CODECHECK certificate 2025-023

github.com/codecheckers/certificate-2025-023/

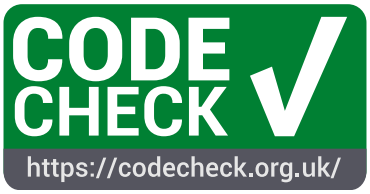

Table 1: CODECHECK summary

Item	Value
Title	*A calibrated optogenetic toolbox of stable zebrafish opsin lines*
Authors	Paride Antinucci (ORCID: 0000-0003-0573-5383) Adna Dumitrescu (ORCID: 0000-0002-7354-1452) Charlotte Deleuze Holly J Morley (ORCID: 0000-0002-0007-3563) Kristie Leung Tom Hagley Fumi Kubo Herwig Baier (ORCID: 0000-0002-7268-0469) Isaac H Bianco (ORCID: 0000-0002-3149-4862) Claire Wyart (ORCID: 0000-0002-1668-4975)
Reference	doi.org/10.7554/eLife.54937
Repository	github.com/codecheckers/certificate-2025-023
Codechecker	Linus Dexter Hackel (ORCID: 0009-0000-0114-8005)
Date of check	2026-01-15
Summary	Figures 4, 5, 8 and 9 could be reproduced partially. There was no documentation how Figures 1, 2, 3, 6 and 10 where produced or with which scripts, so they couldn't be reproduced.

Table 2: Summary of output files generated

File	Comment	Size (b)
`Gapfree_AP_stim.csv`	The .csv file containing the gap free AP stimulation.	1870
`figure4_1.pdf`	Manuscript Figure 4 (Trace: 2019_03_16_0000, Opsin: Cheriff)	16548
`figure4_2.pdf`	Manuscript Figure 4 (Trace: 18n270027_1, Opsin: Chrimson)	82263
`figure4_3.pdf`	Manuscript Figure 4 (Trace: 2019_03_19_0038, Opsin: CoChR)	63693
`figure5_1.pdf`	Manuscript Figure 5 (Trace: 2019_03_19_0055, Opsin: GtACR1)	78091
`figure5_1.pdf`	Manuscript Figure 5 (Trace: 18d130007_5, Opsin: Chrimson)	78091
`figure8_1.pdf`	Manuscript Figure 8 (Trace: 183060053_1, Opsin: NpHR)	235116
`figure8_2.pdf`	Manuscript Figure 8 (Trace: 2019_08_01_0064, Opsin: GtACR1)	213717
`figure9_1.pdf`	Manuscript Figure 9 (Trace: 186280022_1, Opsin: NpHR)	245474

File	Comment	Size (b)
figure9_2.pdf	Manuscript Figure 9 (Trace: 2019_02_25_0035, Opsin: GtACR1)	248817
figure9_3.pdf	Manuscript Figure 9 (Trace: 2019_08_01_0067, Opsin: GtACR1)	179181
figure9_4.pdf	Manuscript Figure 9 (Trace: 189040010_1, Opsin: NpHR)	94949
figure9_5.pdf	Manuscript Figure 9 (Trace: 2019_01_25_0007, Opsin: GtACR1)	121586

Summary

Figures 4, 5, 8 and 9 could be reproduced partially. There was no documentation how Figures 1, 2, 3, 6 and 10 where produced or with which scripts, so they couldn't be reproduced.

CODECHECKER notes

Environment

Setting up the environment took a bit of time, as older versions of Python and older Dependencies needed to be properly installed, but it is all very well documented in the README file what dependencies need to be installed and with which version.

Since I didn't want a new window for the plot results of MatPlotLib, I descided to put the following sequence at the end of each script, so the created figure is automatically saved to the *outputs/figures/* directory.

```
figure_number = 9

figure_id = int(input('Please enter the Figure ID.\n\n'))

plt.savefig(f"figures/figure{figure_number}_{figure_id}.pdf")
```

Script Errors

In the script *Excitatory_Opsin_Current_Clamp.py* the filepath for the trace contained a typo in line 452. It was: *'Analysis_output/Single_trace_data/CC_excitatory/2019_03_19_0055.csv'* but it should have been *'Analysis_output/Single_Trace_data/CC_excitatory/2019_03_19_0055.csv'*. This is just a small error, but it still took me some minutes in figuring out, wher the *FileNotFoundError* could be coming from, as the file appeared to be there.

Similar to the first error, in the script *Inhibitory_Opsin_Current_Clamp.py* the filepath for the CC inhibitory opsin master sheet had the wrong filepath and needed to be changed in the lines 400, 417, 423. It was: *'/Users/adna.dumitrescu/Documents/Wyart_Postdoc/Data/OPSIN_testing_project/Opsin_Ephys_Analysis/CC_analysis/CC_opsin_inhibitory_master.csv'* but it should have been: *'Analysis_output/CC_opsin_inhibitory_master.csv'*. Different to the first error though, the file didn't exist entirely, so it had to be newly created with the same *csv-Header* as the file *'Analysis_output/VC_inhibitory_opsin_master.csv'*. After these two fixes, the script worked perfectly.

