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(54) Title: PRODUCTS AND METHODS RELATING TO MICRO RNAS AND CANCER

(57) Abstract: The invention encompasses products and methods relating to microRNAs involved in various cancers.

PRODUCTS AND METHODS RELATING TO MICRO RNAS AND CANCER

Field of the Invention

[0001] The invention encompasses products and methods relating to microRNAs involved in various cancers.

Statement of Government Interest

[0002] This invention was made with U.S. Government support under NIH (P50GM076547 and 1R01GM077398-01A2), DoE (DE- FG02-04ER64685)and NSF (DBI-0640950). The U.S. Government has certain rights in the invention.

Background

[0003] MicroRNAs (miRNAs) mediate degradation (Baek et al. 2008) or translational repression (Selbach et al. 2008) of gene transcripts associated with an array of biological processes including many of the hallmarks of cancer (Dalmay and Edwards 2006; D Hanahan and R A Weinberg 2000; Douglas Hanahan and Robert A Weinberg 2011; Ruan et al. 2009). Not surprisingly, dysregulated miRNAs can be readily detected in tumor biopsies (Jiang et al. 2009) and are known to be diagnostic and prognostic indicators (Zen and Chen-Yu Zhang 2010). In some cases miRNAs have also been shown to be potential therapeutic targets (Garofalo and Croce 2011; Nana-Sinkam and Croce 2011). Conservative estimates suggest that each human miRNA regulates several hundred transcripts (Baek et al. 2008; Selbach et al. 2008) and thus miRNA mediated regulation results in statistically significant gene co-expression signatures that are readily discovered through transcriptome profiling (Brueckner et al. 2007; Ceppi et al. 2009; Tsung-Cheng Chang et al. 2007; Fasanaro et al. 2009; Frankel et al. 2008; Georges et al. 2008; Grimson et al. 2007; Lin He et al. 2007; Hendrickson et al. 2008; Charles D Johnson et al. 2007; Karginov et al. 2007; Lee P Lim et al. 2005; Linsley et al. 2007; Malzkorn et al. 2010; Ozen et al. 2008; Sengupta et al. 2008; Tan et al. 2009; Tsai et al. 2009; Valastyan et al. 2009; Wang-Xia Wang et al. 2010; Xiaowei Wang and Xiaohui Wang 2006; Frank Weber et al. 2006).

[0004] There are two commonly used strategies to identify the miRNA regulator(s) responsible for the observed co-expression of a set of genes: 1) enrichment of predicted 3' UTR binding sites for a known miRNA (Betel et al. 2010, 2008; Friedman et al. 2009; Kertesz et al.

2007); or 2) de novo identification of a 3' UTR motif that is complementary to a seed sequence of a miRNA in miRBase (Fan et al. 2009; Goodarzi et al. 2009; Kozomara and Griffiths-Jones 2011; Linhart et al. 2008). Algorithms utilizing the first strategy incorporate some combination of seed complementarity, cross-species conservation, and thermodynamic properties of the binding site. These algorithms include PITA (Kertesz et al. 2007), TargetScan (Friedman et al. 2009), and both miRanda (Betel et al. 2008) and miRSVR (Betel et al. 2010) from microIMA.org. While the combined modeling of two or more miRNA-binding properties within these algorithms boosts signal, the multiple hypotheses testing required to identify bona fide miRNA-binding sites unfortunately also simultaneously leads to high false negative rates (-32-52%) (Sethupathy et al. 2006).

[0005] Despite some progress in assessing the risk of cancer, a need exists for accurate methods of assessing such risks or developing conditions. Treatment of pre-cancer with drugs could postpone or prevent cancer; yet few pre-cancer patients are treated. A major reason is that no simple and unambiguous laboratory test exists to determine the actual risk of an individual to develop cancer. Thus, there remains a need in the art for methods of identifying, diagnosing, and treating these individuals.

