, 2023

- 13:00 – 14:00 Reception
- 14:00 – 14:05 Welcome, **Alain Tissier**,
IPB Managing Director
- Chair: Steffen Abel**
- 14:10 – 15:00 „Novel insights into plant immune receptor evolution and function“
Thorsten Nürnberger (University of Tübingen)
- 15:00 – 15:40 „Dierk Scheel’s impact on my scientific career: inspiration, rejection, support“ **Martin Parniske** (Ludwig Maximilians University, Munich)
- 15:40 – 16:00 **Coffee Break**
- 16:00 – 16:40 „Multiple roles of lipopolysaccharide in plant-bacteria interactions: plant immune elicitor and bacterial virulence factor?“ **Stefanie Ranf-Zippoth** (University of Fribourg)
- 16:40 – 17:20 „Connecting the dots of receptor kinase-mediated immune signaling“
Cyril Zipfel (University of Zurich)

Event Location

Deutsche Akademie der Naturforscher Leopoldina
Jägerberg 1
Festsaal
06108 Halle (Saale), Germany

Coordinates (lat, long):
51.487259, 11.960041

Tuesday May 9, 2023

- Chair: Regine Kahmann**
- 9:00 – 9:40 „Natural products as fungal virulence factors and drivers of microbiome composition“ **Axel Brakhage** (Leibniz Institute for Natural Product Research and Infection Biology)
- 9:40 – 10:20 „The dark side of plant metabolomics: Root and root exudate analyses in forests and fields“ **Nicole van Dam** (Leibniz Institute of Vegetable and Ornamental Crops)
- 10:20 – 10:40 **Coffee Break**
- 10:40 – 11:20 „Metals and metabolites – the role of ligands in element accumulation“
Stephan Clemens (University of Bayreuth)
- 11:20 – 12:00 „Role of MAPK-targeted chromatin reprogramming in plant immunity“
Heribert Hirt (King Abdullah University of Science and Technology)
- 12:00 – 13:30 **Lunch Break**
- 13:30 – 14:10 „How plant pathogenic bacteria manipulate the plant“ **Ulla Bonas** (University of Halle)
- 14:10 – 14:50 „How to trick a plant pathogen“
Sophien Kamoun (The Sainsbury Laboratory)
- 14:50 – 15:20 **Coffee Break**
- 15:20 – 16:00 „Structure, assembly and functions of the plant microbiome“ **Paul Schulze-Lefert** (Max Planck Institute for Plant Breeding Research)
- 16:00 – 16:15 Closing Remarks, **Regine Kahmann**
- 16:15 Farewell



8th Leibnitz Plant Biochemistry Symposium.

The quest for an enigmatic receptor

In the 1990s, Thorsten and Dierk were involved in a significant research project on an enigmatic plant receptor. They demonstrated that this receptor binds a 13-amino acid peptide called Pep13, which originates from the transglutaminase protein of the plant pathogenic microbe *Phytophthora*. The binding exhibits high affinity and specificity to this short sequence, and this played a crucial role in the team's conceptual understanding that plants have evolved specific receptors to distinguish between self and non-self, a model that has since been widely supported and validated.



1994

2002

Pep-13, a plant defense-inducing pathogen-associated pattern from *Phytophthora* transglutaminases

Frédéric Brunner, Sabine Rosahl, Justin Lee, Jason J. Rudd, Carola Geiler, Sakari Kauppinen, Grethe Rasmussen, Dierk Scheel, Thorsten Nürnberger

