CEITEC

Central European Institute of Technology

BRNO | CZECH REPUBLIC

UNIVERSITAS MASARYKIANA BRUNENSIS

S4010 Science Communication Course
THE ESSENTIALS OF GIVING A GOOD (not only) SCIENTIFIC TALK

Jan Hejátko

Research Group Leader

Brno, Apr 28 2023

EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND
INVESTING IN YOUR FUTURE

2007–13
OP Research and Development for Innovation

Outline

- Why it is Important to Present Well?
- Structure
- Slides
- Passion
- Story
- Gesturing & Body Language
- Timing
- Frequent Problems

Why it is Important to Present Well?

- VISIBILITY

Why it is Important to Present Well?

- VISIBILITY
- Pushing Your Own Concept Ahead




Outline

- Why it is Important to Present Well?
- Structure

Start Is the Key

+

- (Self)confident entrance to the stage
- Hook
- Outline

-

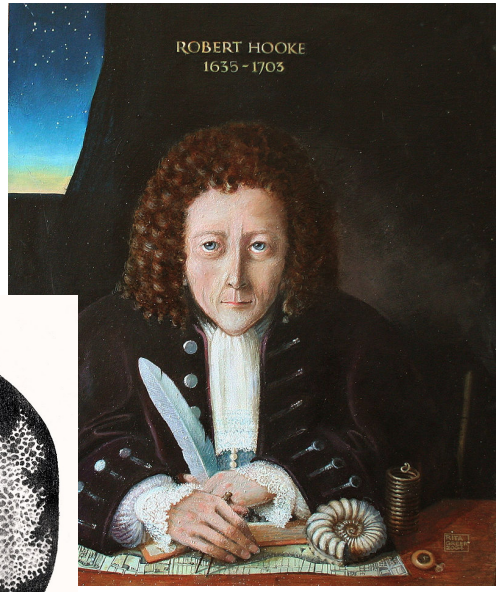
- reading the title of the presentation
- repeating the intro done by the chair
- no structure

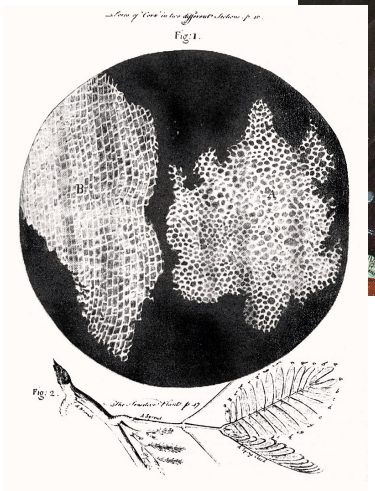
Hook

- Use proper timing (pauses)

Plants? YES!

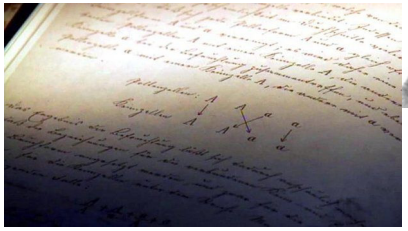
- Plants have **CELLS,**
- Plants have **GENES**,
- **BOTH** …

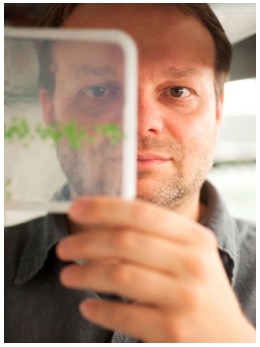




…were discovered in ….

…**PLANTS!**





Jiri Friml
CEITEC

Outline

- Say what do you want to say
  - Outline
- Then say it
  - Presenting the Results
- Finally, say what did you just said
  - Conclusions/Working model

Outline


PRESENTATION Q&A
WHAT'S THE BEST WAY TO OUTLINE A PRESENTATION?

Outline

- Multiple Signal Integration via Multistep Phosphorelay Signaling in Plants
- Cytokinins Control Root Growth via Regulating Ethylene Biosynthesis
- Multistep Phosphorelay in Ethylene Signaling

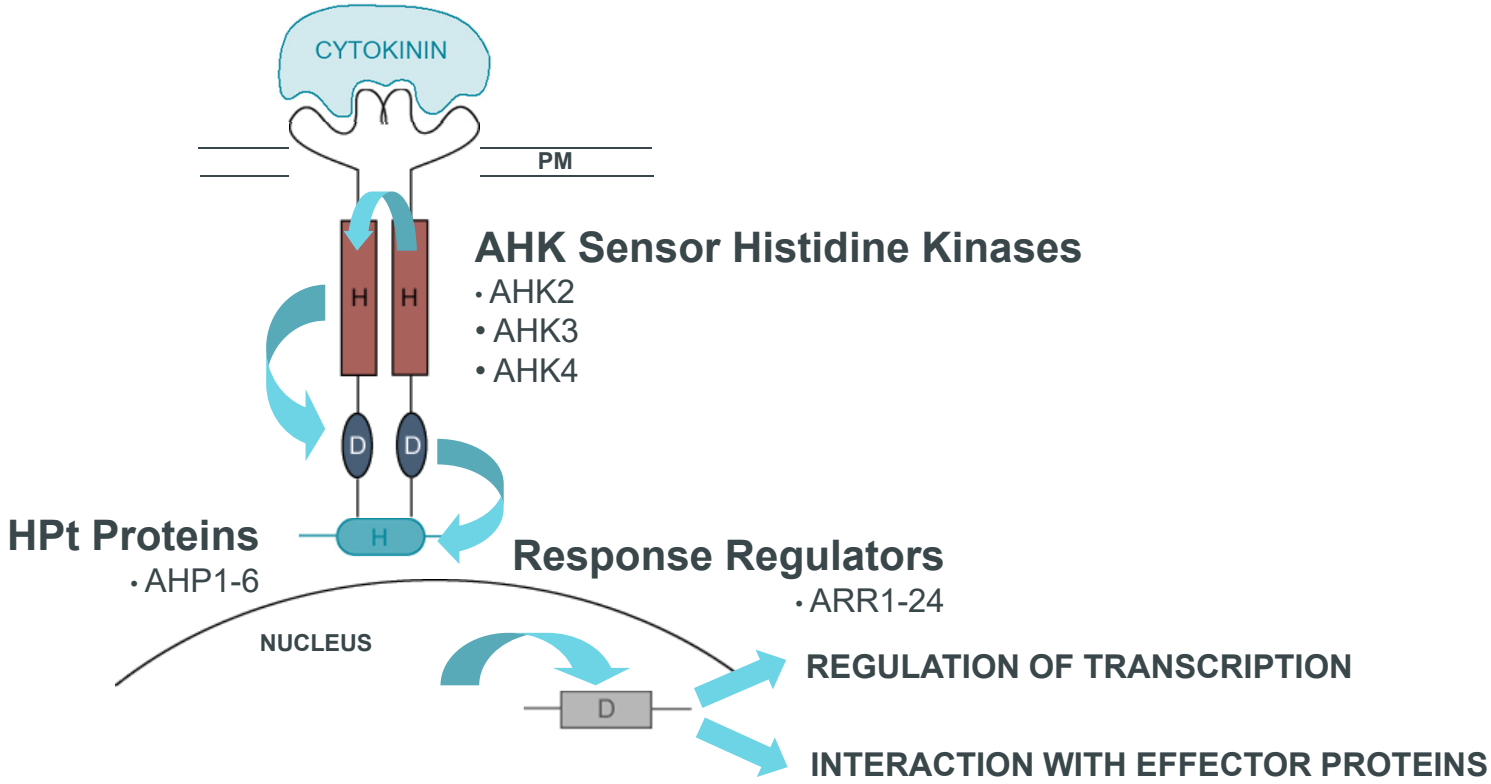
EXAMPLE

Outline

- Multiple Signal Integration via Multistep Phosphorelay Signaling in Plants

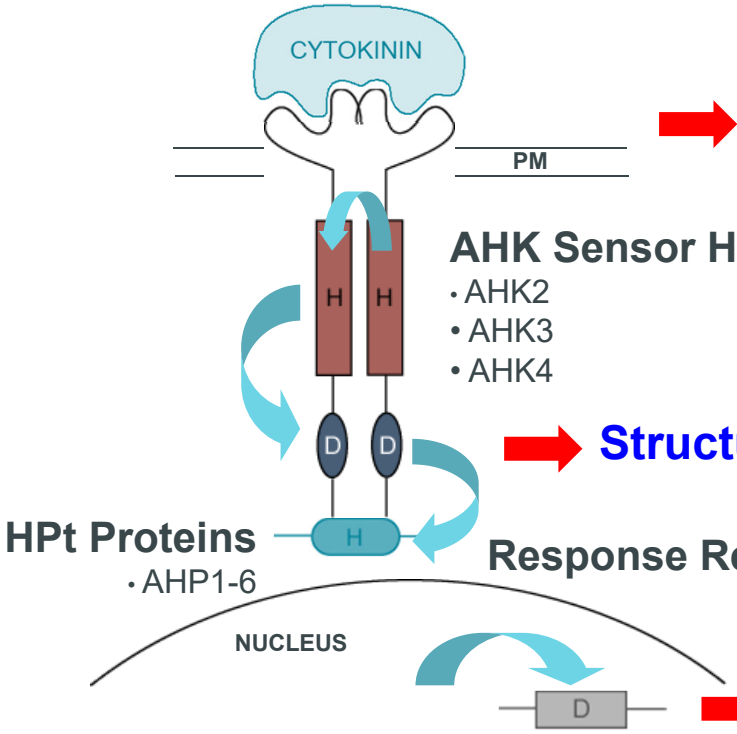
EXAMPLE

Signal Transduction via Multistep Phosphorelay



EXAMPLE

What We Are Interested In?



➡ **Interaction with other Signaling Pathways**

AHK Sensor Histidine Kinases
- AHK2
- AHK3
- AHK4

➡ **Structural Determinants of Signaling Specificity**

Response Regulators
- ARR1-24

➡ **Identification of MSP Targets**

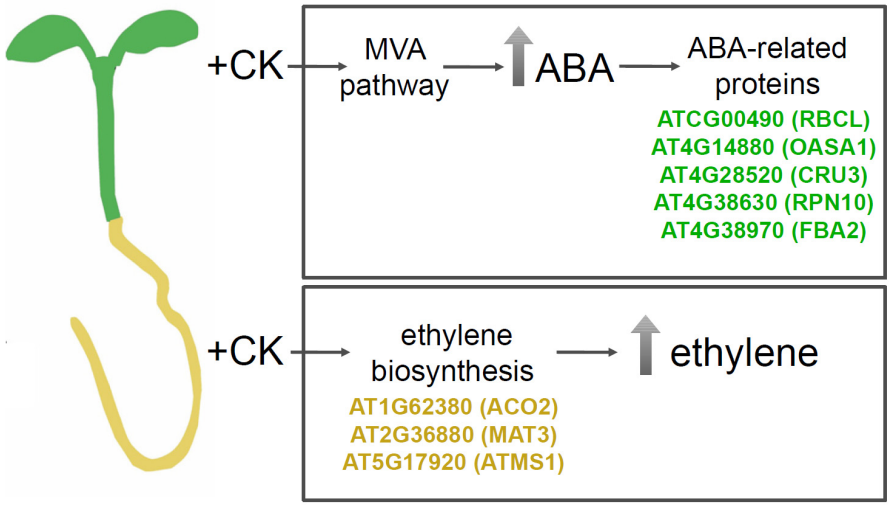
EXAMPLE

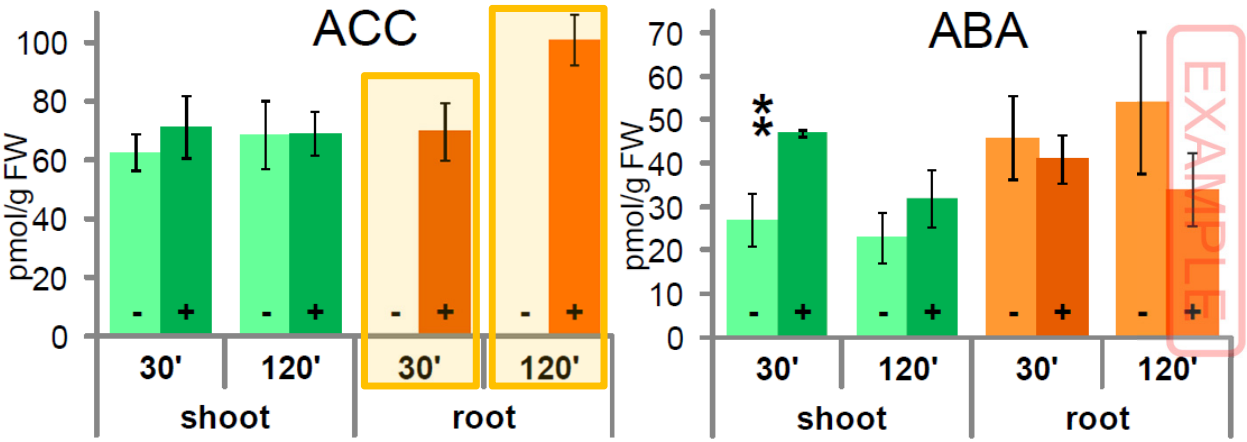
Outline

- Multiple Signal Integration via Multistep Phosphorelay Signaling in Plants
- Cytokinins Control Root Growth via Regulating Ethylene Biosynthesis

