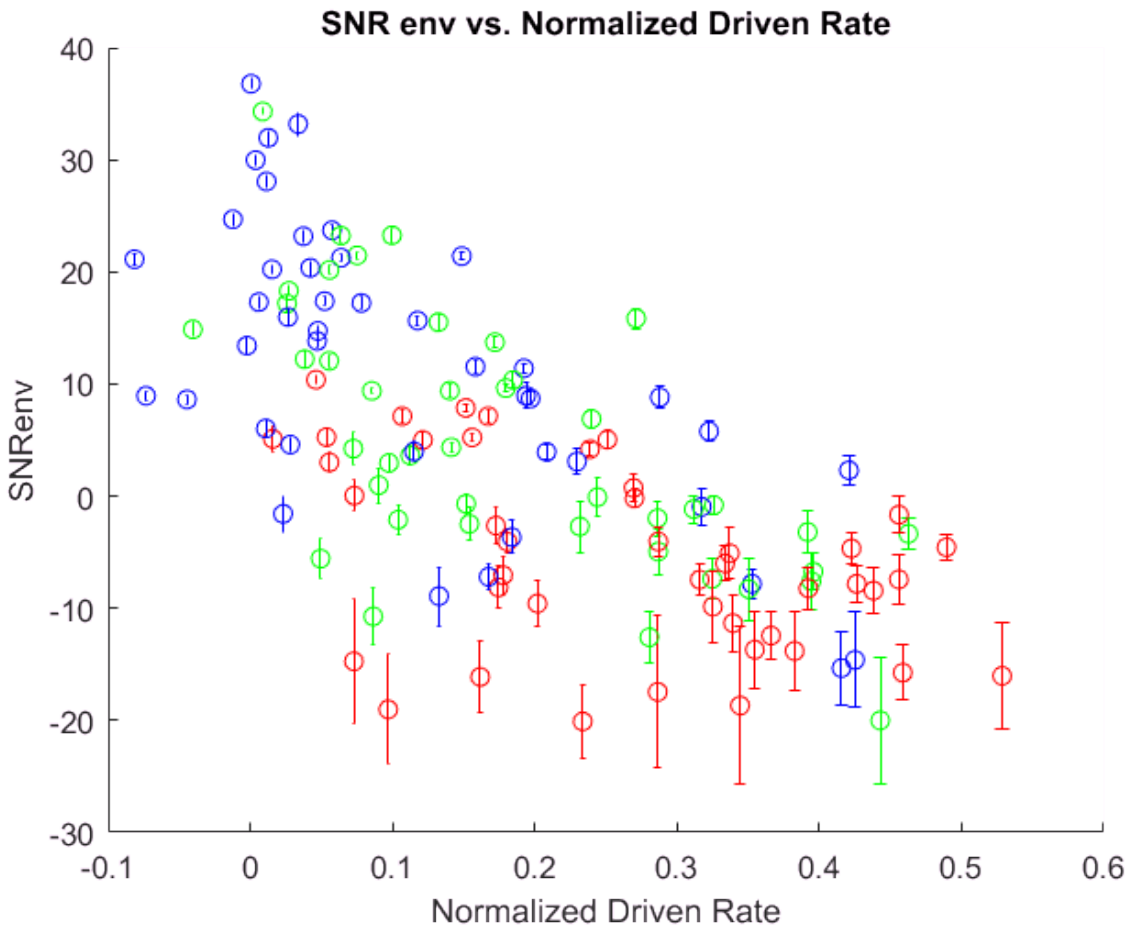
```
clear;
close all;
clc;
```

Load Data

```
load([fileparts(pwd) '\OUTPUT\SumVar.mat']);
SNRcolor='rgb';
SNRs=[-6 0 6];
```

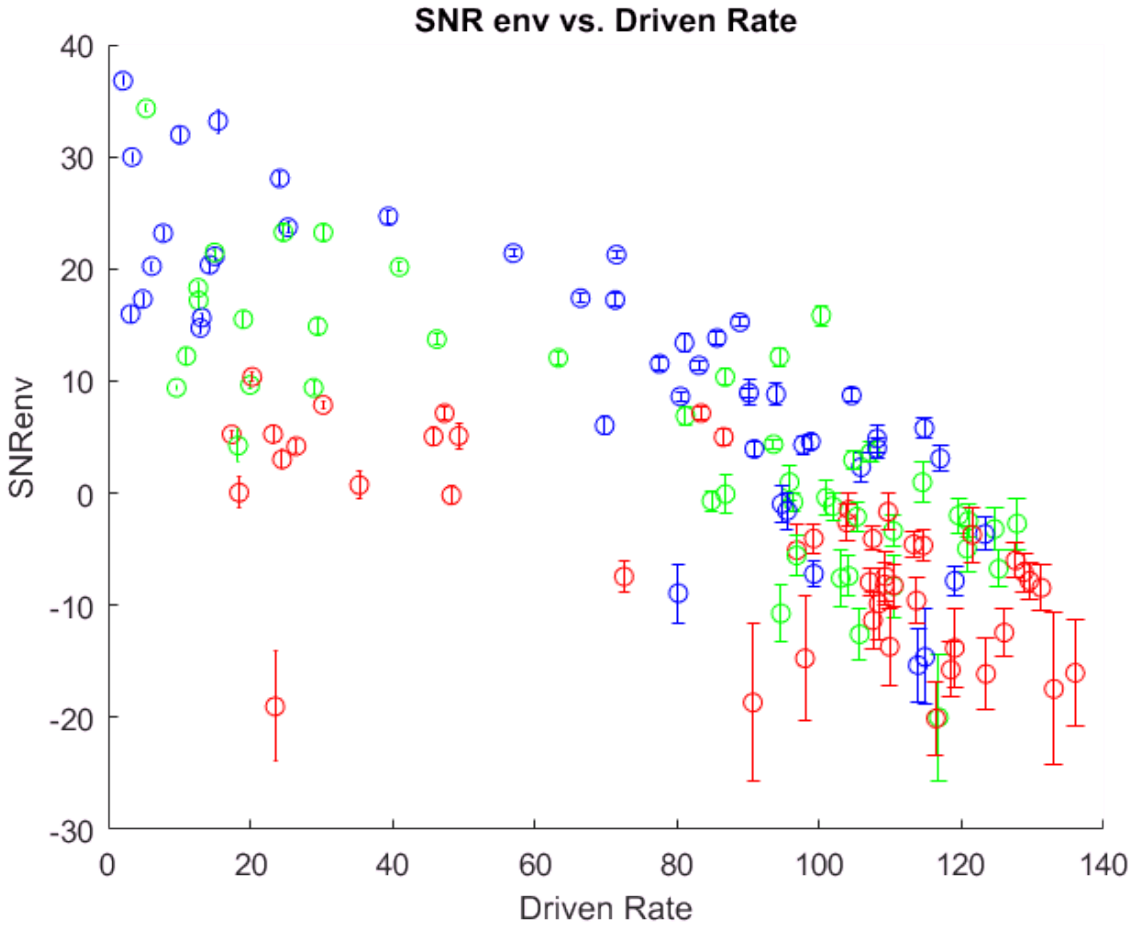
SNR env vs. Normalized Driven Rate

```
hold on;
for i=1:length(SumVar)
    x=(SumVar(i).spkRateSN-SumVar(i).SR)/(SumVar(i).SatR-SumVar(i).SR);
    y=SumVar(i).SNRenvAll;
    errorbar(x, mean(y), std(y), [SNRcolor(SumVar(i).SNR==SNRs) 'o']);
end
hold off;
xlabel('Normalized Driven Rate');
ylabel('SNRenv');
title('SNR env vs. Normalized Driven Rate');
```



SNR env vs. Driven Rate

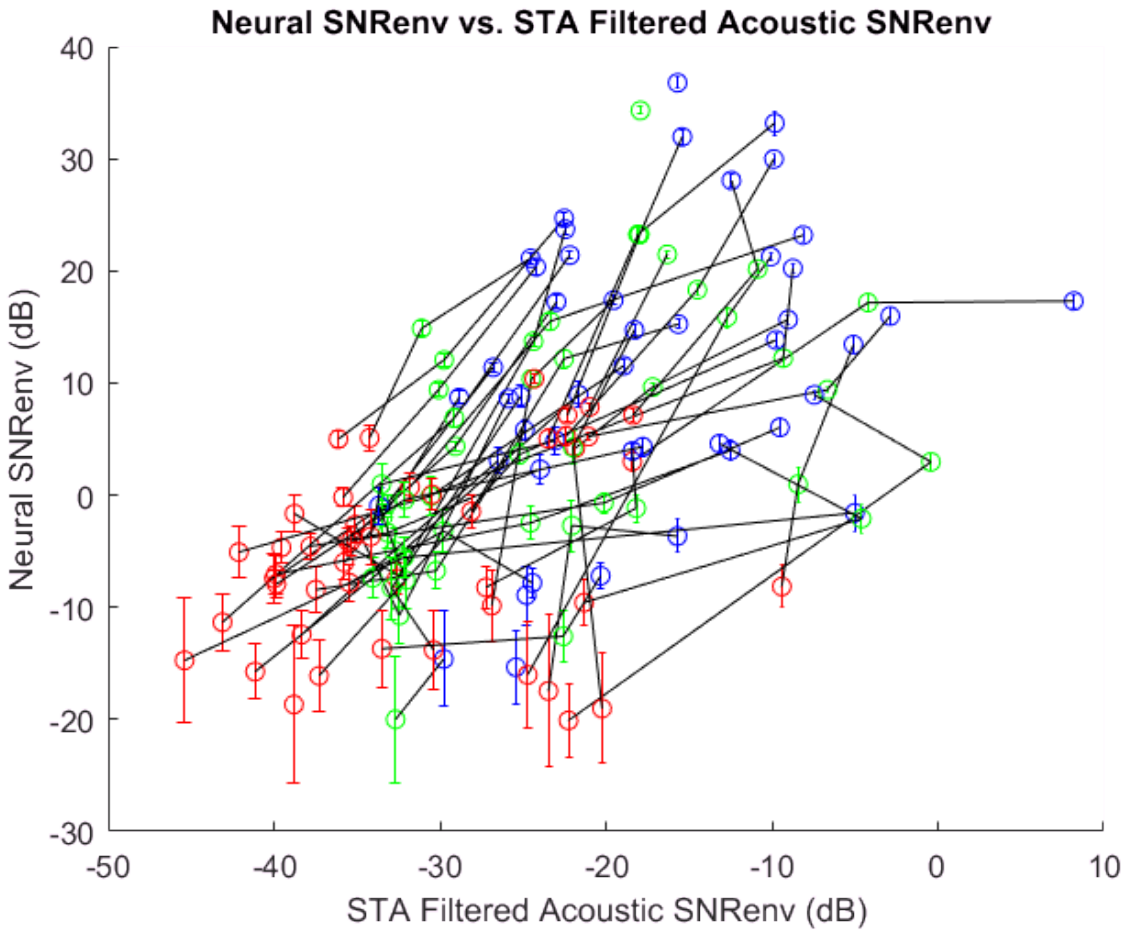
