

Root Growth lab

We will examine root growth and lateral root production in wild-type ("normal") and mutant Arabidopsis thaliana ~~mutants~~ growing under control (optimal) and under salt stress conditions

We will look at 2 types of mutants

ET mutants

ET = ethylene

ABA mutants

ABA = abscisic acid

to assess the role of ET and ABA in regulating root growth under control and salt stress conditions

ET mutants

ein 2

recessive mutation

Phenotype:

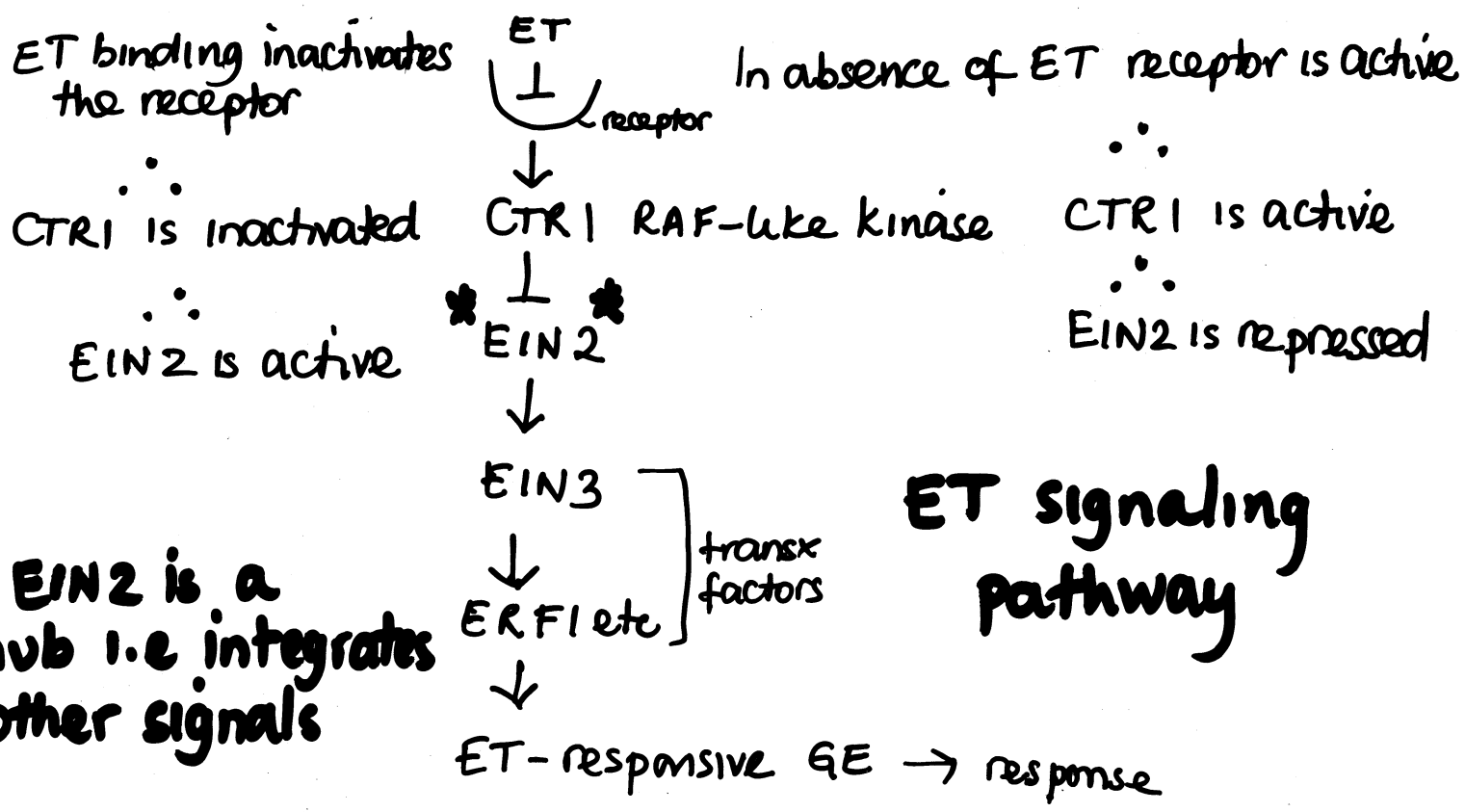
No response to ET
 agravitropic root (↓ response to gravity)
 large leaves, long petiole
 ↑ plant height
 Hypersensitive to salt

etr 1

Dominant mutation (gain of function)
 Encodes an ET receptor

Phenotype

No response to ET



ABA mutants

3

aba1

recessive mutation

Phenotype: large stomatal aperture $\therefore$ wilty
 $\downarrow$ dormancy $\uparrow$ germination

