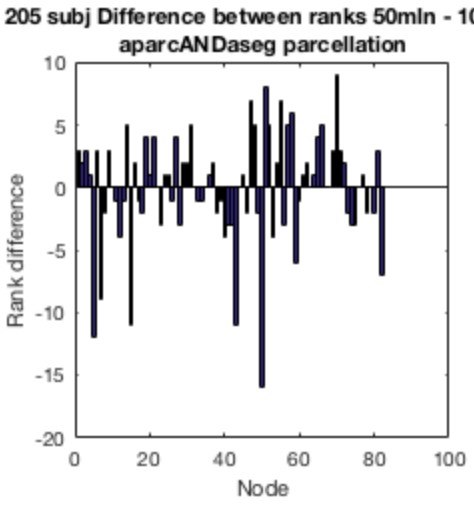
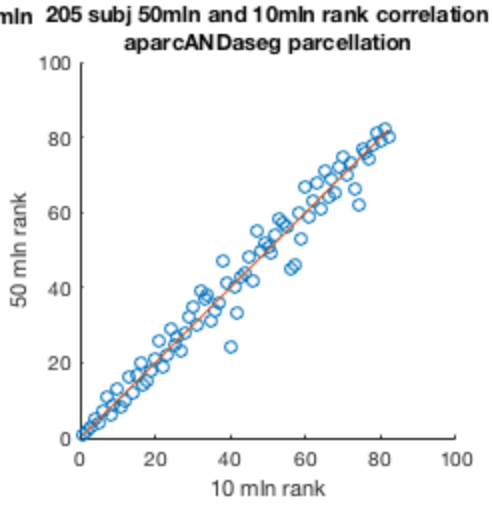
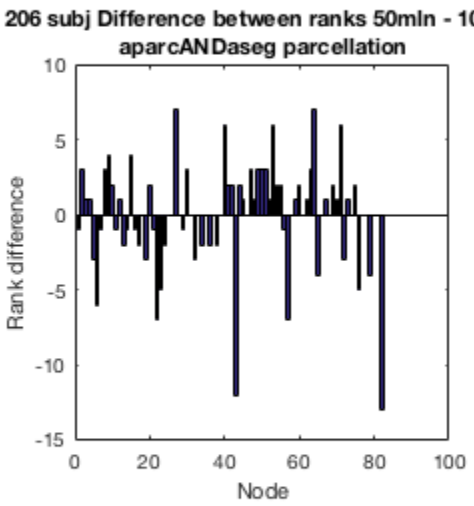
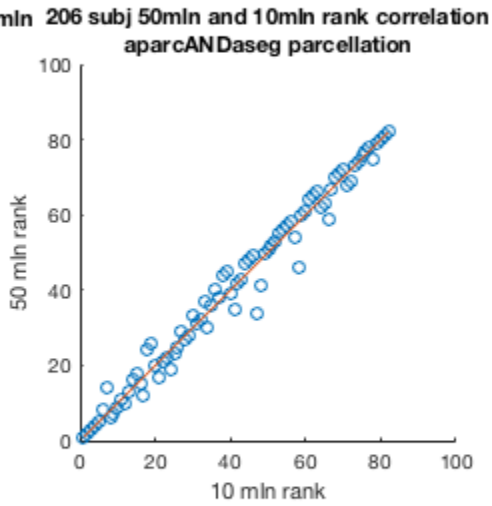
```
% differences between 10 and 50 mln streamlines
clear all; close all;
cd ('/Users/Aurina/GoogleDrive/Genetics_connectome/Gen_Cog/Data/
Connectomes/10_50_mlnStreamlines/');
load('FACT_aparcANDaseg_10_mil.mat');
density10 = density;
deg10 = zeros(length(density10), size(density10{1},1));
NumNodes = size(density{1},1);

for i=1:length(density10)
    deg10(i,:) = degrees_und(density10{i});
end
load('FACT_aparcANDaseg_50_mil.mat');
density50 = density;
deg50 = zeros(length(density), size(density{1},1));

for i=1:length(density)
    deg50(i,:) = degrees_und(density50{i});
end
%
% dif = deg50-deg10;
%
% for i=1:length(density)
%     FigHandle = figure('Position', [100, 100, 1200, 1200]);
%     subplot(3,2,5);
%     scatter(deg10(i,:), deg50(i,:));
%     xlabel('10 mil streamlines degrees'); ylabel('50 mil streamlines
 degrees');
%     hold on;
%     x = linspace(1,size(density{1},1), size(density{1},1));
%     y = x;
%     plot(x,y);
%
%     subplot(3,2,6); bar(x,dif(i,:)); title('Difference between
 degrees (50mln - 10mln streamlines)');
%     xlabel('Node');
%     ylabel('Difference in degrees');
%     Matrix10 = fRandom2AnatomicalParcellations_annot('aparc',
 'ANDaseg', density10{i});
%     Matrix50 = fRandom2AnatomicalParcellations_annot('aparc',
 'ANDaseg', density50{i});
%     subplot(3,2,1); imagesc(log(Matrix10)); axis square; title
 ('Connectome 10 mil streamlines');
%     subplot(3,2,2); imagesc(log(Matrix50)); axis square; title
 ('Connectome 50 mil streamlines');
%
%     subplot(3,2,3); histogram(deg10(i,:), 20); title('Degree
 distribution 10 mil'); xlabel('Degree');
%     subplot(3,2,4); histogram(deg50(i,:), 20); title('Degree
 distribution 50 mil'); xlabel('Degree');
%
% end
```