Brief Summary

[0006] The present application provides prognostic methods for determining risk for developing cancer or predicting progression of cancer, and for predicting response to a drug or treatment regimen; diagnostic methods for identifying type(s) of cancer and for identifying a response to a drug or monitor a treatment regimen; therapeutic methods for directing appropriate treatments for patients at risk of progression, for directing appropriate treatments for patients with an identified type of cancer, for administering a drug that increases a miRNA useful for the treatment of cancer and for administering a drug to inhibit a miRNA identified as being involved in causing or exacerbating cancer; computer systems based on algorithms useful in the prognostic, diagnostic and/or therapeutic methods; miRNA products (including, but not limited to, products useful as biomarkers) and panels (i.e., sets of miRNA products); and products (e.g., arrays or kits of reagents) to detect miRNAs or panels of miRNAs and methods of using the detection products.

Brief Description of the Drawings

[0007] Figure 1. Overview of Weeder-miRvestigator tandem developed to identify miRNAs driving co-expression of transcripts. Quantitative assays of the transcriptome are used to identify gene co-expression signatures comprised of genes with significantly similar gene expression profiles. The 3' UTR sequences for the co-expressed genes are then extracted from the genome and used as input into the Weeder algorithm. The Weeder algorithm searches the 3' UTR sequences for an over-represented motif which is turned into a miRvestigator hidden Markov model (HMM). All of the miRNA seed sequences from the miRNA repository miRBase are compared to the HMM model of the over-represented sequence motif using the Viterbi algorithm. The miRNA seed sequence with the most significant complementarity p-value is the most likely miRNA driving the co-expression signature and a hypothesis that can be tested experimentally.

[0008] Figure 2. The sensitivity and specificity of the miRvestigator algorithm and framework is estimated using simulated datasets. A. The ROC AUC was computed by simulating miR-1 motifs across a range of motif entropies. Shown are the ROC AUC for the consensus matched to 8 bp miRNA seed sequences from miRBase using regular expression and the miRvestigator IIMM derived scoring metrics Viterbi P-value. B. We then tested the sensitivity and specificity of coupling de novo motif detection algorithm Weeder to the miRvestigator (Figure 1) by applying them to 30 simulated sequences with varying levels of inserted miR-1 seed sequence (0 to 100%). C. Histogram of Weeder identified miRNA binding sites for whole transcripts where transcripts are centered on the stop codon (0 bp). Instances of miRNA binding sites were either stratified based upon their complementarity to the motif identified by Weeder (8 bp, 7 bp or 6 bp) or the combination of all complementarities. As described by the gene structure below the histogram upstream of the stop codon are the 5' UTR and coding regulatory regions, and downstream is the 3' UTR. In the gene structure below the histogram the coding sequences is a wider grey box, the start codon is a green arrow, and the stop codon is a red stop sign. D. Significance of the enrichment of miRNA binding sites per 1 Kbp was computed as a meta statistic are shown for each gene region and each stratified site complementarity.

[0009] Figure 3. A. Determining the optimal method(s) (most sensitive and specific) to infer miRNA mediated regulation from co-expressed genes. The methods tested were: 1) Weeder

coupled to miRvestigator (Weeder-miRvestigator) (black line), 2) enrichment of PITA predicted milMA target genes (blue line), 3) enrichment of TargetScan predicted target genes (green line), 4) enrichment of miRSVR predicted target genes (orange line), and 5) enrichment of miRanda predicted target genes (red line). B. Overlap of co-expression signatures between putative miRNA regulators predicted by the three methods (Weeder-miRvestigator, PITA and TargetScan) in FIRM. Pairwise overlap of co-expression signatures between methods is statistically significant (Weeder-miRvestigator vs. PITA = 0.045; Weeder-miRvestigator vs. TargetScan = 0.019; PITA vs. TargetScan = 7.4×10^{-22}). All three methods identified miR¬29a/b/c as the regulator for the lung adenocarcinoma co-expression signature AD Lung Beer 31.

