

miRNA-mRNA markers

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Prostate Cancer

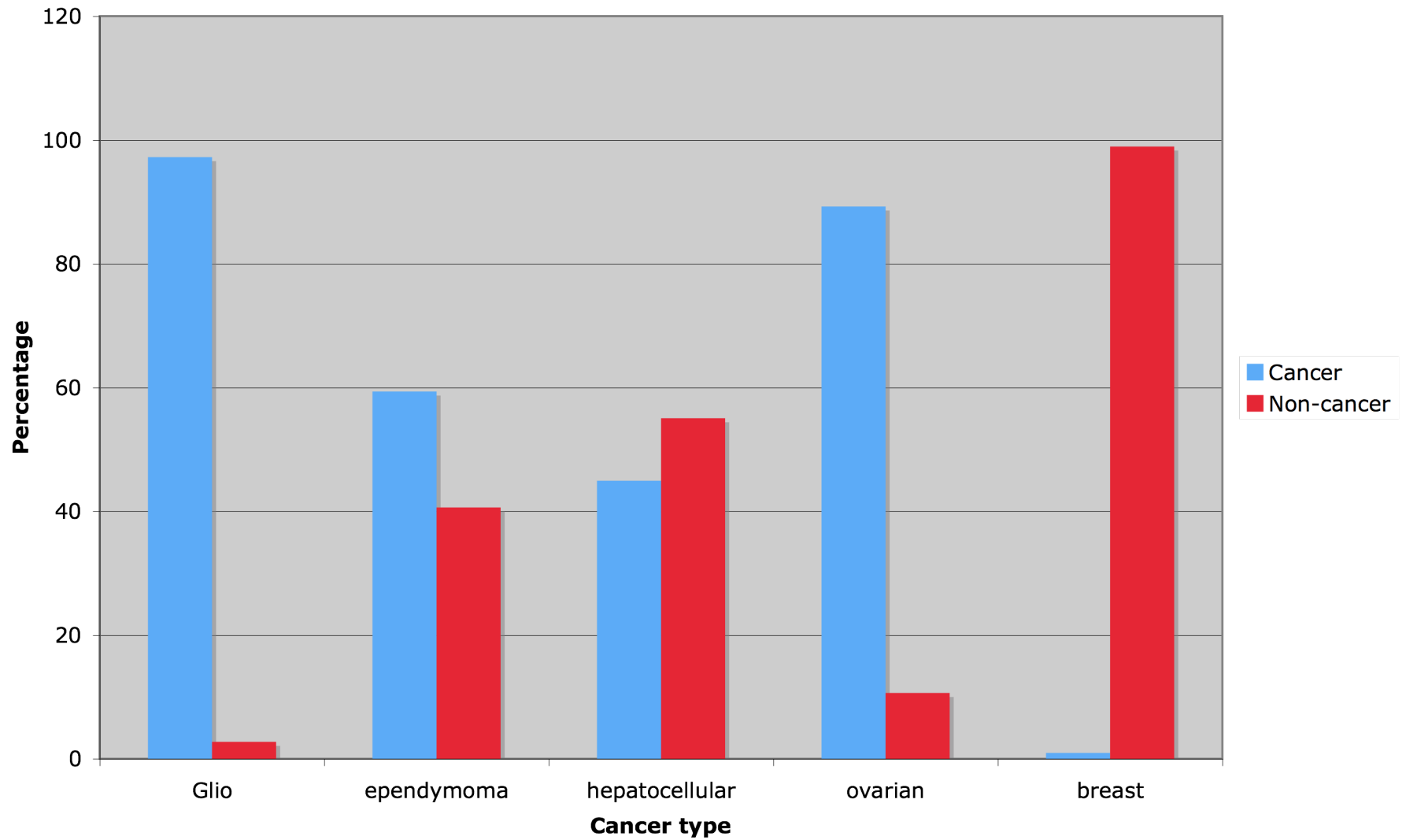
- Data
 - miRNA experiment
 - miR-31 high and low with mRNA expression
 - mRNA expression for cancers 7 benign
 - miRNAs correlated with cancer