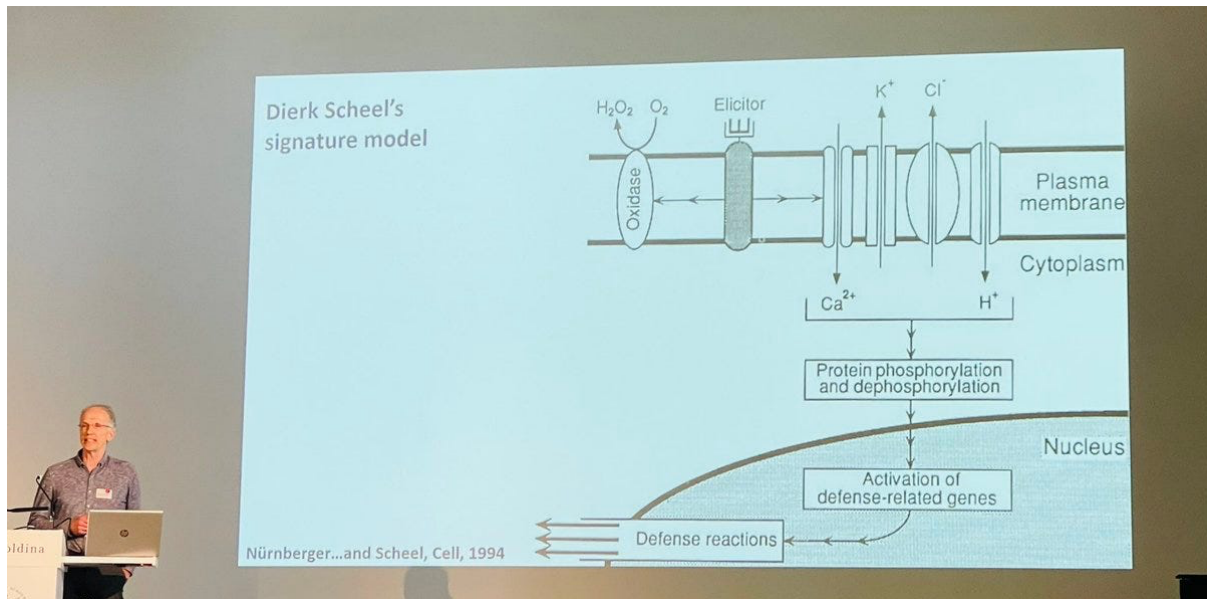
[Author information](#)

The EMBO Journal (2002) 21: 6681-6688 | <https://doi.org/10.1093/emboj/cdf667>

Some of the key papers about the Pep13 receptor and its ligand: [Nürnberger et al. 1994](#); [Brunner et al. 2004](#).

After those glorious days, the Pep13 receptor project slowed down, primarily due to difficulties in isolating the receptor from non-model plants. However, we received exciting news about this topic during Thorsten's presentation at the symposium. It's not my story to share in detail, but stay tuned and you will hear more about this topic soon.

What struck me about this news is how the early work from 30 years ago has stood the test of time. Despite the challenges faced on the road to discovering the receptor, the intricate biochemistry of the 1990s has been validated. The Pep13 receptor is not just a concept; it is a tangible reality. Dierk Scheel's black & white signature model, as [Martin Parniske referred to it](#), lives on after all these years. Isn't that the essence of science—to uncover the truths of the natural world? To have our discoveries and models act as a springboard for further exploration and discoveries?



[Dierk Scheel's signature model as introduced by Martin Parniske at the Symposium.](#)

Your job is to produce science that stands the test of time

I stayed in Halle an extra day after the Symposium at the kind invitation of [Sascha Laubinger](#) and [Debora Gasperini](#) who organized [a networking meeting for Early Career Researchers \(ECRs\)](#). The idea was to bring together ECRs from different institutions and areas of plant biology to network, exchange ideas, and learn from each other.

Early Career Plant Researchers Network Meeting

10.5 - 11.5.23, Halle (Saale), Germany

Sophien Kamoun, The Sainsbury Lab

Rhea Stoppel, Bayer AG

Halle scientists

Debora Gasperini (IPB), Marcel Quint (MLU)

Tina Romeis (IPB), Nico von Wiren (IPK)



[The Networking Meeting in Halle.](#)

Sascha and Debora tasked me with offering career tips to the ECRs. Where should I begin? There are too many topics to cover. To structure my presentation, I decided to start by emphasizing the significance of identifying and addressing weaknesses, which I previously discussed in the blog post titled “[Even in a great orchestra, you will only hear the bad player.](#)” As I mentioned earlier, possessing a well-rounded skill set is crucial for success as an academic scientist. Overachievers in just one area will face challenges in academia.

But this topic quickly transitioned into a discussion about our approach to science and the essence of being a scientist. The key takeaway here is to draw inspiration from the work of Thorsten and Dierk and strive to produce scientific contributions that withstand the test of time. That is impactful science. It’s not more complicated than that.

As one of the attendees [@gugaraguirang](#) tweeted, the take home message is: ***your job is to do solid science that stands the test of time.***



Gali

@gearaguirang

...

“...your job is to do solid science that stands the test of time”

Thank you @KamounLab for the helpful tips and substantial discussion in having a career in academia! 😊



[Your job is...](#)

After each presentation, there was a dynamic and engaging discussion among the attendees, who asked insightful questions and shared their perspectives and experiences related to the topic. The Q&A session sparked an immensely inspiring discussion on numerous topics that are of great concern to ECRs. Here is a concise breakdown of the highlights from the session, along with links to suggested reading material to delve deeper into these subjects.

