

## **Microarray Analysis**

### **Preprocessing and Hierarchical Clustering:**

The RMA algorithm was used to normalize the expression data using the Genesifter™ microarray analysis suite. Hierarchical clustering was performed using the module available in the Genesifter™ microarray analysis suite using following parameters for the dendrogram; data were normalized, genes were identified using a fold change threshold of 5, and samples clustered using Euclidean distance, average linkage, and row centering of genes.

### **Mouse Wild Type Skeletal Muscle sample**

This publicly available dataset (GEO accession: GSE6461) was generated by microarray analysis of genetically engineered mouse synovial sarcoma like tumors and wild type skeletal muscles using the Affymetrix GeneChip mouse genome 2.0 Array. The wild type skeletal muscle samples that is used in this manuscript are numbered GSM148507, GSM148508, GSM148509, and GSM148510.

### **Mouse Synovial Sarcoma-like Tumors in Myf5Cre/SSM2 mice**

This publicly available dataset (GEO accession: GSE6461) was generated by microarray analysis of genetically engineered mouse synovial sarcoma like tumors and wild type skeletal muscles using the Affymetrix GeneChip mouse genome 2.0 Array. The mouse synovial sarcoma samples that is used in this manuscript are numbered GSM148511, GSM148512, GSM148513, GSM148514, and GSM148515.

### **Mouse Synovial Sarcoma-like Tumors in ROSACreER/SSM2 mice**

This has been uploaded to GEO (GEO accession: GSE14469).

### **Mouse Osteosarcoma sample**

This publicly available dataset (GEO accession: GSE9460) was generated by microarray analysis of genetically engineered mouse osteosarcomas using the Affymetrix GeneChip mouse genome 2.0 Array. The mouse osteosarcoma samples that is used in this manuscript are numbered GSM240280, GSM240282, GSM240288, GSM240290, GSM240292, GSM240294, GSM240296, GSM240298, and GSM240300.

### **Mouse Kaposi Sarcoma sample**

This publicly available dataset (GEO accession: GSE6482) was generated by microarray analysis of Kaposi Sarcoma induced in a mouse model using the Affymetrix GeneChip mouse genome 2.0 Array. The mouse Kaposi Sarcoma samples that is used in this manuscript are numbered GSM149228, GSM149229, and GSM149230.

#### Mouse Breast cancer sample (MI)

This publicly available dataset (GEO accession: GSE9447) was generated by microarray analysis of mammary cancers in mice transgenic for an MMTV-promoter driven polyoma-middle-T antigen using the Affymetrix GeneChip mouse genome 2.0 Array. The mouse mammary tumor samples used in this manuscript are numbered GSM239969, GSM239970, GSM239971, and GSM239972.

#### Mouse Breast cancer sample (MII)

This publicly available dataset (GEO accession: GSE9355) was generated by microarray analysis of a transgenic mouse model expressing the ETV6-NTRK3 fusion oncogene using the Affymetrix GeneChip mouse genome 2.0 Array. The mouse breast cancer samples used in this manuscript are numbered GSM238339, GSM238341, GSM238344, GSM238346, GSM238348, GSM238351, GSM238352, GSM238355, GSM238357, and GSM238361.

#### Mouse Multiple Myeloma sample

This publicly available dataset (GEO accession: GSE6980) was generated by microarray analysis of multiple myelomas in a transgenic mouse model overexpressing XBP-1 using the Affymetrix GeneChip mouse genome 2.0 Array. The mouse breast cancer samples used in this manuscript are numbered GSM160869, GSM160880, GSM160881, GSM160882, GSM160883, and GSM160884.

#### Mouse Lymphoma sample

This publicly available dataset (GEO accession: GSE7050) was generated by microarray analysis of Lymphomas in a mouse model using the Affymetrix GeneChip mouse genome 2.0 Array. The mouse lymphoma samples used in this manuscript are numbered GSM161514, GSM161515, GSM161516, GSM161517, GSM161518, GSM161519, GSM161522, and GSM161523.