miRNAs correlated with prostate cancer data

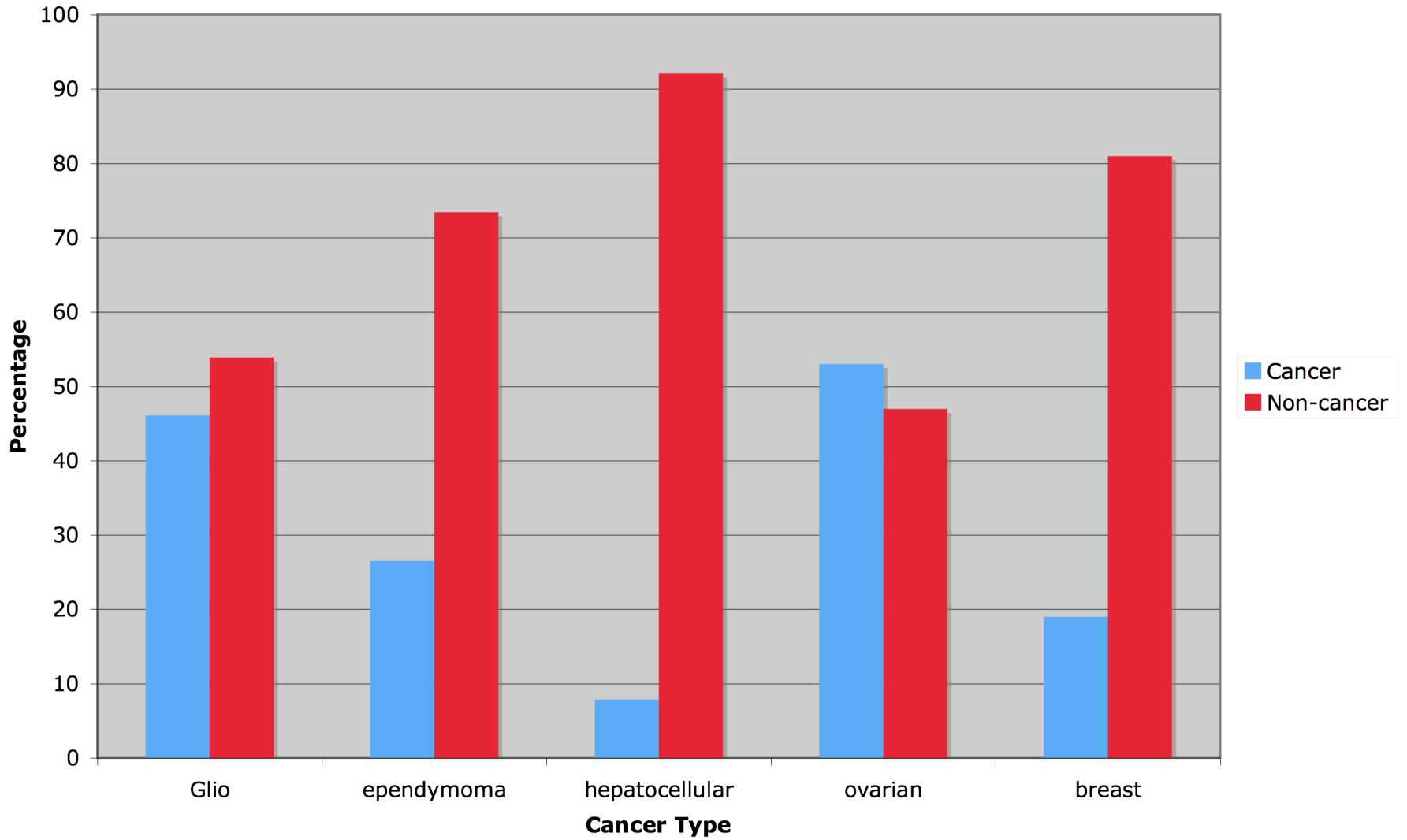
- Used to validate usage of mRNA prediction of miRNA levels across tissue types

