PLOTTING ALL DATASETS OF CALCIUM ACTIVITY IN THE SMH MUTANT. ACTIVITY DURING THE ENTIRE RECORDING

Experiments done by D'Gama et al, 2photon in HuC:GCamp6s, 5 dpf in smh control (heterozygous and wt) and smh homozygous. Geneotype was based on the curved body axis.

Cells were segmented and DFF recovered. DFF is moving window

Cells were clustered using Pearson's correlations

Traces and Cell segmentations were saved in the datasets below

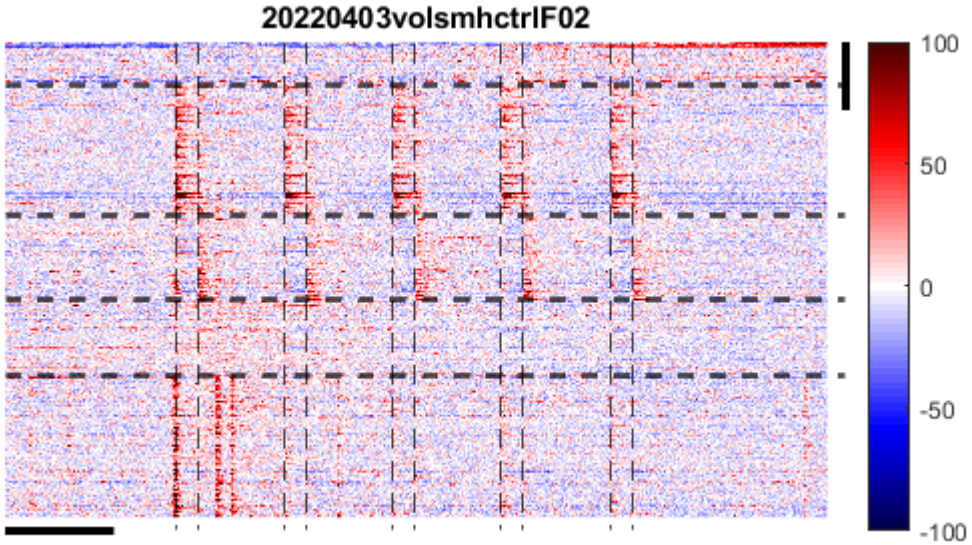
```
folderPath='X:\Manuscripts\Dgama etal 2024 smh\data\Supplementary Fig 2p\clustered data\'
```

```
folderPath =
'X:\Manuscripts\Dgama etal 2024 smh\data\Supplementary Fig 2p\clustered data\'
```

Load datasets and plot a heatmap

```
% Get the list of files and folders in the specified folder
fileList = dir(folderPath);

% Loop through each file in the folder
for i = 1:length(fileList)
    % Skip directories
    if ~fileList(i).isdir
        % Get the full path of the file
        filePath = fullfile(folderPath, fileList(i).name);

        % Display the file name
        disp(['Opening file: ', fileList(i).name]);

        % Open the file and read its contents
        % Assuming the files are text files, you can use fopen, fread, etc.
        fileID = fopen(filePath, 'r');
        if fileID == -1
            disp(['Failed to open file: ', fileList(i).name]);
        else
            % Read the file content (assuming text file here)
            load(filePath);
            figure, plot_heatmap(results)

            % Add your file processing code here
        end
    end
end
```

```
Opening file: 20220403volsmhctrlF02Results_CLUSTERING.mat
```



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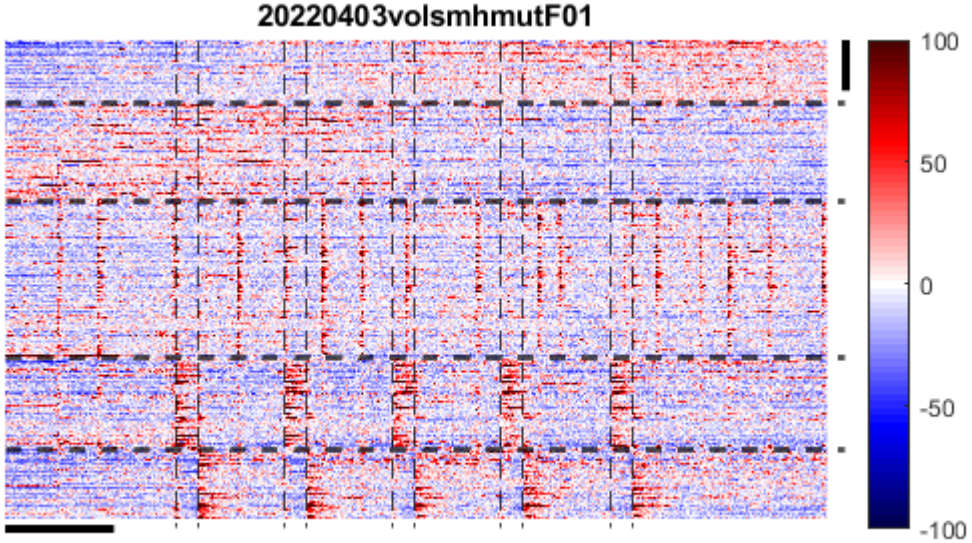