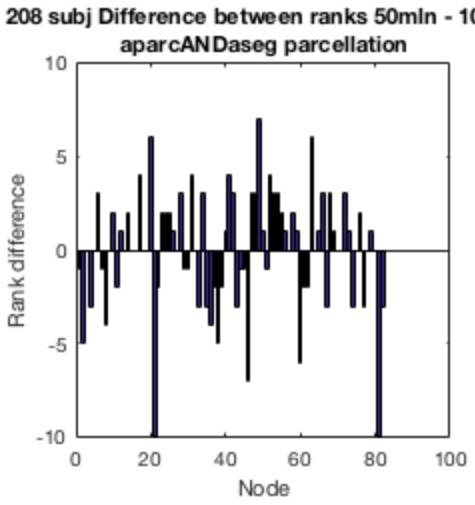
```
% A = mean(dif,1);
% figure; bar(x,A);

Ranks10 = zeros(length(density),NumNodes);
Ranks50 = zeros(length(density),NumNodes);

for i=1:length(density)
    [ignore, idx10] = sort( deg10(i,:) , 'descend');
    [ignore, idx50] = sort( deg50(i,:) , 'descend');
    Ranks10(i,idx10 ) = 1:numel(idx10);
    Ranks50(i,idx50 ) = 1:numel(idx50);
end

R = zeros(length(density),NumNodes);
for i=1:length(density)
R10 = Ranks10(i,:);
R50 = Ranks50(i,:);
Ra = R50-R10;
R(i,:) = Ra;
figure;
%FigHandle = figure('Position', [100, 100, 1200, 1200]);
subplot(1,2,1); bar(Ra); title(sprintf('%d subj Difference
 between ranks 50mln - 10mln\naparcANDaseg parcellation',
 sub_id(i))) ;xlabel('Node'); ylabel('Rank difference'); axis square;
subplot(1,2,2); scatter(R10, R50); title(sprintf('%d subj 50mln and
 10mln rank correlation\naparcANDaseg parcellation', sub_id(i)));
 xlabel('10 mln rank'); ylabel('50 mln rank');axis square;
hold on;
x = linspace(1,size(density{1},1), size(density{1},1));
y = x;
plot(x,y);
end
```

