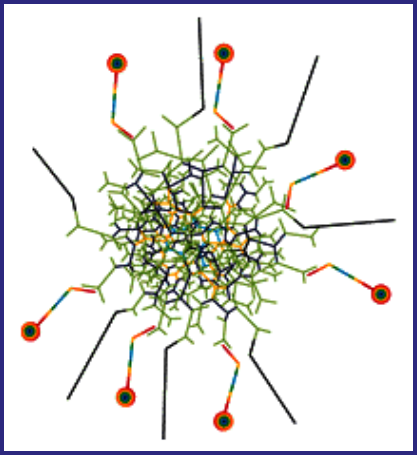
Array 900 Data Set



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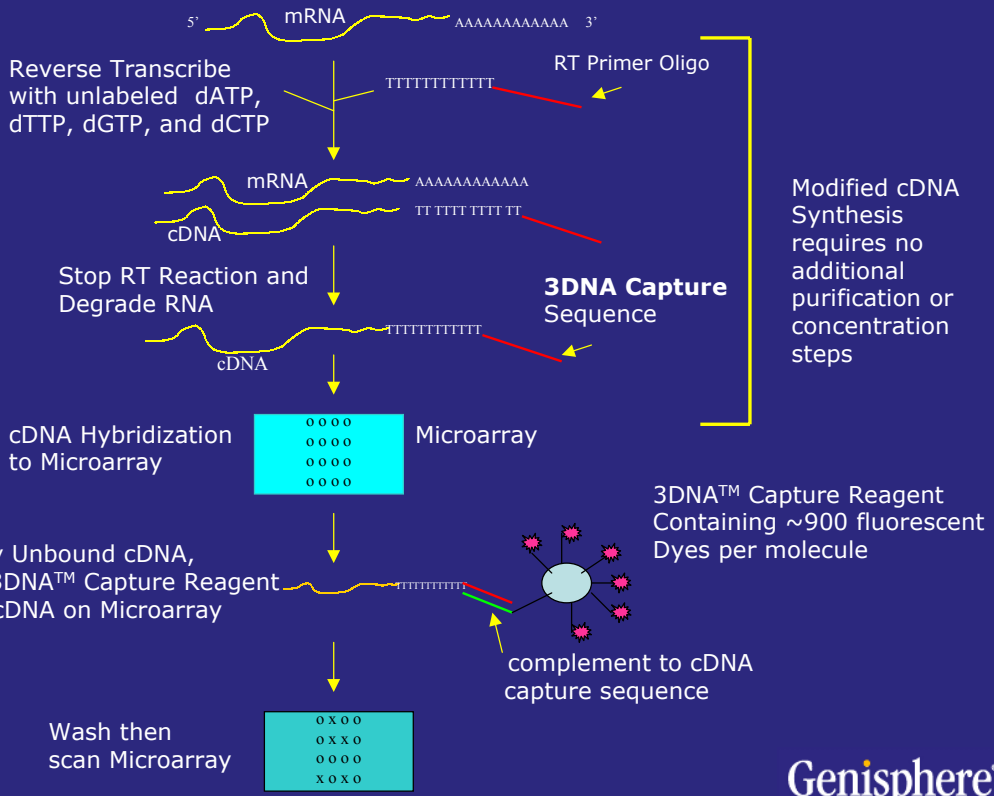
Product Introduction:

The Array 900 is both the most sensitive Genisphere labeling kit as well as the most sensitive labeling technique available without RNA amplification. Comparing procedures, the Array 900 has the easiest and quickest protocol of all Genisphere kits. As the name suggests, the Array 900 uses 3DNA dendrimers with ~900 fluorescent dyes and combined with the changes below, achieves its superior sensitivity.

- A new modified cDNA synthesis protocol that eliminates the sample concentration step which avoids loss of sample during the concentration process.
- The use of a modified 3DNA dendrimer having a more efficient hybridization kinetics.
- The addition of a new enhanced 2X cDNA hybridization buffer designed for better hybridization and lower background.

The increase in dye count plus the above changes make the Array 900 five (5) fold more sensitive than the Array 350 which will allow most microarray users to use 250ng to 1ug of unamplified Total RNA. The Array 900 is for use with Oligo and cDNA arrays

Array 900 Overview



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Sensitivity of Array 900:
Comparison to Other Labeling Methods

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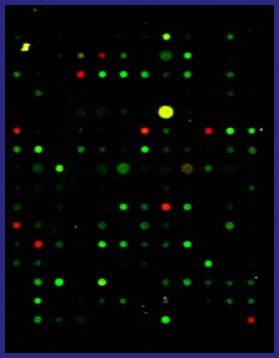
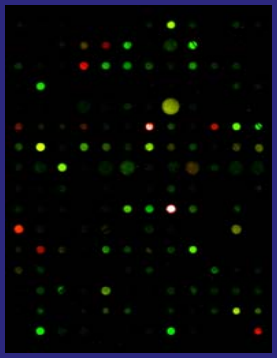
Comparison of Labeling Methods on cDNA Arrays: Array 900 vs. Array 350 and Direct Incorporation