[Make sure your weak points don't become your Achilles's heel.](#)

Strengths are important, but glaring weaknesses will hurt more

My point is not that you have to be a superathlete to succeed as an academic scientist. My point is that to be competitive in the combined events or in academia, ***you shouldn't be hyper-specialized***. This isn't to say that you can't be great at certain things. We all have different strengths that make us successful in a unique way. But if you have a glaring weakness — say difficulty in writing papers, giving talks, managing people, working in a team — you will struggle to have a fulfilling career unless you take actions to remedy the weak points.

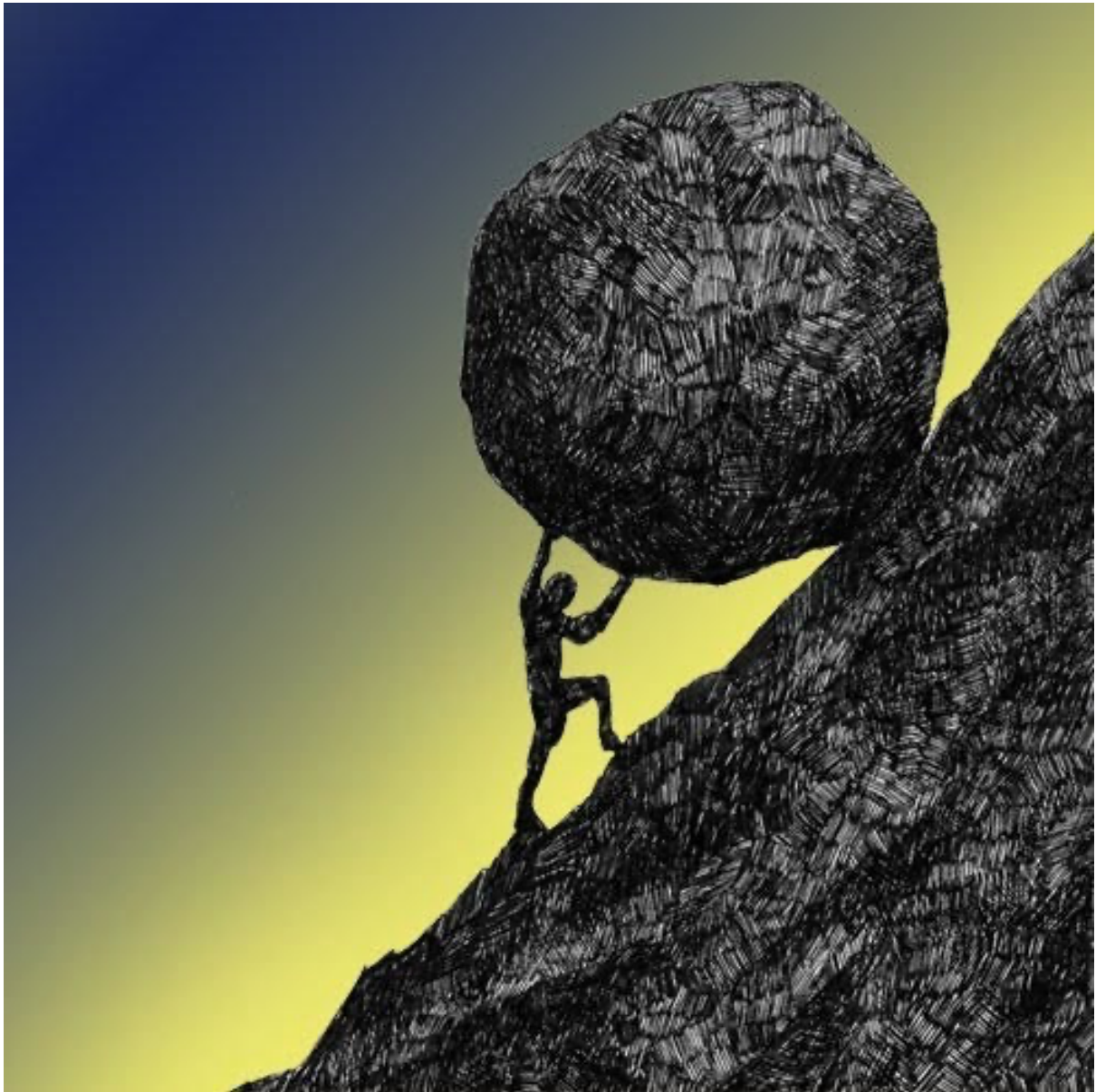
Focusing on improving your weaknesses is more important than polishing strengths.

Prioritize conducting science that stands the test of time over an obsession with glam-mag / CNS papers.