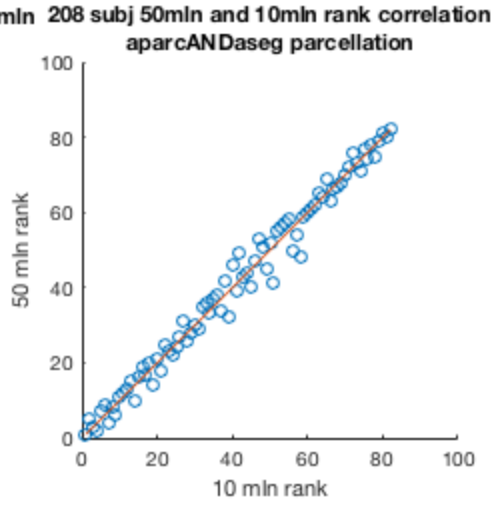

205 subj Difference between ranks 50mln - 10mln
aparcANDaseg parcellation
Rank difference
Node
10
5
0
-5
-10
-15
-20
0
20
40
60
80
100


205 subj 50mln and 10mln rank correlation
aparcANDaseg parcellation
50 mln rank
10 mln rank
100
80
60
40
20
0
0
20
40
60
80
100


206 subj Difference between ranks 50mln - 10mln
aparcANDaseg parcellation
Rank difference
Node
10
5
0
-5
-10
-15
0
20
40
60
80
100


206 subj 50mln and 10mln rank correlation
aparcANDaseg parcellation
50 mln rank
10 mln rank
100
80
60
40
20
0
0
20
40
60
80
100


208 subj Difference between ranks 50mln - 10mln
aparcANDaseg parcellation
Rank difference
Node
10
5
0
-5
-10
0
20
40
60
80
100


208 subj 50mln and 10mln rank correlation
aparcANDaseg parcellation
50 mln rank
10 mln rank
100
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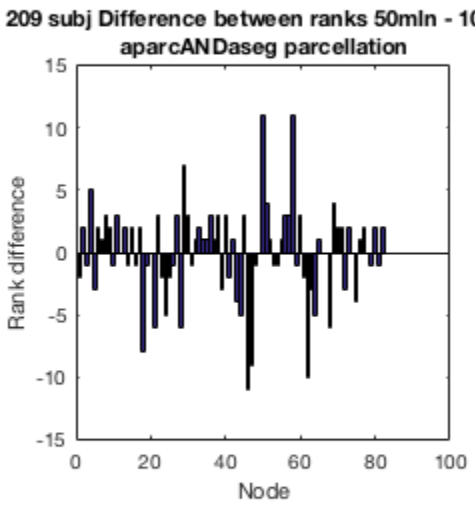
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aparcANDaseg parcellation
Rank difference
Node
15
10
5
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-5
-10
-15
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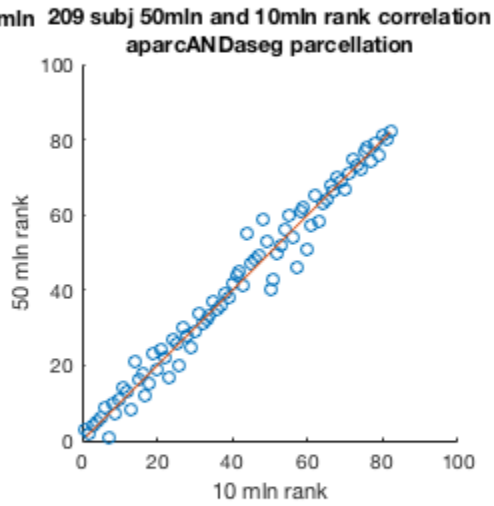
209 subj 50mln and 10mln rank correlation
aparcANDaseg parcellation
50 mln rank
10 mln rank
100
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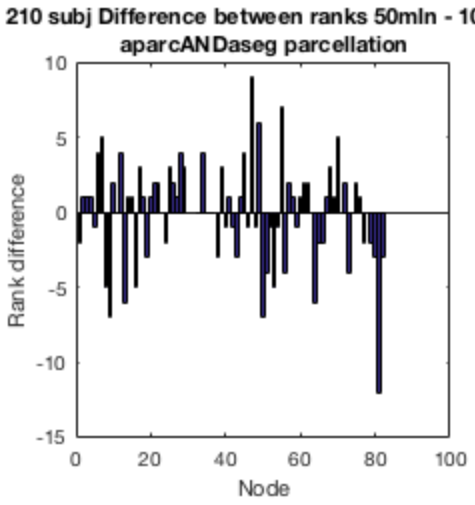
210 subj Difference between ranks 50mln - 10mln
aparcANDaseg parcellation
Rank difference
Node
10
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-5
-10
-15
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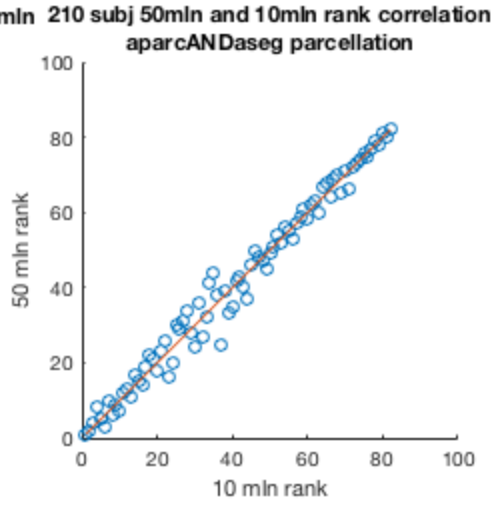
100