[0010] Figure 4. Metastatic and cross cancer-miRNA regulatory networks. Hierarchy of filters applied to cancer-miRNA regulatory network to produce both the metastatic and cross cancer miRNA regulatory networks is depicted above the networks, and a legend for the networks can be found in the upper right corner. Nodes are cancers (purple octagons), co-expression signatures (orange circles), inferred miRNAs (red diamonds), or hallmarks of cancer (green parallelogram). Orange edges describe the cancer where a co-expression signature was observed, blue edges link a putative miRNA regulator to a co-expression signature (putative miRNA regulation from cancer miRNA regulatory network), and red edges link putative miRNAs to the hallmarks of cancer based upon functional enrichment of the co-expression signatures they regulate (GO term semantic similarity). Thicker dashed edges indicate experimental validation for the inferred relationship. A. Metastatic cancer-miRNA regulatory network was filtered for the sake of space to show only cancers with at least one predicted regulatory interactions that has been validated. B. Cross cancer-miRNA regulatory network was generated by identifying miRNAs with more than one co-expression signature that are functionally enriched for the same GO terms that are sufficiently similar to GO terms characterizing the hallmarks of cancer.

[0011] Figure 5. Luciferase reporter assay validation of miRNA binding site predictions from FIRM. A. Deletion of miR-29 binding sites ablates response to miR-29a mimic. The wild type 3' UTRs are *MMP2* and *SPARC*. The miR-29 binding site deleted 3' UTRs are *MMP2 Δ* and *SPARC Δ*. The deletions have a slight increase in normalized luminescence over their corresponding vector control which is similar to what is observed for the negative control

HIST1H2AC which doesn't have a miR-29 binding site. B. Dose response curves for *COL3A1* and *SPARC* titrating the amounts of miR-29a mimic (50nM, 5nM, 500pM, 50pM and 5pM).

[0012] Figure 6. Summary of FIRM predictions for the miR-29a/b/c and miR-767-5p cancer-miRNA regulatory subnetwork. This subnetwork is included in both the metastatic- and cross-cancer miRNA regulatory networks. The network is laid out hierarchically with from the top down cancers, miRNAs, co-expression signatures, genes that were experimentally validated through luciferase assays, significantly enriched GO biological process terms for the co-expression signature, and finally the GO terms associated hallmarks of cancers. On the left side we show the FIRM integration strategy which is a flow of information through this hierarchy where the red arrows indicate a FIRM prediction. The meanings of the FIRM predictions are described on the right side where inference of a miRNA regulating a cancer co-expression signature predicts that the miRNA is dysregulated in that cancer. This same inference predicts that the miRNA regulates the genes in the signature which can be tested experimentally. Functional enrichment of GO term annotations among the co-regulated genes predicts the effect of regulating this set of genes and association of the enriched GO terms with hallmarks of cancer predicts the oncogenic processes that might be affected.

[0013] Figure 7 is a flowchart showing how cancer gene expression signatures are used to identify cancer miRNA regulatory networks according to various methods described herein.

[0014] Figure 8 is a flow diagram representing an exemplary FIRM method 800.

[0015] Figure 9 is a flow diagram representing an exemplary method 900 for performing de novo identification of one or more 3' UTR motifs that are complementary to seed sequences of miRNA stored on a memory device (i.e., an exemplary method corresponding to the block 802).

[0016] Figure 10 is a flow diagram representing an exemplary method 1000 for identifying enriched predicted miRNA binding sites (i.e., an exemplary method corresponding to the block 804).

[0017] Figure 11 is a flowchart showing how the identification of cancer miRNA regulatory networks leads therapeutic options according to methods described herein.

[0018] Figure 12 is a panel of miRNAs involved in oncogenic processes across diverse cancers.

[0019] Figure 13 is a panel of miRNAs involved in cancer metastasis and tissue invasion.

[0020] Figure 14 shows miRNAs variously involved in sustained angiogenesis, tumor-promoting inflammation, self-sufficiency in growth signals, reprogramming energy metabolism, evading apoptosis, genome instability and mutation, limitless replicative potential, evading immune detection, and insensitivity to anti-growth signals in a number of cancers.