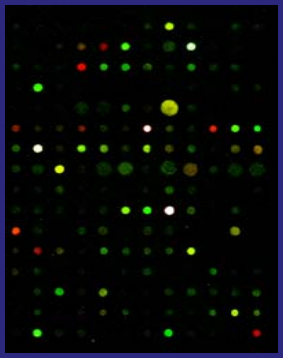
Direct Incorporation 20.0ug



Genisphere Array 350 4.0ug



Genisphere Array 900 0.75ug



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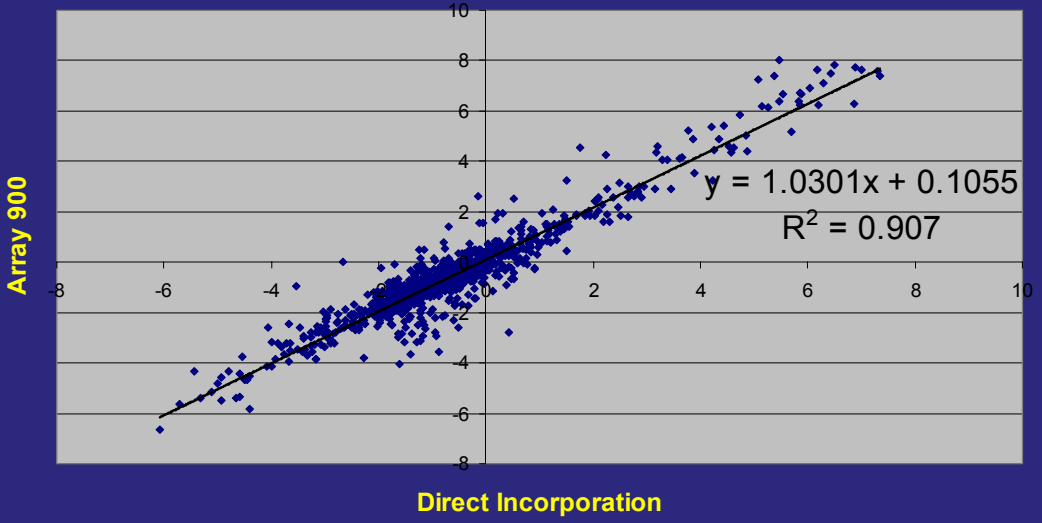
Direct Incorporation vs. Array 900 (750ng)
Log(2) Differentials on cDNA Arrays



Data represents the average of duplicate arrays

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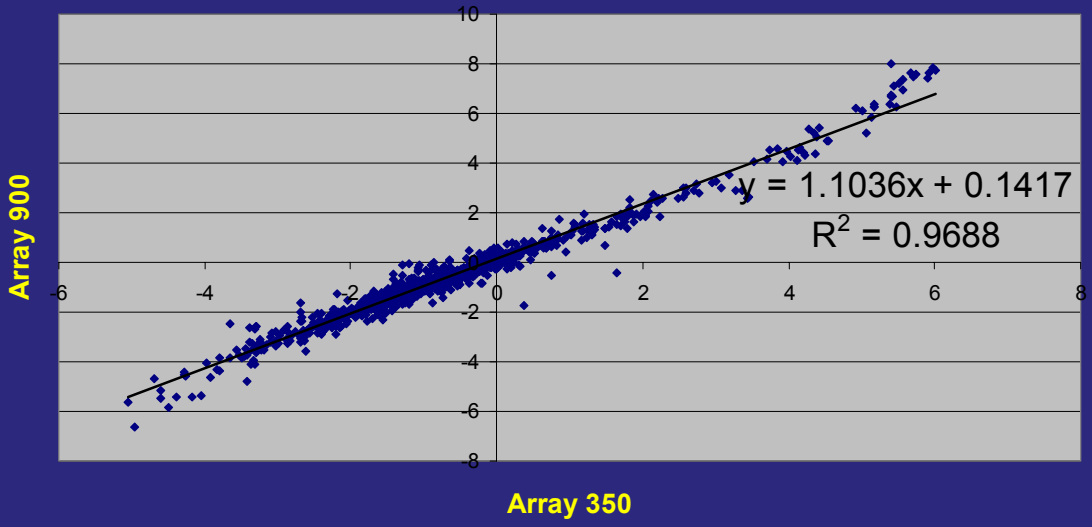
Array 350 (4ug) vs. Array 900 (750ng)
Log(2) Differentials on cDNA Arrays