Encodes Zeaxanthin epoxidase (enz. for biosynth ABA) $\therefore$ plant synthesizes less ABA + is ABA deficient

abi1

Dominant mutation

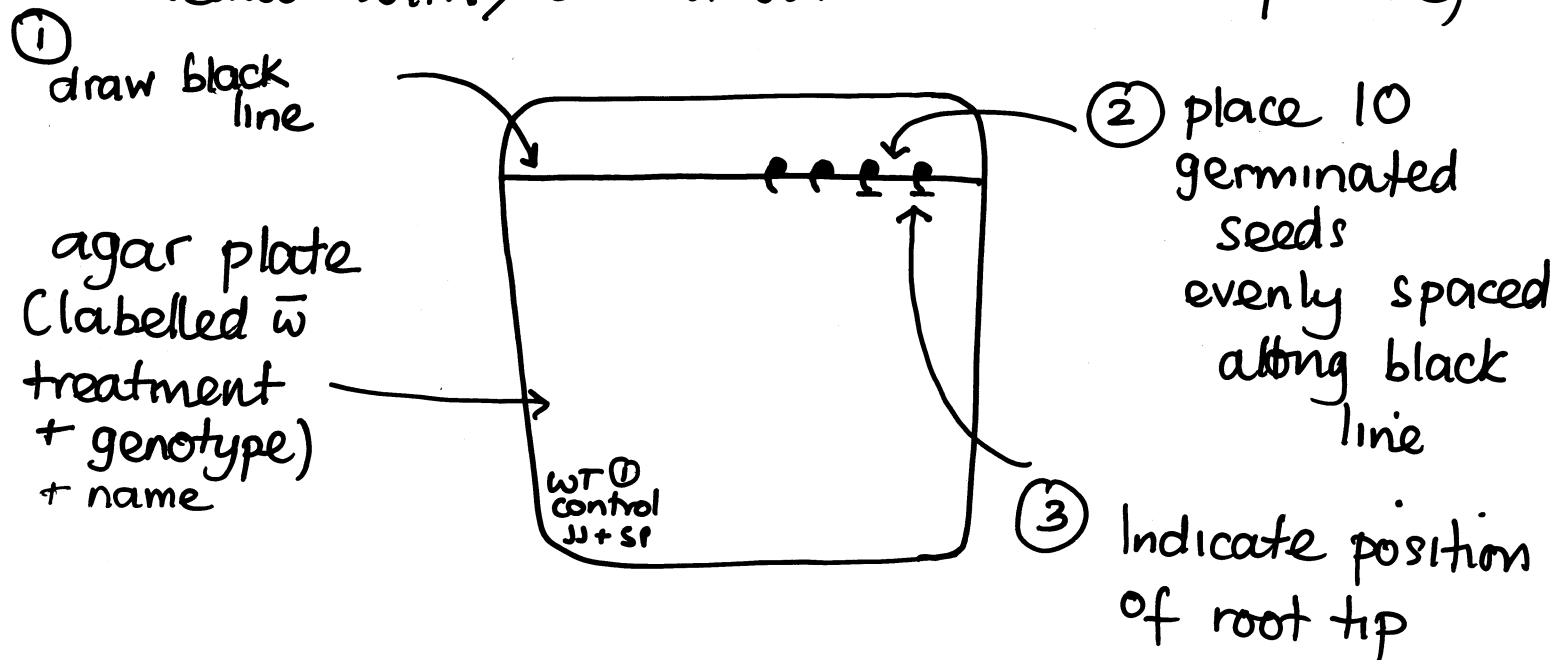
Phenotype: As for aba1

Encodes Ca^{2+} binding protein phosphatase type 2C. This phosphatase negatively regulates ABA signaling. $\bullet$ plant is ABA insensitive

You are provided with seeds that have been!

- 1) Surface-sterilized + plated onto MS media
- 2) Stratified (4°C , 3-4 days)
- 3) Planted ~~into~~ ^{ced under lights} ~~MS media~~ to allow germination to proceed (2-3 days)

You will plate WT and mutant seeds onto media with/or without salt (in duplicate)



Place plate oriented vertically under lights to allow seedlings to grow

.... Continued next week

Report 1 (P/S Lab) will be returned today

Here are some general comments / Feedback.

- 1) Too much info given in introduction about Light response curves (e.g. LCP is , dark respⁿ is)
- 2) Too much info given in the results about the experimental setup (this info should be in the M+M).
- 3) Too much detail about how an IRGA works
- 4) How to deal with the corn plant from week 2
- 5) Introductory statements in results + Discussion
- 6) Connecting data collected w process studied
- 7) Inclusion of problems / errors in discussion
- 8) Vague statements e.g. something like "we measured things and drew some conclusions"