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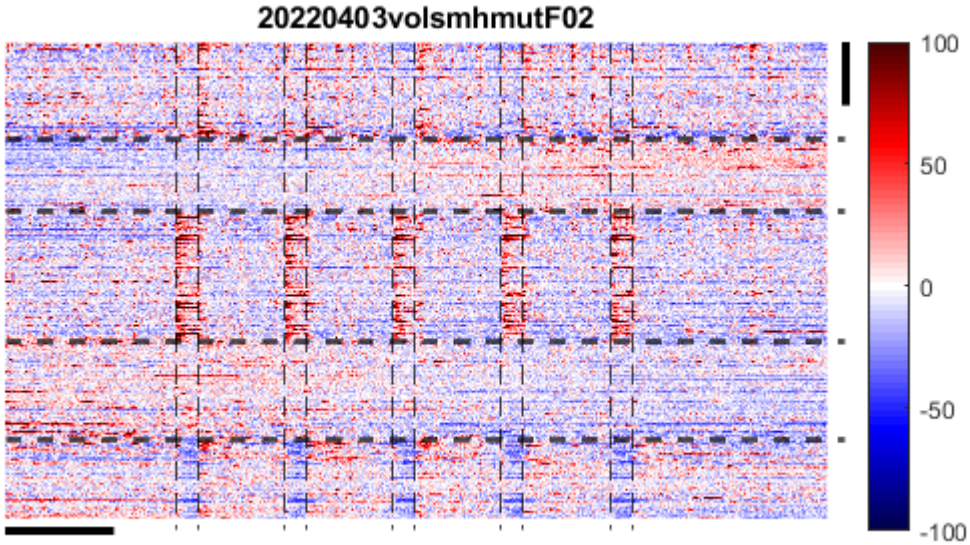

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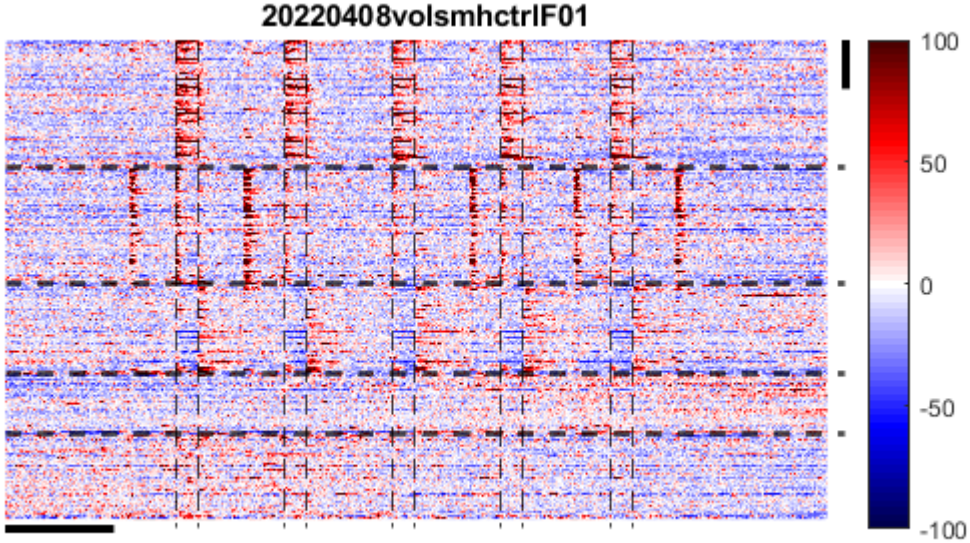

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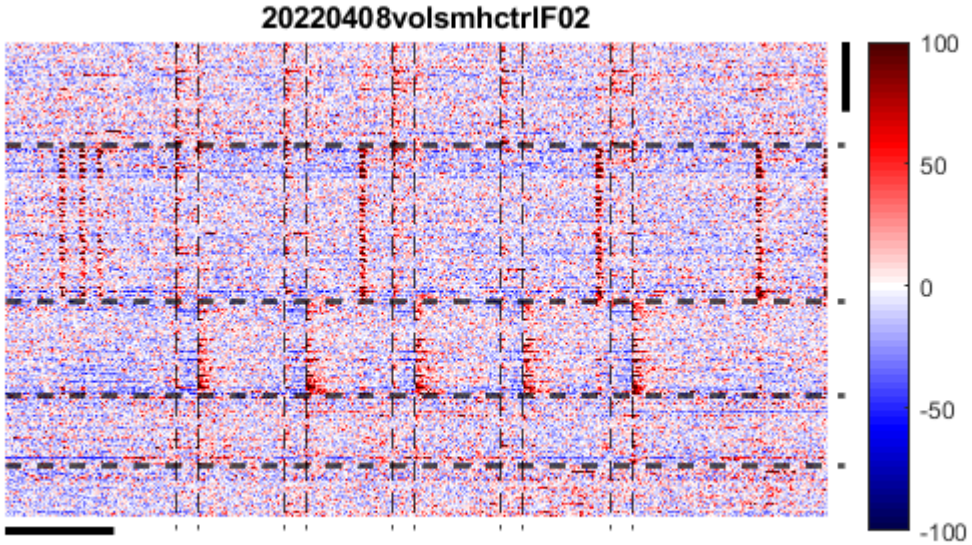