In the script *Inhibitory_Opsin_CC_Long_AP_Inhibit.py* the line 424 had to be changed from an array of the length 7 to an array of the length 2, as this ws what was given in the documentation and also what the code afterwards expected. The code was therefore changed from:

```
LED_max_V_user = [input('pulse_1:  \n'), input('pulse2:  \n'), input('pulse3:  \n'),
input('pulse4:  \n'), input('pulse5:  \n'), input('pulse6:  \n'), input('pulse7:
\n')]
```

to

```
LED_max_V_user = [input('pulse_1:  \n'), input('pulse2:  \n')]
```

Recommendations to the authors

TODO

Citing this document

yooooo

Linus Dexter Hackel (2026). CODECHECK Certificate 2025-023. Zenodo. github.com/codecheckers/certificate-2025-023/

About CODECHECK

This certificate confirms that the codechecker could independently reproduce the results of a computational analysis given the data and code from a third party. A CODECHECK does not check whether the original computation analysis is correct. However, as all materials required for the reproduction are freely availableby following the links in this document, the reader can then study for themselves the code and data.

About this document

This document was created using a jupyter notebook and converted into Markdown via nbconvert nd pandoc. Afterwards it was converted into Typst using cmarker and then into PDF using Typst.

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Manifest files

CSV files

`Analysis_output/Gapfree_AP_stim.csv`

Author comment: *The .csv file containing the gap free AP stimulation.*

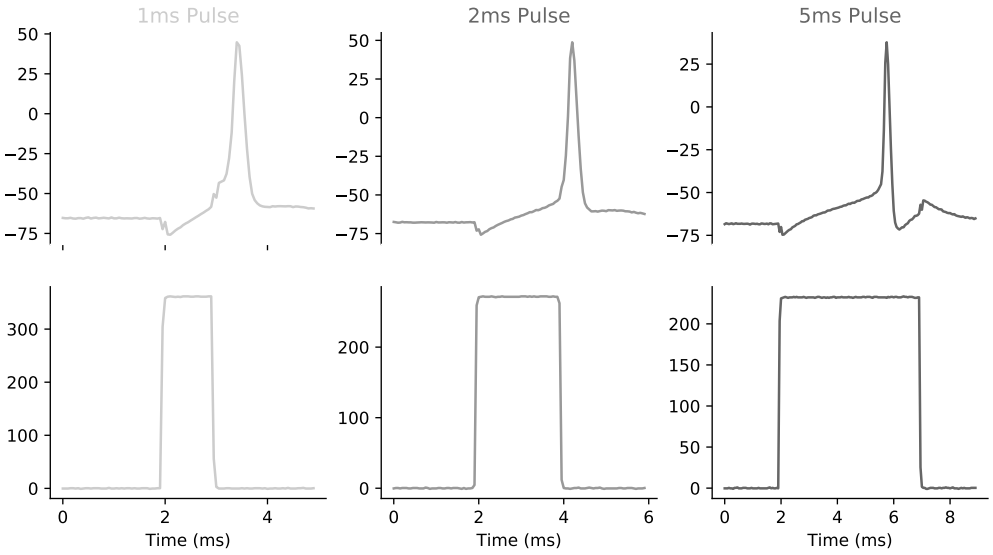
Column summary statistics:

	count	mean	std	min	25%	50%	75%	max
0	8	3.5000	2.4495	0.0000	1.7500	3.5000	5.2500	7.0000