EXAMPLE

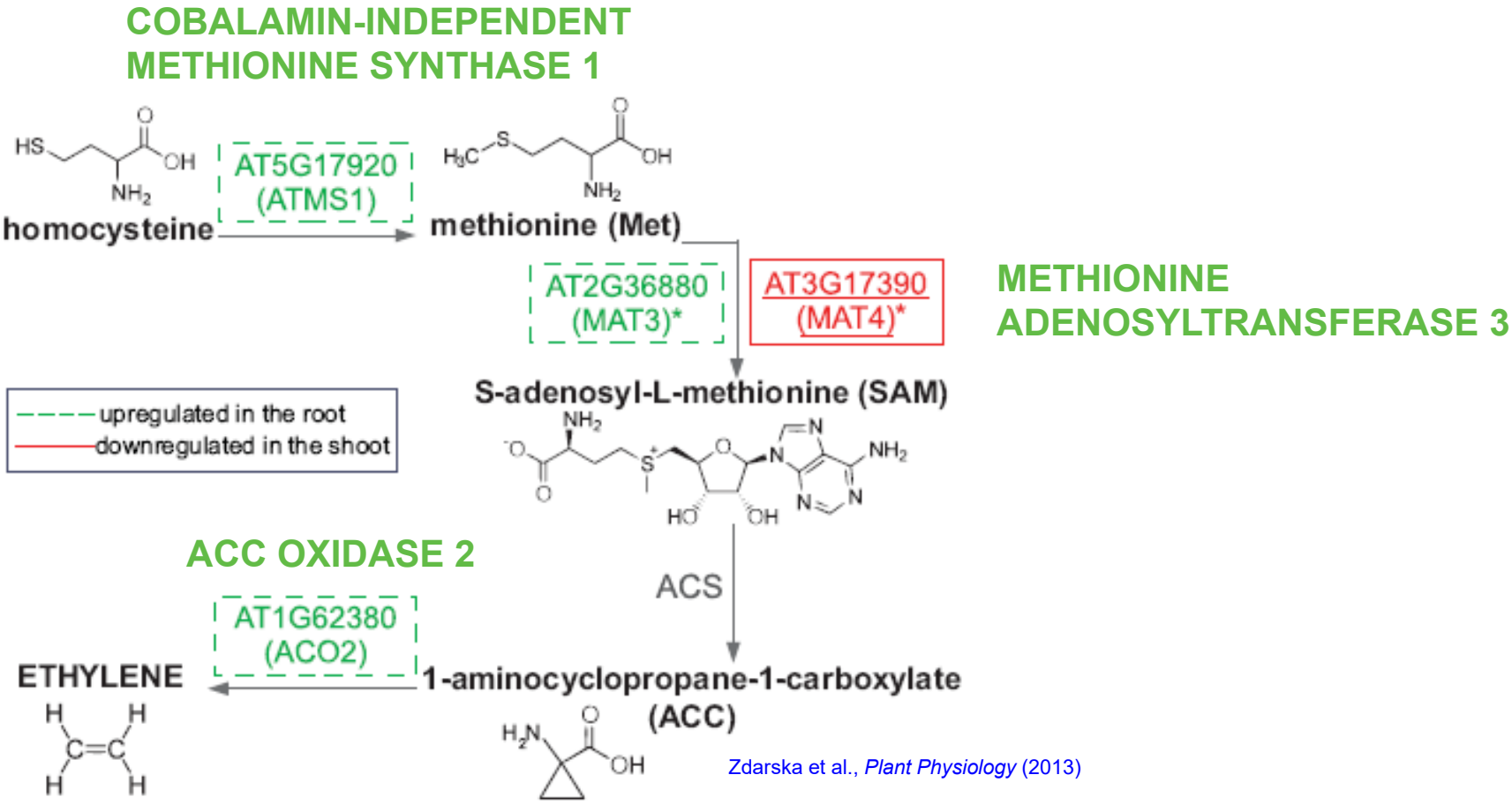
Cytokinins Upregulate ACC Production Specifically in the Root





Zdarska et al., *Plant Physiology* (2013)

Cytokinins Tightly Control Ethylene Biosynthesis



Zdarska et al., *Plant Physiology* (2013)

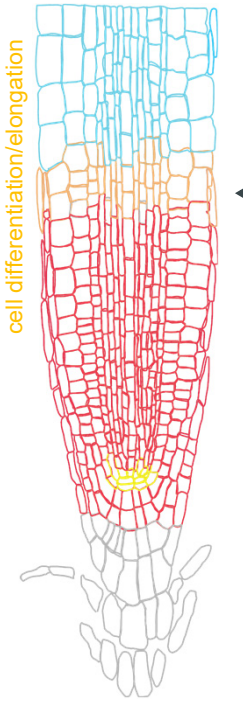
EXAMPLE

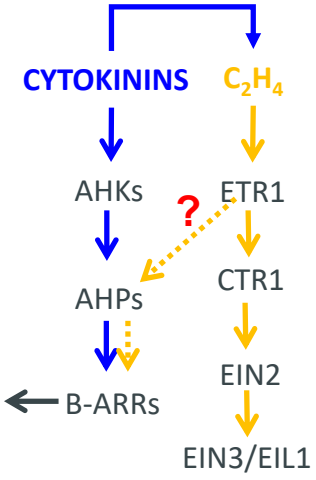
Outline

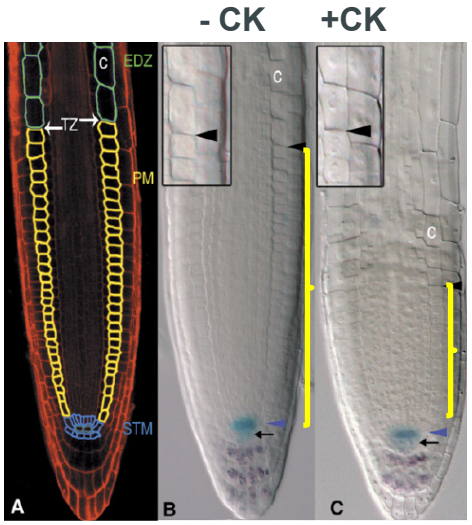
- Multiple Signal Integration via Multistep Phosphorelay Signaling in Plants
- Cytokinins Control Root Growth via Regulating Ethylene Biosynthesis
- **Multistep Phosphorelay in Ethylene Signaling**

EXAMPLE

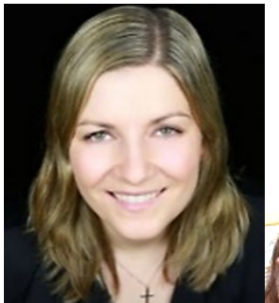
Ethylene Controls Cell Differentiation via Histidine Kinase Activity of ETR1

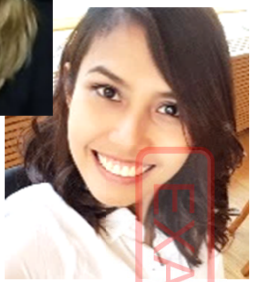


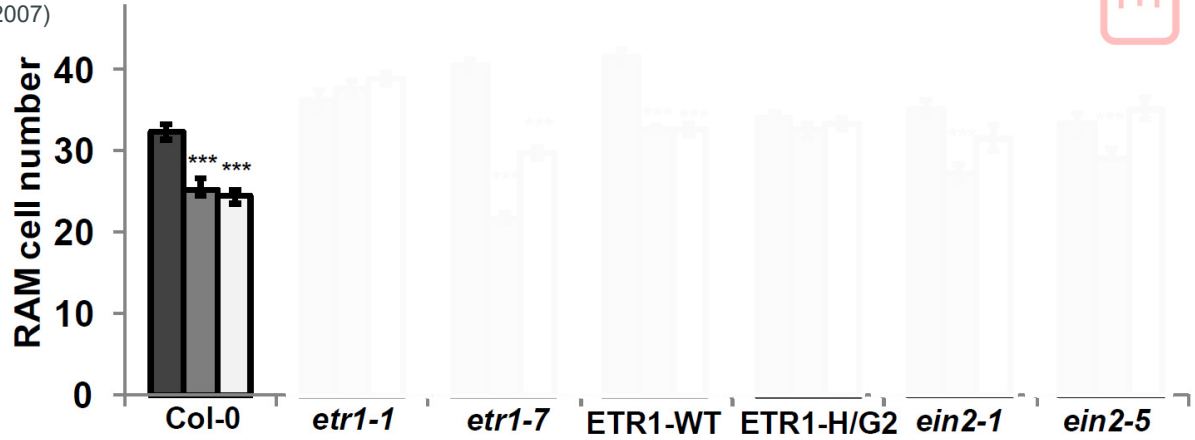




Dello Ioio et al., ***Current Biology*** (2007)







Zdarska, Cuyacot et al., *Molecular Plant* (2019)

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Multistep Phosphorelay Integrates Both Cytokinin and Ethylene Signaling

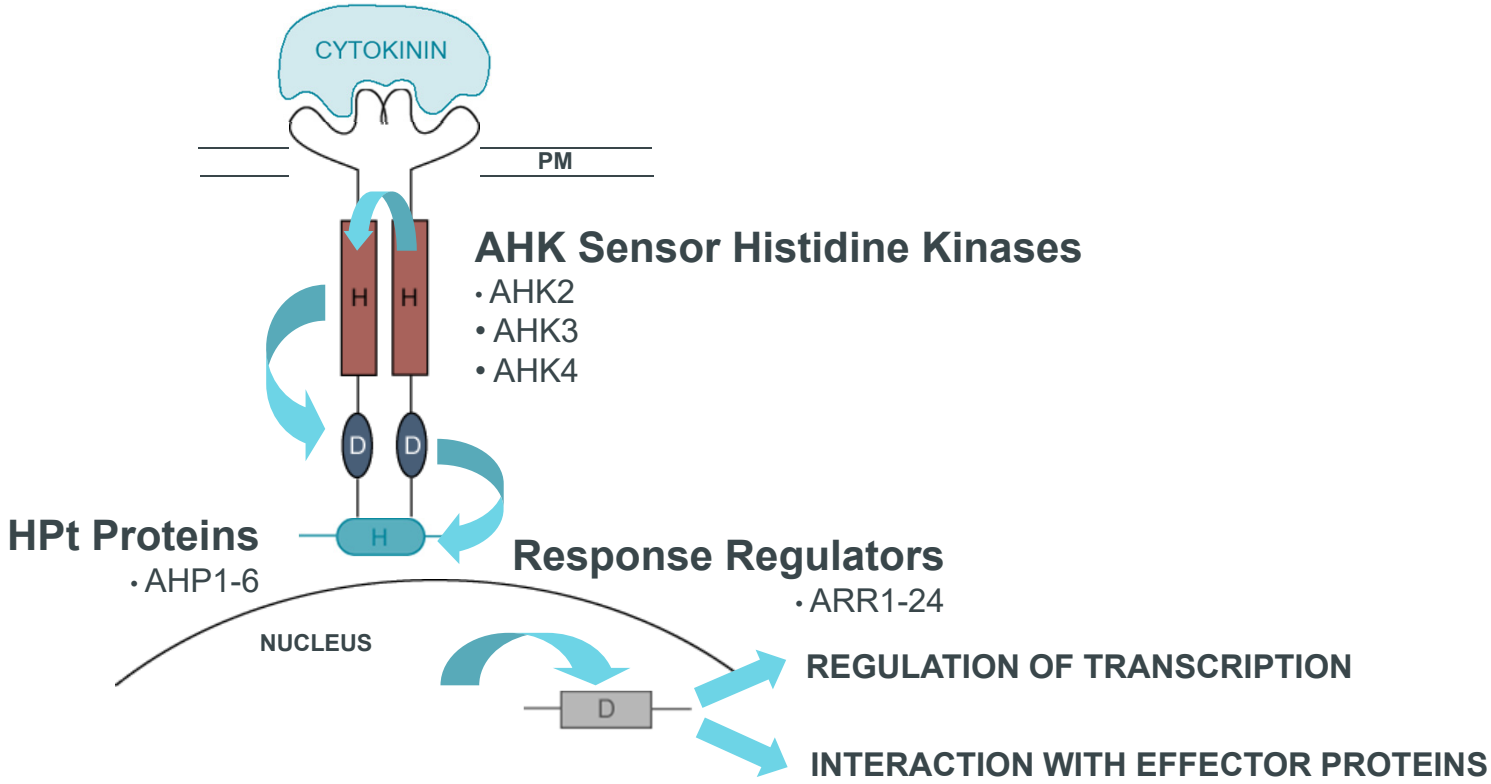
Zdarska, Cuyacot et al., *Molecular Plant* (2019)

EXAMPLE

Outline

- Structure your presentation
  - Hook and Outline
- Slides
  - Background

Signal Transduction via Multistep Phosphorelay



EXAMPLE

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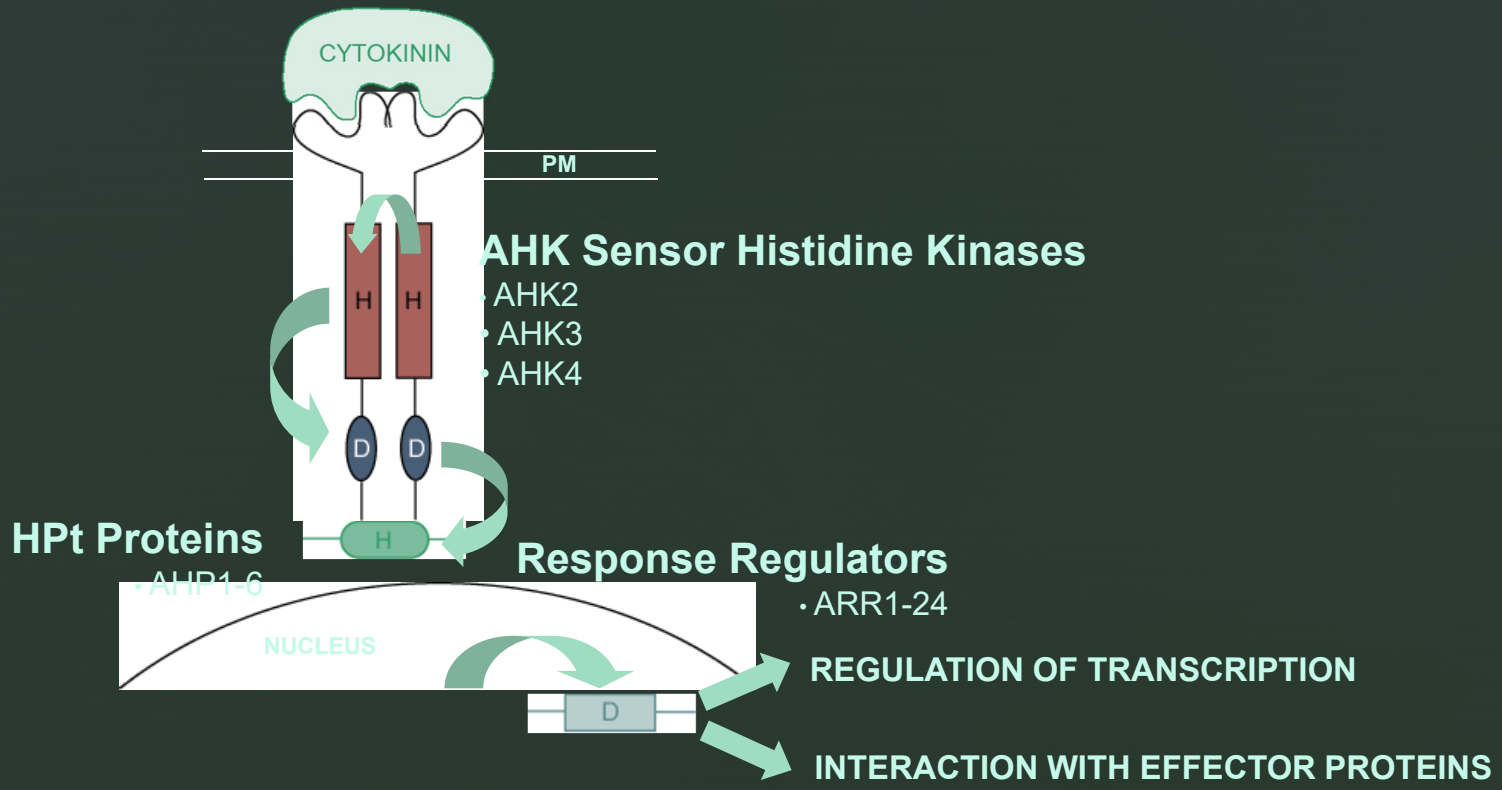