Using mRNA biomarkers to predict mir-93/cancer status

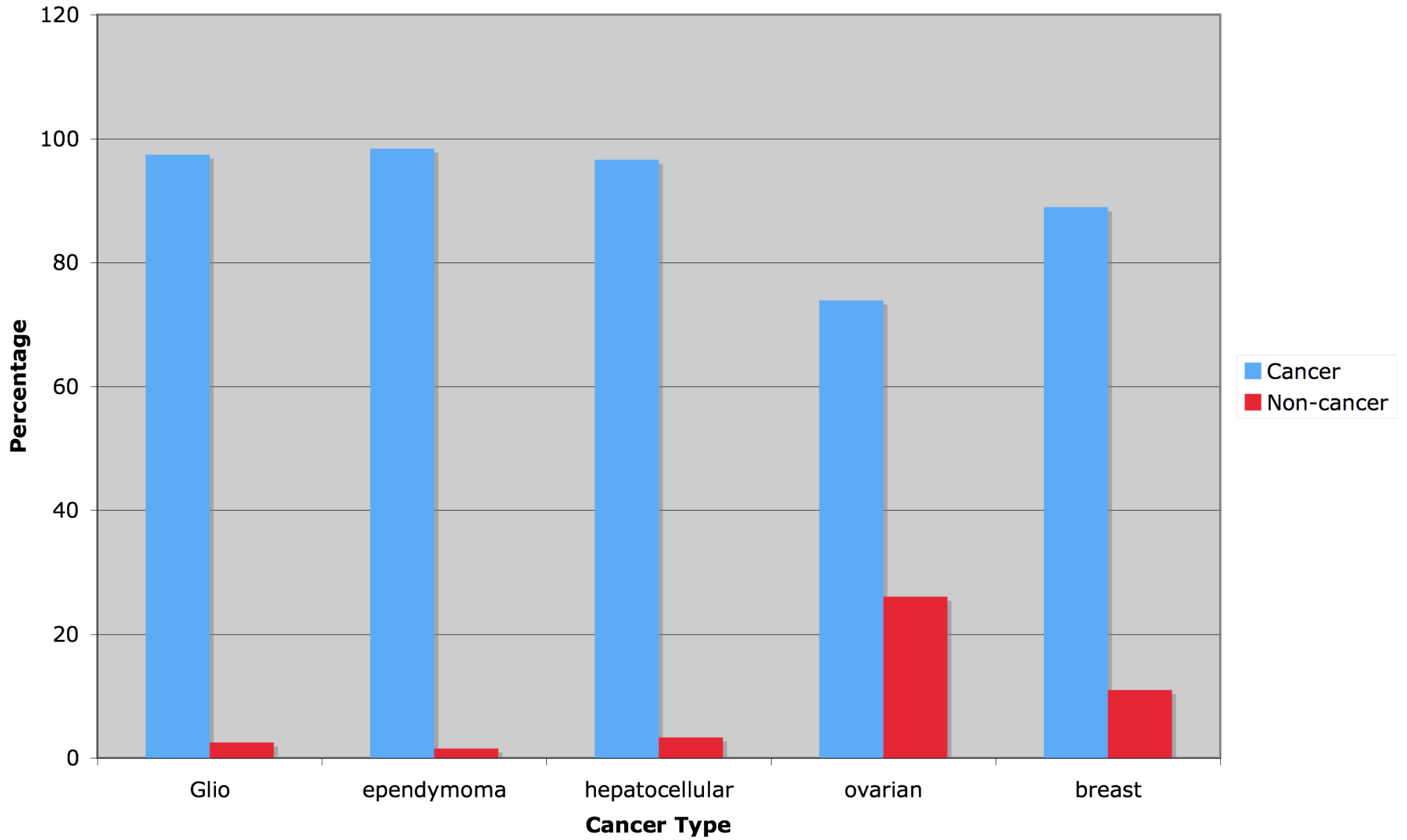
mir-93



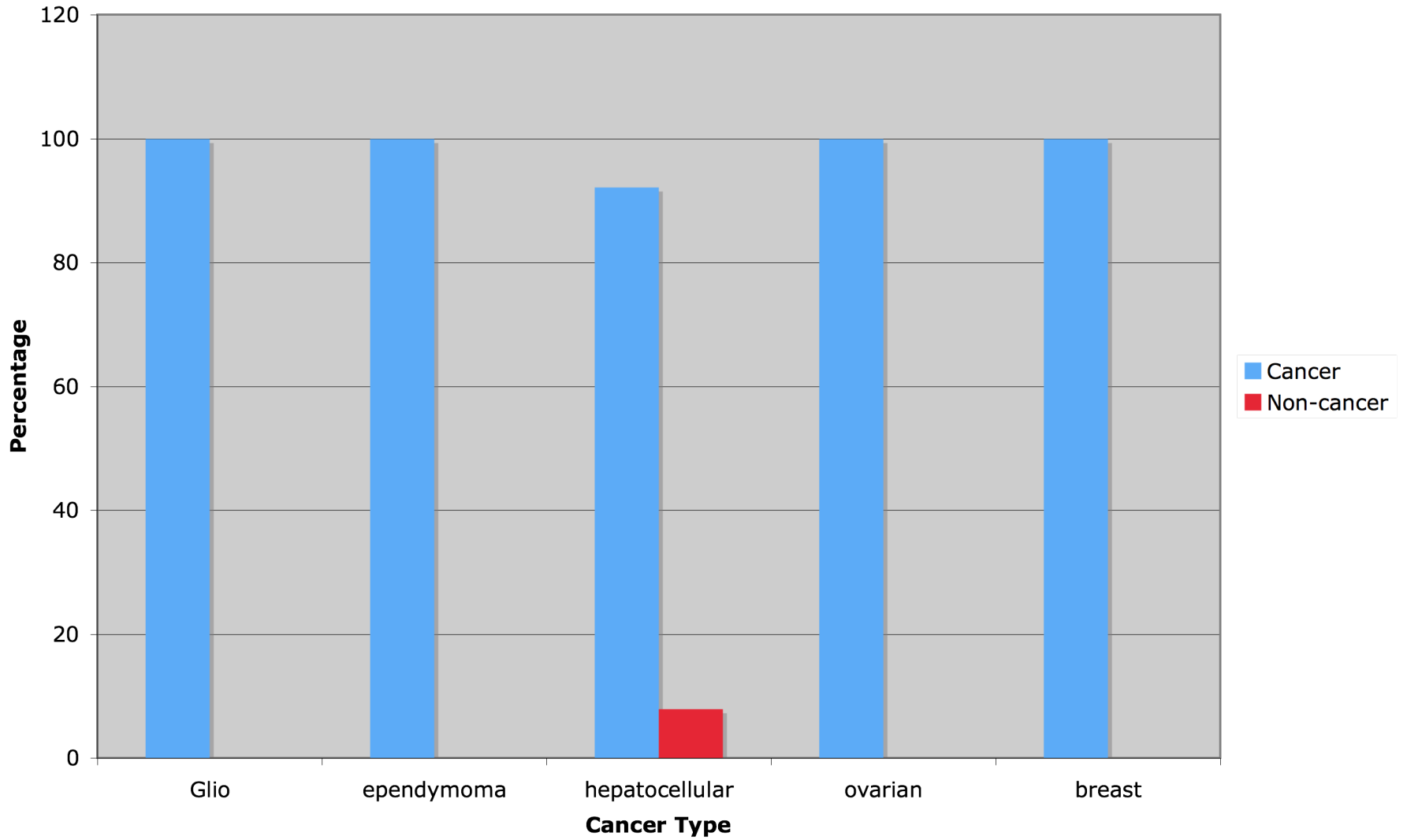
mir-18a



