

Keeping a lab notebook

Laboratory notebook is a legal permanent chronological record of the daily activities used to establish and support **originality**, **authenticity**, **reproducibility** and **traceability** of the research process.

The amount of information recorded in a lab notebook should enable a professional to exactly reproduce the experimental results or trace source of errors.

each entry is dated

errors are clearly marked and corrected

deviations from protocol are clearly marked

all pages are consecutively numbered

23 April 2018

Preparation of chemically competent E.coli

Reagents and instruments:

- overnight E.coli strain XL-1 Blue culture
- Heraeus centrifuge; 50-mL Falcon tube
- TSS buffer:

10 mL	
10% (w/v) PEG (MW 3350)	1 g
10 mM MgCl ₂	1 mL (100 mM)
10 mM MgSO ₄	2 mL (50 mM)
5% (v/v) DMSO	1 mL 0.5 mL
LB	6 mL 6.5 mL
- ice bucket

Protocol:

- Inoculate 50 mL LB with 0.5 mL O/N culture.
- Grow at 37°C until OD₆₀₀ 0.5

10 ⁰⁰ 0.1	11 ³⁰ 0.3	12 ⁰⁰ 0.8 (NB!)
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- Incubate on ice; 10'
- Spin @4°C, 3000 rpm for 5'; aspirate supe
- Resuspend in 2 mL ice-cold TSS **critical step!**
be sure to break all clumps!
- Incubate on ice for 30 min
- Aliquot 20x 50 µL into sterile eppis using repeat pipette and span-freeze in liquid N₂. Store @-80°C.
(labeled "XL1Boc"; box 2, upper-rack, shelf 3, rm. 6.102)

22 Signed by: *[Signature]* Witnessed by: _____

Testing chemically competent E.coli

Goal: Determine transformation efficiency of XL-1 Blue E.coli using pBSII KS(+) as a positive control

Reagents:

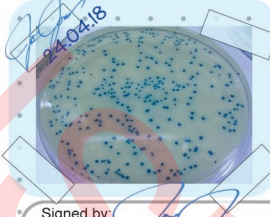
- ice-cold 5x KCM buffer (see p. 20)
- pBluescriptII KS(+) plasmid; 1 ng/µL
- freshly made chemically competent XL-1 Blue cells (p. 22)
- 37°C water bath; ice
- LB/Amp plate with IPTG/X-Gal (from 19.04.18; p. 15)

Protocol:

- Mix pBluescript II KS(+) 1 µL of 1 ng/µL
 KCM buffer 20 µL of 5x stock
 ice-cold ddH₂O 80 µL
 XL-1 Blue 100 µL 14¹⁵
- Incubate on ice 20 min.
- Heat-shock: 5 min @37°C
- Add 1 mL warm LB and incubate 40' @37°C (shaker)
- Plate 12 µL (1/10th) in 100 µL LB onto LB/Amp plates with XGal/IPTG and incubate O/N @37°C 18⁴⁵

24 April 2018

Blue colonies per plate: 374
 Dilution factor: 10
 Actual efficiency: 3·10⁶ CFU/µg
 Expected efficiency: 10⁷ CFU/µg
 Discussion: the possible reason for



25 Signed by: *[Signature]* Witnessed by: *[Signature]* 25.04.18 23

entries have a title


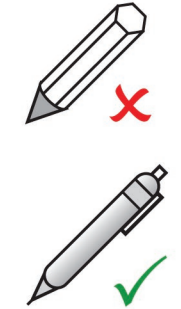

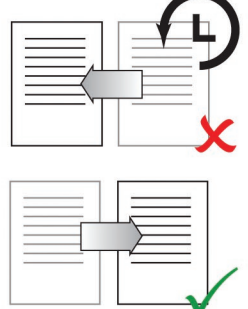
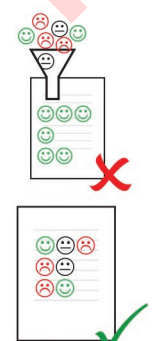
all reagents are identified

printouts are glued into the book, signed and dated

each page is signed

labbooks are regularly witnessed

- 1** Date and time all entries
- 5** Describe the experimental procedures
- 2** Outline the goal or the anticipated results
- 6** Note the observations and results
- 3** Identify and describe the reagents
- 7** Include periodic factual summaries of the results
- 4** Identify and describe the instruments' settings
- 8** Make note of new ideas and hypotheses

<p>DO NOT REMOVE PAGES</p> 	<p>DO NOT USE PENCIL</p> 	<p>DO NOT OBLITERATE ORIGINAL RECORDS</p> 	<p>DO NOT FILL IN RETROACTIVELY</p> 	<p>DO NOT FILTER RESULTS</p> 
<p>USE HARD-BOUND BOOKS</p>	<p>USE PERMANENT INK</p>	<p>KEEP ORIGINAL NOTES VISIBLE</p>	<p>MAKES NOTES AS YOU GO</p>	<p>INCLUDE ALL RESULTS</p>