EXAMPLE

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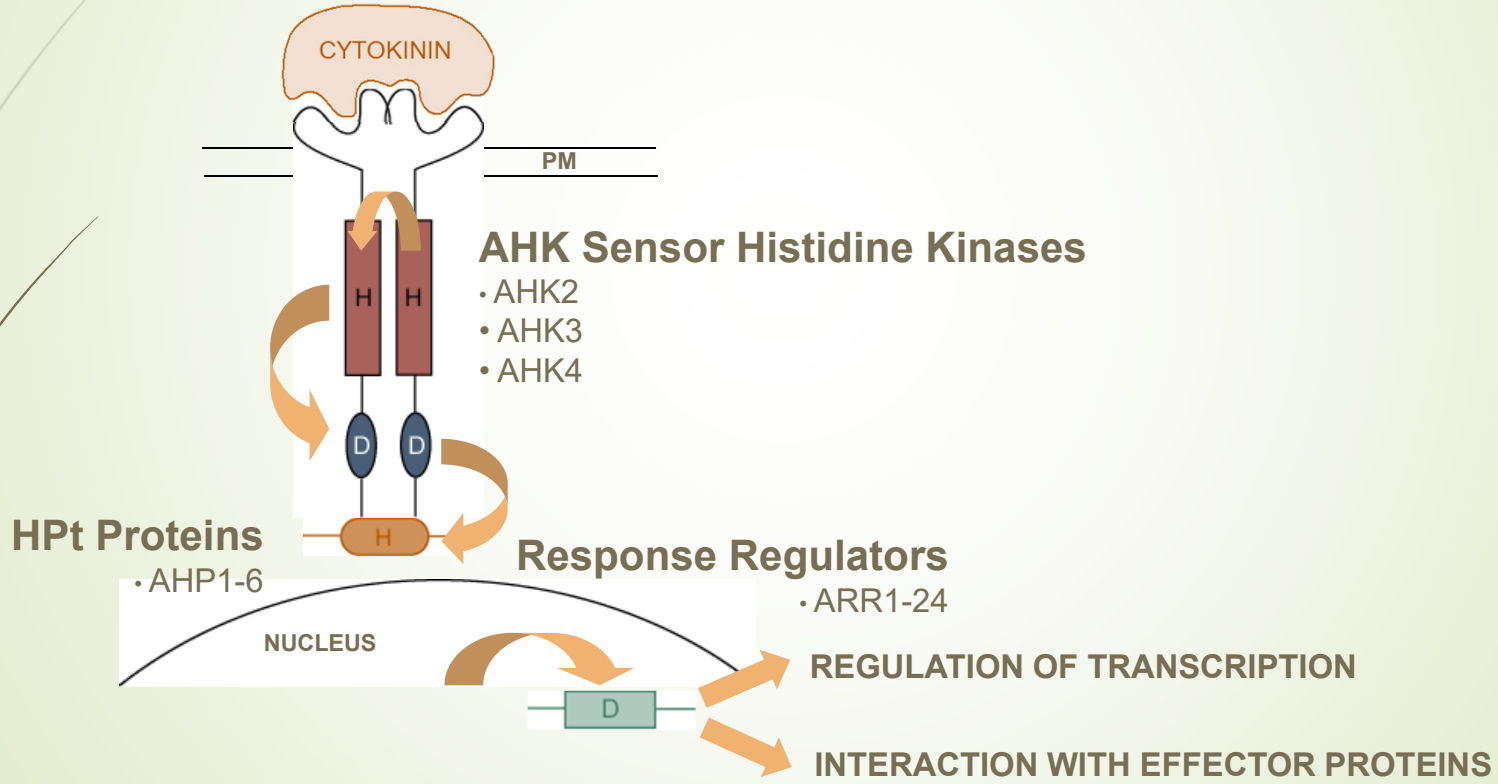
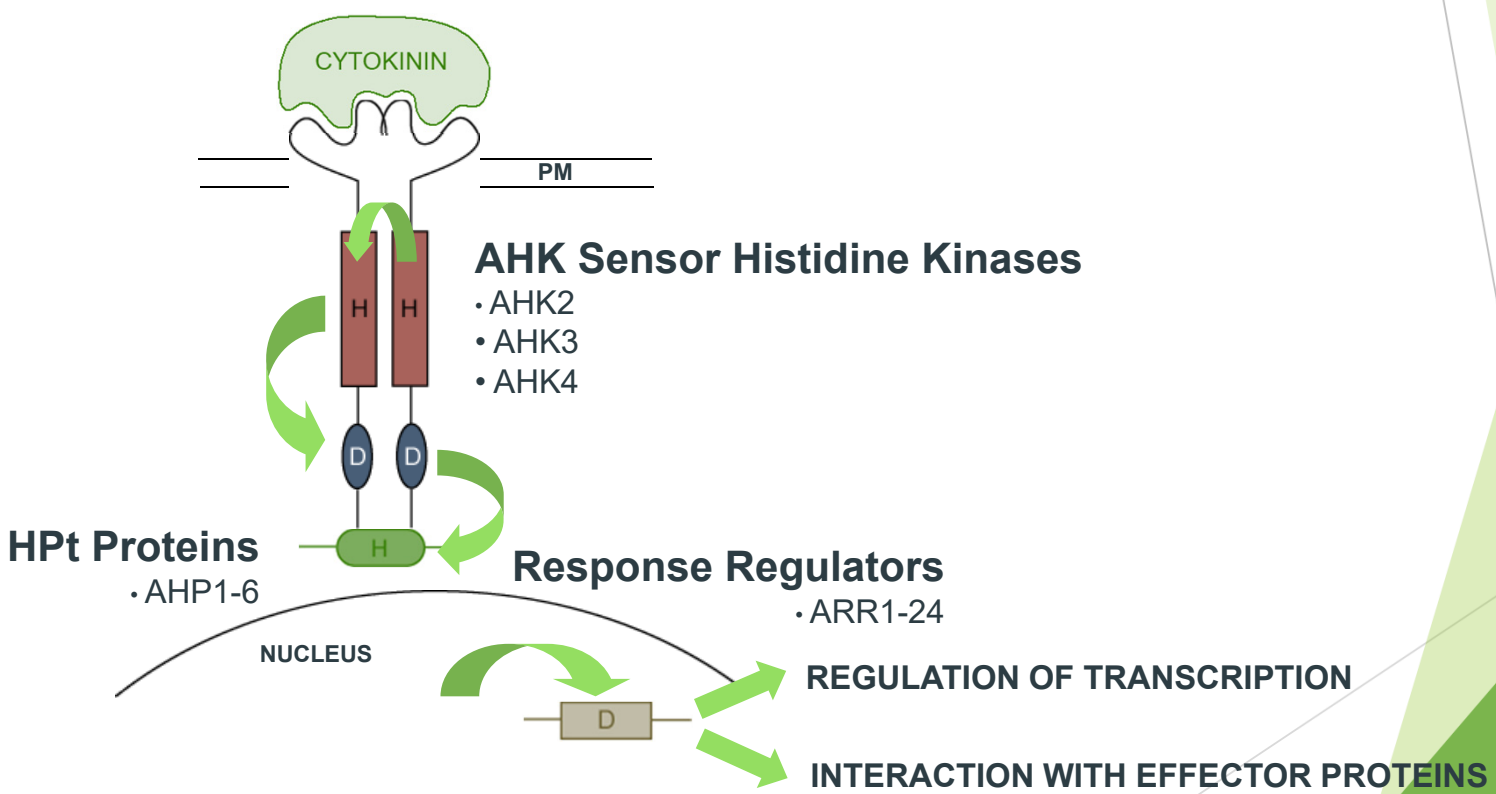