mir-130b



mir-106b



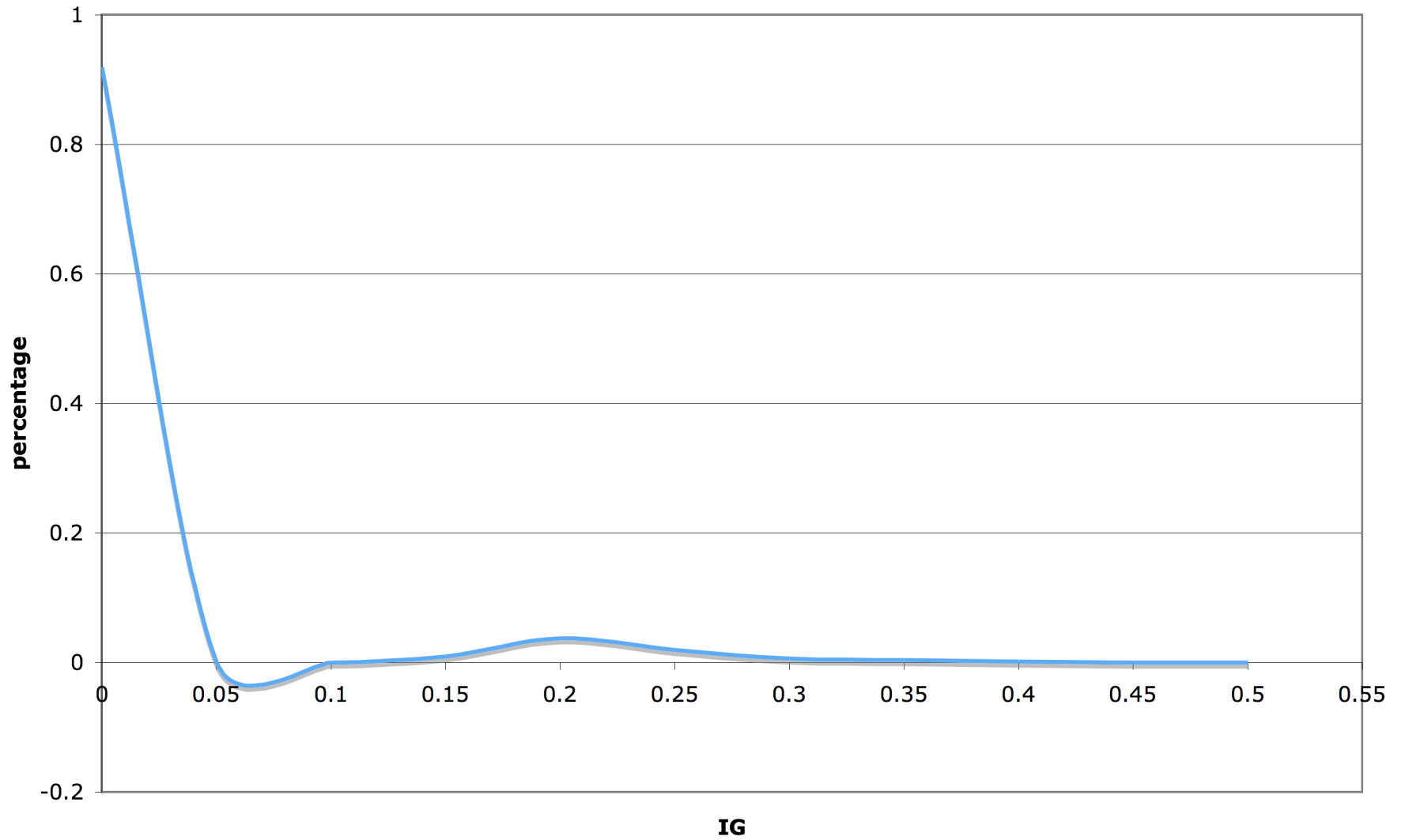
Predicted generic miRNAs in prostate cancer

- Predicted generic miRNAs (from liver)
 - miR-93, miR-130b, miR-106b very significant in predicting prostate cancer
- Predicted unique miRNA (from liver)
 - miR-18 not significant in predicting prostate cancer