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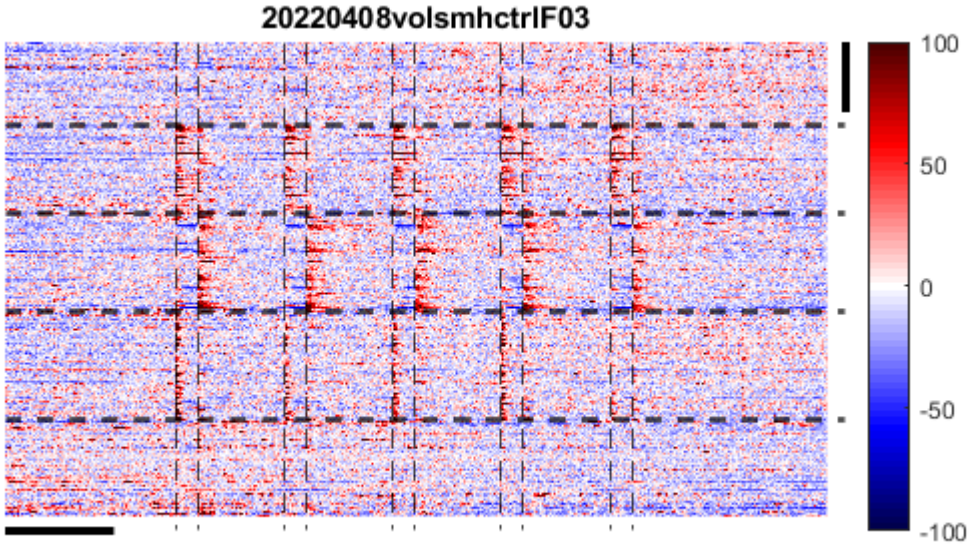

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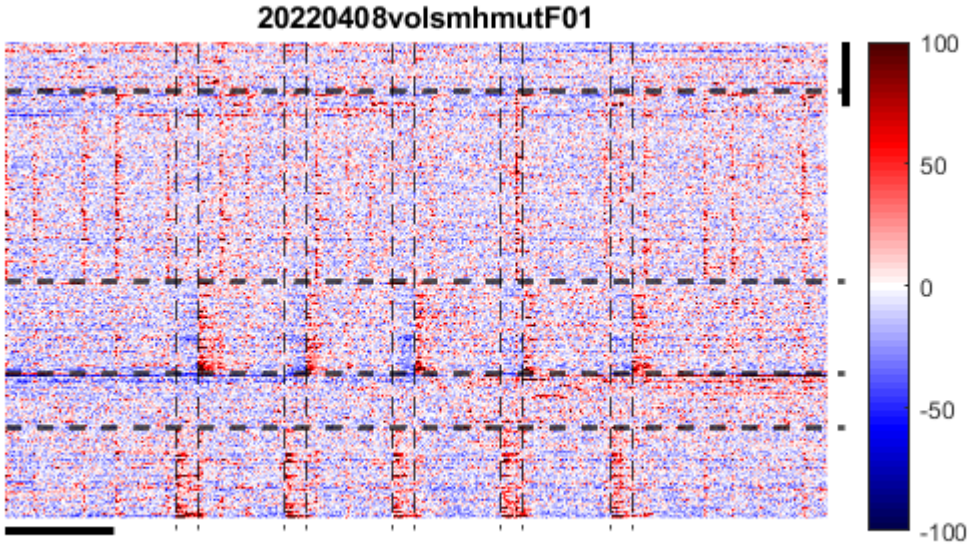

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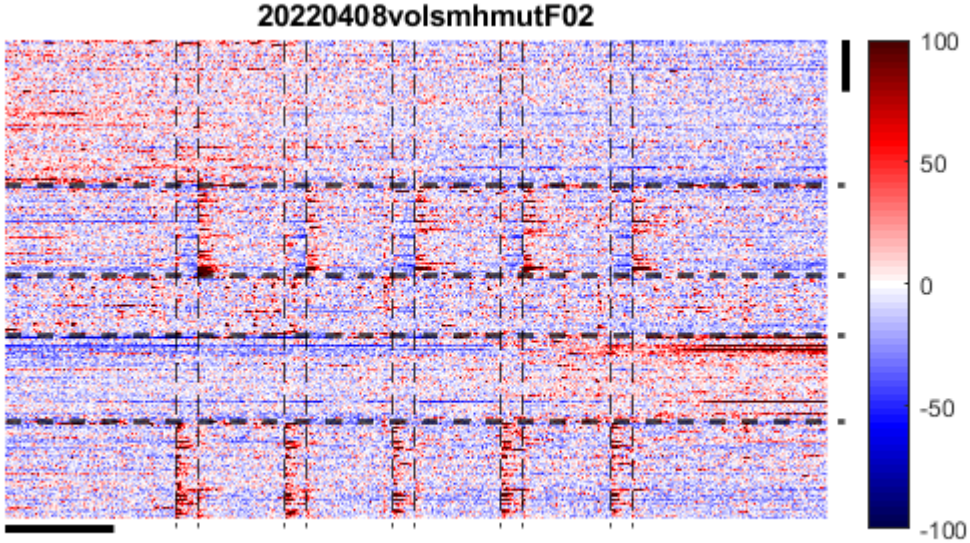

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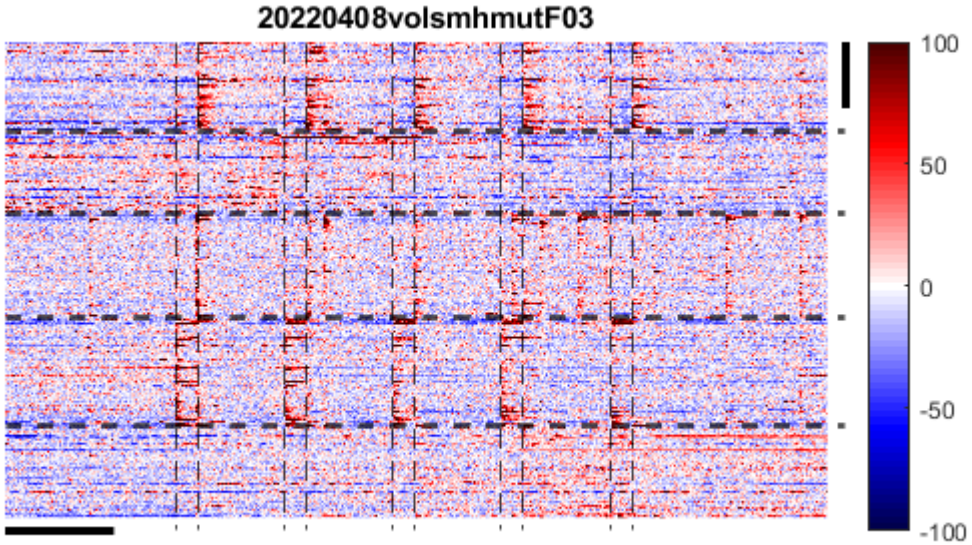