```
figure;
hold on;
for i=1:length(SumVar)
    y=SumVar(i).SNRenvAll;
    errorbar(SumVar(i).spkRateSN, mean(y), std(y), [SNRcolor(SumVar(i).SNR==SNRs) 'o']);
end
hold off;
xlabel('Driven Rate');
ylabel('SNRenv');
title('SNR env vs. Driven Rate');
```



STA Filtered Acoustic SNRenv vs. Neural SNRenv

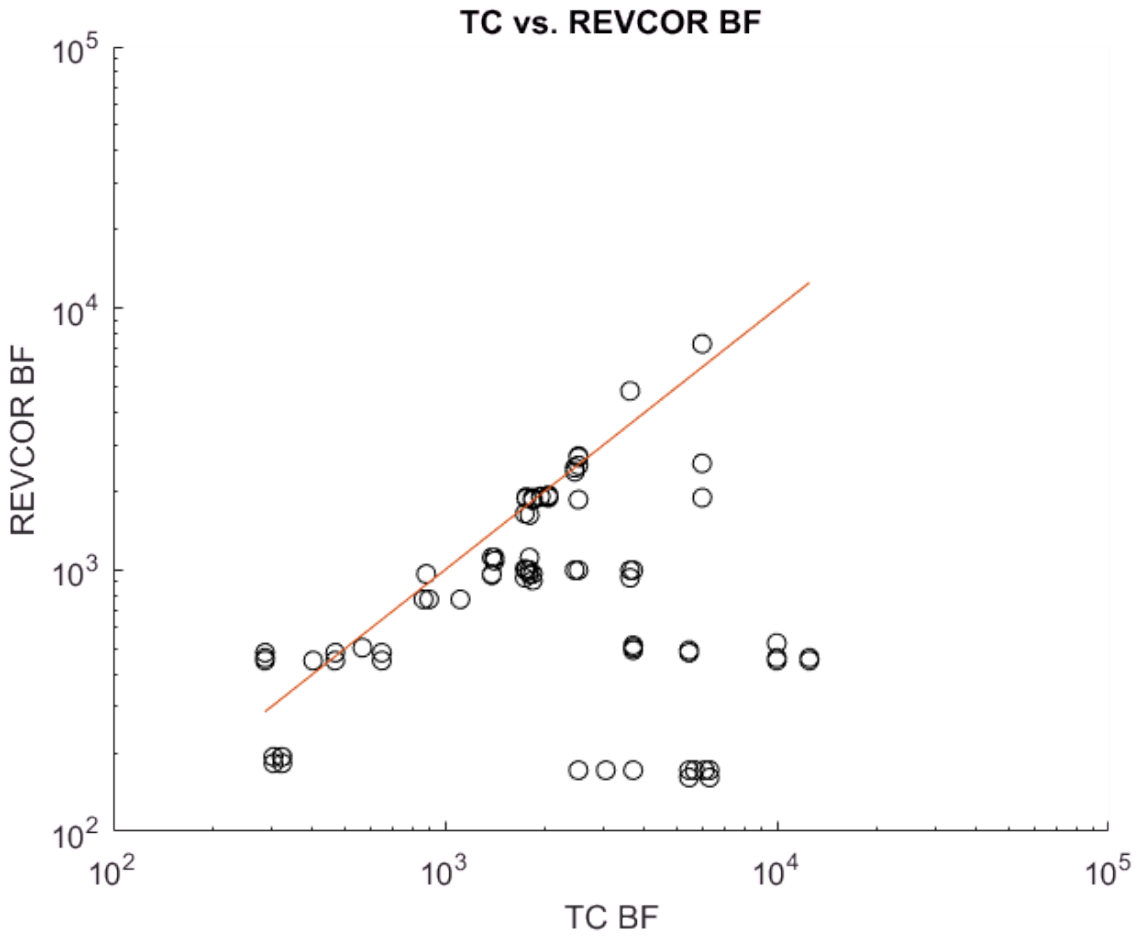
```
figure;

CurLineAcousticSNRenv=[];
CurLineNeuralSNRenv=[];
CFprev=nan;
SPLprev=nan;

hold on;
for i=1:length(SumVar)
```

```
    y=SumVar(i).SNRenvAll;

    if SumVar(i).BF_TC~=CFprev || SumVar(i).SPL~=SPLprev % Means new line to plot
        if i~=1