210 subj 50mln and 10mln rank correlation
aparcANDaseg parcellation
50 mln rank
10 mln rank
100
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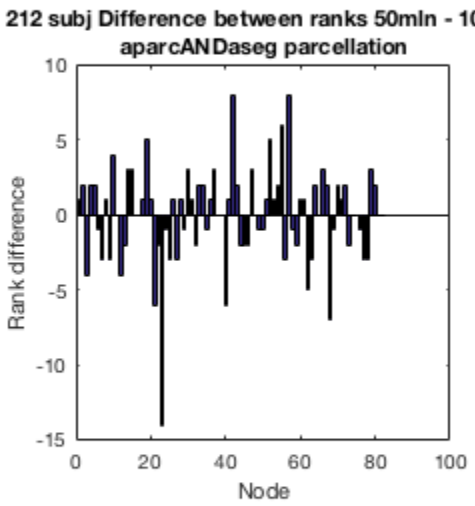
212 subj Difference between ranks 50mln - 10mln
aparcANDaseg parcellation
Rank difference
Node
10
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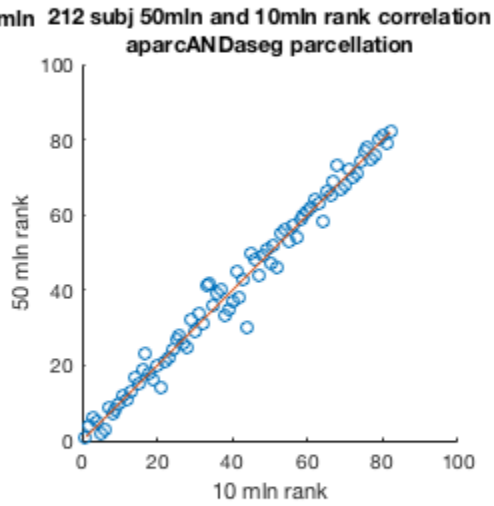
212 subj 50mln and 10mln rank correlation
aparcANDaseg parcellation
50 mln rank
10 mln rank
100
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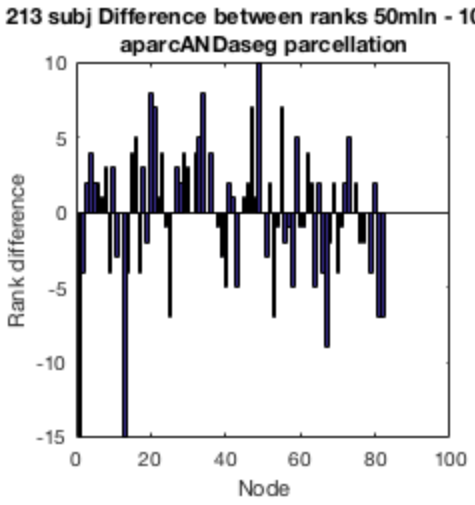
213 subj Difference between ranks 50mln - 10mln
aparcANDaseg parcellation
Rank difference
Node
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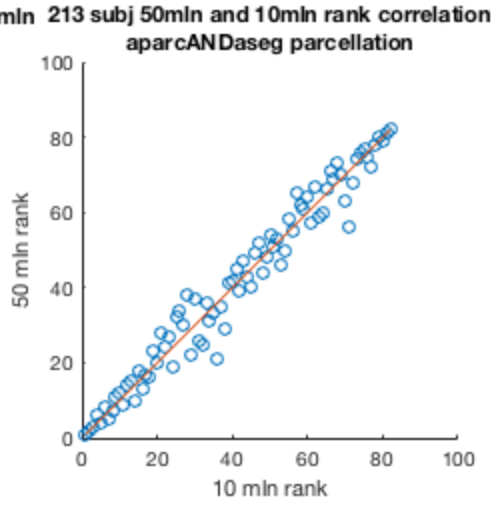