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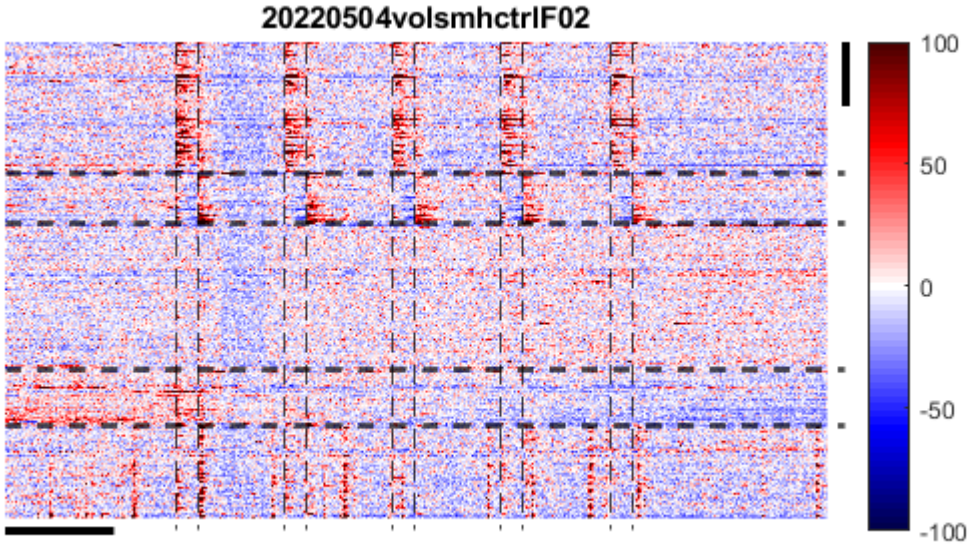

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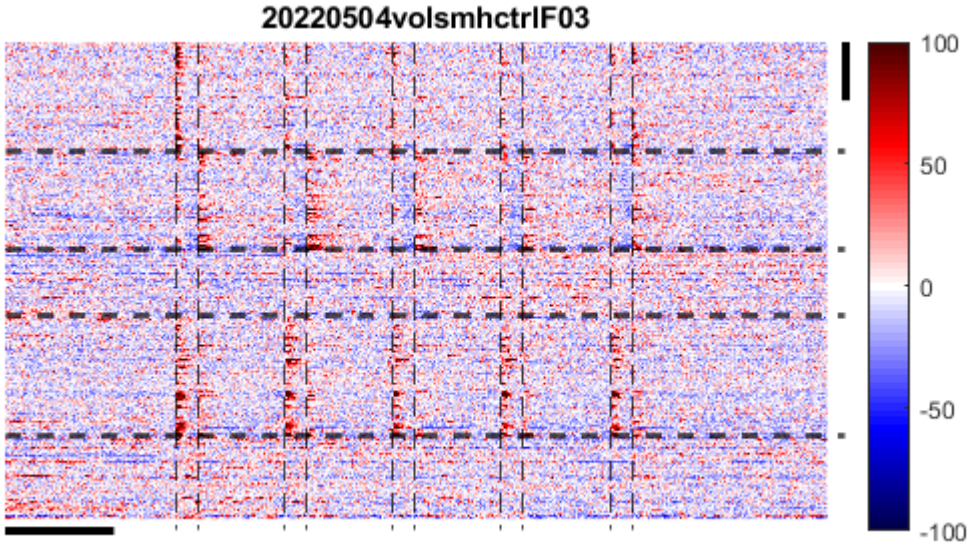

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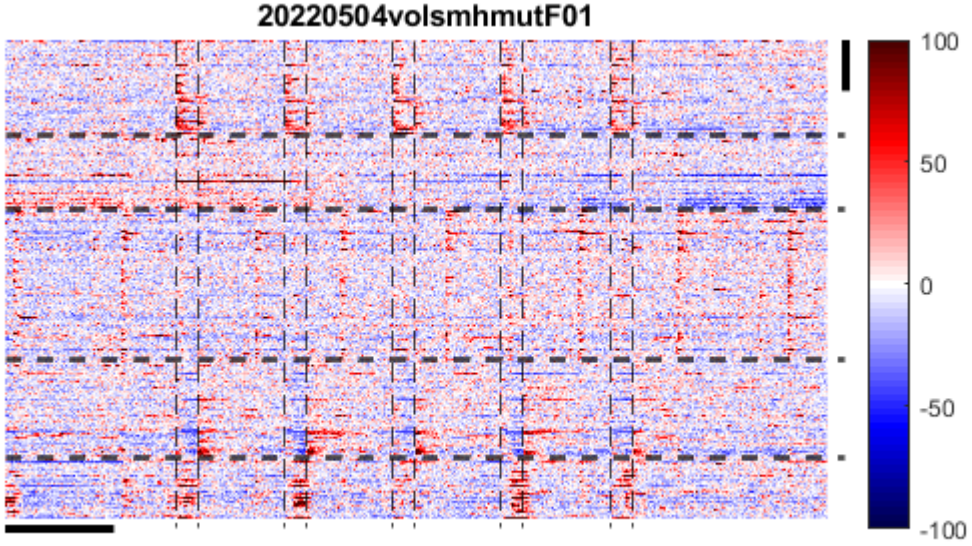