Data represents the average of duplicate arrays

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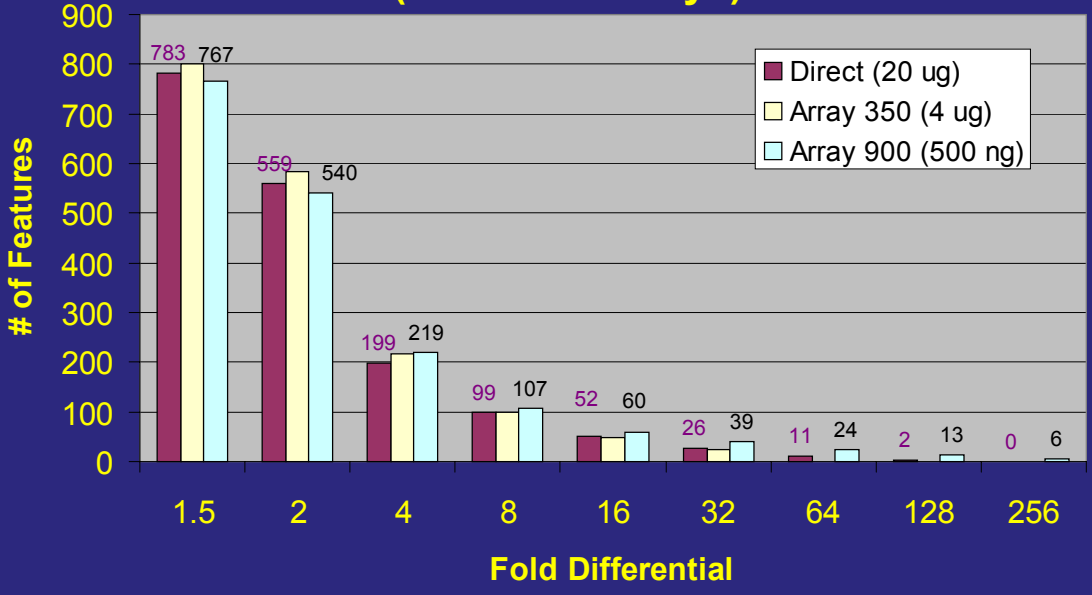
Comparison of Differential Count (rat cDNA arrays)



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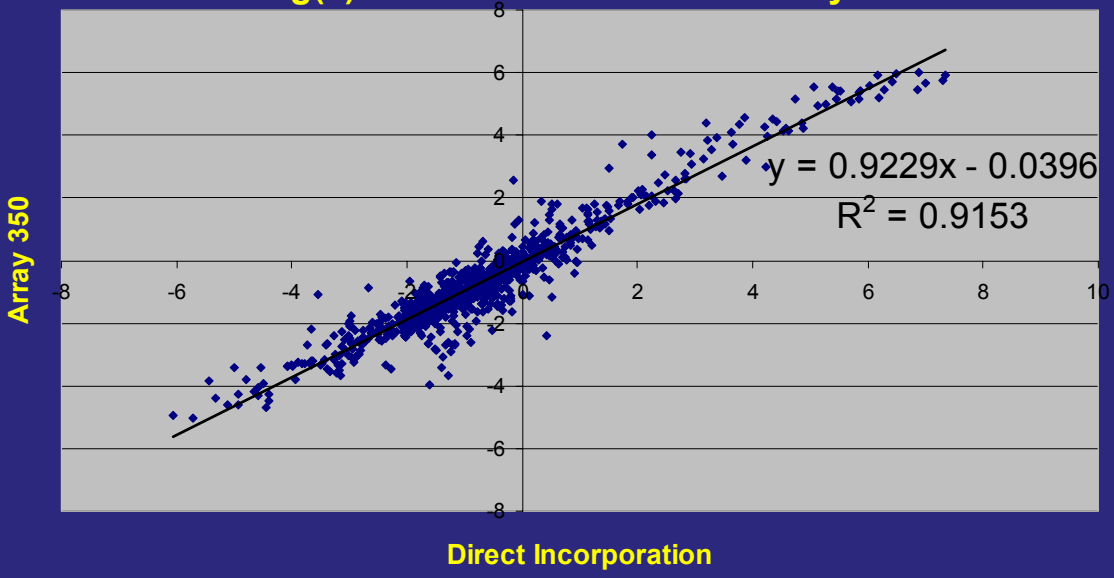
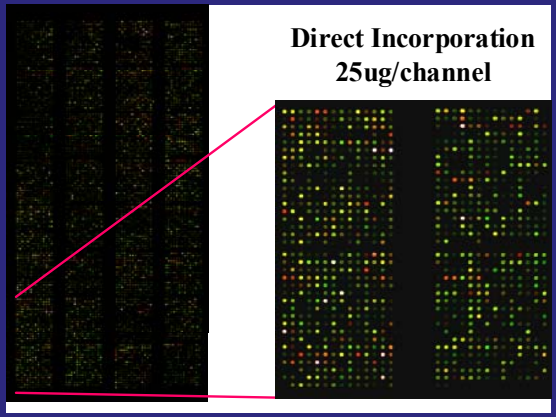
Direct Incorporation vs. Array350 (4ug)
Log(2) Differentials on cDNA Arrays