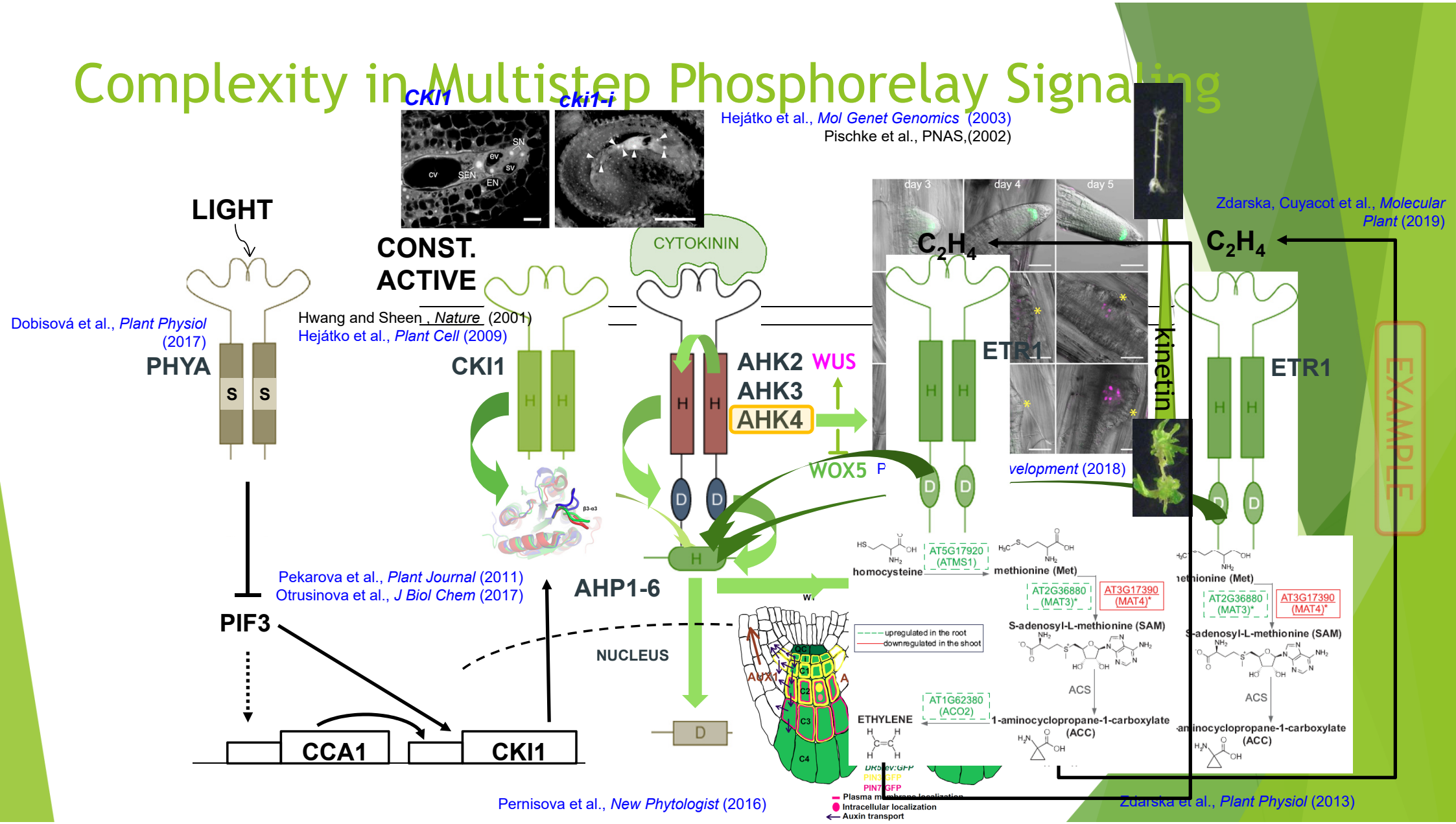
EXAMPLE

Signal Transduction via Multistep Phosphorelay

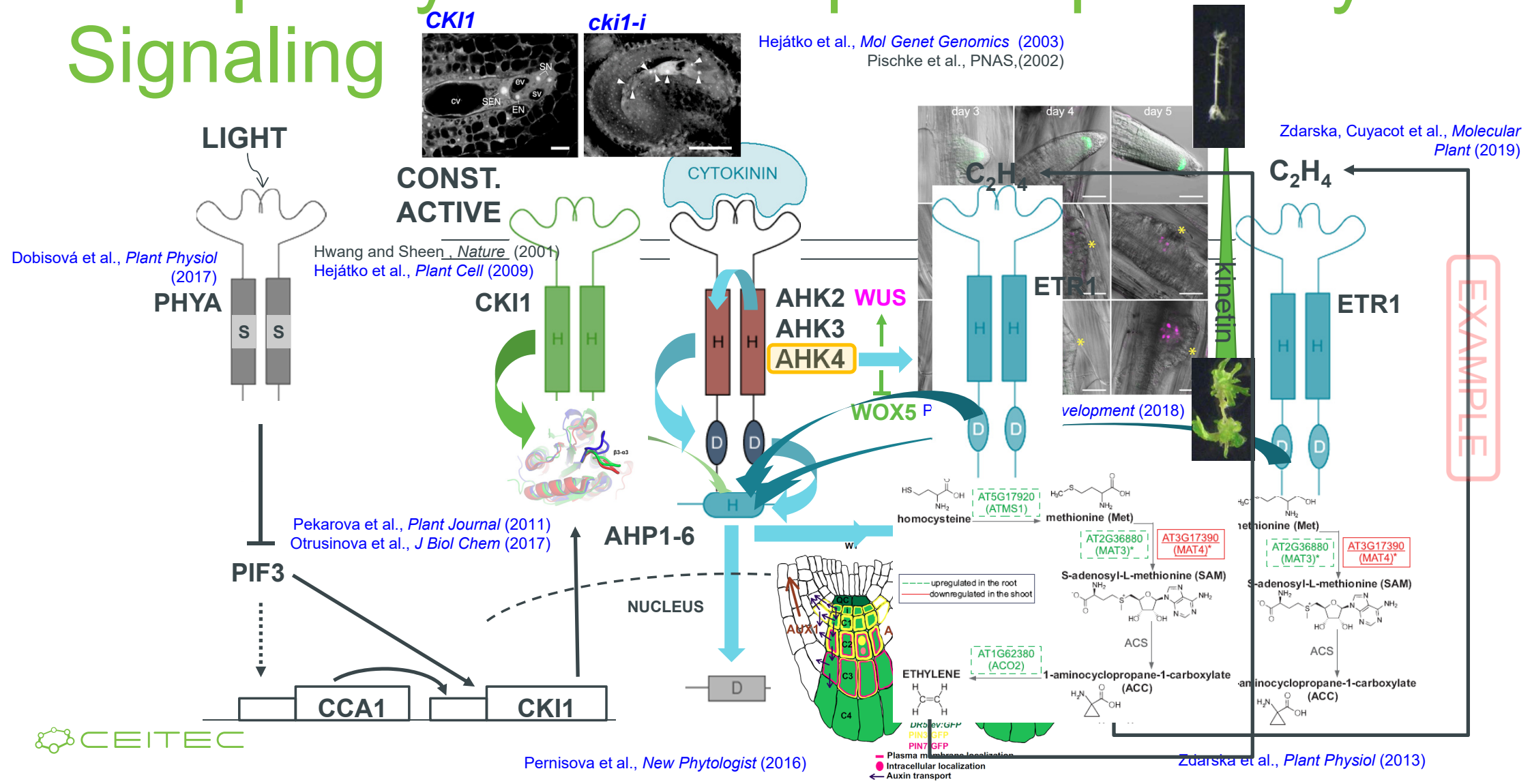


EXAMPLE

Complexity in Multistep Phosphorelay Signaling



Complexity in Multistep Phosphorelay Signaling



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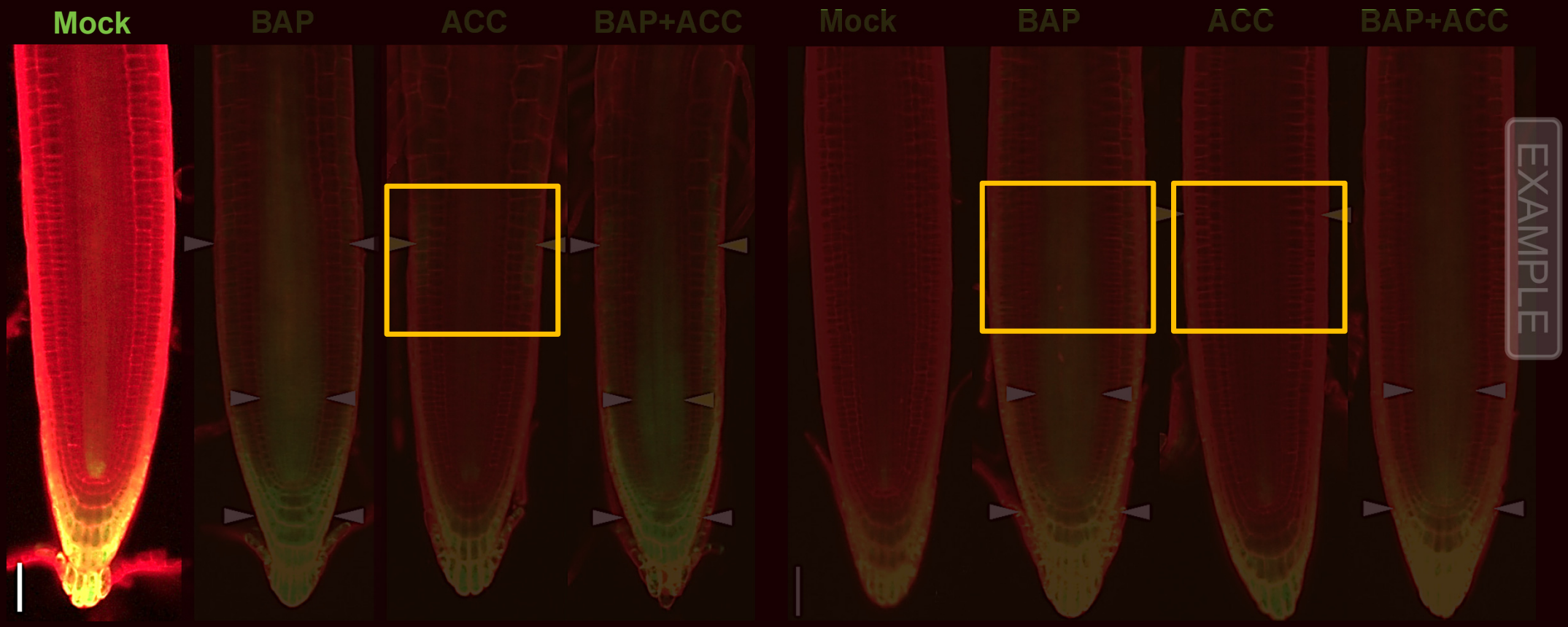
Ethylene Activates Multistep Phosphorelay with Spatial Specificity



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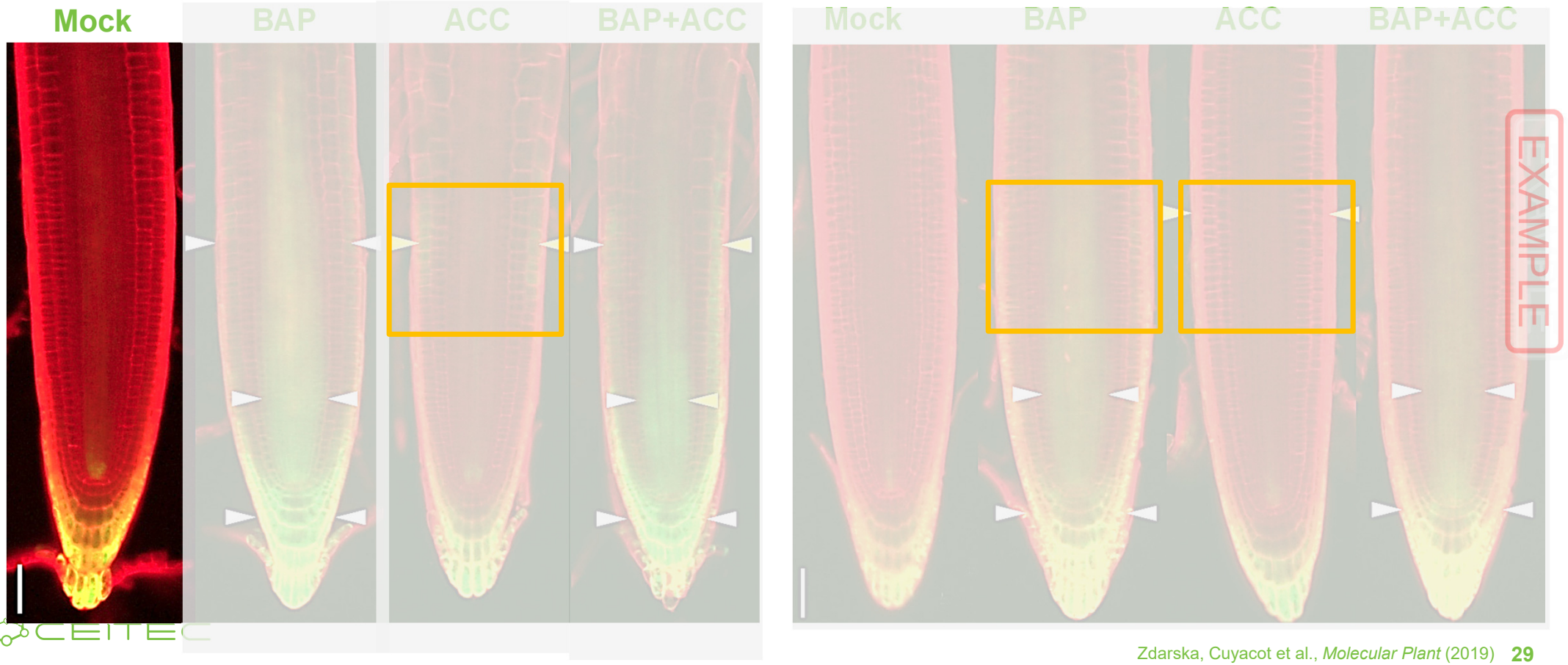

Zdarska, Cuyacot et al., *Molecular Plant* (2019)

Outline

- Structure your presentation
  - Hook and Outline
- Slides
  - Background
  - Pictures vs Text

ETR1 Interacts with AHPs In Vivo

- If ETR1 controls MSP, it should be able to interact via its RD with AHPs
- We have tested the interaction of $ETR1_{RD}$ with AHPs and using BiFC we have shown it interacts with AHP1, AHP2, AHP3 and AHP5
- Finally, the interaction has been confirmed using Y2H

EXAMPLE

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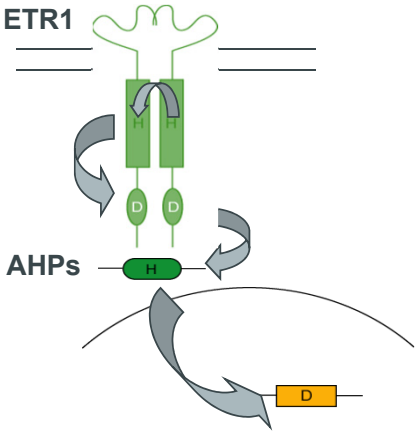
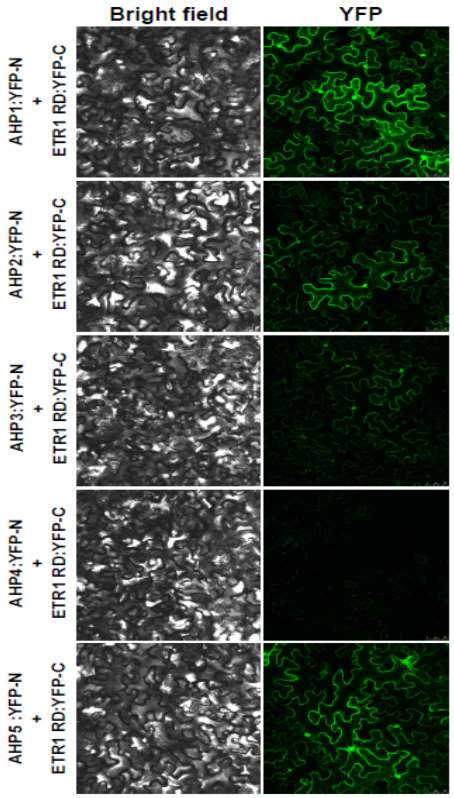
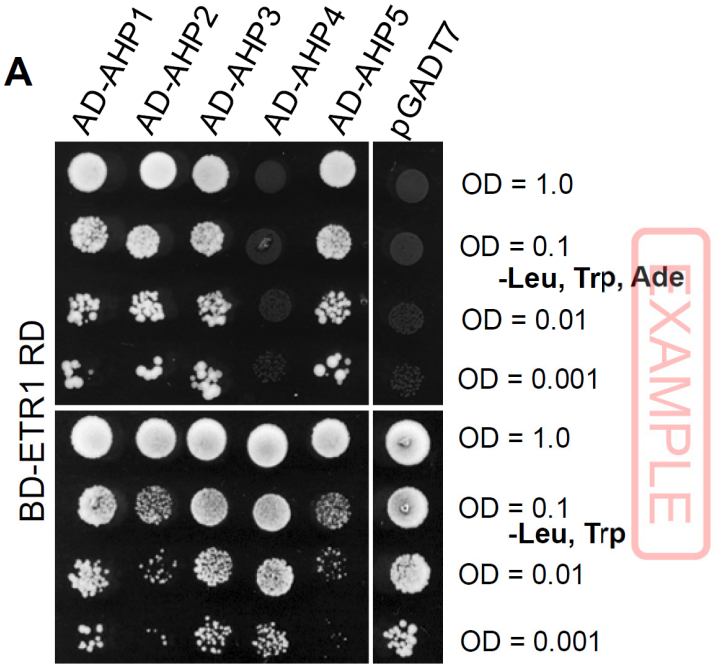


If ETR1 controls MSP, it should be able to interact via its RD with AHPs

BiFC



Y2H



Finally, the interaction has been confirmed using Y2H

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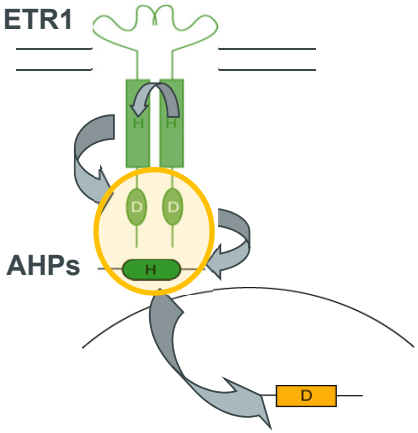
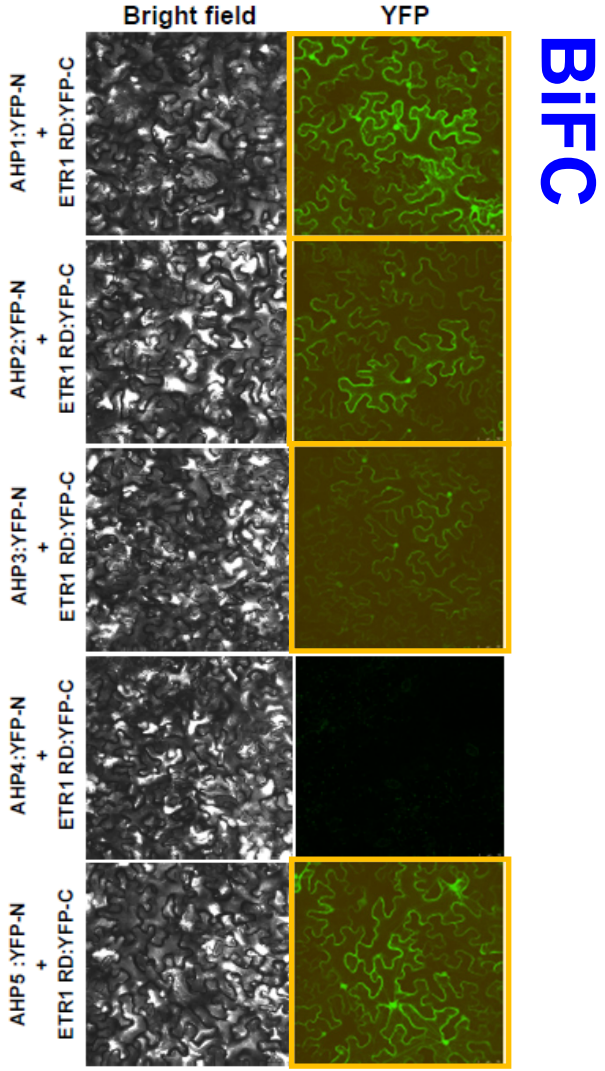
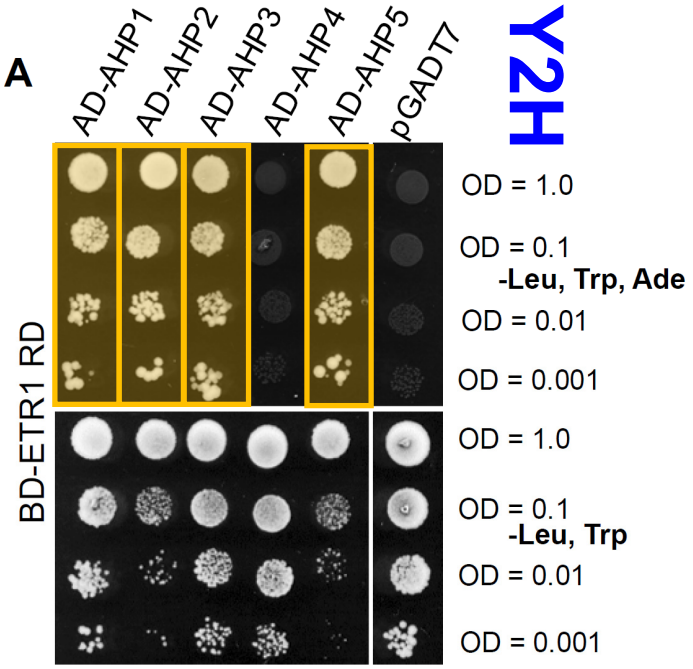
Zdarska, Cuyacot et al., *Molecular Plant* (2019)