Figures

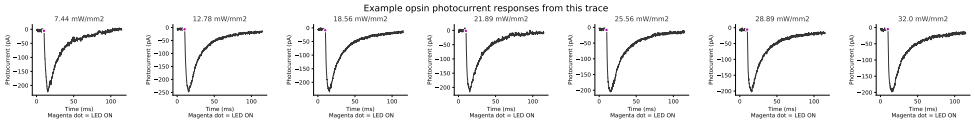
`figures/figure4_1.pdf`

Author comment: *Manuscript Figure 4 (Trace: 2019_03_16_0000, Opsin: Cheriff)*



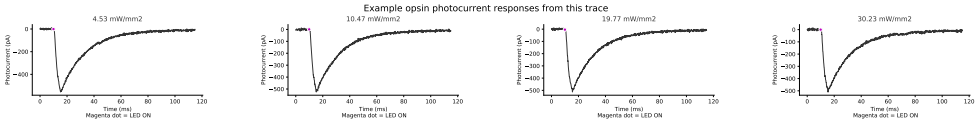
figures/figure4_2.pdf

Author comment: *Manuscript Figure 4 (Trace: 18n270027_1, Opsin: Chrimson)*



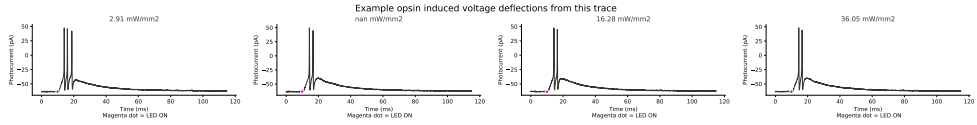
figures/figure4_3.pdf

Author comment: *Manuscript Figure 4 (Trace: 2019_03_19_0038, Opsin: CoChR)*



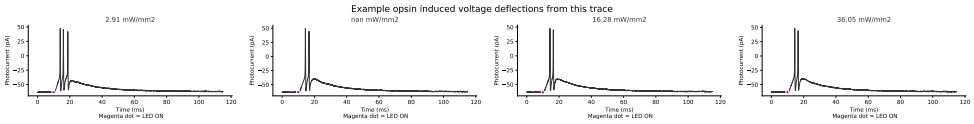
figures/figure5_1.pdf

Author comment: *Manuscript Figure 5 (Trace: 2019_03_19_0055, Opsin: GtACR1)*



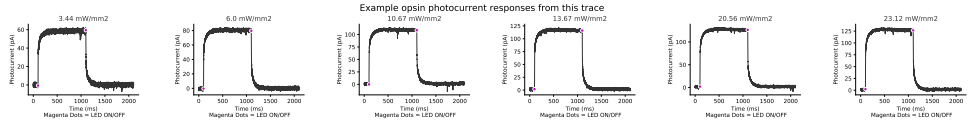
figures/figure5_1.pdf

Author comment: *Manuscript Figure 5 (Trace: 18d130007_5, Opsin: Chrimson)*



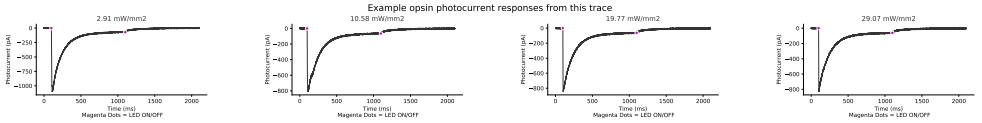
figures/figure8_1.pdf

Author comment: *Manuscript Figure 8 (Trace: 183060053_1, Opsin: NpHR)*



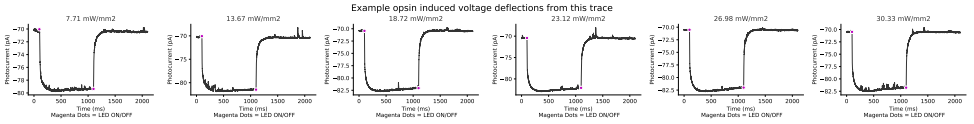
figures/figure8_2.pdf

Author comment: *Manuscript Figure 8 (Trace: 2019_08_01_0064, Opsin: GtACR1)*



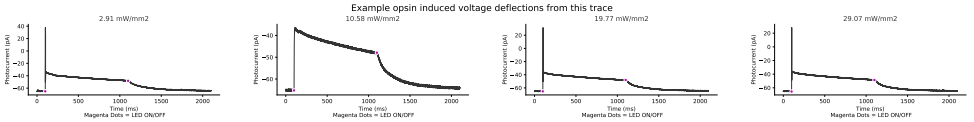
figures/figure9_1.pdf

Author comment: *Manuscript Figure 9 (Trace: 186280022_1, Opsin: NpHR)*



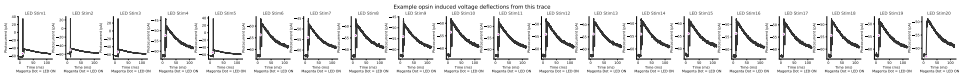
figures/figure9_2.pdf

Author comment: *Manuscript Figure 9 (Trace: 2019_02_25_0035, Opsin: GtACR1)*



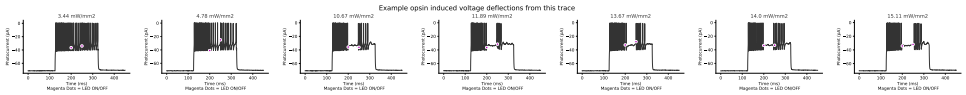
figures/figure9_3.pdf

Author comment: *Manuscript Figure 9 (Trace: 2019_08_01_0067, Opsin: GtACR1)*



figures/figure9_4.pdf

Author comment: *Manuscript Figure 9 (Trace: 189040010_1, Opsin: NpHR)*



figures/figure9_5.pdf

Author comment: *Manuscript Figure 9 (Trace: 2019_01_25_0007, Opsin: GtACR1)*