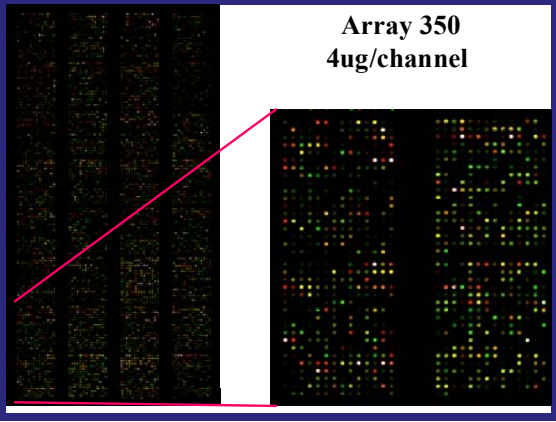


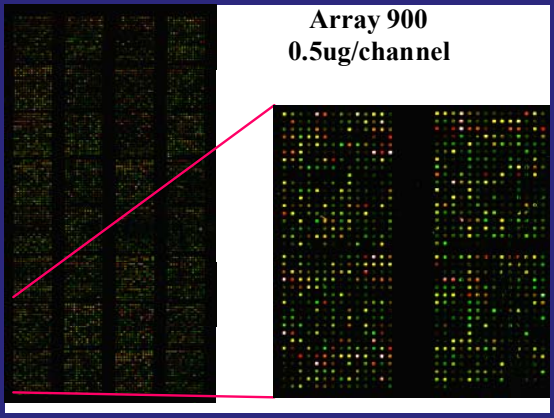
Data represents the average of duplicate arrays

Genisphere®

Comparison of Labeling Methods on Oligo Arrays: Array 900 vs. Array 350 and Direct Incorporation Rat Brain (Cy3) vs Liver (Cy5)







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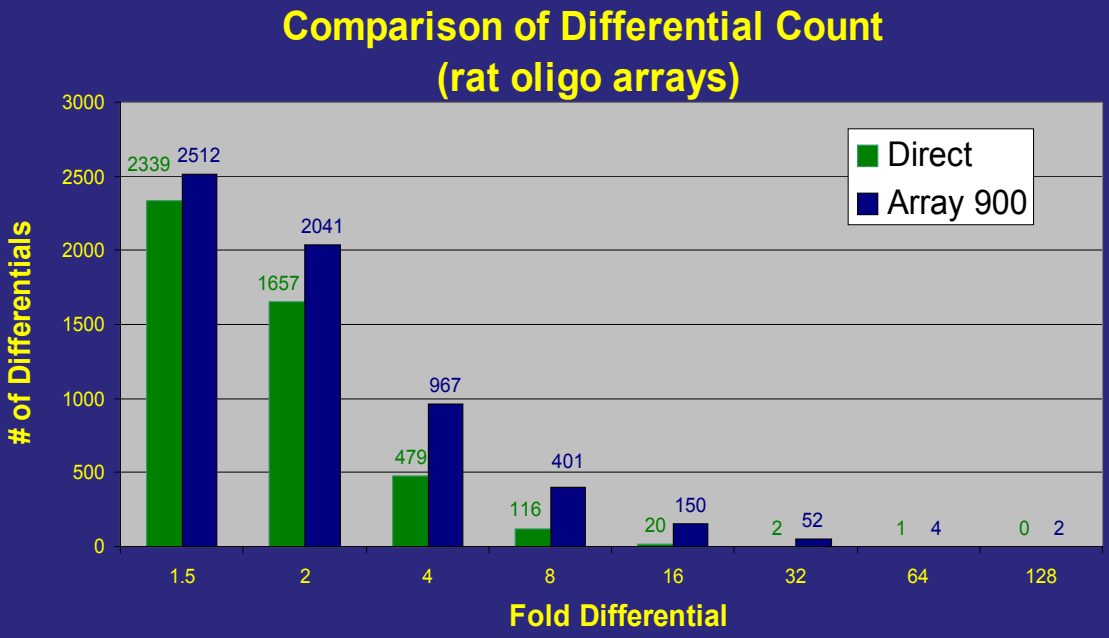
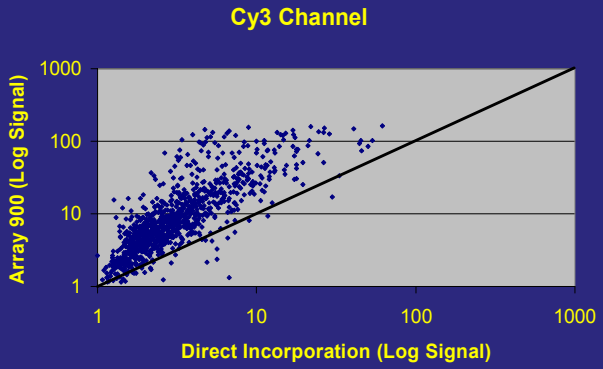
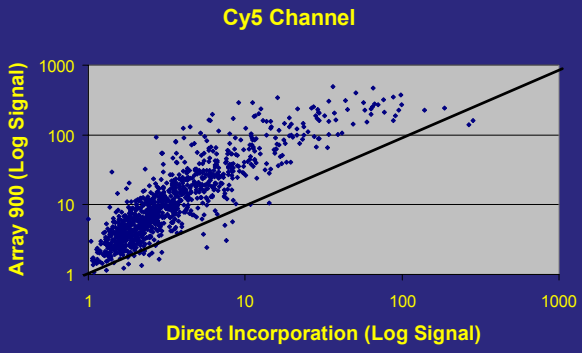