ETR1 Interacts with AHPs In Vivo





BiFC



Y2H

EXAMPLE

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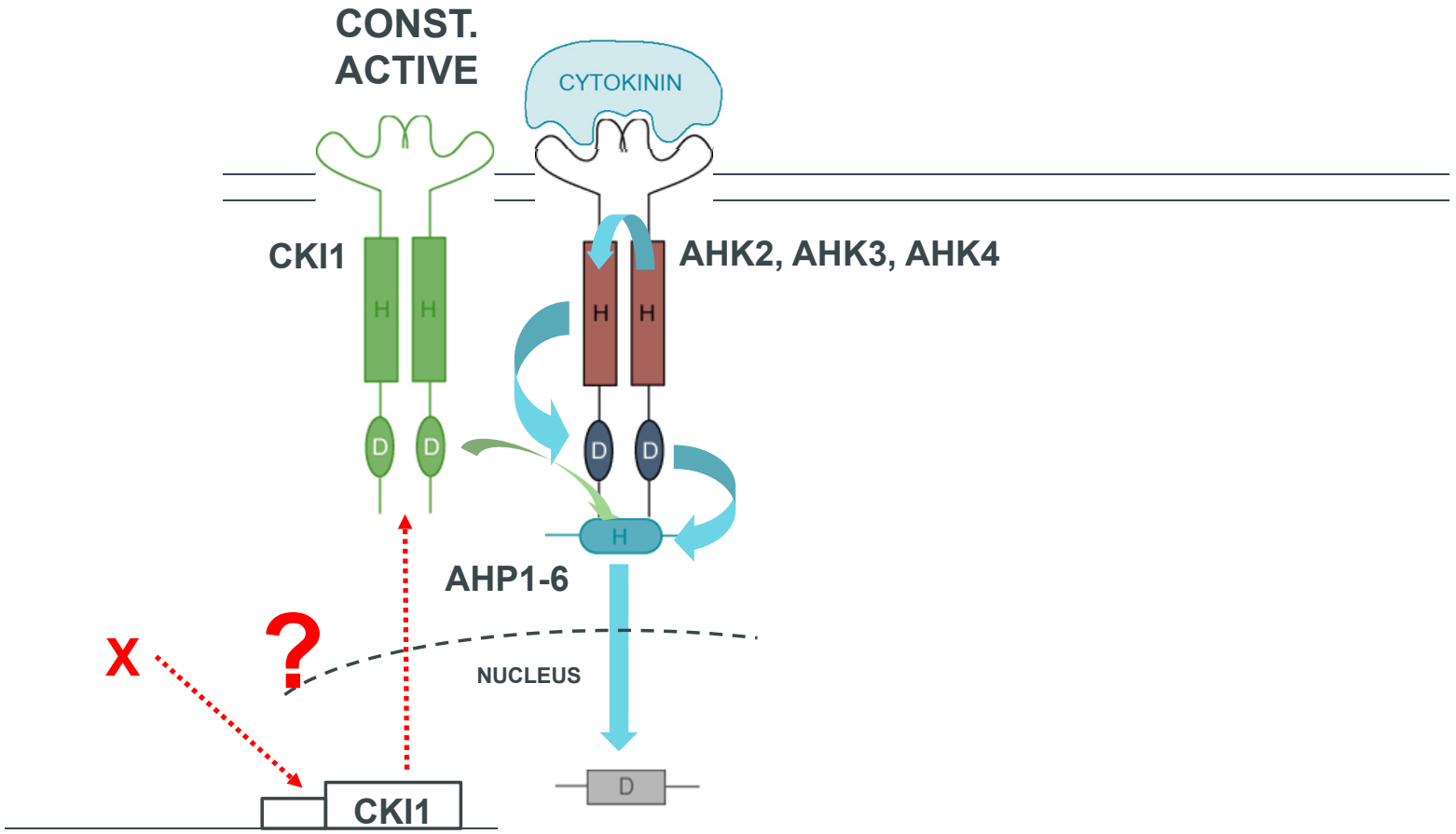
Zdarska, Cuyacot et al., *Molecular Plant* (2019)

Using “Anchor” Figure



EXAMPLE

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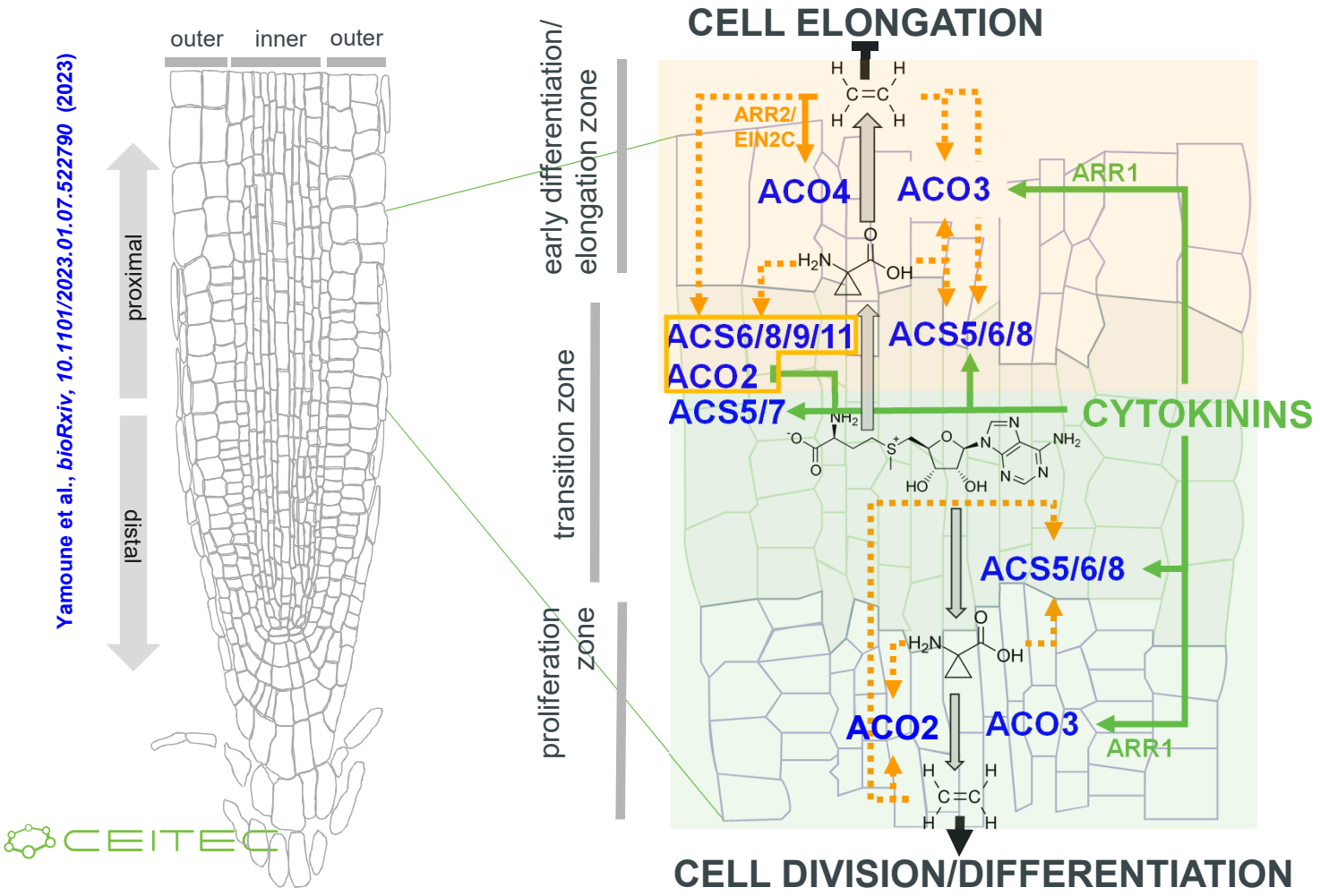
Scheme as “Conclusions”



Yamoune et al., *bioRxiv, 10.1101/2023.01.07.522790* (2023)

EXAMPLE

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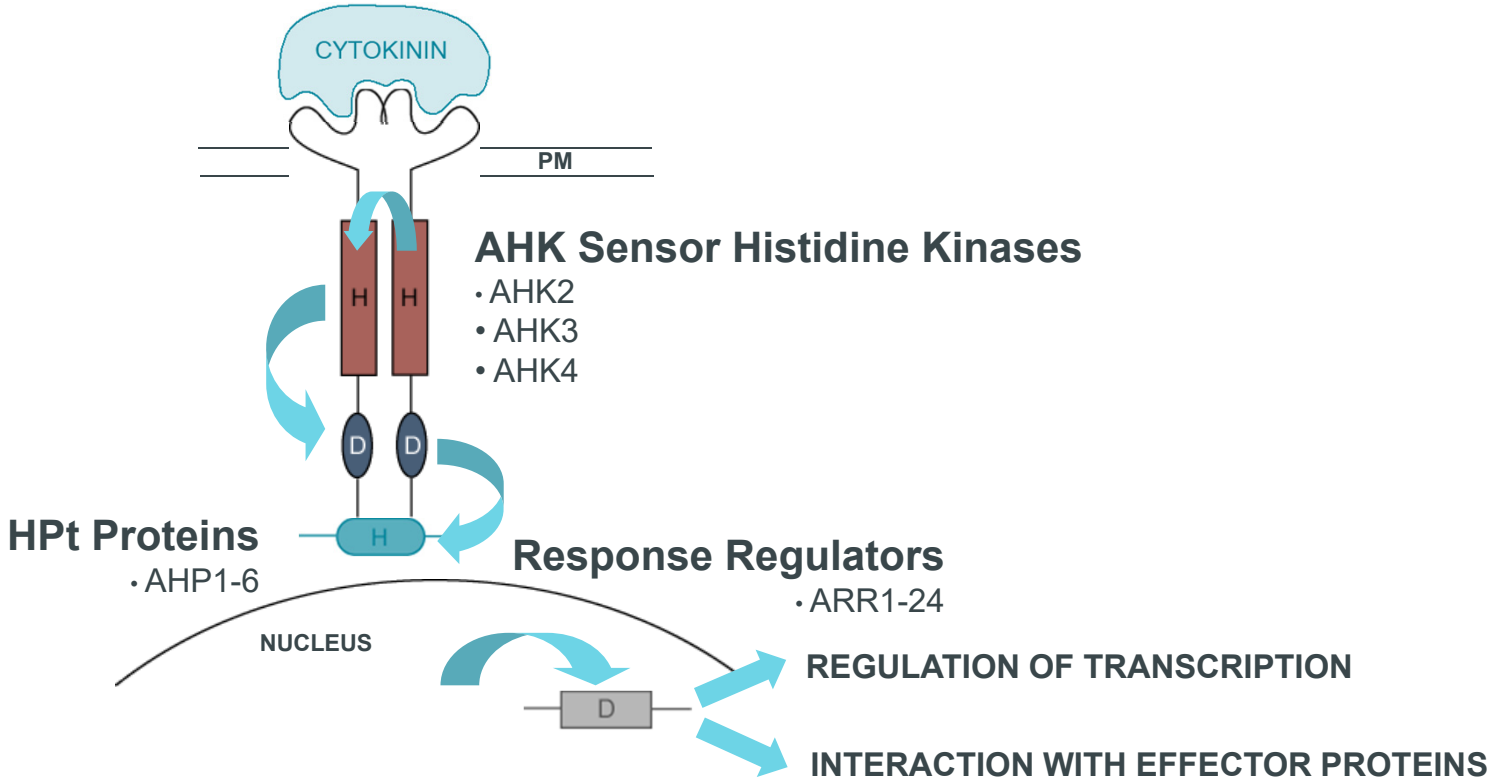
Outline

