APCRA2019 MEA Acute TCPL Level 0 Data Prep Running Log

Date: 2020-07-21

Level 0 - Gather and Check Files:

**Neural Stats files**: see APCRA2019\_neural\_stats\_files\_log\_2020-05-21.txt

Selected all files in the folder L:/Lab/NHEERL\_MEA/Project TSCA\_APCRA/Apcra Stats Compiler

There are 94 files in total = 8 cultures \* 6 plates per cultures \* 2 recordings per plate - 2 recordings from 1236-24, which was not recorded for the full time.

**Calculations files**: See APCRA2019\_calculations\_files\_log\_2020-05-21.txt

For each of the 8 cultures, I selected the 2 Calculations files for each group. If there were multiple Calculations files for a group in the culture folder, I selected the file with the suffix "\_checked", since these were last updated more recently.

One of the files is named "20190403\_Calculations\_Group\_1\_missingData(LDH).xlsx". This was noted in the Lab Notebook that there is no LDH data for a plate in this culture.

Reading from APCRA2019\_neural\_stats\_files\_log\_2020-05-21.txt...

Got 94 files.

The following files appear to be named incorrectly:

filenames run.type.tags

1: TC\_20190417\_MW67-3707\_13\_00(000).csv 00

2: TC\_20190417\_MW67-3707\_15\_01(000).csv 01

Looking at the body of the actual files:

TC\_20190417\_MW67-3707\_13\_00(000).csv, Original File time: 5/2/2019 8:46:14 AM

TC\_20190417\_MW67-3707\_15\_01(000).csv, Original File time: 5/2/2019 9:54:18 AM

Clearly these files were actually tested on the same day. The DIV was probably just a typo in the file name. Since the script gets the date from the file body, this will not be an issue.

All other files are okay.

APCRA2019\_check\_summary\_2020-07-21.txt is ready.

There are no files with missing parameters, and no files more than 500 seconds above or below 2400 seconds recording length.

Level 1 - Extract All Data:

Reading from APCRA2019\_neural\_stats\_files\_log\_2020-05-21.txt...

Got 94 files.

Reading data from files...

..............................................................................................

APCRA2019\_dat1\_2020-07-21.RData is ready.

Summary of dates/plates with wllq=0 at Level 1:

experiment.date plate.id wllq\_set\_to\_zero

1: 20190326 MW1236-16 C3,C4,C5,C6,D2,D3,D4,D5,D6,D7,E8

2: 20190326 MW1236-17 C3,C4,C6,C7,D3,D4,D5,D6,D7

3: 20190326 MW1236-18 C3,C4,C5,C6,C7,D2,D3,D4,D5,D6,D7,F6

4: 20190328 MW1236-19 A1,B3,B5,B7,C5,C6,C7,D3,D4,D5,D6,D7,E3,E4,E5,E8,F2,F7,F8

5: 20190328 MW1236-20 A4,A8,B4,C4,C5,C6,C7,D1,D2,D3,D4,D5,D6,D7,E4,E6,E7,F1,F4,F5,F7,F8

6: 20190328 MW1236-21 A1,A3,B3,E4,F4,F8

7: 20190402 MW1236-22 B2,B4,B5,C3,C5,D1,D2,D3,D4,D5,D6,D7,E3,F1,F2,F3,F4,F8

8: 20190402 MW1236-23 A1,A3,A4,B3,C7,C8,D2,D5,D6,D7,F1,F2,F8

9: 20190404 MW1237-10 A1,A8,B2,B3,D3,D5,D8,F2,F8

10: 20190404 MW1237-12 B6,C5,D4,D5

11: 20190404 MWNo Barcode D3,D4,D5,D7,F7

12: 20190409 MW1237-13 C4,C5,C6,C7,D2,D3,D4,D5,D6,D7,F1

13: 20190409 MW1237-14 C2,C5,C6,C7,D2,D3,D5,D6,D7

14: 20190409 MW1237-15 C4,C6,C7,D2,D3,D4,D5,F8

15: 20190411 MW1237-16 A2,B3,B4,B6,B7,C3,C4,C5,C7,D2,D3,D4,D6,E3,E5,E8,F5,F6,F7

16: 20190411 MW1237-17 C2,C3,C4,C5,C6,D2,D3,D4,D5,D6,D7,E6

17: 20190411 MW1237-18 A2,B4,B5,C2,C3,C4,C7,D2,D3,D4,D5,D6,E2,E5,F1,F3,F8

18: 20190416 MW1237-19 A1,C3,D1,D2,D3,D4,D6,D7

19: 20190416 MW66-9604 A5,B4,C2,C3,C5,C6,C7,C8,D2,D3,D4,D5,D6,D7,D8,E8,F2

20: 20190416 MW66-9613 C5,D2,D4,D5,D6,D7

21: 20190418 MW66-9801 B7,B8,C2,C3,C4,C5,C6,C7,D2,D3,D4,D5,D6,D7,E4,F6,F8

22: 20190418 MW66-9803 A1,A4,C3,C4,C6,C7,D2,D3,D4,D6,D7,F1

23: 20190418 MW66-9804 C3,C4,C5,C6,C7,D3,D4,D6,D7,E4,E5

24: 20190423 MW66-9805 A5,B1,C2,C6,C7,D2,D3,D4,D5,D7,F1,F2,F8

25: 20190423 MW66-9810 C3,C4,C5,C7,D2,D3,D4,D6,F1

26: 20190423 MW66-9811 A2,A6,A8,B1,C2,C6,D7,F1,F5,F7

27: 20190425 MW66-9812 A4,A6,C3,C4,C5,C6,D2,D3,D4,D5,D7,F1,F4

28: 20190425 MW66-9817 A1,A3,A6,B2,B4,B5,C5,C7,D2,D3,D4,D5,D6,D7,E1,E6,F1,F2,F3,F7

29: 20190425 MW66-9818 A4,A6,A7,A8,B2,B3,B5,B6,B7,C5,D6,F3,F5,F7

30: 20190430 MW67-3701 A2,A3,A4,B1,F3

31: 20190430 MW67-3702 B5,D4

32: 20190430 MW67-3706 A2,A4,A6,B4

33: 20190502 MW67-3707 A4,C3

34: 20190502 MW67-3708 A2,B2,C8,D1,E1

35: 20190502 MW67-3709 C2,D4,F2,F4

36: 20190507 MW67-3710 C3,C4,C5,C6,C7,D3,D4,D5,D6,D7

37: 20190507 MW67-3711 C4,C5,C6,C7,D3,D4,D5,D7,F8

38: 20190507 MW67-3712 B4,C3,C4,C5,C6,C7,D3,D4,D6,D7,F1,F2

39: 20190509 MW67-3714 B3,C3,C4,C6,D6,D8,F1,F8

40: 20190509 MW67-3715 C3,C5,C6,D4,D5,E1,F1,F7

41: 20190509 MW67-3716 A2,A3,A4,A7,B2,D2,D3,D5,D6,D7,E1,E2,E4,F1,F2,F3

42: 20190514 MW67-3718 A6,D3,D4,F4

43: 20190514 MW67-3719 A1,A7,C2,D4

44: 20190514 MW68-0701 A3,C4,D3,D4,D5,D6,D7

45: 20190516 MW68-0703 C3,C4,C5,C7,D4,D7

46: 20190516 MW68-0704 A4,D5,D7

47: 20190516 MW68-0719 A1,A2,A5,A6,A7,C1,C2,C8,D1,D5,D7,E1,E3,E6,F2,F4,F5,F7,F8

Wow, so all 47 MEA plates used have at least 1 well set to wllq=0

wllq\_notes V1

1: 4030

2: Baseline MFR < 0.6377603 Hz; 311

3: Baseline MFR > 3.4036511 Hz; 109

4: Baseline # of AE < 10; 22

5: Baseline # of AE < 10; Baseline MFR < 0.6377603 Hz; 40

I noticed that there is a plate with 'No Barcode'. Will rename that now, then resave dat1.