Comparison of Differential Count
(rat oligo arrays)
# of Differentials
3000
2500
2000
1500
1000
500
0
Direct
Array 900
2339
2512
1657
2041
479
967
116
401
20
150
2
52
1
4
0
2
1.5
2
4
8
16
32
64
128
Fold Differential

Comparison of Signal / Noise ratios

Direct Incorporation vs. Array 900





The Array 900 yields improved signal to noise ratios in both the Cy3 and Cy5 channels compared to direct incorporation. The diagonal line represents equal signal/noise for both methods.

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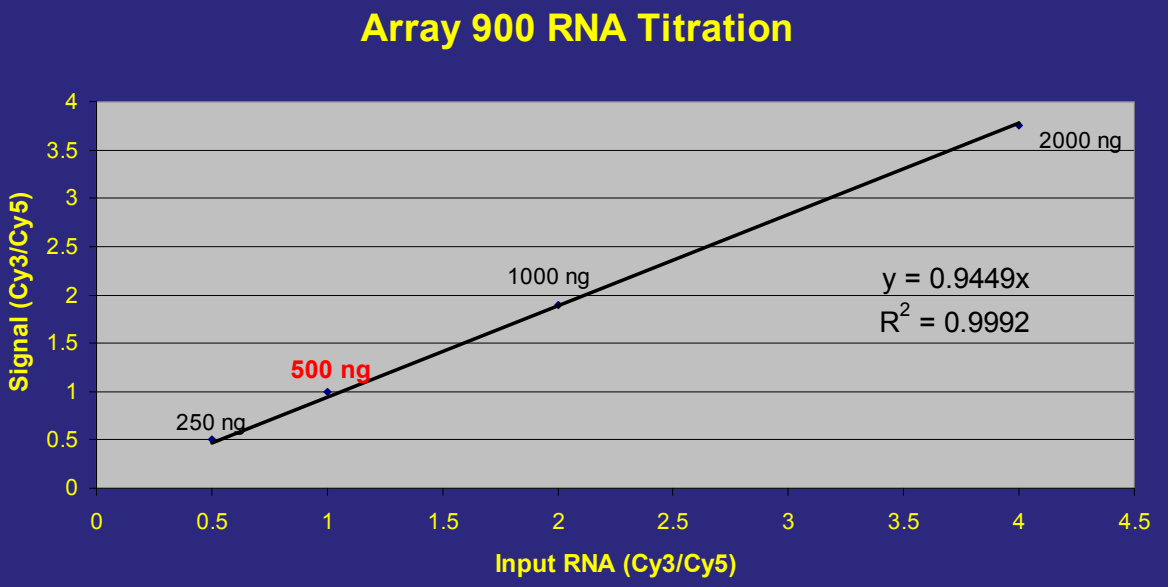
Linearity of Array 900

Sensitivity of Array 900:



Experimental Design: Cy3 Channel titrated from 250 ng to 2000ng of RNA while holding Cy5 RNA constant at 500ng.

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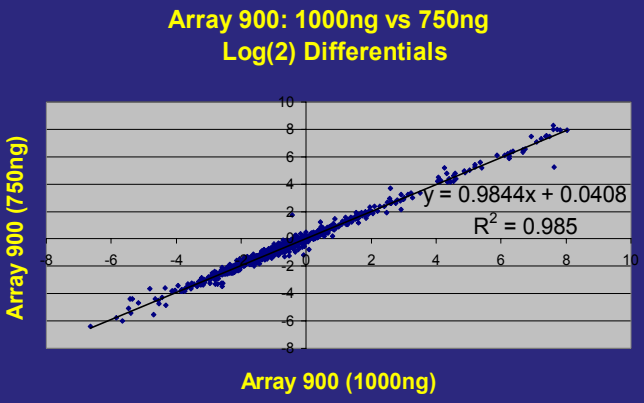
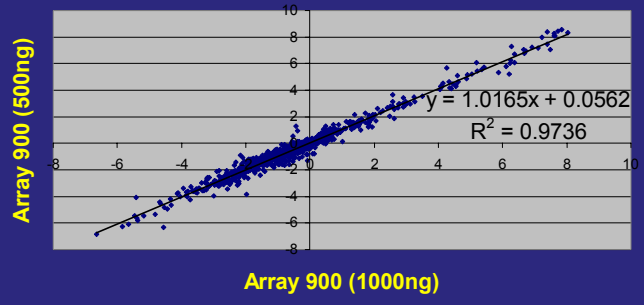
Preservation of Differentials with Decreasing Sample Size