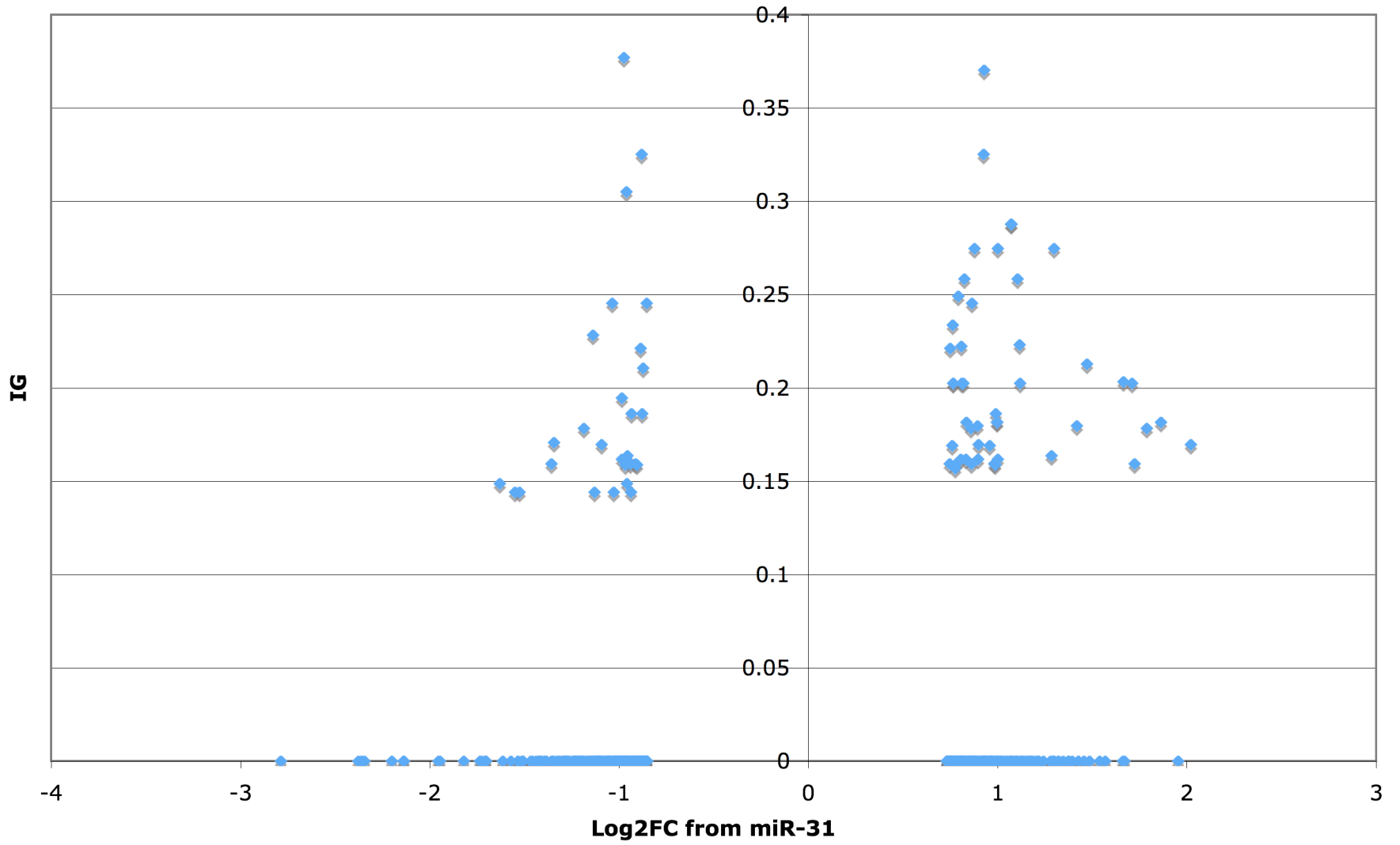
mRNA data + miRNA-31 experiments

- Integration of dataset to find key markers

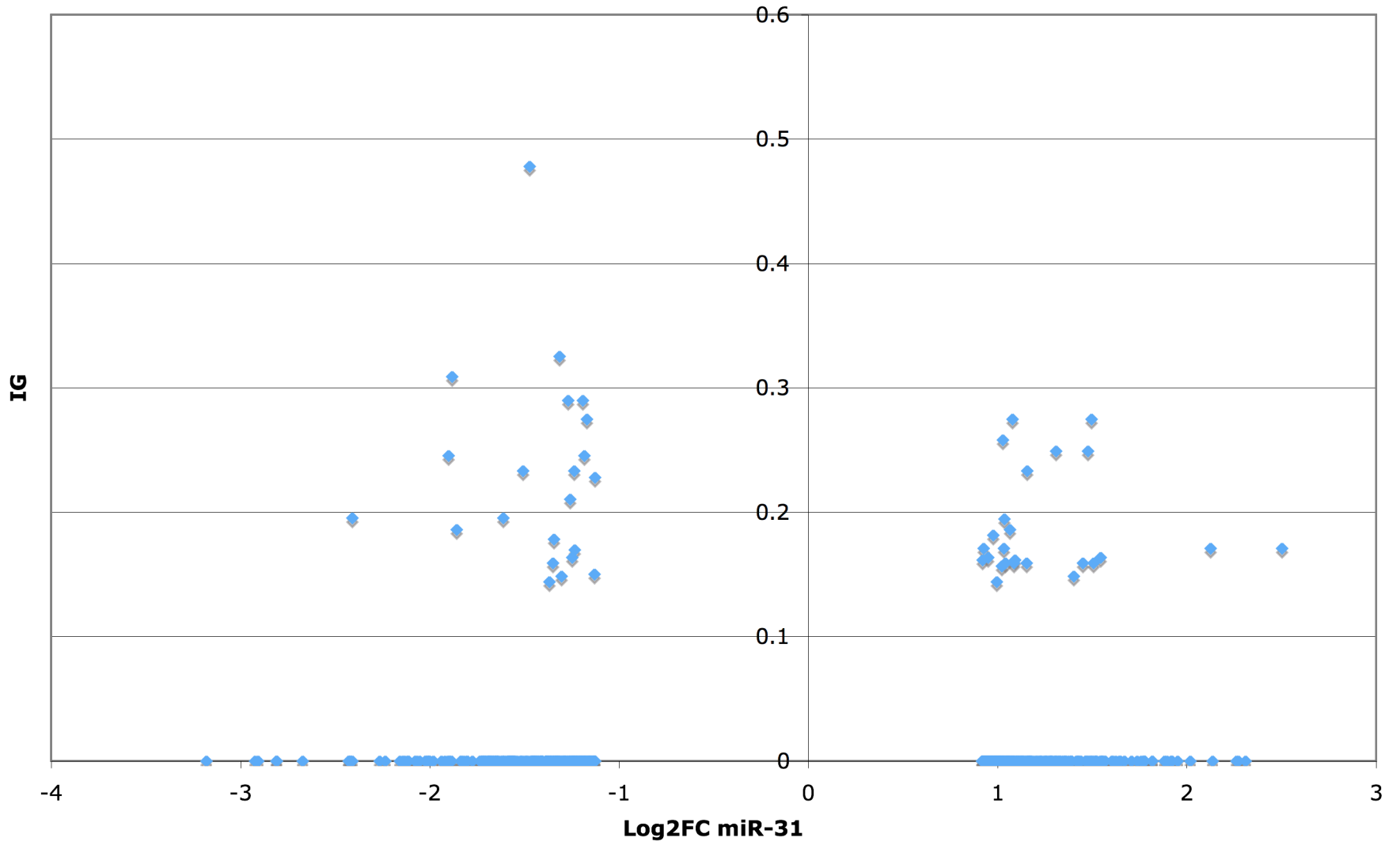
Distribution of Information Gain on cancer using mRNAs



IG vs miR-31 High



IG vs miR-31 Low



6 mRNAs

- C5ORF4
- P4HA2 (listed twice)
- GNB5 (oncogene)
- SC4MOL (oncogene)
- MICA
- 4-fold enrichment of oncogenes from affected mRNAs

Conclusions

- miRNA predictions
 - Robust across tissue types for general purposes
- Integrated data
 - Identified key mRNAs for miR-31

Acknowledgements

- Mark Gerstein
- Mark Rubin
- Andrea Sboner
- Pei-Chun Lin
- Nets subgroup
- Vivek Kaimal
- Aaron Chang