From blank page to electronic labbook

turning the University wiki into an Electronic Lab Notebook

Eilidh Troup and Tomasz Zieliński
New Science, Publication, Citations, etc.

- New Science, Publication, Citations, etc.
- CREATING DATA
- PROCESSING DATA
- ANALYSING DATA
- PRESERVING DATA
- ACCESS TO DATA
- RE-USING DATA

Institutional Repository
CREATING DATA

RE-USING DATA

PROCESSING DATA

ACCESS TO DATA

ANALYSING DATA

PRESERVING DATA
Issues with commercial Electronic Lab Notebooks

• expensive ≈ £50- £100 per user per year

• long term sustainability

• exit strategy
Welcome to your new Wiki

For general help and guidance, link straight to the main **Wiki: Help and Guidance** wiki!

For more specific topic for getting started, go to the Quick Start Guide.

Alternatively, skip straight to My new wiki section, for shorter version of key guidance to get you up and running quickly!

Please use the Feedback section to leave your comments or alternatively you can add any suggestions you may have to the Wish List page!
Light patterns with long and short darkness periods.

- - - - - - - - - - - - - -

Rationale

- In Arabidopsis thaliana, many circadian clock-associated genes have been identified.
- The evening-expressed TOC1 (TIMING OF CAB EXPRESSION 1) gene plays a role by forming a transcriptional feedback core loop.
- The morning-expressed CCA1 (CIRCADIAN CLOCK-ASSOCIATED 1) gene.
- Homologous LHY (LATE ELONGATED HYPOCHOTYL) gene.

Assay

More information on the ISA model here:
ISA (Investigation - Study - Assay).

Growth conditions

Seedlings were grown on plates containing 1× MS salts with 0.8% to 1% agar and, where indicated, supplemented with 3% (w/v) Suc. In all cases, media pH was corrected to pH 5.8. Unless otherwise stated, seeds were surface-sterilized before being stratified in the dark at 4°C for 48 h prior to transfer to the growth chamber. Plants were grown in Sanyo MLR-350 growth chambers at a constant temperature (20°C). The light level during photoperiods or constant light was 50 μmol m⁻² s⁻¹.

Small fungi contamination noted on some seedlings.

Experimental conditions

2 WT (Col, Ws) and 5 clock mutants, in biological duplicates, from three conditions: Diurnal cycle (12L/12D), Extended night (DD), Extended light (LL), harvest every 2 hours. Numbers are in transcript copy per cell, obtained assuming 1 g FW contains 25000000 cells.

Design

And its homologous LHY (LATE ELONGATED HYPOCOTYL) gene. TOC1 encodes a member of the PSEUDORESPONSE REGULATOR (PRR) family, including PRR9, PRR7, PRR5, PRR3, and PRR1/TOC1. The PRR genes other than TOC1 (or PRR1) also appear to be crucial for certain circadian-associated events. To clarify missing genetic linkages amongst these PRR genes, here we constructed a toc1 prr5 double...
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| - | - | - | - | - | - | - | - |

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2017-10-15 LDD LD LDD LD

Created by Tomasz Zielinski, last modified about 2 hours ago

Light patterns

Light patterns with long and short darkness periods.

Rationale

Eilidh Group Wiki / Pages / 2017-10-15 LDD LD LDD LD in true colors

2017-10-15 LDD LD LDD LD in true colors

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Description

Yeast 2 hybrid study to find out if ADE2 and Hist3 interact. Two different assays were used the classic Zielinski 2004 and the new Troup 2016.

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<tr>
<td>G</td>
<td>Teicoplanin</td>
<td>27</td>
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</table>

Protocol

Protocol used: Yeast 2 hybrid protocol

Reagents
- Liquid YPD media
- Liquid dropout media (Glu ura-, Glu ura-his-)
- Dropout plates (Glu ura-, Glu ura-his-)
- X-Gal plates (Glu ura-his- X-Gal, Gal/Raf ura-his- X-Gal)
- Yeast strain EGY48 or a related strain
- The URA3 2 µ lacZ repression assay reporter plasmid pJK101
- YPD medium (2% glucose, 1% yeast extract, 1% peptone, pH 5.5)
2017-09-13 Assay Yeast 2 hybrid ADE2-Hist3

Created by Elisha Troup, last modified by Tomasz Zielinski about 2 hours ago

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Yeast 2 hybrid study to find out if ADE2 and Hist3 interact. Two different assays were used the classic Zielinski 2004 and the new Troup 2016

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- YPD growth medium
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**Protocol**

Panel | Protocol used: Yeast 2 hybrid protocol

- Include Page: Yeast 2 hybrid protocol

**Result**

The yeast 2 hybrid grew, showing that there is an interaction between ADE2 and Hist3.
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![Graph](image)

### Labels
No labels

### Version history
- **Version 4** (current version) modified by Eilidh Troup yesterday at 04:10 PM
- **Version 3** modified by Eilidh Troup Aug 30, 2017
- **Version 2** modified by Eilidh Troup May 25, 2017
- **Version 1** created by Eilidh Troup May 25, 2017

[Drag and drop to upload or browse for files]
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**Diagram:**

- Series 1

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Light patterns with long and short darkness periods.