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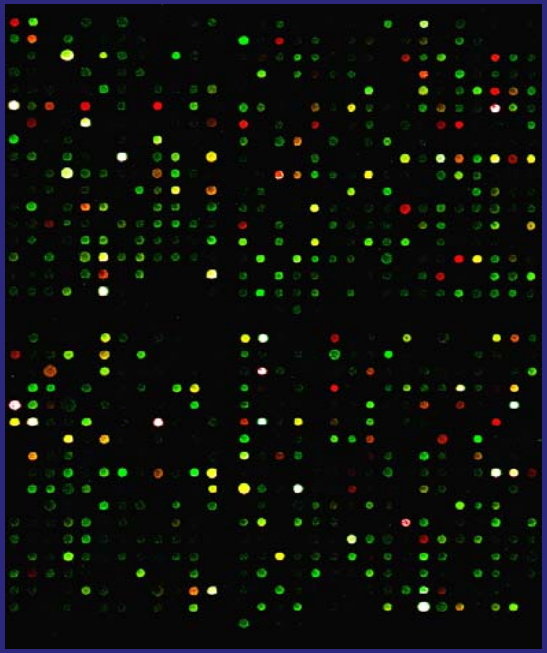
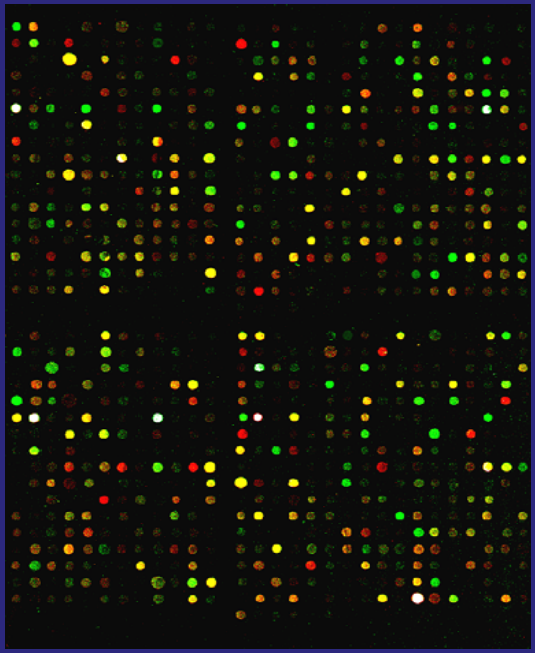
Reproducibility of Array 900

Array 900 DyeFlip Analysis on Rat Oligo Arrays 0.5ug/channel

Rat Brain (Cy3) vs Rat Liver (Cy5)



Rat Liver (Cy3) vs Rat Brain (Cy5)



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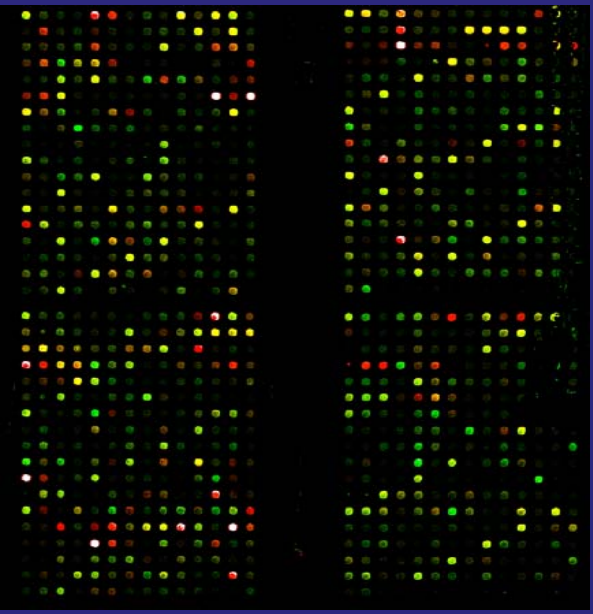
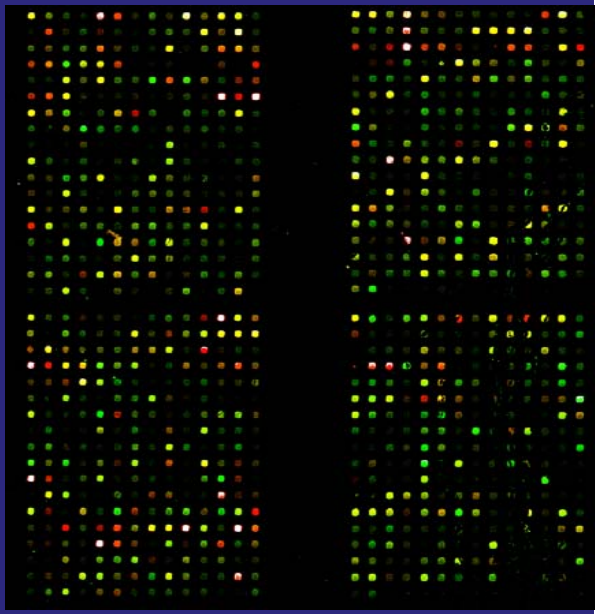
Array 900 Replicate Analysis on Rat Oligo Arrays
Rat Brain (Cy3) vs Rat Liver (Cy5)
0.5ug/channel