[0021] Figure 15 is an alignment of miR-767-5p, miR-29a, miR-29c and miR-29b.

Description

[0022] In a first aspect, a Framework for Inference of Regulation by miRNAs (FIRM) is provided. FIRM integrates three best performing algorithms to infer miRNA that mediate regulation from co-expression signatures. In an exemplary embodiment, FIRM limits the Weeder-miRvestigator method to only those inferences of miRNA mediated regulation with a perfect 7- or 8-mer miRvestigator complementarity p-value (p-value = 6.1×10^{-5} or 1.5×10^{-5}, respectively) to a miRNA seed in miRBase. Inferences of miRNA mediated regulation from the PITA and TargetScan enrichment of predicted miRNA target genes methods are filtered to include only those with Benjamini-Hochberg FDR = 0.00. FIRM produces a listing (i.e., a panel) of all co-expression signatures predicted to be regulated by an miRNA. See also, the embodiments represented in Figures 7 and 11.

[0023] FIRM is, at the most basic level, an assemblage of methods combined to produce a data set of co-expression signatures predicted to be regulated by one or more miRNAs. The methods are performed by one or more computer processors executing one or more sets of instructions. The instructions may be hard-encoded into the processor, as in an application-specific integrated circuit (ASIC), may be semi-permanently encoded into the processor, as is the case in, for example, a field-programmable gate array (FPGA), or may be stored on a memory device and executed by a general purpose processor that, after retrieving the instructions from the memory device, becomes a special purpose processor programmed to perform the methods. Generally, the methods may be stored (or encoded, in hardware implementations such as ASICs and FPGAs) as one or more modules or routines. While described below with respect to three methods (and, accordingly, three modules or routines), the methods of which FIRM is comprised

may form more than three routines or fewer than three routines. Additionally, individual steps of the methods need not necessarily be performed in the order described. That is, unless a data dependency exists between two steps, it is possible – as will be understood – for steps to be performed in orders other than those described. Further, any particular step may, as will also be understood, represent one or more sub-steps, operations, functions, etc. As but one illustrative example, any particular method step may include retrieving input data from memory, performing one or more processing steps on the data, and storing one or more outputs to the memory.

[0024] Figure 8 depicts a flow diagram representing an exemplary FIRM method 800. Generally, the method 800 integrates algorithms to accurately identify the miRNA most likely implicated in the co-regulation of a set of genes represented in a set of genetic expression signatures. Using a first algorithm, the processor performs de novo identification of one or more 3' UTR motifs that are complementary to seed sequences of miRNA stored on a memory device (block 802). Using a second algorithm, the processor also identifies enriched predicted miRNA binding sites determined from data produced by one or more (two, in an embodiment) of a variety of sub-algorithms such as PITA, TargetScan, miRanda, and miRSVR, etc. (block 804). The results of the blocks 802 and 804 are combined (block 806) as the union of the miRNA to gene co-expression signature predictions.

[0025] An interface is optionally provided to allow one or more users to access the combined results (block 808). In one embodiment, the interface takes the form of a Web page available via a network connection (e.g., the Internet), allowing one or more users to access, search, and filter the combined data from any web-enabled device (e.g., workstations, laptop computers, smart phones, tablet devices, etc.). In another embodiment, the interface takes the form of an additional routine operating on a processor (the same processor or a different processor) communicatively connected to a memory on which the combined results are stored. For example, the interface routine may execute on a computing device and, via a network, may access/retrieve the combined results from a database or memory device located remotely. Alternatively, the interface routine may execute on the processor executing the routines related to blocks 802-806.

[0026] In any event, the combined data may later be used for any purpose as generally described throughout the remainder of this application (block 810).