- preparation
- transport
- light
- darkness
- light
- darkness
- light
- darkness
- light
- darkness

Rationale

- Clock genes impact flowering time.
- In Arabidopsis thaliana, many circadian clock-associated genes have been identified.
  - the evening-expressed TOC1 (TIMING OF CAB EXPRESSION 1) gene plays a role by forming a transcriptional feedback core loop.
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Assay

More information on the ISA model here:

ISA (Investigation - Study - Assay).

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2017-09-13 Assay Yeast 2 hybrid ADE2-Hist3

Protocol

Protocol used: Yeast 2 hybrid protocol

Reagents

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- Yeast strain EGY48 or a related strain
- The URA3 2 μ lacZ repression assay reporter plasmid pJK101
- HIS3-3 μ bait plasmid expressing your bait protein fused to LexA

Temperature effects

Purpose: TIMe clock gene expression profiles, baseline comparison across photoperiods in Col wild-type plants, under 6, 8, 12 and 18 h photoperiod. These data define the response of the clock genes under different photoperiods, where other analysis in the TIMe project studied proteome and metabolite levels. Absolute expression levels were compared, as RNA copies per gFW or per cell.

Description: Literature data from: ‘Photoperiod-dependent changes in the phase of core clock transcripts and global transcriptional outputs at dawn and dusk in Arabidopsis’ by: Anna Fils. Col plants were grown in soil under 6, 8, 12 and 18 h photoperiod for 21 days, and duplicate samples were harvested at 2 h intervals through a 24 h cycle. qRT-PCR with absolute calibration to spiked-in standards returned RNA copy number per gramme Fresh Weight of rosette tissue. Cell number was separately estimated at 25,000,000 per gFW.

Assays

- **2017-09-10** Assay Antibiotics resistance
- **2017-09-13** Assay Yeast 2 hybrid ADE2-Hist3
- **2017-11-16** Assay Termal shock
Temperature effects

Created by Felidh Troup, last modified by Tomasz Zielinski just a moment ago

Purpose: TiMet clock gene expression profiles, baseline comparison across photoperiods in Col wild-type plants, under 6, 8, 12 and 18 h photoperiod. These data define the response of the clock genes under different photoperiods, where other analysis in the TiMet project studied proteome and metabolite levels. Absolute expression levels were compared, as RNA copies per gFW or per cell.

Description: Literature data from: 'Phytochrome A and B global transcriptional outputs at dawn and dusk under 6, 8, 12 and 18h photoperiod for 4 days in a 24 h cycle. qRT-PCR with absolute calibrator, fresh weight of rosette tissue. Cell number not standardized.'

Assays

- 2017-09-10 Assay Antibiotics resistance
- 2017-09-13 Assay Yeast 2 hybrid ADE2-Hist3
- 2017-11-16 Assay Thermal shock

Study

## Aim

Please enter the experiment aims and objectives.

### Organism

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### Equipment

List your equipment here.

### Protocol

Either add a link to your protocol or embed the protocol within this screen using the include page section below.

#### Panel | Protocol

#### Include Page | Agar recipe

### Risk assessment

Consider the health and safety implications here.

#### Biohazards

#### Chemicals

#### Equipment

### Note

Remember to change the link above to point to your protocol. You can remove this note afterwards.

### Tip

Remember to add labels describing your experiment.
Labelled content

This list shows content tagged with the following label: screening.

To add a label to the list of required labels, choose 'Add label' from Related Labels.

- 2017-11-13 Macroloids
  about 3 hours ago • Tomasz Zielinski
  screening

- 2017-11-03 Heavy metals
  about 3 hours ago • Tomasz Zielinski
  screening

- 2017-10-17 Growth hormones
  about 3 hours ago • Tomasz Zielinski
  screening

- 2017-10-14 Stress signals
  about 3 hours ago • Tomasz Zielinski
  screening

- 2017-10-14 Signaling hormones
  about 3 hours ago • Tomasz Zielinski
  screening

- 2017-10-14 Carbon sources
  about 3 hours ago • Tomasz Zielinski
  screening

- 2017-11-16 Nitrogen sources 2
  about 3 hours ago • Tomasz Zielinski
  screening

- 2017-11-16 Nitrogen sources
  about 3 hours ago • Tomasz Zielinski
  screening

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Atlassian
Clock perturbation

Created by Tomasz Zielinski, last modified about 2 hours ago

Screening for environmental changes and drugs effects that disturb the clock the mostly for parameters estimations

- 2017-11-16 Nitrogen sources
- 2017-10-14 Signaling hormones
- 2017-11-16 Nitrogen sources 2
- 2017-10-14 Stress signals
- 2017-10-17 Growth hormons
- 2017-11-03 Heavy metals
- 2017-11-13 Macroloids
- 2017-10-14 Carbon sources

Investigation

More information on the ISA model here:
ISA (Investigation - Study - Assay).
# Tomasz

Created by Tomasz Zielinski, last modified just a moment ago

A place to keep track of tasks assigned to you, your investigation notes, and view recently updated pages.