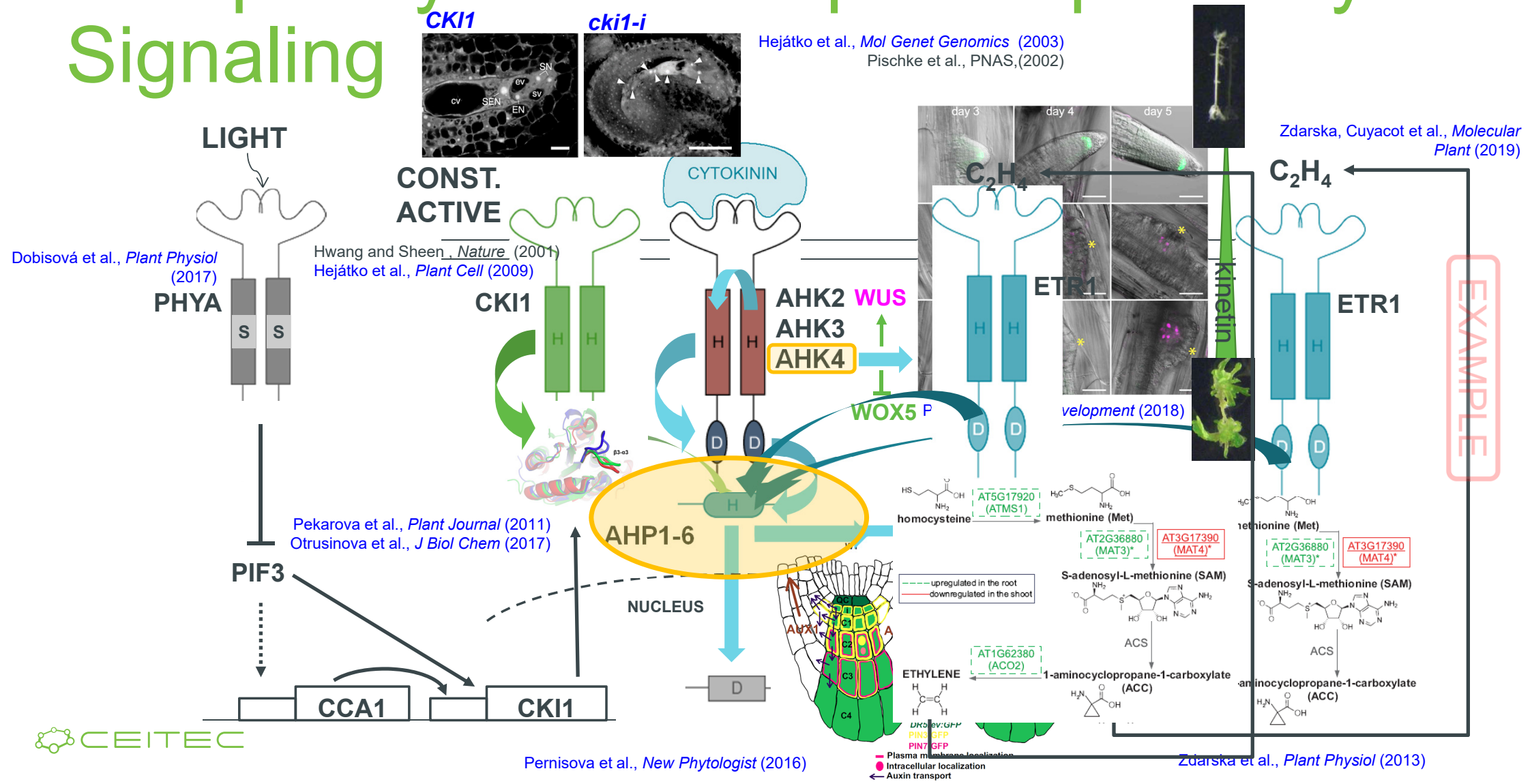
- Structure your presentation
  - Hook and Outline
- Slides
  - Background
  - Pictures vs Text
  - Animations & Highlights

Signal Transduction via Multistep Phosphorelay

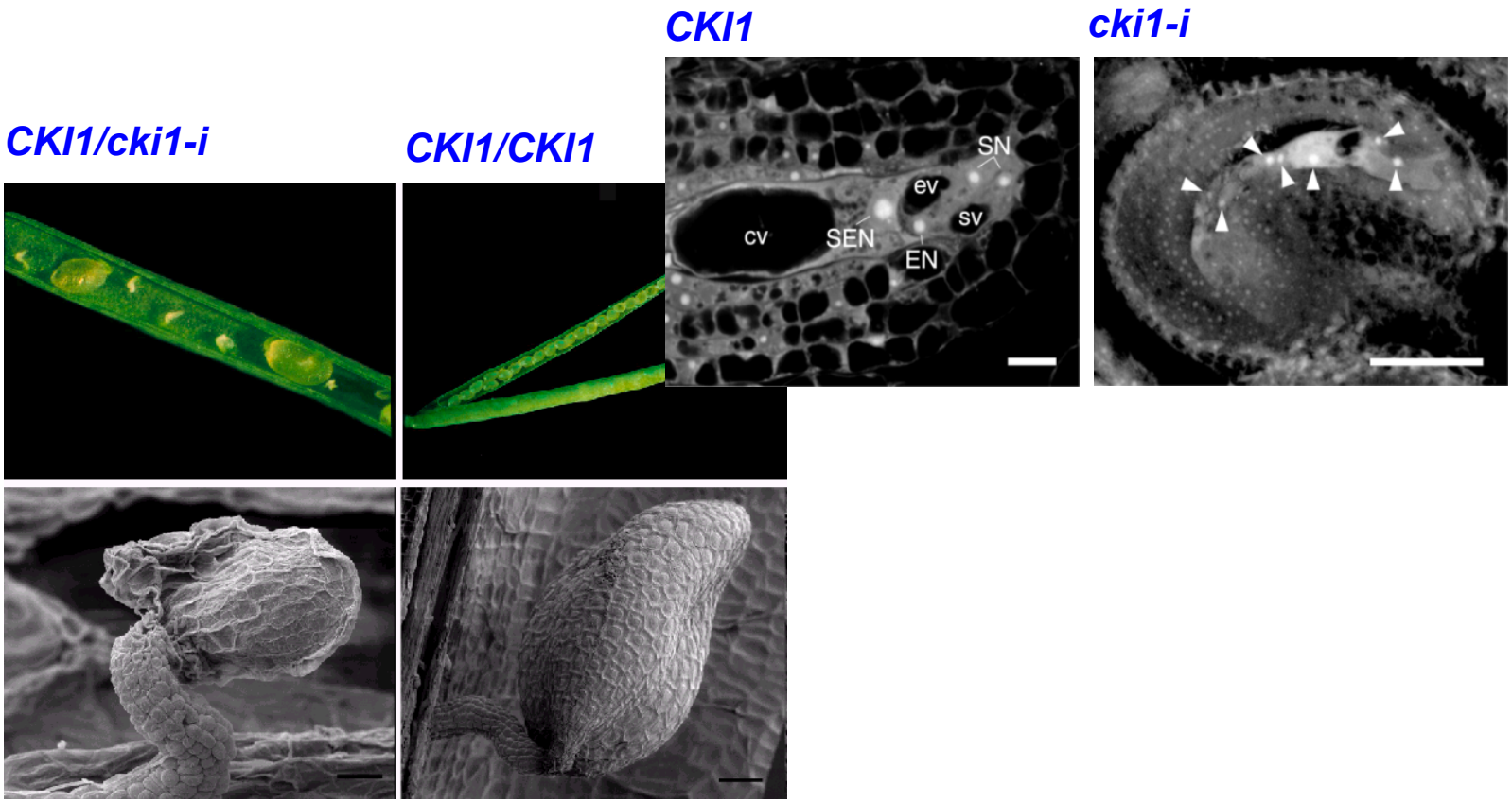


EXAMPLE

Complexity in Multistep Phosphorelay Signaling



CKI1 Regulates Female Gametophyte Development



Hejátko et al., *Mol Genet Genomics* (2003)

EXAMPLE

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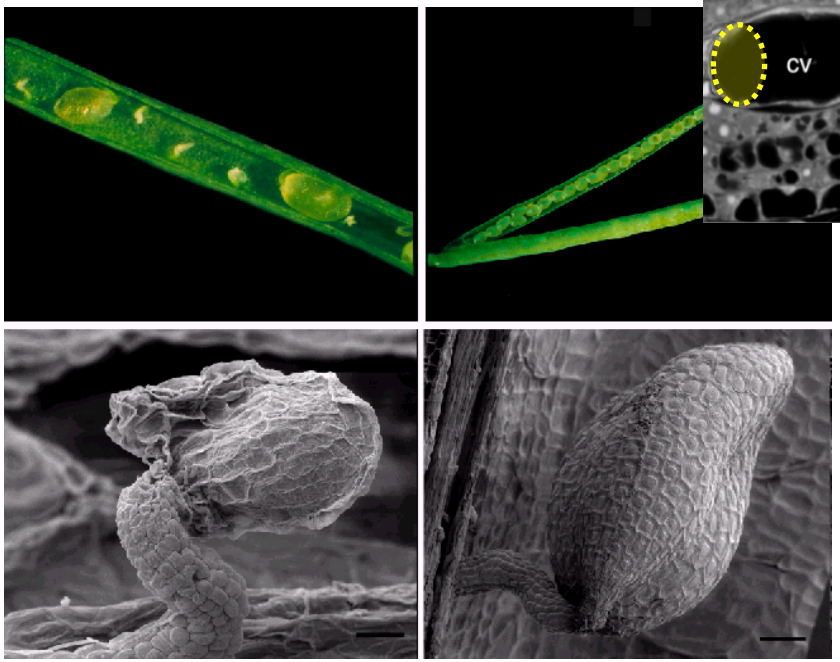
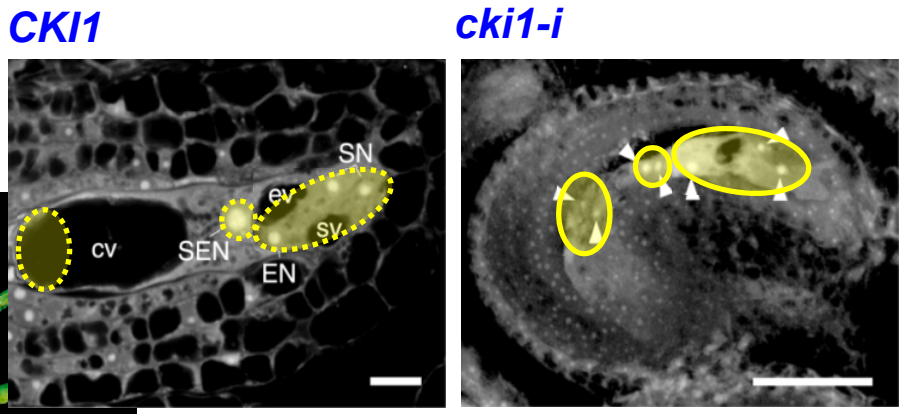
Pointer vs. Animation

CKI1 Regulates Female Gametophyte Development





EXAMPLE

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Hejátko et al., *Mol Genet Genomics* (2003)

Outline

- Why it is Important to Present Well?
- Structure
- Slides
- Passion

Show Your Passion….

…but in Your Own Way!

…but in Your Own Way!

Outline

- Why it is Important to Present Well?
- Structure
- Slides
- Passion
- Story

STORY

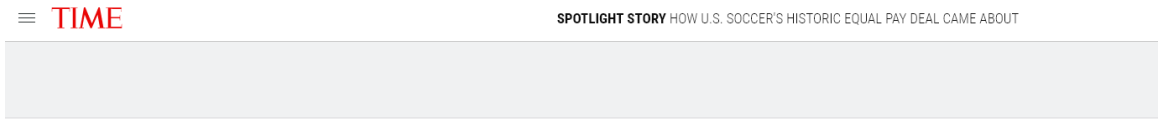
- The ability to tell the stories is evolutionary fixed advantage

ARTICLE

DOI: 10.1038/s41467-017-02036-8 OPEN

Cooperation and the evolution of hunter-gatherer storytelling

Daniel Smith[1,2], Philip Schlaepfer[3], Katie Major[4], Mark Dyble[5,6], Abigail E. Page[1], James Thompson[1], Nikhil Chaudhary[1], Gul Deniz Salali[1], Ruth Mace[1,7], Leonora Astete[8], Marilyn Ngales[8], Lucio Vinicius[1] & Andrea Bamberg Migliano[1]