            SumVar(i-3).SNRenvSlope=(CurLineNeuralSNRenv(end)-CurLineNeuralSNRenv(1))/(CurLine
            SumVar(i-2).SNRenvSlope=SumVar(i-3).SNRenvSlope;
            SumVar(i-1).SNRenvSlope=SumVar(i-3).SNRenvSlope;
        end

        plot(CurLineAcousticSNRenv,CurLineNeuralSNRenv,'k');
        %         pause;
        %         plot(CurLineAcousticSNRenv,CurLineNeuralSNRenv,'c');
        CurLineAcousticSNRenv=SumVar(i).SNRenvACST;
        CurLineNeuralSNRenv=mean(y);

    else
        CurLineAcousticSNRenv=[CurLineAcousticSNRenv, SumVar(i).SNRenvACST];
        CurLineNeuralSNRenv=[CurLineNeuralSNRenv, mean(y)];
    end
    CFprev=SumVar(i).BF_TC;
    SPLprev=SumVar(i).SPL;

    errorbar(SumVar(i).SNRenvACST, mean(y), std(y), [SNRcolor(SumVar(i).SNR==SNRs) 'o']);
end

for i=1:length(SumVar)
    if isempty(SumVar(i).SNRenvSlope)
        SumVar(i).SNRenvSlope=nan;
    end
end

hold off;
xlabel('STA Filtered Acoustic SNRenv (dB)');
ylabel('Neural SNRenv (dB)');
title('Neural SNRenv vs. STA Filtered Acoustic SNRenv ');
```



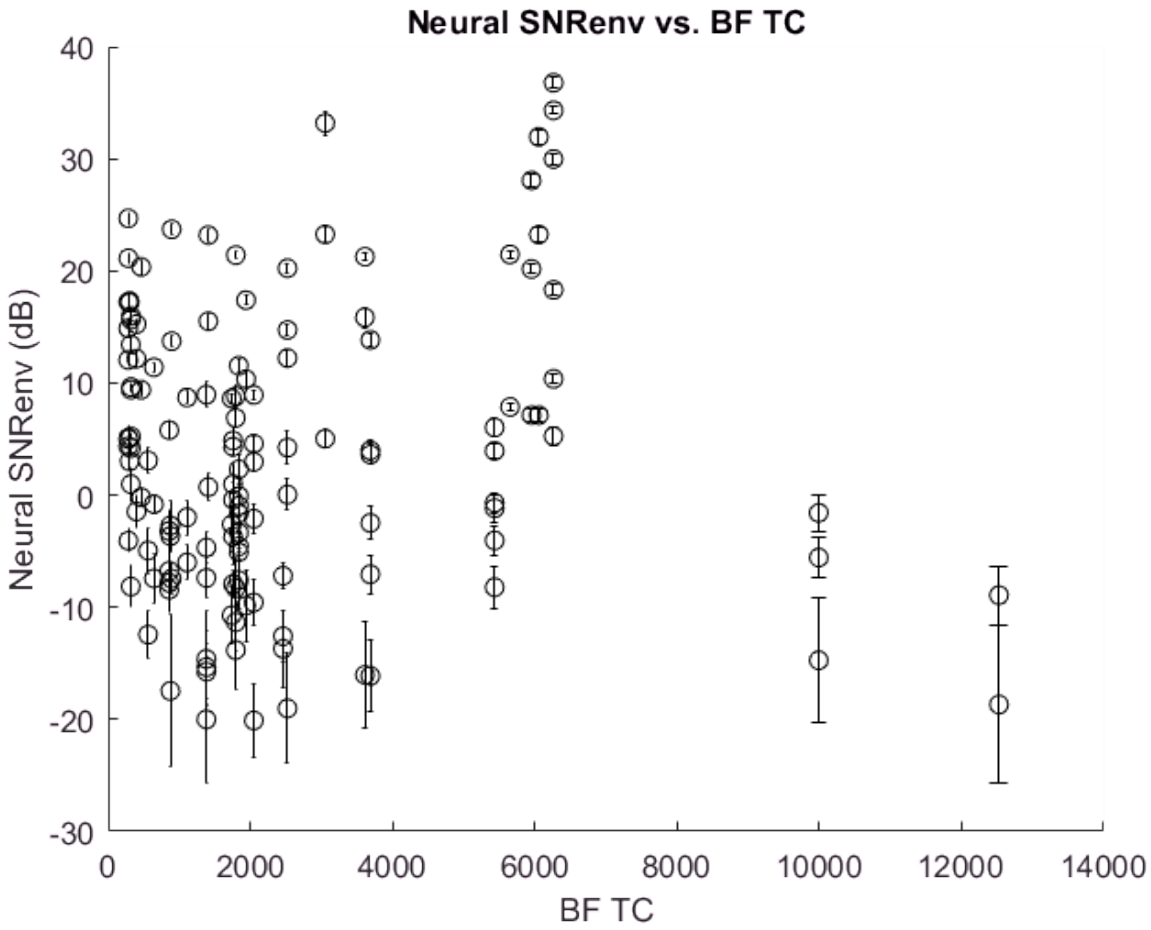
Tuning Curve BF vs REVCOR BF

```
scatter([SumVar.BF_TC],[SumVar.BF_revcor],'k');
set(gca,'xscale','log','yscale','log');
hold on;