I changed the plate.id of "MWNo Barcode" to "MW1237-11", then resaved dat1

Level 2 - Collapse Data by Plate ID:

Loading...

APCRA2019\_dat1\_2020-07-21.RData

Collapsing treated and baseline data...

20190326\_MW1236-16

20190326\_MW1236-17

20190326\_MW1236-18

20190328\_MW1236-19

20190328\_MW1236-20

20190328\_MW1236-21

20190402\_MW1236-22

20190402\_MW1236-23

20190404\_MW1237-10

20190404\_MW1237-11

20190404\_MW1237-12

20190409\_MW1237-13

20190409\_MW1237-14

20190409\_MW1237-15

20190411\_MW1237-16

20190411\_MW1237-17

20190411\_MW1237-18

20190416\_MW66-9604

20190416\_MW66-9613

20190418\_MW66-9801

20190418\_MW66-9803

20190418\_MW66-9804

20190416\_MW1237-19

20190423\_MW66-9805

20190423\_MW66-9810

20190423\_MW66-9811

20190425\_MW66-9812

20190425\_MW66-9817

20190425\_MW66-9818

20190430\_MW67-3701

20190430\_MW67-3702

20190430\_MW67-3706

20190502\_MW67-3707

20190502\_MW67-3708

20190502\_MW67-3709

20190507\_MW67-3710

20190507\_MW67-3711

20190507\_MW67-3712

20190509\_MW67-3714

20190509\_MW67-3715

20190509\_MW67-3716

20190514\_MW67-3718

20190514\_MW67-3719

20190514\_MW68-0701

20190516\_MW68-0703

20190516\_MW68-0704

20190516\_MW68-0719

APCRA2019\_dat2\_2020-07-21.RData is ready.

APCRA2019\_dat2\_2020-07-21.RData

Load Cytotoxicity Data:

Reading from APCRA2019\_calculations\_files\_log\_2020-05-21.txt...

Got 16 files.

Reading data from files...

20190313\_Calculations\_Group\_1\_checked.xlsx

AB

MW1236-16 MW1236-17 MW1236-18

some values are negative. These will be set to 0

LDH

MW1236-16 MW1236-17 MW1236-18

20190313\_Calculations\_Group\_2\_checked.xlsx

AB

MW1236-19 MW1236-20 MW1236-21

LDH

MW1236-19 MW1236-20 MW1236-21

20190320\_Calculations\_Group\_1\_checked.xlsx

AB

MW1236-22 MW1236-23 MW1236-24

LDH

MW1236-22 MW1236-23 MW1236-24

some values are negative. These will be set to 0

20190320\_Calculations\_Group\_2\_checked.xlsx

AB

MW1237-10 MW1237-11 MW1237-12

LDH

MW1237-10 MW1237-11 MW1237-12

some values are negative. These will be set to 0

20190327\_Calculations\_Group\_1\_checked.xlsx

AB

MW1237-13 MW1237-14 MW1237-15

LDH

MW1237-13 MW1237-14 MW1237-15

some values are negative. These will be set to 0

20190327\_Calculations\_Group\_2\_checked.xlsx

AB

MW1237-16 MW1237-17 MW1237-18

LDH

MW1237-16 MW1237-17 MW1237-18

some values are negative. These will be set to 0

20190403\_Calculations\_Group\_1\_missingData(LDH).xlsx

AB

MW1237-19 MW66-9604 MW66-9613

some values are negative. These will be set to 0

LDH

Some LDH rval on 66-9604 are NA:

Row 1 2 3 4 5 6 7 8

1: A <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA>

2: B <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA>

3: C <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA>

4: D <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA>

5: E <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA>

6: F <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA>

7: G <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA>

8: H <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA>

Do you wish to continue anyways? (y/n): y

(It was stated in the lab notebook that these values are missing)