SCIENCE • HUMAN BEHAVIOR

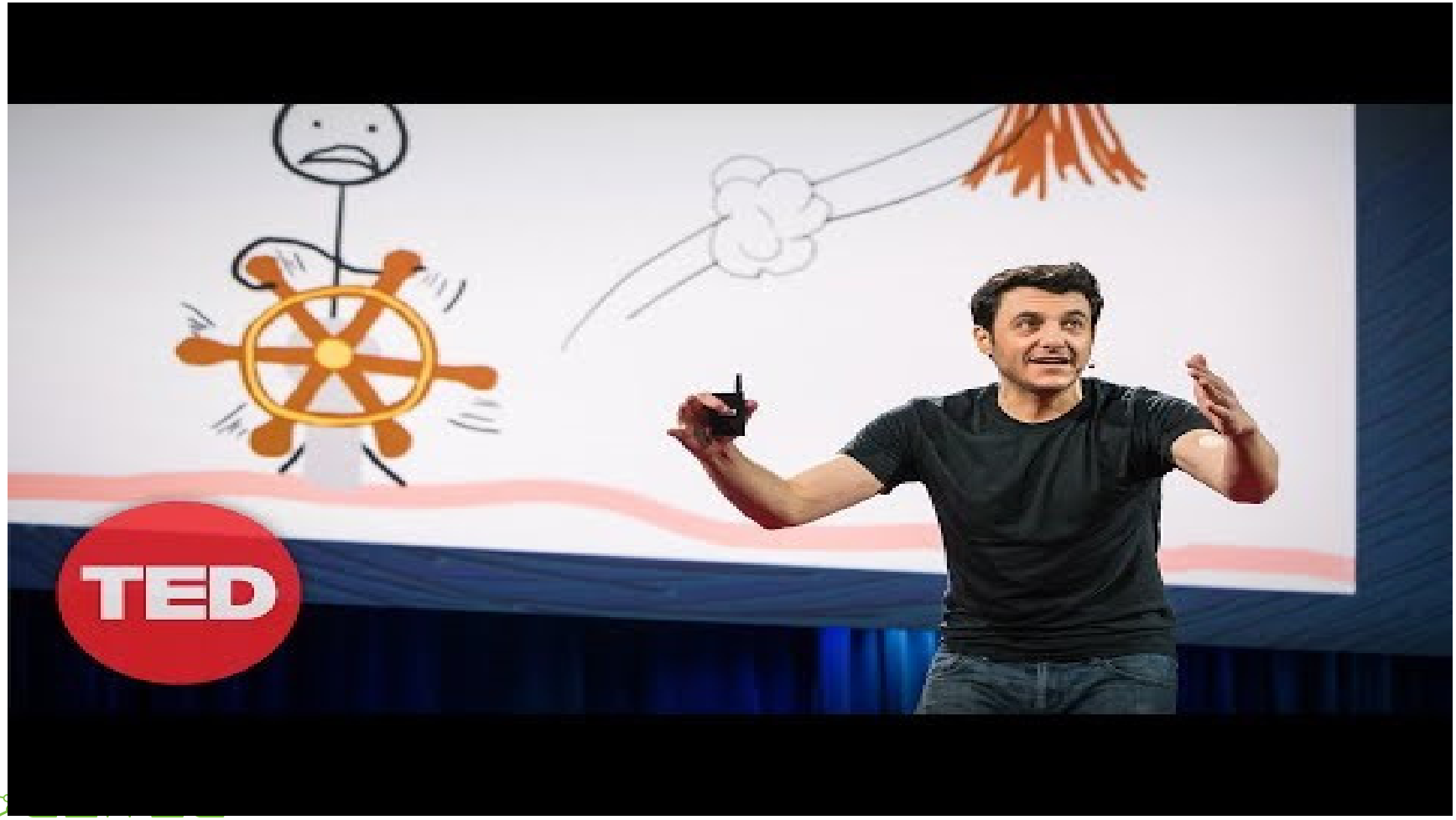
How Telling Stories Makes Us Human

BY JEFFREY KLUGER DECEMBER 5, 2017 11:00 AM EST

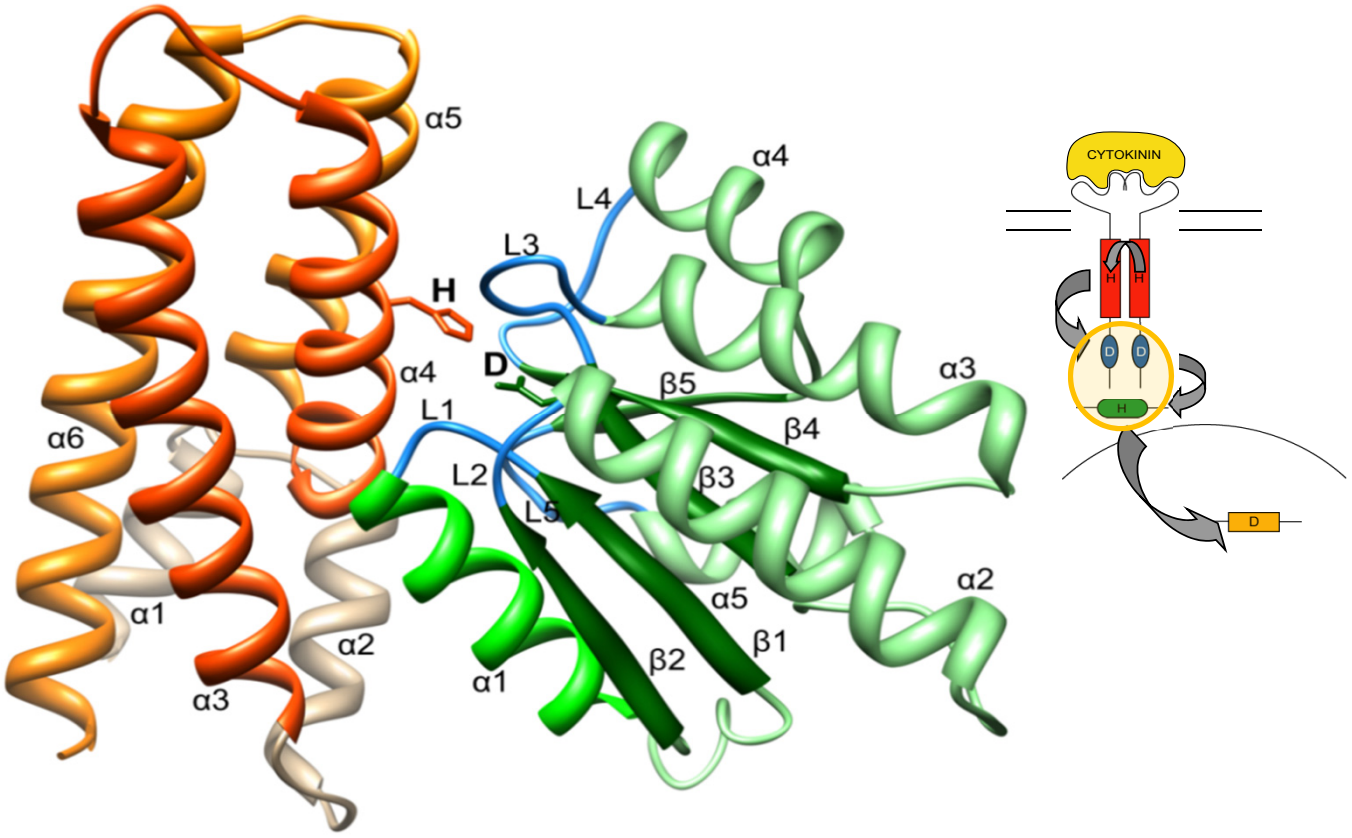
Odds are, you've never heard the story of the wild pig and the seacow — but if you'd heard it, you'd be unlikely to forget it. The wild pig and seacow were best friends who enjoyed racing each other for sport. One day, however, the seacow hurt his legs and could run no more. So the wild pig carried him down to the sea, where they could race forever, side by side, one in the water, one on the land.

https://time.com/5043166/storytelling-evolution/

Story



AHK_{RD}-AHPs Structural Specificity Determinants



AHP **AHK_{RD}**

EXAMPLE

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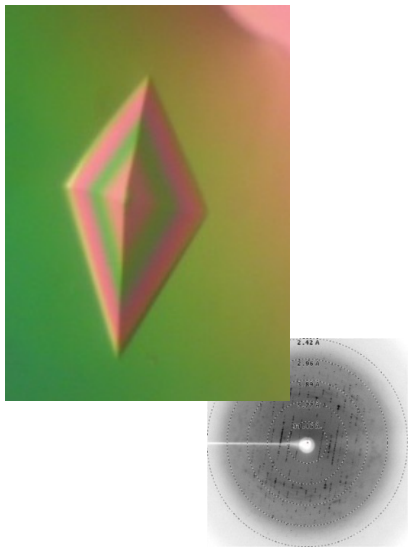
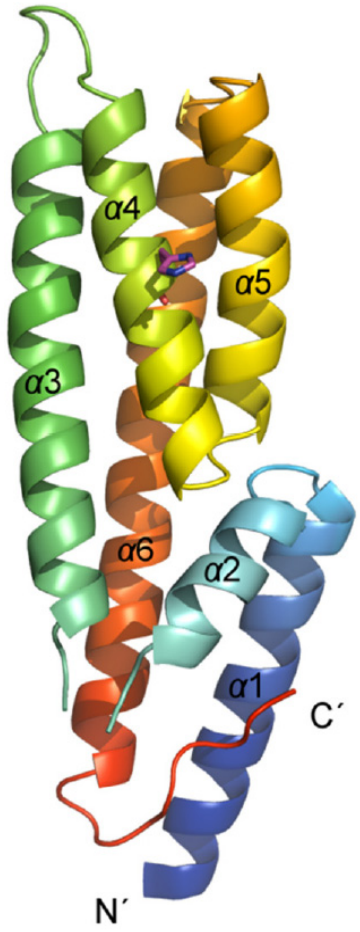
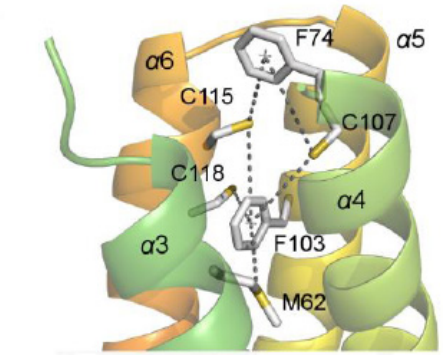
Determination of AHP2 Structure

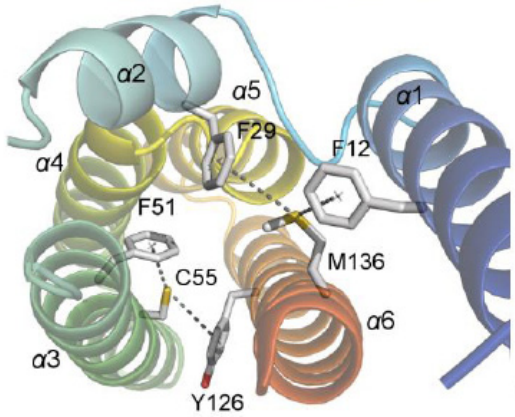


2.5 Å



AHP2





Degjarik et al., ***Acta Crystallographica Section F*** (2013)
Degjarik, Dopitová et al., ***in preparation***

EXAMPLE

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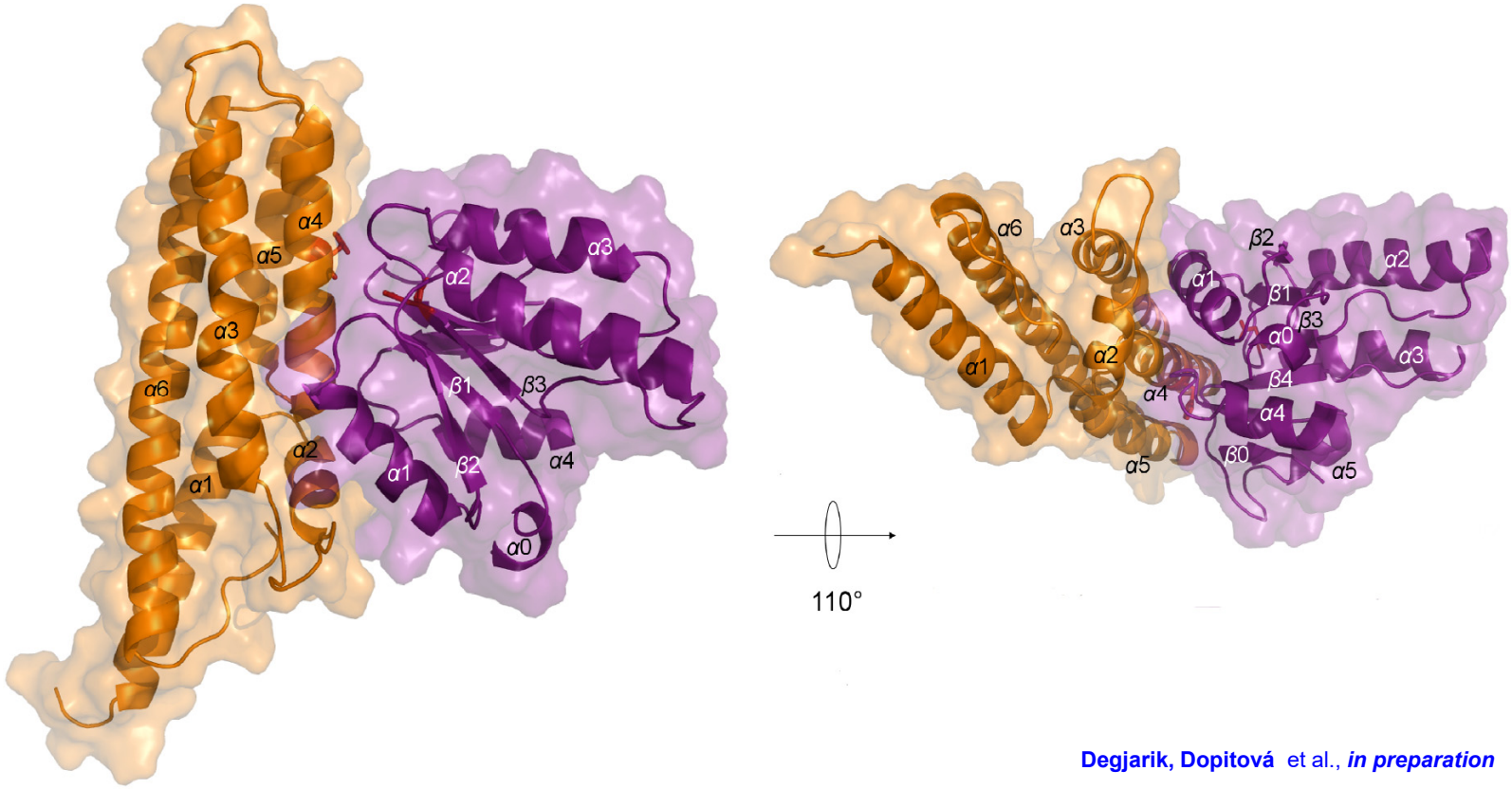
$CKI1_{RD}$ /AHP2 Interface



EXAMPLE

Degjarik, Dopitová et al., ***in preparation***

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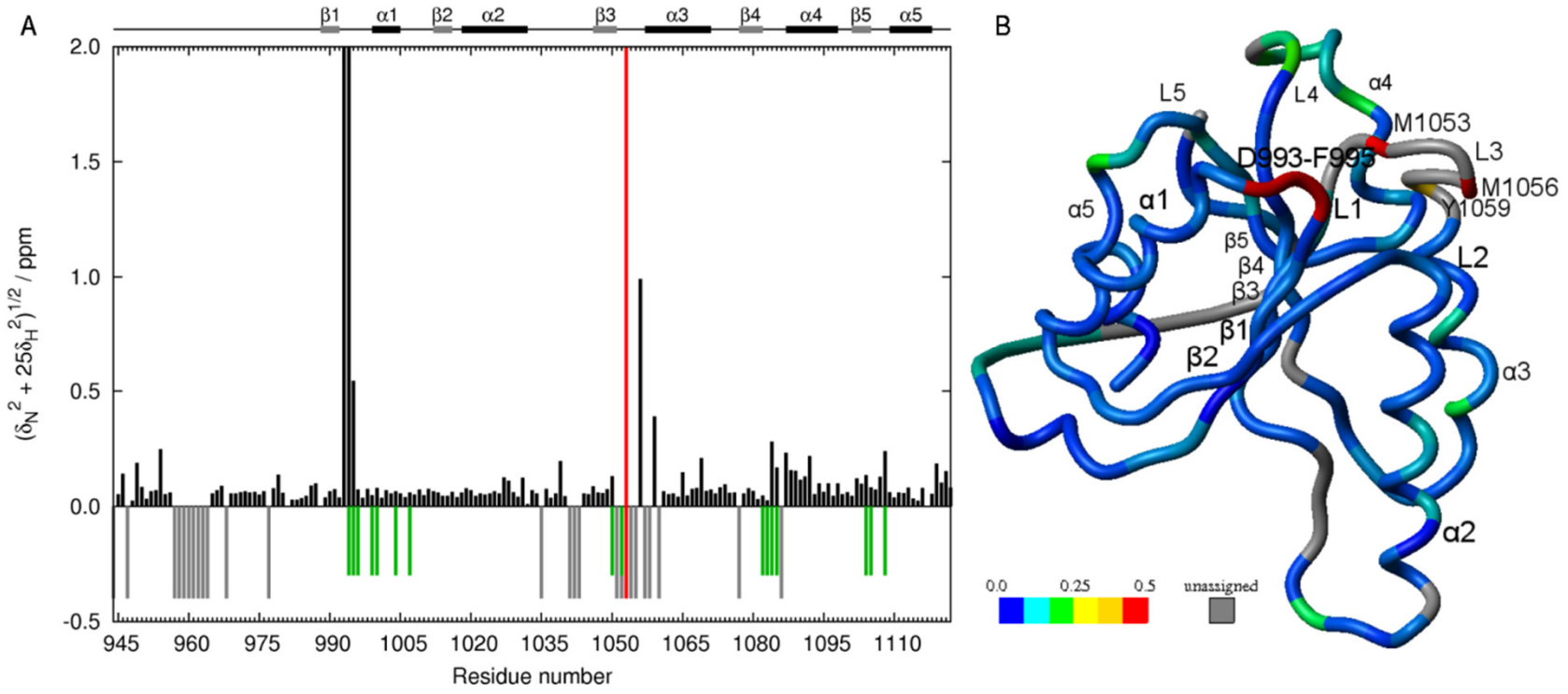
NMR Measurement Confirms Interaction of $CKI1_{RD}$ and AHP2