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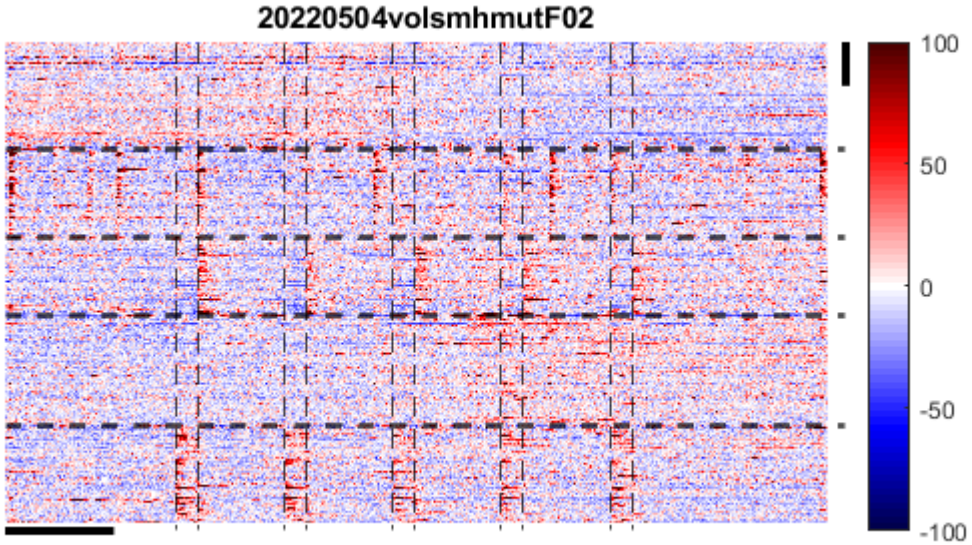

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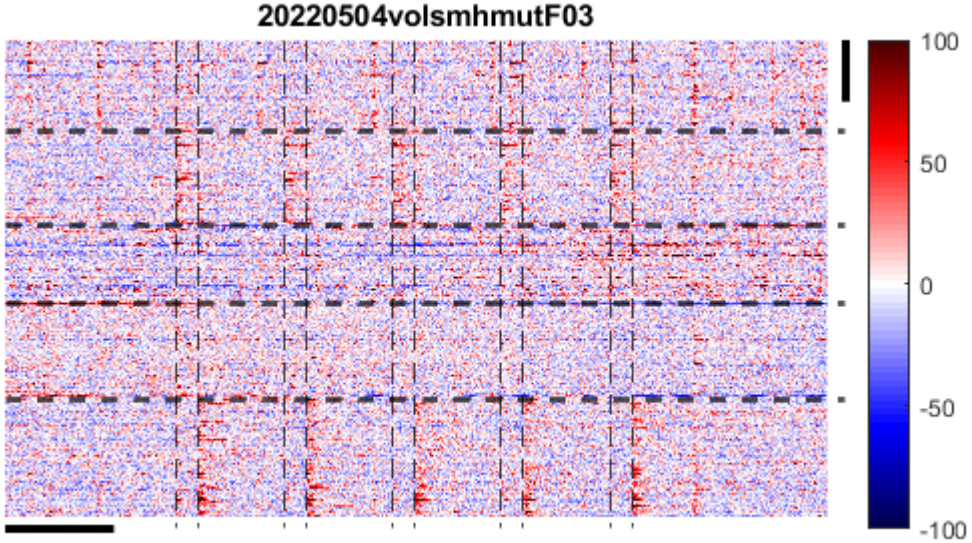

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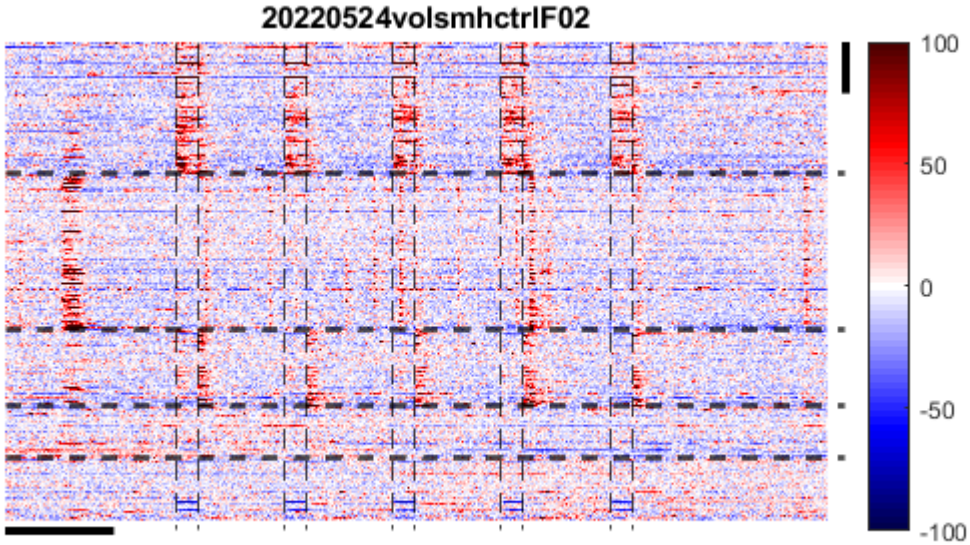