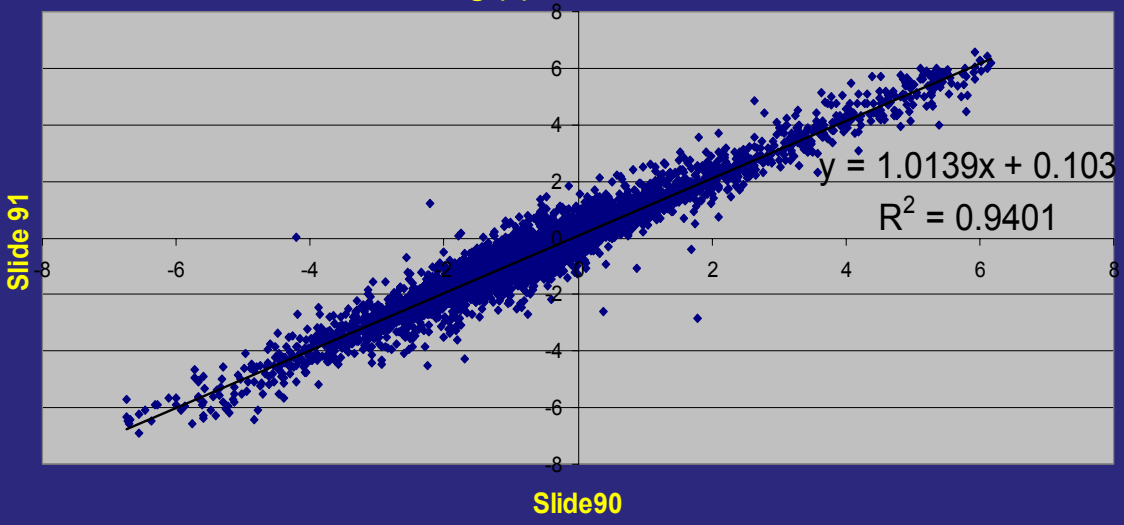
Array #1



Array #2



Replicate Analysis: Rat Brain Cy3 vs. Rat Liver Cy5
Log (2) Differentials



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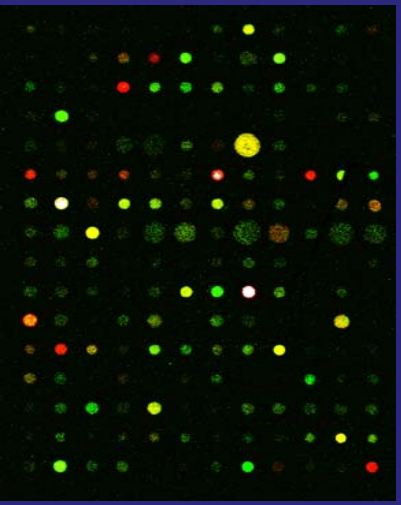
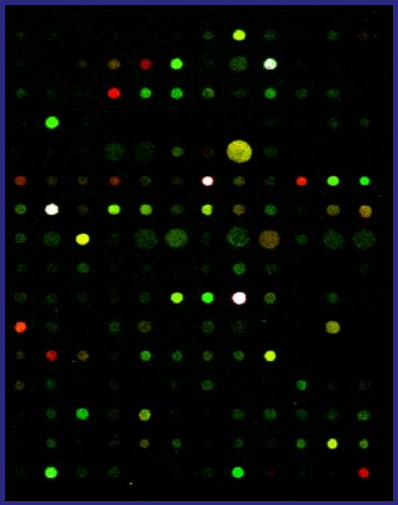
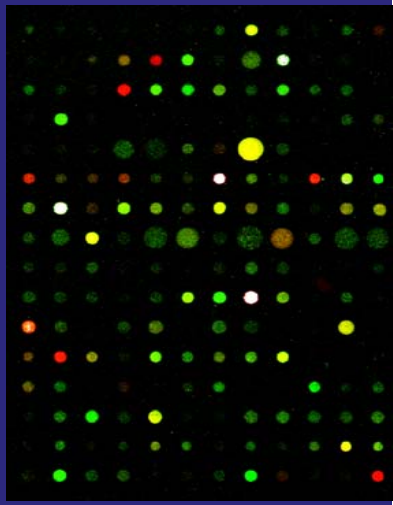
Correlation of Differentials
Array 900 on Rat cDNA Arrays
Cy3 – brain / Cy5 - liver