[0027] Figure 9 depicts a flow diagram representing an exemplary method 900 for performing de novo identification of one or more 3' UTR motifs that are complementary to seed sequences of miRNA stored on a memory device (i.e., an exemplary method corresponding to the block 802). The exemplary method 900 corresponds generally to the miRvestigator algorithm. Overrepresented miRNA binding sites in 3' UTR of supposed miRNA co-regulated genes ("motifs") are identified (block 902). For each miRNA seed, the probability describing the complementarity of the miRNA seed to a 3' UTR motif is computed (block 904). The resulting 3' UTR motifs are converted to a hidden Markov model (HMM) (block 906). The processor uses the Viterbi algorithm to provide a complementarity p-value by comparing the HMM to all potential seed sequences in a set (e.g., miRBase) (block 908). The complete distribution of complementarity probabilies for all potential miRNA k-mer seed sequences (k = 6, 7, or 8 bp) is exhaustively computed (block 910). miRNAs having the smallest complementarity p-values (e.g., below a pre-determined threshold) are selected as most likely to regulate the set of transcripts from which the 3' UTR motif was derived (block 912). In an embodiment, the threshold is based upon the smallest possible p-value given the size of the search space. For example, for an 8 bp motif, the smallest p-value is $1/4^8$, or 1.5×10^{-5}, for a 6 bp motif the smallest p-value would be $1/4^6$, or 2.4×10^{-4}, etc. The threshold is a quality metric that demonstrates the certainty that a particular miRNA is the driving factor for a particular hallmark of cancer. Other thresholds could be used depending on the type of study being conducted.

[0028] Figure 10 depicts a flow diagram representing an exemplary method 1000 for identifying enriched predicted miRNA binding sites (i.e., an exemplary method corresponding to the block 804). Data produced by operation of one or more miRNA target gene prediction algorithms (e.g., PITA, TargetScan, miRanda, miRSVR) are analyzed by calculating the hypergeometric p-value for each miRNA in each set of data (block 1002). The sets of data may be stored locally on a memory device and/or may be stored remotely and accessed via a network connection. In any event, in Figure 10, for example, hypergeometric p-values are calculated for each miRNA in the TargetScan and PITA data sets. The results are optionally filtered to control the false discovery rate (e.g., to be equal to or less than a predetermined value, e.g., 0.001) (block 1004). In an embodiment, the Benjamini-Hochberg False Discovery Rate Procedure (BHFDR) is implemented. Other methods may be used, alternatively or additionally, to control the false discovery rate. The results are optionally filtered to exclude results for which less than a pre-

determined portion (e.g., 10 percent) of the genes are targeted by the specific miRNA (block 1006). Further, in some embodiments, the results are filtered based upon the presence of a particular miRNA in the tissue of interest. miRNAs having the smallest hypergeometic p-values (e.g., below a pre-determined threshold) are selected as most likely to regulate the signature (block 1008). Alternatively, in other embodiments the top set of results are selected. In still other embodiments, results with BHFDR corrected p-values below a threshold (e.g., below 0.05) could be selected. The individual miRNAs are sometimes referred to herein as "biomarkers" and sets of miRNAs identified are sometimes referred to as "panels" herein.

[0029] By "statistically significant", it is meant that the inference is greater than what might be expected to happen by chance alone (which could be a "false positive"). Statistical significance can be determined by any method known in the art. Commonly used measures of significance include the p-value, which presents the probability of obtaining a result at least as extreme as a given data point, assuming the data point was the result of chance alone. A result is often considered highly significant at a p-value of 0.05 or less.