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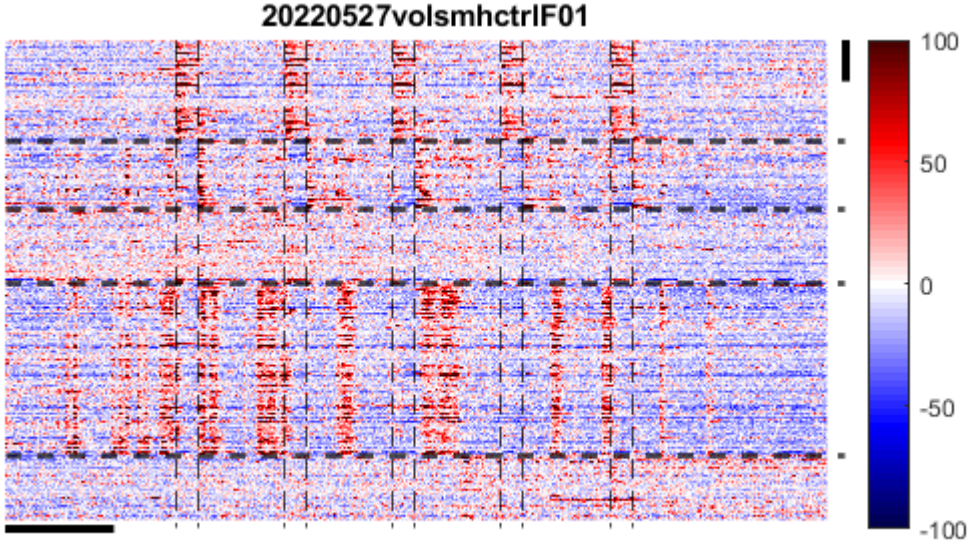

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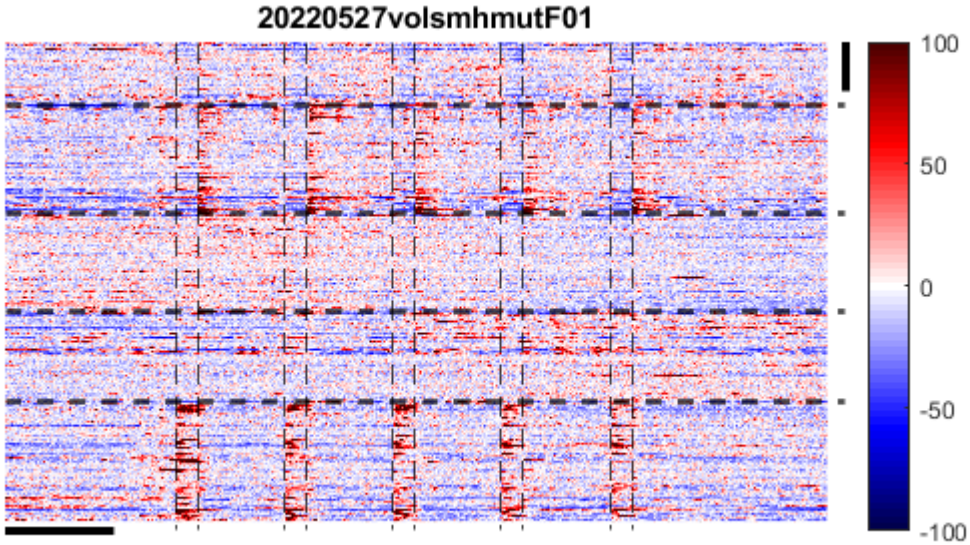

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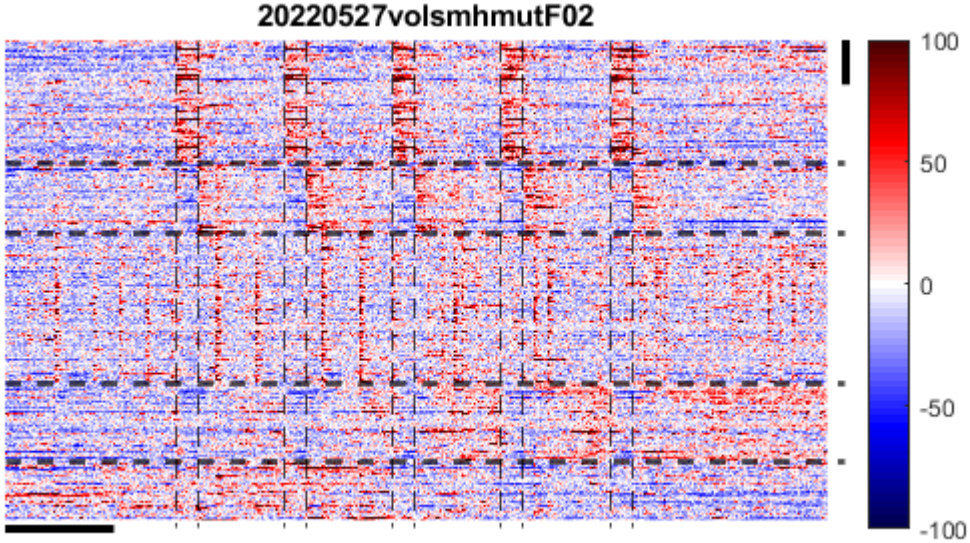