Develop a holistic approach to your career development
(...don't obsess with glam-mags and journal impact factors)

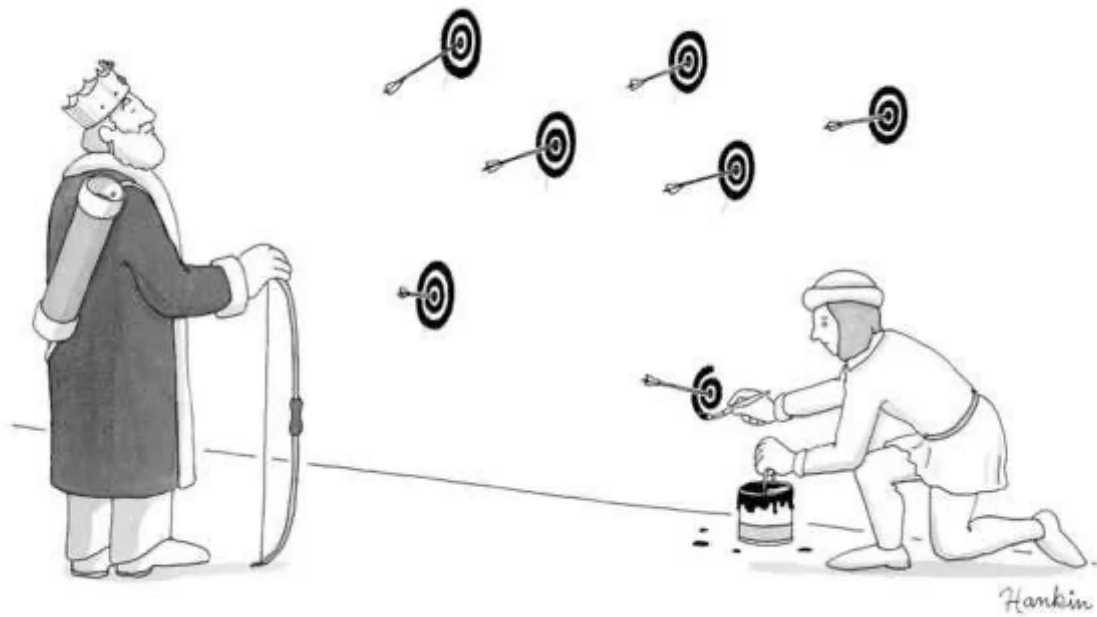
- Publishing is important, but...
- Aim high (whatever that means to you) in a reasonable way. But don't waste years chasing CNS papers.
- Don't lose the plot. Your job is to produce solid science that stands the test of time, not to squeeze a wishy-washy paper through reviewers and editors.
- Flawed papers will get you far in certain academic environments, but is this who you want to be?
- Embrace open science and progressive publishing *sensu lato*.

GOHREP and PLESI—Develop a framework to prioritize your projects and keep the experimental cycle rolling.



The myth of Sisyphus. Scientific research can be frustrating. Have a plan!

Don't be a deliveroo student.



Don't be a deliveroo student.

To become resilient, build a support network of people around you that includes your mentors, your colleagues and your mentees.

My well-being feeds off the positive feedback I receive from the people I mentor and work with.

We all make mistakes. Fix your errors. Saying “I was wrong” shouldn't be taboo.

The importance of wrong

- Our goal is to generate robust knowledge to advance science
- “I was wrong” should not be taboo
- Respond quickly, admit error, make correction



[“I was wrong” shouldn’t be taboo.](#)

To create incentives for fixing the record, we consider the failure to correct errors as a form of scientific misconduct.

[**Best management strategy? Kamoun Shuffle vs Eisenhower Matrix.**](#)

NOT OPTIONAL

OPTIONAL

MUST-DO

- the stuff you cannot get away without doing
- prioritize
- do it as fast as you can
- can be boring and painful but that's what you get paid for

FUN STUFF

- the stuff you enjoy doing
- no need to prioritize
- make sure to spend 2-3 hours per day on these activities
- some will turn out to be useful and productive; you just don't know which and how at this stage

[The Kamoun Shuffle.](#)

[How to choose a host lab?](#)

OPINION

11 tips for choosing the right PhD



Sophien Kamoun, plant pathogen researcher and group leader at the Sainsbury Lab, gives his top tips for choosing where to do your PhD or postdoc project

[11 tips for choosing the right PhD. Many of these tips would also apply to those seeking a postdoc position too.](#)

Acknowledgements

This post was written with assistance from [ChatGPT](#). I'm grateful to all the people listed in the articles, including the organizers and participants of the ECR workshop for inspiring the article.

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