[0030] In another aspect, miRNAs are described herein as associated with particular cancers or cancer characteristics. The miRNAs can be measured in an individual and used to evaluate the risk that an individual will develop cancer in the future, for example, the risk that an individual will develop cancer in the next 1, 2, 2.5, 5, 7.5, or 10 years. As used herein, "measuring" includes at least "detecting" a biomarker, but can also include determining the level/quantity of a biomarker. Exemplary miRNAs are shown in the figures. The miRNAs can be employed for methods, kits, computer readable media, systems, and other aspects of the invention which employ individual miRNAs or sets of miRNAs. A panel of miRNAs may comprise one or more miRNAs. MicroRNAs are set out in Figures 12 (showing the miRNAs miR-29a/b/c, miR-130a, miR-296-5p, miR-338-5p, miR-369-5p, miR-656, miR-760, miR-767-5p, miR-890, miR-1275, miR-1276 and miR-1291 forming a cross-cancer miRNA regulatory network), 13 (showing the miRNAs forming a metastatic cancer miRNA regulatory network), and 14 (showing the miRNAs forming a sustained angiogenesis miRNA regulatory network, a tumor-promoting inflammation miRNA regulatory network, miRNAs involved in self-sufficiency in growth signals, miRNAs involved in reprogramming energy metabolism, miRNAs involved in evading apoptosis, miRNAs involved in genome instability and mutation, miRNAs

involved in limitless replicative potential, miRNAs involved in evading immune detection and miRNAs involved in insensitivity to anti-growth signals).

[0031] In still another aspect, methods of calculating a risk score for developing cancer are provided, comprising (a) obtaining inputs about an individual comprising the level of biomarkers in at least one biological sample from said individual; and (b) calculating a cancer risk score from said inputs; wherein said biomarkers comprise one or more biomarkers selected from Figures 12, 13 and 14.

[0032] Cancers include, but are not limited to, cancers such as those set out in Figure 14. These cancers include, but are not limited to, cancers of the bladder, brain, colon, blood, lung, skin, ovary, testes, breast, head, neck and prostate.

[0033] In yet another aspect of evaluating risk for developing cancer, the method comprises: (a) obtaining biomarker measurement data, wherein the biomarker measurement data is representative of measurements of biomarkers in at least one biological sample from an individual; and (b) evaluating risk for developing cancer based on an output from a model, wherein the model is executed based on an input of the biomarker measurement data; wherein the biomarkers comprise one or more biomarkers selected from Figures 12, 13 and 14.

[0034] In an additional aspect, the invention is method of evaluating risk for developing cancer comprising: obtaining biomarker measurements from at least one biological sample from an individual who is a subject that has not been previously diagnosed as having cancer, comparing the biomarker measurement to normal control levels; and evaluating the risk for the individual developing a cancer from the comparison; wherein the biomarkers are defined as set forth in the preceding paragraph.

[0035] Similarly, methods are provided of evaluating risk for developing cancer, the method comprising: obtaining biomarker measurement data, wherein the biomarker measurement data is representative of measurements of biomarkers in at least one biological sample from an individual; and evaluating risk for developing cancer based on an output from a model, wherein the model is executed based on an input of the biomarker measurement data; wherein said biomarkers are defined as above.

[0036] In some embodiments, the step of evaluating risk comprises computing an index value using the model based on the biomarker measurement data, wherein the index value is correlated with risk of developing cancer in the subject. In some embodiments, evaluating risk comprises normalizing the biomarker measurement data to reference values.

[0037] In another aspect, a method of calculating a risk score for cancer progression is provided, comprising (a) obtaining inputs about an individual suffering from cancer comprising the level of biomarkers in at least one biological sample from said individual; and (b) calculating a cancer risk score from said inputs; wherein said biomarkers comprise one or more biomarkers selected from Figures 12, 13 and 14.

[0038] In some embodiments of the methods disclosed herein, the obtaining biomarker measurement data step comprises measuring the level of at least one of the biomarkers in at least one biological sample from said individual. Optionally, the method includes a step (prior to the step of obtaining biomarker measurement data) of obtaining at least one biological sample from the individual.

[0039] In some embodiments, at least one biomarker input is obtained from one or more biological samples collected from the individual, such as from a blood sample, saliva sample, urine sample, cerebrospinal fluid sample, sample of another bodily fluid, or other biological sample including, but not limited to, those described herein.