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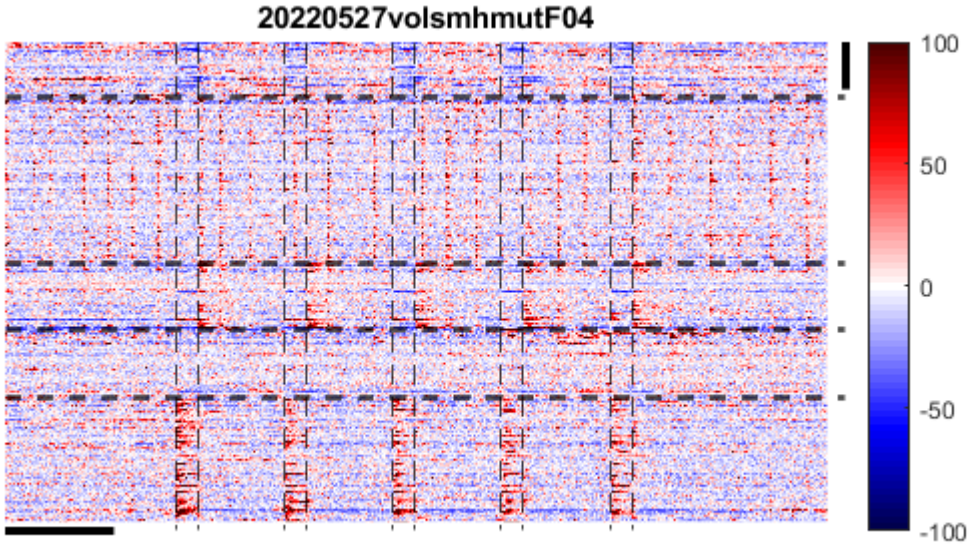

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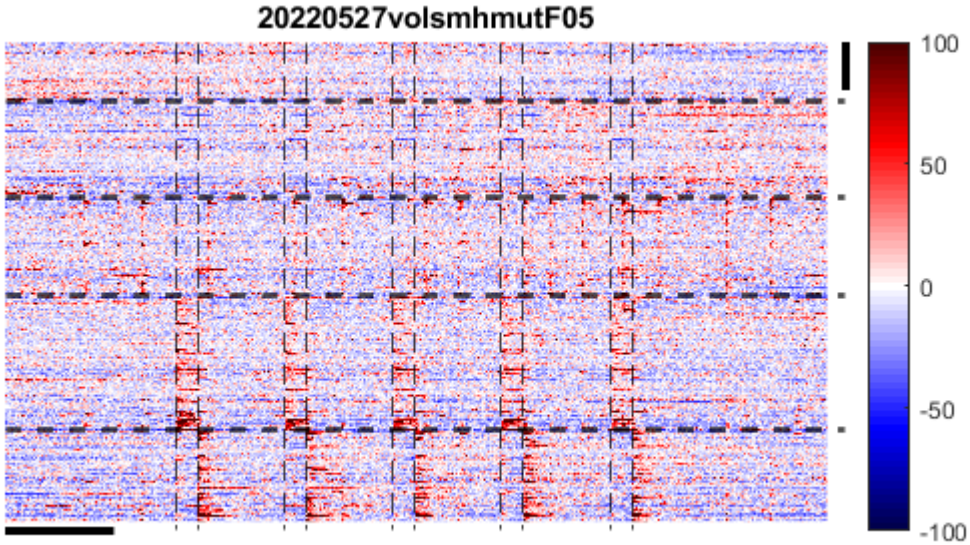