0.5ug/channel



0.75ug/channel



1.0ug/channel

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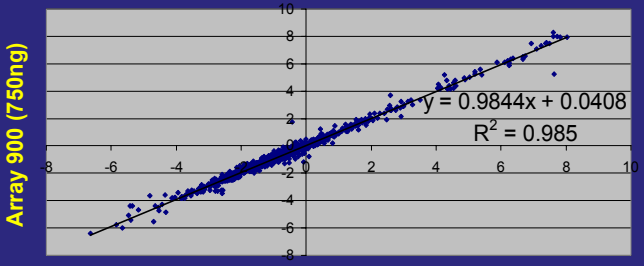
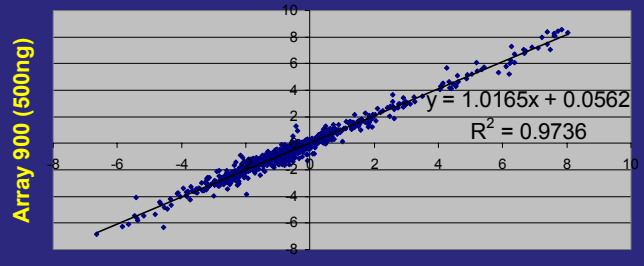
Correlation of Differentials with Decreasing Sample Size

Array 900: 1000ng vs 750ng
Log(2) Differentials



Array 900: 1000ng vs. 500ng
Log(2) Differentials



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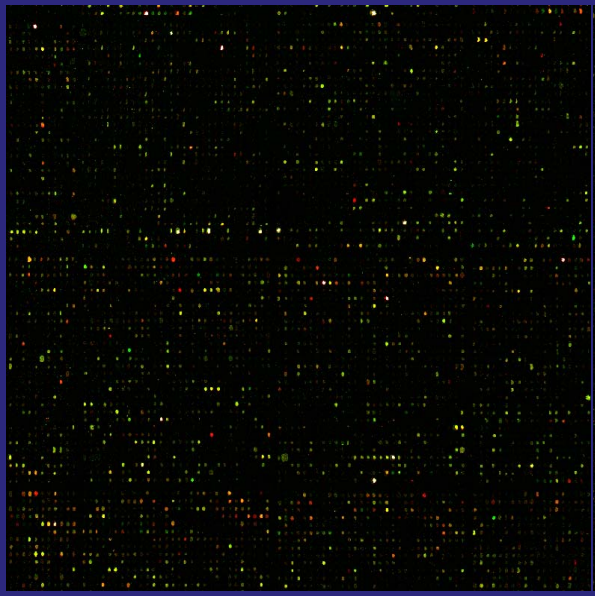
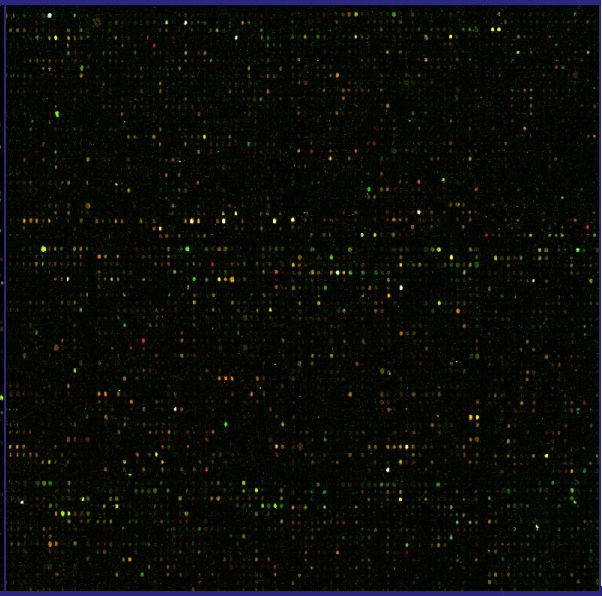
Sample Data:

Stanford University 44k Human Array

Array 900- 800ng/channel
Cy3 brain, Cy5 liver



Array 350- 4ug/channel
Cy3 liver, Cy5 brain



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