MW1237-19 MW66-9604 MW66-9613

some values are negative. These will be set to 0

20190403\_Calculations\_Group\_2\_checked.xlsx

AB

MW66-9801 MW66-9803 MW66-9804

LDH

MW66-9801 MW66-9803 MW66-9804

some values are negative. These will be set to 0

20190410\_Calculations\_Group\_1\_checked.xlsx

AB

MW66-9805 MW66-9810 MW66-9811

LDH

MW66-9805 MW66-9810 MW66-9811

some values are negative. These will be set to 0

20190410\_Calculations\_Group\_2\_checked.xlsx

AB

MW66-9812 MW66-9817 MW66-9818

some values are negative. These will be set to 0

LDH

MW66-9812 MW66-9817 MW66-9818

some values are negative. These will be set to 0

20190417\_Calculations\_Group\_1\_checked.xlsx

AB

MW67-3701 MW67-3702 MW67-3706

some values are negative. These will be set to 0

LDH

MW67-3701 MW67-3702 MW67-3706

some values are negative. These will be set to 0

20190417\_Calculations\_Group\_2\_checked.xlsx

AB

MW67-3707 MW67-3708 MW67-3709

LDH

MW67-3707 MW67-3708 MW67-3709

some values are negative. These will be set to 0

20190424\_Calculations\_Group\_1\_checked.xlsx

AB

MW67-3710 MW67-3711 MW67-3712

LDH

MW67-3710 MW67-3711 MW67-3712

some values are negative. These will be set to 0

20190424\_Calculations\_Group\_2\_checked.xlsx

AB

MW67-3714 MW67-3715 MW67-3716

some values are negative. These will be set to 0

LDH

MW67-3714 MW67-3715 MW67-3716

some values are negative. These will be set to 0

20190501\_Calculations\_Group\_1\_checked.xlsx

AB

MW67-3718 MW67-3719 MW68-0701

LDH

MW67-3718 MW67-3719 MW68-0701

some values are negative. These will be set to 0

20190501\_Calculations\_Group\_2\_checked.xlsx

AB

MW68-0703 MW68-0704 MW68-0719

LDH

MW68-0703 MW68-0704 MW68-0719

some values are negative. These will be set to 0

There are some NA values in cytodat:

cytodat is ready

Level 3 - Combine Cyto and Neural Stats Data; Initialize treatment, conc, and wllq

Loading...

APCRA2019\_dat2\_2020-07-21.RData

APCRA2019\_dat3\_2020-07-21.RData is ready.

Level 4 - Finalize well ID information:

APCRA2019\_dat3\_2020-07-21.RData

**Finalize Wllq:**

NA rval's: 4088

Inf rval's (baseline==0): 30

Well quality set to 0 for these rval's.

20190416 MW66-9613 D6 Contamination Summary:

rval acnm

1: NA active\_electrodes\_number

2: NA burst\_number

3: NA firing\_rate\_mean

4: NA network\_burst\_number

5: 2.233200e+04 AB

6: 2.646667e-02 LDH

Well quality set to zero for 45 rows.

20190425 MW66-9817 D6 Contamination Summary:

rval acnm

1: NA active\_electrodes\_number

2: NA burst\_number

3: NA firing\_rate\_mean

4: NA network\_burst\_number

5: 384.6667 AB

6: 0.0000 LDH

Well quality set to zero for 45 rows.

20190425 MW66-9818 F3 Contamination Summary:

rval acnm

1: NA active\_electrodes\_number

2: NA burst\_number

3: NA firing\_rate\_mean

4: NA network\_burst\_number

5: 814.3333 AB

6: 0.0000 LDH

Well quality set to zero for 45 rows.

20190502 MW67-3707 B8 Excessive foaming Summary:

rval acnm

1: -1.000000e+02 active\_electrodes\_number

2: -9.939623e+01 burst\_number

3: -9.939549e+01 firing\_rate\_mean

4: -9.941860e+01 network\_burst\_number

5: 4.614500e+04 AB

6: 3.046667e-02 LDH

Well quality set to zero for 1 rows.