213 subj 50mln and 10mln rank correlation
aparcANDaseg parcellation
50 mln rank
10 mln rank
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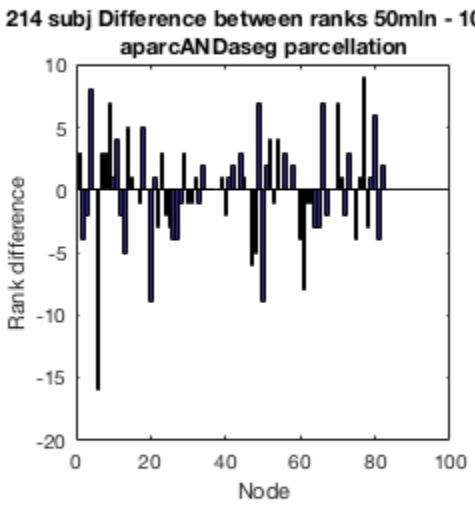
214 subj Difference between ranks 50mln - 10mln
aparcANDaseg parcellation
Rank difference
Node
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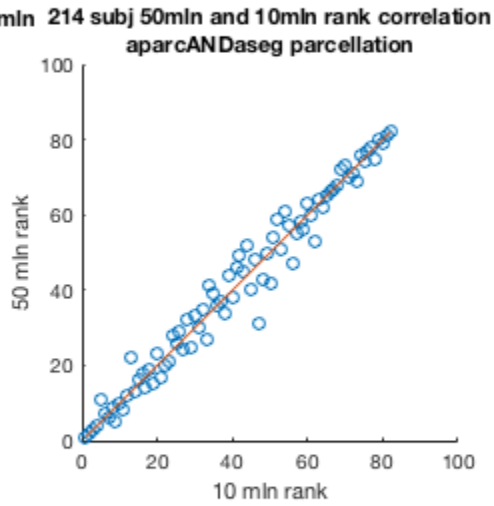
214 subj 50mln and 10mln rank correlation
aparcANDaseg parcellation
50 mln rank
10 mln rank
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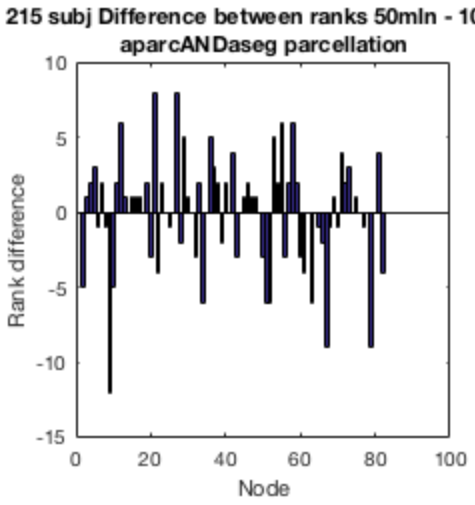
215 subj Difference between ranks 50mln - 10mln
aparcANDaseg parcellation
Rank difference
Node