## Task List

<table>
<thead>
<tr>
<th>Description</th>
<th>Due date</th>
<th>Assignee</th>
<th>Task appears on</th>
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<td>@Tomasz Zielinski Write up findings in lab book</td>
<td>30 Mar 2017</td>
<td>Tomasz Zielinski</td>
<td>2017-03-29 Meeting notes - quick catchup</td>
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<tr>
<td>@Tomasz Zielinski Analyse micro fluorescence data</td>
<td>21 Apr 2017</td>
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- 2017-10-14 Stress signals
  - Light patterns
    - 2017-10-15 LDD LD LDD LD
    - 2017-10-15 LDD LD LDD LD in true colors
    - 2017-10-27 LD LDD LD LDD

### Recently Updated

- Our first proteomics
  - 5 minutes ago • updated by Tomasz Zielinski • view change
- Nature paper accepted!
  - 5 minutes ago • updated by Tomasz Zielinski • view change
- Road Map
  - about an hour ago • updated by Tomasz Zielinski • view change
- Tomasz
Tomasz

Created by Tomasz Zielinski, last modified just a moment ago

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**Investigations**

More information on the investigation, Study, Assay model here: [ISA](#)

Create investigation

- Clock perturbation
  - Growth modifiers
    - 2017-10-14 Carbon sources
    - 2017-10-14 Signaling hormone
    - 2017-10-14 Stress signals
  - Light patterns
    - 2017-10-15 LDD LD LDD LD
    - 2017-10-15 LDD LD LDD LD
    - 2017-10-27 LDD LD LDD

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  5 minutes ago • updated by Tomasz Zielinski • view change

- **Nature paper accepted!**
  6 minutes ago • updated by Tomasz Zielinski • view change

- **Road Map**
  about an hour ago • updated by Tomasz Zielinski • view change

- [Road Map](#)
Road Map

Created by Edith Troup, last modified by Tomasz Zielinski just a moment ago

- **2017**
  - Jun
  - Jul
  - Aug
  - Sep
  - Oct
  - Nov

- **Experiments**
  - **Initial Experiment**
  - **LD proteomics**
  - **Plate reader**

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Protocol used: Yeast 2 hybrid protocol

- Liquid YPD media
- Liquid dropout media (Glu ura-, Glu ura-his-)
- Dropout plates (Glu ura-, Glu ura-his-)
- X-Gal plates (Glu ura-his- X-Gal, Gal/Raf ura-his- X-Gal)
- Yeast strain EGY48 or a related strain
- The URA3 2 μ lacZ repression assay reporter plasmid pJK101
- H13S 2 μ bait plasmid expressing your bait protein fused to LexA
- Two HIS3 2 μ control bait plasmids: one that encodes LexA fused to a transcriptionally inert protein, like Biocid in phiH1M1, or LexA-Max (Zarvos et al., 1993), and one that encodes no LexA, for example pRFHM0

Method
1. Transform EGY48 with pJK101 and select transformants on Glu ura- plates.
2. Combine three colonies from these plates and transform them with the HIS3 bait plasmid (and the HIS3 control plasmids). Select transformants on Glu ura-his- plates.
3. Pick four individual colonies from each transformation and streak a patch of them onto Glu ura-his- and Gal/Raf ura-his- plates containing X-Gal. Incubate at 30°C.
4. Examine the X-Gal plates after 1, 2, and 3 days. Yeast lacking LexA will begin to turn blue on the Gal/Raf plates after one day and will appear light blue on the glucose plates after two or more days. Yeast containing a bait that enters the nucleus and binds operators will turn blue more slowly than the yeast lacking LexA.
5. Bait's that repress transcription of lacZ in pJK101 by 2-fold or less may not cause a visible reduction in blue on X-Gal plates. If no repression is observed on the X-Gal plates, perform the more sensitive liquid β-galactosidase assays with transformants from step 2. Grow the transformants in 5 ml Glu ura-his- and Gal/Raf ura-his- liquid media, or on Glu ura-his- and Gal/Raf ura-his-plates for 2 days, before doing β-galactosidase assays (Miller, 1972).

Result

The yeast 2 hybrid grew, showing that there is an interaction between ADE2 and Hist3.
www.wiki.ed.ac.uk/display/EGW

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