20190502 MW67-3708 B8 Excessive foaming Summary:

rval acnm

1: -100.00000 active\_electrodes\_number

2: -99.52421 burst\_number

3: -99.73991 firing\_rate\_mean

4: -99.50495 network\_burst\_number

5: 49121.00000 AB

6: 0.07060 LDH

Well quality set to zero for 1 rows.

20190509 MW67-3714 B3 Contamination Summary:

rval acnm

1: NaN active\_electrodes\_number

2: NaN burst\_number

3: -97.37374 firing\_rate\_mean

4: NaN network\_burst\_number

5: 5947.33333 AB

6: 0.24010 LDH

Well quality set to zero for 45 rows.

20190516 MW68-0719 A7 Contamination Summary:

rval acnm

1: NA active\_electrodes\_number

2: NA burst\_number

3: NA firing\_rate\_mean

4: NA network\_burst\_number

5: 1412.667 AB

6: 0.000 LDH

Well quality set to zero for 45 rows.

**Verifying control compound labels:**

**20190410 Culture -**

Lab Notebook says TTX was added to well A1 instead of D1 for Group 9 (culture group 1). But, the calculations file says that TTX is still in D1.

No note on TTX for Group 10 (culture group 2). But, the calculations file says that TTX is in well A1 here.

I am guessing that what is the Calculations file is correct, since that would have taken more work/intentionality to replace, while the lab notebook was a quick note. Furthermore, it does look like TTX was added to all of the wells shown in this graph, so it looks right. Not changing anything here.

The only TTX well that is not at -100 for MFRis from exp date 20190514, culture 20190501 well D1 (replicated groups 1 & 2)

DMSO wells in Group 10, wells D1 def look okay for MFR

All TTX wells from both groups look right

DMSO wells from Group 9 well A1 are eh: -100, 1.5, -17. On the first plate with the -100% for DMSO values, all 3 DMSO wells are near -100%. If TTX was really added to well A1 for all 3 plates, we would see an effect in all 3 A1 wells. Even though I don't like the low DMSO rval's, I don't think this note is a reason to change those.

Based on conversation with Kathleen, the controls were added after the second recording in the first culture (Mar 13, so exp dates 20190326 and 20190328). So, I changed the treatment to "Media" in those wells for non-cytotox assays. After the first culture, the controls were added before the second recording.

I renamed the treatment for PICRO, TTX, and LYSIS\_Control wells to Media for wells in the first 2 experiment dates

For all other experiment dates, it looks like the PICRO, LYSIS, and TTX were added before the second recording for this data set (see summary graphs).

Control treatment labels for LDH and AB look right, not making any changes.

Confirm that the rest of these treatments look normal (nothing NA, 0, etc):

Media, A01\_0.03, A01\_0.1, A01\_0.3, A01\_1, A01\_3, A01\_10, A01\_30, A02\_0.03, A02\_0.1, A02\_0.3, A02\_1, A02\_3, A02\_10, A02\_30, DMSO, A03\_0.03, A03\_0.1, A03\_0.3, A03\_1, A03\_3, A03\_10, A03\_30,. . . . . .

H10\_0.1, H10\_0.3, H10\_1, H10\_3, H10\_10, H10\_30, LYSIS\_Control, 1:250 LDH, 1:2500 LDH, Lysis, ½ Lysis

**Prepare LDH 'p' wells (using Lysis or Half Lysis wells):**

Treatments assigned to wllt 'p' for each apid:

apid LDH\_trts\_in\_p\_wells N

1: 20190326 2 \* ½ Lysis 9

2: 20190328 2 \* ½ Lysis 9

3: 20190402 2 \* ½ Lysis 9

4: 20190404 2 \* ½ Lysis 9

5: 20190409 2 \* ½ Lysis 9

6: 20190411 2 \* ½ Lysis 9

7: 20190416 2 \* ½ Lysis 6

8: 20190418 2 \* ½ Lysis 9

9: 20190423 2 \* ½ Lysis 9

10: 20190425 2 \* ½ Lysis 9

11: 20190430 2 \* ½ Lysis 9

12: 20190502 2 \* ½ Lysis 9

13: 20190507 2 \* ½ Lysis 9

14: 20190509 2 \* ½ Lysis 9

15: 20190514 2 \* ½ Lysis 9

16: 20190516 2 \* ½ Lysis 9

Summary of median p wells by apid:

apid pval

1: 20190326 0.9082000

2: 20190328 1.6267333

3: 20190402 0.4246667

4: 20190404 0.7342000

5: 20190409 1.8176667

6: 20190411 2.1584000

7: 20190416 1.5708000

8: 20190418 1.4964667

9: 20190423 1.4870667

10: 20190425 1.4691333

11: 20190430 1.6973333

12: 20190502 2.2252000

13: 20190507 0.9256000

14: 20190509 1.4798000

15: 20190514 2.0930000

16: 20190516 1.8764000

**Assign spid's:**

Using spidmap file: L:/Lab/NHEERL\_MEA/Project TSCA\_APCRA/EPA\_18235\_EPA-Shafer\_84\_20181129.xlsx

No spids are NA.

Number of unique spids: 89

For control wells, I am assigning the spids as in the table below

|  |  |
| --- | --- |
| **Name in MEA data** | **SPID given** |
| DMSO(a/b/c)\_Control | DMSO |
| PICRO\_25, PICRO5\_Control, PICRO3\_Control | Picrotoxin (except for MEA endpoints where Picro added after recordings. Spid is "Media" for those well endpoints) |
| TTX\_1, TTX5\_Control, TTX3\_Control | Tetrodotoxin (except for MEA endpoints where TTX added after recordings. Spid is "Media" for those well endpoints) |
| LYSIS\_1, LYSIS\_Control, Lysis, 1/2 Lysis | Tritonx100 (except for MEA endpoints where Lysis added after recordings. Spid is "Media" for those well endpoints) |

Confirmed that all of the treated compounds are the same as what is in the flatfile, "L:/Lab/NHEERL\_MEA/Project TSCA\_APCRA/APCRA\_MEA\_Data\_WithLineBreaks.xlsx"

**Assign Wllt:**

wllt will be set to 't' for the MEA components for the following spid's:

EPAPLT0154A01, EPAPLT0154A02, EPAPLT0154A03, EPAPLT0154A04, EPAPLT0154A05, EPAPLT0154A06, EPAPLT0154A07, EPAPLT0154A08, EPAPLT0154A09, EPAPLT0154A10, EPAPLT0154A11, EPAPLT0154B01, EPAPLT0154B02, EPAPLT0154B03, EPAPLT0154B04, EPAPLT0154B05, EPAPLT0154B06, EPAPLT0154B07, EPAPLT0154B08, EPAPLT0154B09, EPAPLT0154B10, EPAPLT0154B11, EPAPLT0154C01, EPAPLT0154C02, EPAPLT0154C03, EPAPLT0154C04, EPAPLT0154C05, EPAPLT0154C06, EPAPLT0154C07, EPAPLT0154C08, EPAPLT0154C09, EPAPLT0154C10, EPAPLT0154C11, EPAPLT0154D01, EPAPLT0154D02, EPAPLT0154D03, EPAPLT0154D04, EPAPLT0154D05, EPAPLT0154D06, EPAPLT0154D07, EPAPLT0154D08, EPAPLT0154D09, EPAPLT0154D10, EPAPLT0154D11, EPAPLT0154E01, EPAPLT0154E02, EPAPLT0154E03, EPAPLT0154E04, EPAPLT0154E05, EPAPLT0154E06, EPAPLT0154E07, EPAPLT0154E08, EPAPLT0154E09, EPAPLT0154E10, EPAPLT0154F01, EPAPLT0154F02, EPAPLT0154F03, EPAPLT0154F04, EPAPLT0154F05, EPAPLT0154F06, EPAPLT0154F07, EPAPLT0154F08, EPAPLT0154F09, EPAPLT0154F10, EPAPLT0154G01, EPAPLT0154G02, EPAPLT0154G03, EPAPLT0154G04, EPAPLT0154G05, EPAPLT0154G06, EPAPLT0154G07, EPAPLT0154G08, EPAPLT0154G09, EPAPLT0154G10, EPAPLT0154H01, EPAPLT0154H02, EPAPLT0154H03, EPAPLT0154H04, EPAPLT0154H05, EPAPLT0154H06, EPAPLT0154H07, EPAPLT0154H08, EPAPLT0154H09, EPAPLT0154H10