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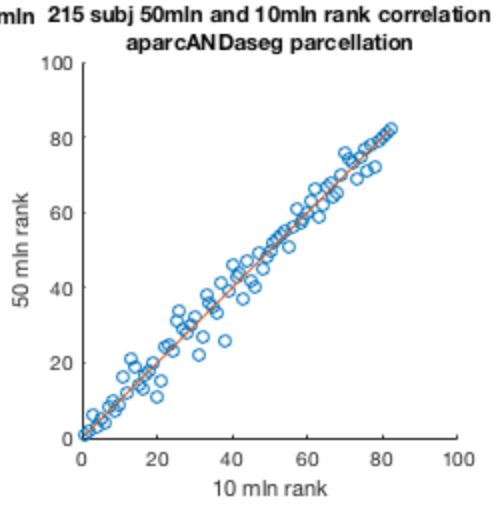
215 subj 50mln and 10mln rank correlation
aparcANDaseg parcellation
50 mln rank
10 mln rank
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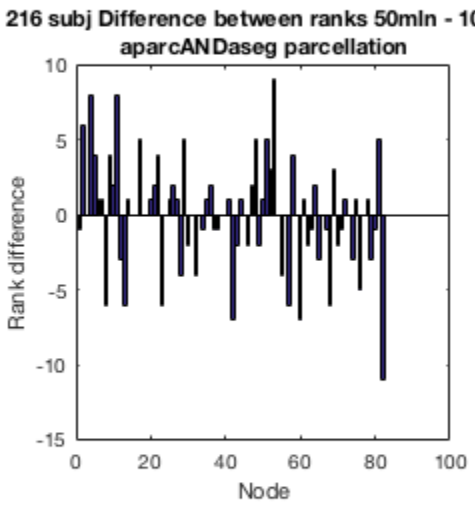
100


216 subj Difference between ranks 50mln - 10mln
aparcANDaseg parcellation
Rank difference
Node
10
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-5
-10
-15
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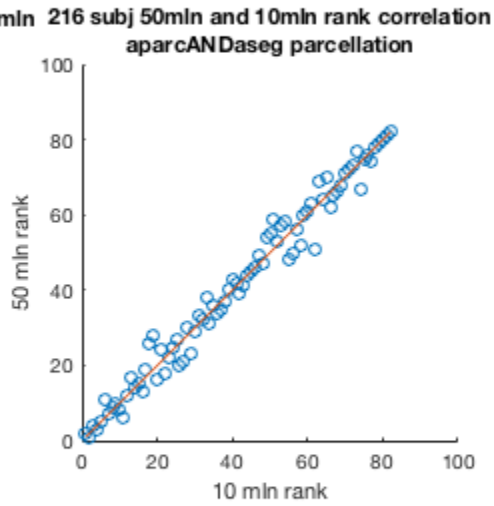
100


216 subj 50mln and 10mln rank correlation
aparcANDaseg parcellation
50 mln rank
10 mln rank
100
80
60
40
20
0
0
20
40
60
80
100

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