[0040] In some embodiments, at least one biomarker input is obtained from a preexisting record, such as a record stored in a database, data structure, other electronic medical record, or paper, microfiche, or other non-electronic record.

[0041] In some embodiments, the biomarkers comprise at least one, at least two, at least three, at least four, at least five, at least six, at least seven, at least eight, at least nine, at least ten, at least eleven, at least twelve, at least thirteen, or more (up to all or all) biomarkers selected from Figure 12, 13 and/or 14.

[0042] In another aspect, the invention embraces a method comprising advising an individual of said individual's risk of developing cancer or risk of cancer progression, wherein said risk is based on factors comprising a cancer risk score, and wherein said cancer risk score is calculated as described above. The advising can be performed by a health care practitioner, including, but

not limited to, a physician, nurse, nurse practitioner, pharmacist, pharmacist's assistant, physician's assistant, laboratory technician, dietician, or nutritionist, or by a person working under the direction of a health care practitioner. The advising can be performed by a health maintenance organization, a hospital, a clinic, an insurance company, a health care company, or a national, federal, state, provincial, municipal, or local health care agency or health care system. The health care practitioner or person working under the direction of a health care practitioner obtains the medical history of the individual from the individual or from the medical records of the individual. The advising can be done automatically, for example, by a computer, microprocessor, or dedicated device for delivering such advice. The advising can be done by a health care practitioner or a person working under the direction of a health care practitioner via a computer, such as by electronic mail or text message.

[0043] In some embodiments of the invention, the cancer risk score is calculated automatically. The cancer risk score can be calculated by a computer, a calculator, a programmable calculator, or any other device capable of computing, and can be communicated to the individual by a health care practitioner, including, but not limited to, a physician, nurse, nurse practitioner, pharmacist, pharmacist's assistant, physician's assistant, laboratory technician, dietician, or nutritionist, or by a person working under the direction of a health care practitioner, or by an organization such as a health maintenance organization, a hospital, a clinic, an insurance company, a health care company, or a national, federal, state, provincial, municipal, or local health care agency or health care system, or automatically, for example, by a computer, microprocessor, or dedicated device for delivering such advice.

[0044] In another embodiment, methods providing two or more cancer risk scores to a person, organization, or database are disclosed, where the two or more cancer risk scores are derived from biomarker information representing the biomarker status of the individual at two or more points in time. In any of the foregoing embodiments, the entity performing the method can receive consideration for performing any one or more steps of the methods described.

[0045] In another aspect, a method is provided of ranking or grouping a population of individuals, comprising obtaining a cancer risk score for individuals comprised within said population, wherein said cancer risk score is calculated as described above; and ranking individuals within the population relative to the remaining individuals in the population or

dividing the population into at least two groups, based on factors comprising said obtained cancer risk scores. The ranking or grouping of the population of individuals can be utilized for one or more of the following purposes: to determine an individual's eligibility for health insurance; an individual's premium for health insurance; to determine an individual's premium for membership in a health care plan, health maintenance organization, or preferred provider organization; to assign health care practitioners to an individual in a health care plan, health maintenance organization, or preferred provider organization; to recommend therapeutic intervention or lifestyle intervention to an individual or group of individuals; to manage the health care of an individual or group of individuals; to monitor the health of an individual or group of individuals; or to monitor the health care treatment, therapeutic intervention, or lifestyle intervention for an individual or group of individuals.