wllt will be set to 't' for the cytotoxicity components for the following spid's:

(same)

Had to update the treatment names first. The "LYSIS\_Control" wells I found were all from the first culture, where Lysis was added after the second recording so the treatment in MEA F1 wells on these plates is Media. So I think Lysis\_Control is really the same thing as LYSIS\_1, just different syntax early on.

Well Type Assignments for Control Compounds by assay component:

treatment spid CellTiter Blue LDH MEA components

1: DMSO DMSO n n n

2: Media Media - - b

3: PICRO Picrotoxin z z p

4: TTX Tetrodotoxin x x p

5: 2 \* ½ Lysis Tritonx100 - p -

6: Lysis Tritonx100 p x v

Unique of wllt:

[1] "p" "t" "n" "v" "x" "b" "z"

**Finalize Concentrations:**

Concentration Corrections:

All conc's as char:

NA, , 0.03, 0.1, 0.3, 1, 10, 25, 3, 30

All conc's as numeric:

NA, 0.03, 0.1, 0.3, 1, 3, 10, 25, 30

Final Control Compound Conc Assignments by assay component:

treatment spid Conc Label in Source File CellTiter Blue LDH MEA components

1: DMSO DMSO Control NA NA NA

2: Media Media Control - - NA

3: PICRO Picrotoxin 25,Control 25 25 25

4: TTX Tetrodotoxin 1,Control 1 1 1

5: 2 \* ½ Lysis Tritonx100 ½ Lysis - NA -

6: Lysis Tritonx100 1,Control,Lysis 1 1 1

samples corrected using the file samples\_stkc\_invitrodb\_2020-06-12.RData

Note - it appears that no concentration-corrections had been done. All conc's are the standard target concentrations. In the spid file EPA\_18235\_EPA-Shafer\_84\_20181129.xlsx, there is no aliquot concentration listed. Only the "Target concentrations", which are all 20.

Additionally, the spids "EPAPLT0154G04","EPAPLT0154G07" have stock concentrations significantly different from 20 mM, but it does not appear that anything different was done for these compounds in the calculations file. (L:\Lab\NHEERL\_MEA\Project TSCA\_APCRA\20190417 Culture\20190417\_Calculations\_Group\_2\_checked.xlsx)

I did concentration-corrections using the stock concentrations I pulled off of invitrodb for all of the spids in APCRA data set (see samples\_stkc\_invitrodb.R)

**Final Checks:**

Number of unique acnm's present: 45

Wllq breakdown:

wllq N

1: 1 76306

2: 0 25592

Number of plates tested: 48

Number of experiment dates: 16

The following plates don't have the expected number of points (48 for MEA & AB, 54 for LDH):

date\_plate AB LDH MEA\_pts

1: 20190402\_MW1236-24 48 54 0

date\_plate AB LDH MEA\_pts

1: 20190416\_MW66-9604 48 48 48

Response:

20190402\_MW1236-24 doesn’t have any MEA pts because recording was too short

20190416\_MW66-9604 only has 48 LDH pts because this data is all missing, and all of the 48 points present are NA