BF_TC=extractfield(SumVar, 'BF_TC');
plot([min(BF_TC) max(BF_TC)], [min(BF_TC) max(BF_TC)]);
xlabel('TC BF');
ylabel('REVCOR BF');
title('TC vs. REVCOR BF');
```



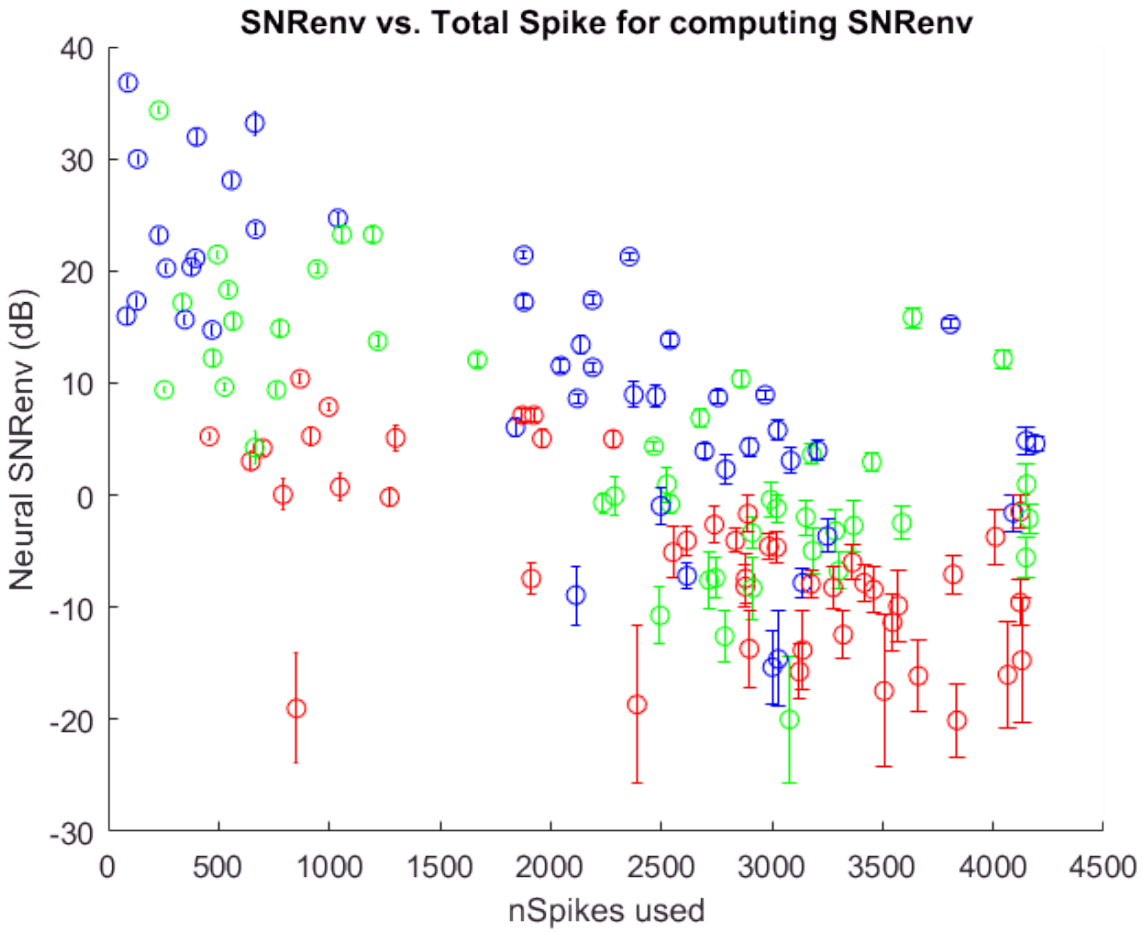
SNRenv vs CF

```
figure;
hold on;
for i=1:length(SumVar)
    y=SumVar(i).SNRenvAll;
    errorbar(SumVar(i).BF_TC, mean(y), std(y), 'ko');
end
hold off;
xlabel('BF TC');
ylabel('Neural SNRenv (dB)');
title('Neural SNRenv vs. BF TC');
```



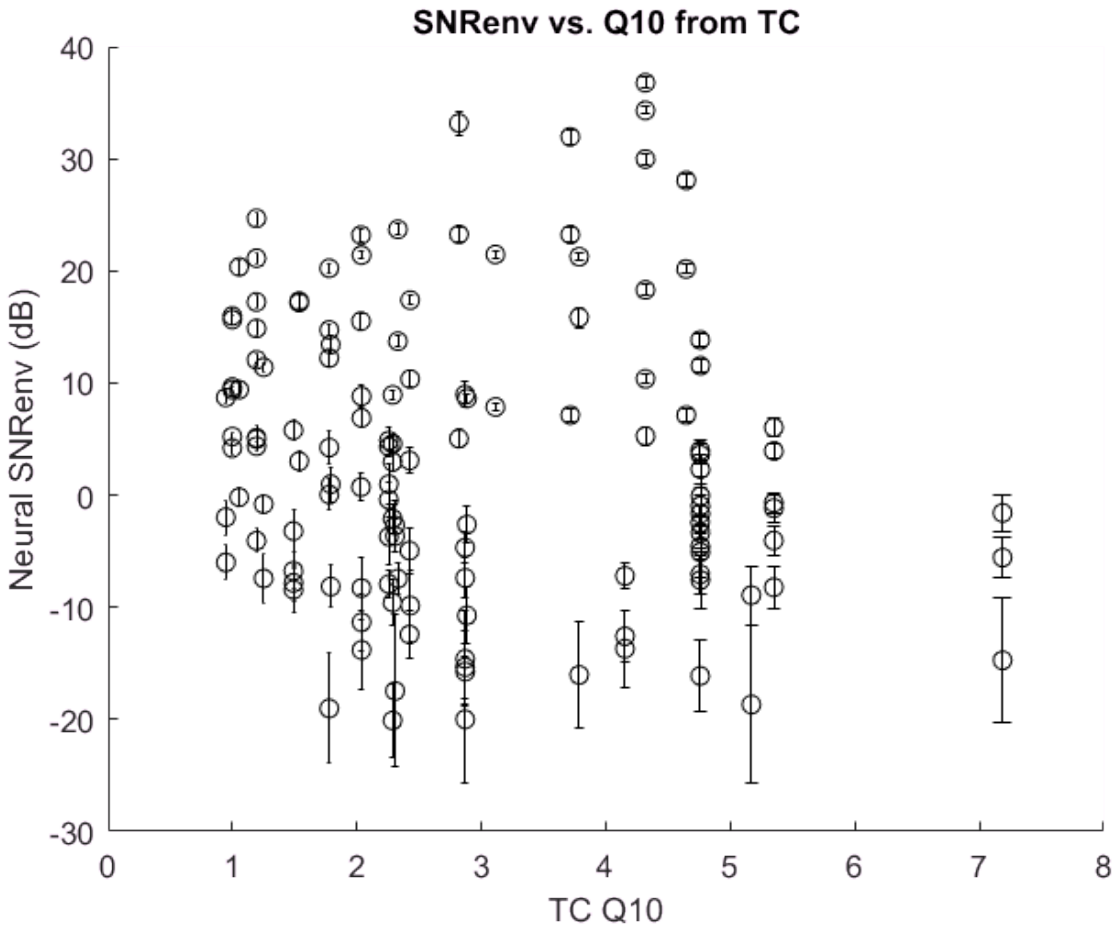
SNRenv vs. Total Spike for computing SNRenv

```
figure;
hold on;
for i=1:length(SumVar)
    y=SumVar(i).SNRenvAll;