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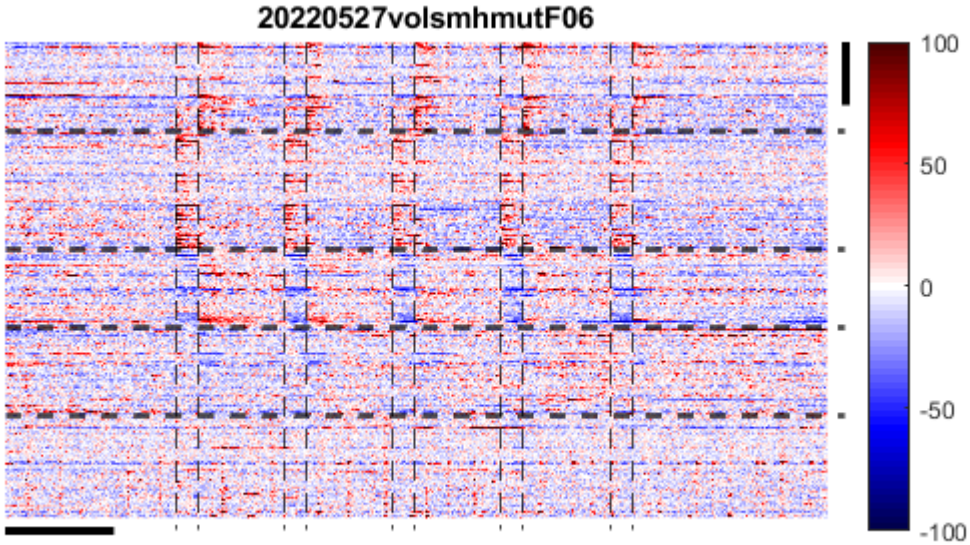
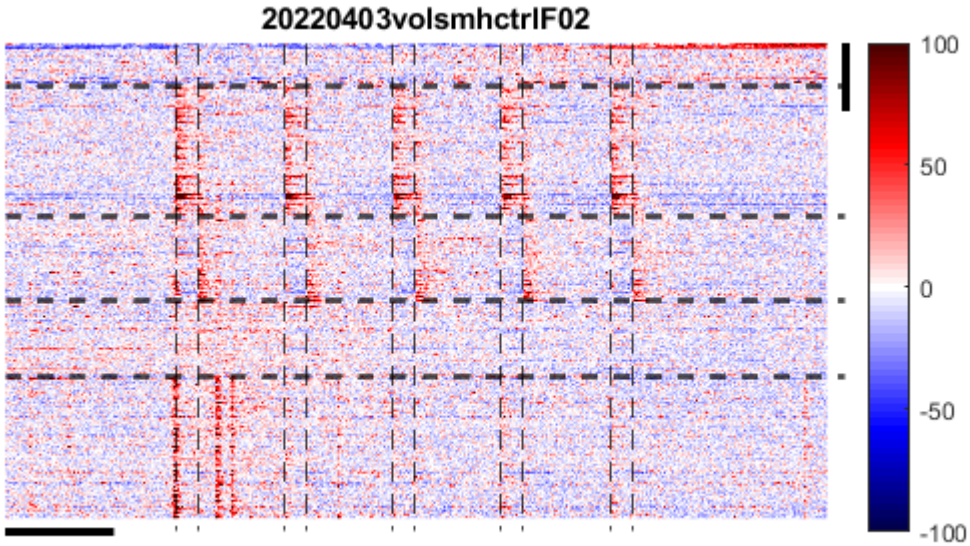



```
%load('X:\Manuscripts\Dgama etal 2024 smh\data\Figure 3\Panel A\20220408volsmhctrlF01Results_Cl
plot_heatmap(results)
```




```
function plot_heatmap(data)
% HEATMAP-----------------------------------------------------------------
% plot the clustering with a bar for 5 min --------------------------------
% re-orderd the cluster so that cluster 1-2 is ON, cluster 3 is OFF, cluster
% 4 and 5 is not showing large activity
idx2=data.idx;
```

```
idx2(data.idx==4)=12;
idx2(data.idx==2)=13;
idx2(data.idx==5)=10;
idx2(data.idx==1)=11;
idx2(data.idx==3)=14;
% x scalebar is 5 min, y scalebar is 1000 neurons
cmap = seismic();
figure('Position', [100 100 600 300])
imagesc(sortrows(cat(2, idx2, data.DV_DFFaveragetime ))), hold on
colormap(cmap)
caxis([-100 100])
%colorbar
xline(data.cfg.TimeVector.ON,'k--','LineWidth',0.1)
xline(data.cfg.TimeVector.OFF,'k--','LineWidth',0.1)
yline(1+find(diff(sort(idx2))==1),'k--', 'LineWidth',2)
xlim([500 size(data.DV_DFFaveragetime,2)+200])
ylim([0 size(data.DV_DFFaveragetime,1)+200])
line([500 round(500+data.cfg.fps*60*5)], size(data.DV_DFFaveragetime,1)+[200 200],'Color','k','
line(size(data.DV_DFFaveragetime,2)+[200 200], [0 1000],'Color','k','LineWidth',3)
box off
axis off
ax=gca;
set(ax,'XTick',[])
set(ax,'YTick',[])
%set(ax,'TickDir','out')
title(data.metadata.name)
colorbar
end
```

```
function c=seismic()
c = [
    0.0, 0.0, 0.3;
    0.0, 0.0, 0.35;
    0.0, 0.0, 0.4;
    0.0, 0.0, 0.45;
    0.0, 0.0, 0.5;
    0.0, 0.0, 0.55;
    0.0, 0.0, 0.6;
    0.0, 0.0, 0.65;
    0.0, 0.0, 0.7;
    0.0, 0.0, 0.75;
    0.0, 0.0, 0.8;
    0.0, 0.0, 0.85;
    0.0, 0.0, 0.9;
    0.0, 0.0, 0.95;
    0.0, 0.0, 1.0;
    0.05, 0.05, 1.0;
    0.1, 0.1, 1.0;
    0.15, 0.15, 1.0;
    0.2, 0.2, 1.0;
    0.25, 0.25, 1.0;
    0.3, 0.3, 1.0;
```

```
    0.35, 0.35, 1.0;
    0.4, 0.4, 1.0;
    0.45, 0.45, 1.0;
    0.5, 0.5, 1.0;
    0.55, 0.55, 1.0;
    0.6, 0.6, 1.0;
    0.65, 0.65, 1.0;
    0.7, 0.7, 1.0;
    0.75, 0.75, 1.0;
    0.8, 0.8, 1.0;
    0.85, 0.85, 1.0;
    0.9, 0.9, 1.0;
    0.95, 0.95, 1.0;
    1.0, 1.0, 1.0;
    1.0, 0.95, 0.95;
    1.0, 0.9, 0.9;
    1.0, 0.85, 0.85;
    1.0, 0.8, 0.8;
    1.0, 0.75, 0.75;
    1.0, 0.7, 0.7;
    1.0, 0.65, 0.65;
    1.0, 0.6, 0.6;
    1.0, 0.55, 0.55;
    1.0, 0.5, 0.5;
    1.0, 0.45, 0.45;
    1.0, 0.4, 0.4;
    1.0, 0.35, 0.35;
    1.0, 0.3, 0.3;
    1.0, 0.25, 0.25;
    1.0, 0.2, 0.2;
    1.0, 0.15, 0.15;
    1.0, 0.1, 0.1;
    1.0, 0.05, 0.05;
    1.0, 0.0, 0.0;
    0.95, 0.0, 0.0;
    0.9, 0.0, 0.0;
    0.85, 0.0, 0.0;
    0.8, 0.0, 0.0;
    0.75, 0.0, 0.0;
    0.7, 0.0, 0.0;
    0.65, 0.0, 0.0;
    0.6, 0.0, 0.0;
    0.55, 0.0, 0.0;
    0.5, 0.0, 0.0;
    0.45, 0.0, 0.0;
    0.4, 0.0, 0.0;
    0.35, 0.0, 0.0;
    0.3, 0.0, 0.0;
];
end
```