Summary of MEA rval's above 300% change by acnm (for wllt 't' or 'n'):

acnm wllts N

1: CCTE\_Shafer\_MEA\_acute\_interburst\_interval\_std n,t 442

2: CCTE\_Shafer\_MEA\_acute\_interburst\_interval\_mean n,t 306

3: CCTE\_Shafer\_MEA\_acute\_interburst\_interval\_CV\_std n,t 175

4: CCTE\_Shafer\_MEA\_acute\_burst\_frequency\_std n,t 125

5: CCTE\_Shafer\_MEA\_acute\_network\_burst\_frequency n,t 88

6: CCTE\_Shafer\_MEA\_acute\_network\_burst\_number n,t 88

7: CCTE\_Shafer\_MEA\_acute\_per\_network\_burst\_electrodes\_number\_std n,t 85

8: CCTE\_Shafer\_MEA\_acute\_inter-network\_burst\_interval\_CV n,t 84

9: CCTE\_Shafer\_MEA\_acute\_burst\_percentage\_std n,t 69

10: CCTE\_Shafer\_MEA\_acute\_network\_burst\_duration\_IQR n,t 57

11: CCTE\_Shafer\_MEA\_acute\_median\_interspike\_interval\_within\_burst\_std n,t 40

12: CCTE\_Shafer\_MEA\_acute\_per\_network\_burst\_spike\_number\_mean n,t 39

13: CCTE\_Shafer\_MEA\_acute\_burst\_duration\_IQR\_std n,t 37

14: CCTE\_Shafer\_MEA\_acute\_cross\_correlation\_HWHM n,t 27

15: CCTE\_Shafer\_MEA\_acute\_per\_network\_burst\_mean\_spikes\_per\_electrode\_mean n,t 20

16: CCTE\_Shafer\_MEA\_acute\_mean\_interspike\_interval\_within\_burst\_std n,t 19

17: CCTE\_Shafer\_MEA\_acute\_interburst\_interval\_CV\_mean n,t 14

18: CCTE\_Shafer\_MEA\_acute\_median\_interspike\_interval\_within\_burst\_mean t 14

19: CCTE\_Shafer\_MEA\_acute\_network\_burst\_duration\_std n,t 12

20: CCTE\_Shafer\_MEA\_acute\_cross\_correlation\_HWHM\_normalized t 12

21: CCTE\_Shafer\_MEA\_acute\_network\_burst\_duration\_mean n,t 8

22: CCTE\_Shafer\_MEA\_acute\_mean\_interspike\_interval\_within\_burst\_mean t 7

23: CCTE\_Shafer\_MEA\_acute\_interspike\_interval\_CV n,t 6

24: CCTE\_Shafer\_MEA\_acute\_per\_network\_burst\_mean\_spikes\_per\_electrode\_std n,t 4

25: CCTE\_Shafer\_MEA\_acute\_per\_network\_burst\_spike\_number\_std n,t 4

26: CCTE\_Shafer\_MEA\_acute\_burst\_frequency\_mean t 4

27: CCTE\_Shafer\_MEA\_acute\_burst\_number t 4

28: CCTE\_Shafer\_MEA\_acute\_burst\_duration\_std t 4

29: CCTE\_Shafer\_MEA\_acute\_burst\_duration\_IQR\_mean t 3

30: CCTE\_Shafer\_MEA\_acute\_cross\_correlation\_area t 2

31: CCTE\_Shafer\_MEA\_acute\_firing\_rate\_mean t 2

32: CCTE\_Shafer\_MEA\_acute\_spike\_number t 2

33: CCTE\_Shafer\_MEA\_acute\_firing\_rate\_mean\_weighted t 1

34: CCTE\_Shafer\_MEA\_acute\_per\_burst\_spike\_number\_std t 1

acnm wllts N

(note that the wllq is not quite final -

wllq will be updated for outlier DMSO wells will before creating lvl 0 snapshot)

dat4 saved on: 2020-07-21

Warning message:

In combineNeuralAndCyto(cytodat, main.output.dir, dataset\_title) :

The following date\_plate's are only found in cytodat (and not in dat2): 20190402\_MW1236-24

Wllq will be set to 1 for all wells on these LDH/AB plates.

Response:

This is okay, because I know that the mea data from 20190402\_MW1236-24 is not including because the recording was too short.