Degjarik, Dopitová et al., ***in preparation***

EXAMPLE

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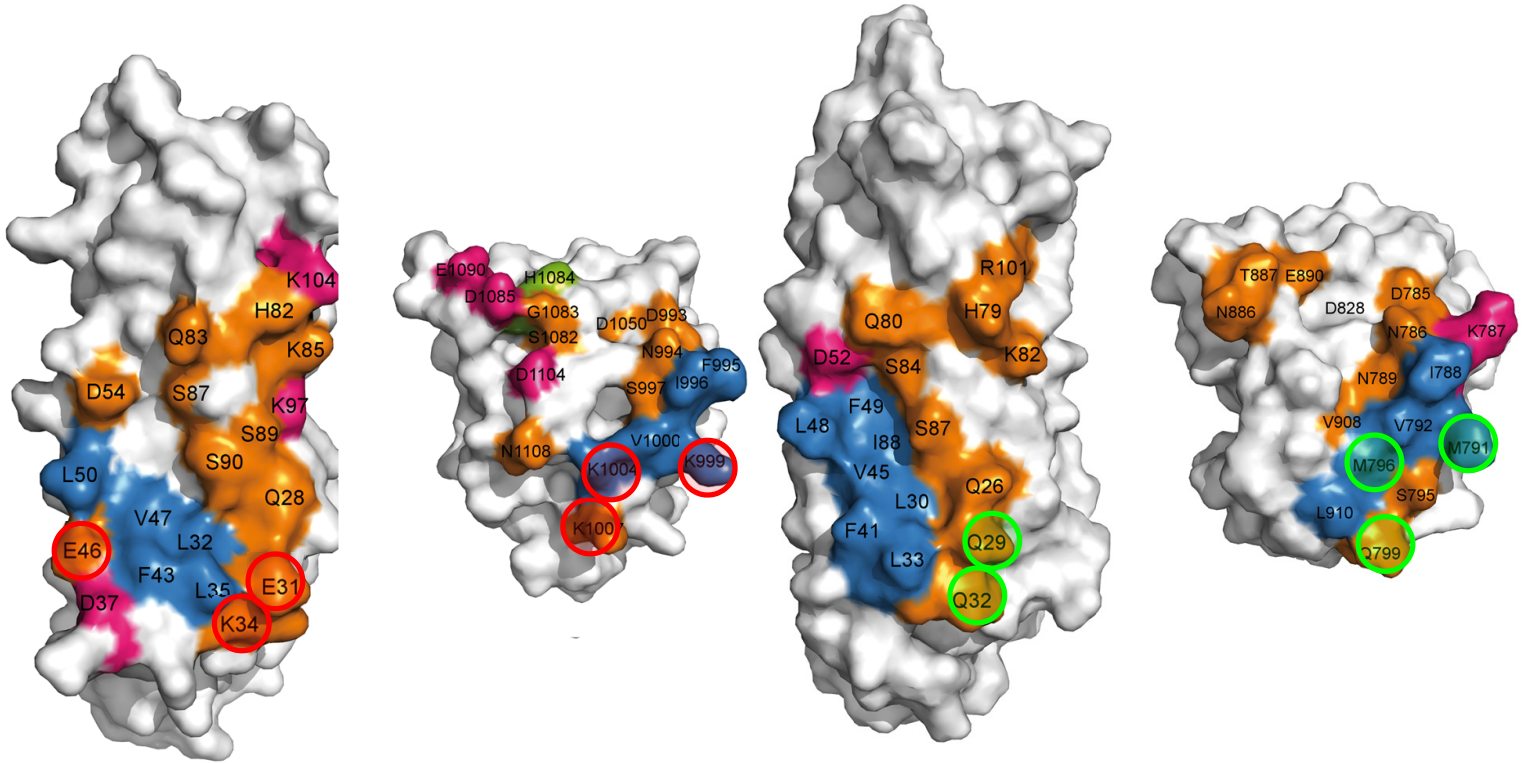
Specificity of $CKI1_{RD}$ /AHP2 Interface

AHP2 **$CKI1_{RD}$** **AHP1** **$AHK5_{RD}$**



EXAMPLE

Degjarik, Dopitová et al., *in preparation*

Bauer *et* al., ***Molecular Plant*** (2013)

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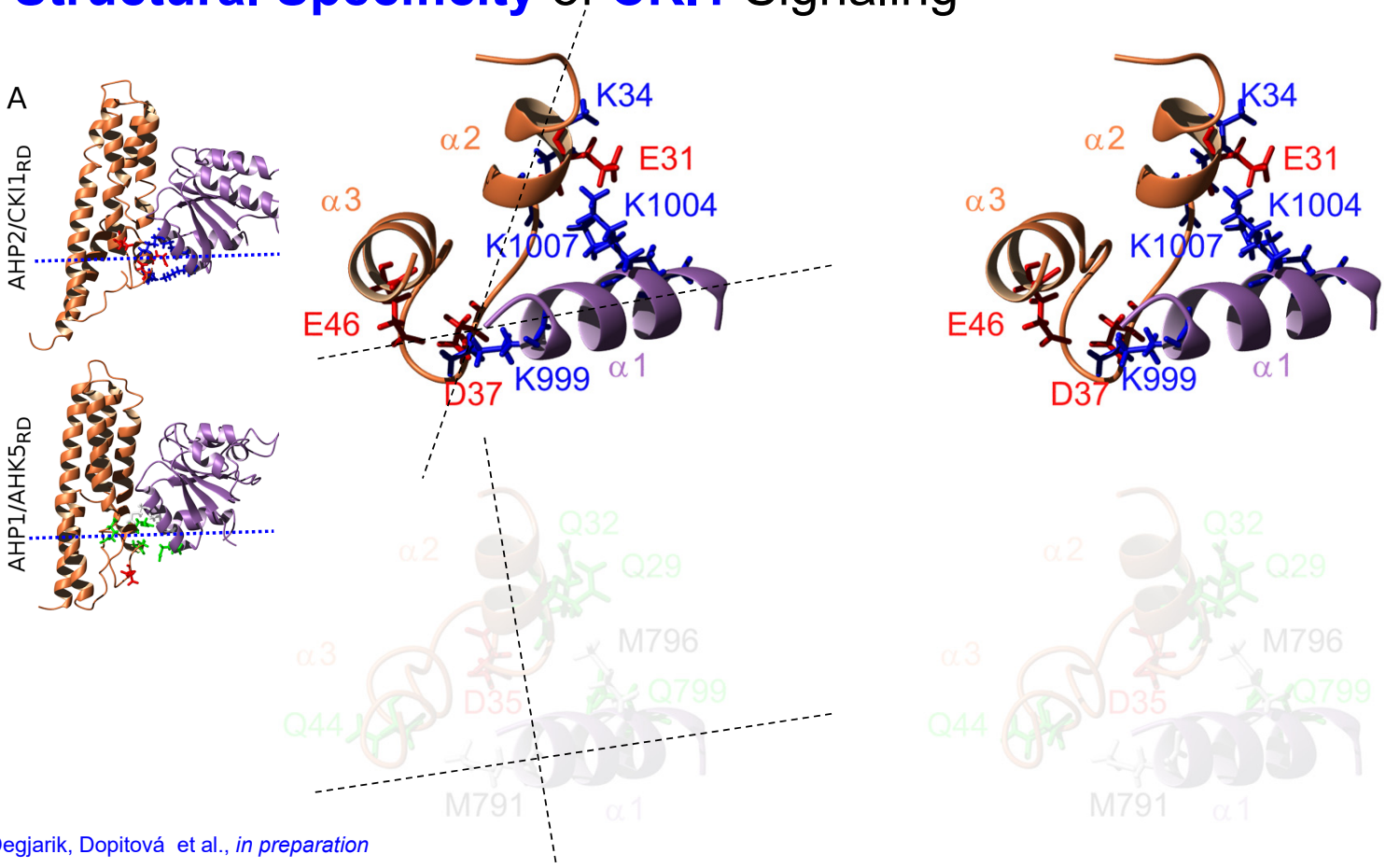
$CKI1_{RD}$ /AHP2 Interface

Structural Specificity of **CKI1** Signaling



Degjarik, Dopitová et al., *in preparation*

EXAMPLE

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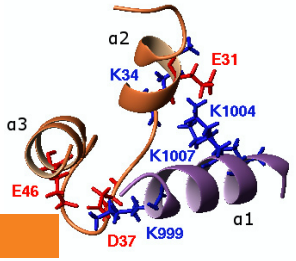
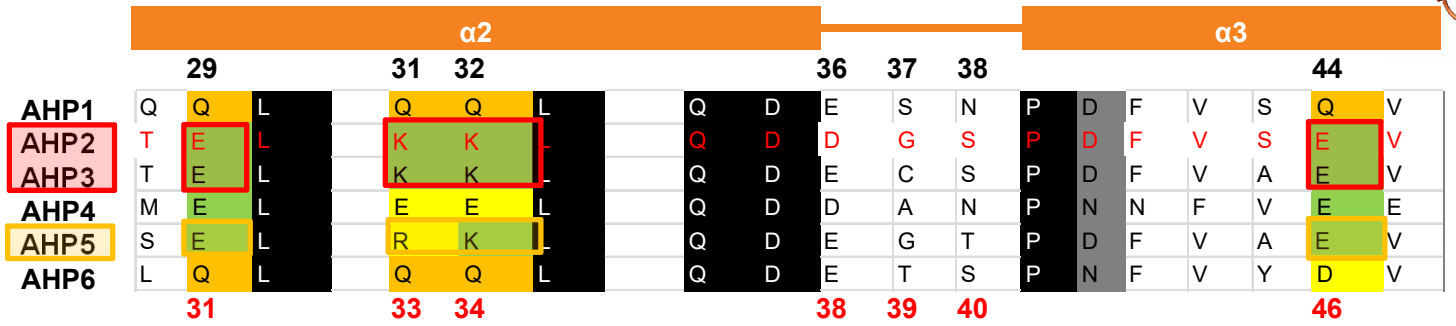
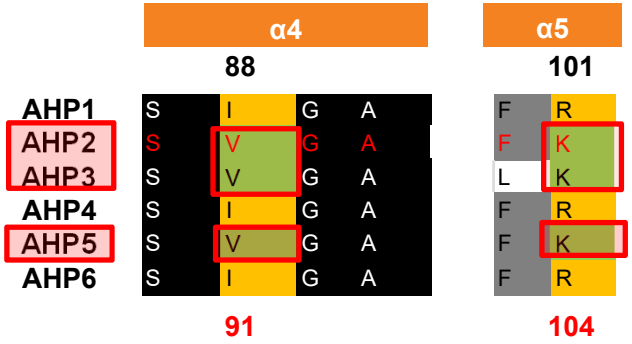
Rewiring AHP1 into AHP2



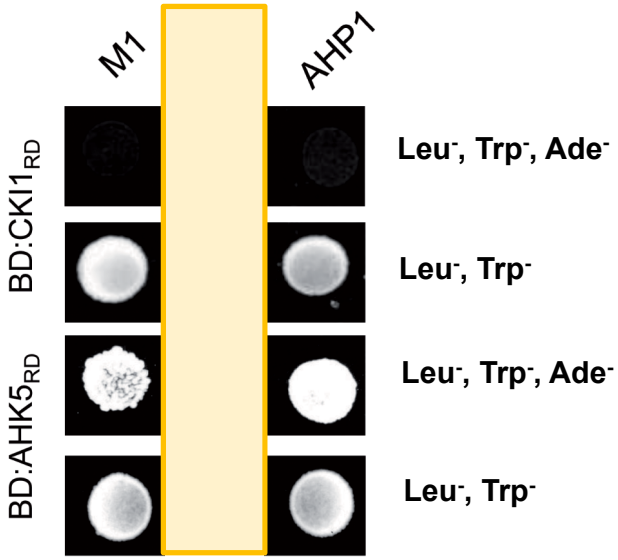




Degjarik, Dopitová et al., *in preparation*

AHP1-1: Q29E, Q31K, Q32K, Q44E

AHP1-2: Q29E, Q31K, Q32K, Q44E, I88V, R101K



EXAMPLE

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Outline

- Why it is Important to Present Well?
- Structure
- Slides
- Passion
- Story
- Gesturing & Body Language

…yes, there are certain cultural differences ;-)

Gesturing & Body Language

Gesturing & Body Language

Outline

- Why it is Important to Present Well?
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- Slides
- Passion
- Story
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- Timing

Outline

- Why it is Important to Present Well?
- Structure
- Slides
- Passion
- Story
- Gesturing & Body Language
- Timing
- Frequent Problems

Frequent Problems

- Absence of Structure
- Distracting Background
- Too Much of Text
- Overcomplicated Slides
- Absence of Passion
- No/Low Contact with Audience
- Speaking Too Fast

Summary

- Why it is Important to Present Well?
- Structure
- Slides
- Passion
- Story
- Gesturing & Body Language
- Timing
- Frequent Problems

Summary

- Why it is Important to Present Well?
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Thank you for your attention

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