    errorbar(SumVar(i).nSpikesSN, mean(y), std(y), [SNRcolor(SumVar(i).SNR==SNRs) 'o']);
end
hold off;
xlabel('nSpikes used');
ylabel('Neural SNRenv (dB)');
title('SNRenv vs. Total Spike for computing SNRenv');
```



SNRenv vs. Q10 from TC

```
figure;
hold on;
for i=1:length(SumVar)
    y=SumVar(i).SNRenvAll;
    if SumVar(i).Q10_TC<25
        errorbar(SumVar(i).Q10_TC, mean(y), std(y), 'ko');
    end
end
hold off;
xlabel('TC Q10');
ylabel('Neural SNRenv (dB)');
title('SNRenv vs. Q10 from TC');
```




```
bftc=extractfield(SumVar,'BF_TC')';
slopes=extractfield(SumVar,'SNRenvSlope')';
spls=extractfield(SumVar,'SPL')';

bftc_slopes_spls=unique([bftc, slopes, spls],'rows');
bftc_slopes_spls(isnan(bftc_slopes_spls(:,2)),:)=[];

prev_spl=nan;
shapes='o^sp';
uniq_cfs=unique(bftc_slopes_spls(:,1));
figure;
hold on;
for i=1:length(uniq_cfs)
    cur_cf=uniq_cfs(i);
    cur_ind=find(bftc_slopes_spls(:,1)==cur_cf);
    cur_slopes=bftc_slopes_spls(cur_ind,2);
    cur_spl=bftc_slopes_spls(cur_ind,3);
    [~,sort_ind]=sort(cur_spl);
    sort_slopes=cur_slopes(sort_ind);
    for j=1:length(sort_slopes)
        plot(cur_cf, sort_slopes(j),'b', 'marker', shapes(j));
    end
end
set(gca,'xscale','log')
```

```
xlabel('CF (Hz)');
ylabel('Slope');
```