[0046] In another aspect, a panel of biomarkers is provided comprising biomarkers selected from Figure 12, 13 and/or 14. Exemplary panel embodiments contemplated are a panel comprising one, two or more (up to all or all) miRNAs in Figure 12; a panel comprising one, two or more (up to all or all) miRNAs in claim 13; a panel comprising one, two or more (up to all or all) miRNAs in Figure 14 associated with sustained angiogenesis; a panel comprising one, two or more (up to all or all) miRNAs in Figure 14 associated with tumor-promoting inflammation; a panel comprising one, two or more (up to all or all) miRNAs in Figure 14 associated with self-sufficiency in growth signals; a panel comprising one, two or more (up to all or all) miRNAs in Figure 14 associated with reprogramming energy metabolism; a panel comprising one, two or more (up to all or all) miRNAs in Figure 14 associated with evading apoptosis; a panel comprising one, two or more (up to all or all) miRNAs in Figure 14 associated with genome instability and mutation; a panel comprising one, two or more (up to all or all) miRNAs in Figure 14 associated with limitless replicative potential; a panel comprising one, two or more (up to all or all) miRNAs in Figure 14 associated with evading immune detection; a panel comprising one, two or more (up to all or all) miRNAs in Figure 14 associated with insensitivity to anti-growth signals; and panels including one, two or more (up to all or all) miRNAs in Figure 14 respectively associated with a particular tissue or type of cancer [e.g., a panel comprising one, two or more (up to all or all) miRNAs in Figure 14 associated with a colon cancer; or panel comprising one, two or more (up to all or all) miRNAs in Figure 14 associated with a

carcinoma]. Panels representing every possible combination of miRNAs in Figures 12, 13 and 14 are specifically contemplated.

[0047] In another aspect, one or more data structures or databases are provided comprising values for one or more biomarkers in Figures 12, 13 and 14. A machine-readable storage medium can comprise a data storage material encoded with machine readable data or data arrays which, when using a machine programmed with instructions for using said data, is capable of use for a variety of purposes, such as, without limitation, subject information relating to cancer risk factors over time or in response to cancer-modulating drug therapies, drug discovery, and the like. Measurements of effective amounts of the biomarkers of the invention and/or the resulting evaluation of risk from those biomarkers can implemented in computer programs executing on programmable computers, comprising, *inter alia*, a processor, a data storage system (including volatile and non-volatile memory and/or storage elements), at least one input device, and at least one output device. Program code can be applied to input data to perform the functions described above and generate output information. The output information can be applied to one or more output devices, according to methods known in the art. The computer may be, for example, a personal computer, microcomputer, or workstation of conventional design.

[0048] In another aspect, diagnostic test systems are provided comprising (1) means for obtaining test results comprising levels of multiple biomarkers in at least one biological sample; (2) means for collecting and tracking test results for one or more individual biological sample; (3) means for calculating an index value from inputs, wherein said inputs comprise measured levels of biomarkers, and further wherein said measured levels of biomarkers comprise the levels of one or more biomarkers selected from Figures 12, 13 and 14; and (4) means for reporting said index value. In some embodiments, said index value is a cancer risk score; the cancer risk score can be calculated according to any of the methods described herein. The means for collecting and tracking test results for one or more individuals can comprise a data structure or database. The means for calculating a cancer risk score can comprise a computer, microprocessor, programmable calculator, dedicated device, or any other device capable of calculating the cancer risk score. The means for reporting the cancer risk score can comprise a visible display, an audio output, a link to a data structure or database, or a printer.

[0049] A diagnostic system is any system capable of carrying out the methods of the invention, including computing systems, environments, and/or configurations that may be suitable for use with the methods or system of the claims include, but are not limited to, personal computers, server computers, hand-held or laptop devices, multiprocessor systems, microprocessor-based systems, set top boxes, programmable consumer electronics, network PCs, minicomputers, mainframe computers, distributed computing environments that include any of the above systems or devices, and the like.

[0050] In some embodiments, a diagnostic test system comprises: means for obtaining test results data representing levels of multiple biomarkers in at least one biological sample; means for collecting and tracking test results data for one or more individual biological samples; means for computing an index value from biomarker measurement data, wherein said biomarker measurement data is representative of measured levels of biomarkers, and further wherein said measured levels of biomarkers comprise the levels of a set or panel of biomarkers as defined elsewhere herein; and means for reporting said index value. In some variations of the diagnostic test system, the index value is a cancer risk score. In some preferred variations, the cancer risk score is computed according to the methods described herein for computing such scores. In some variations, the means for collecting and tracking test results data representing for one or more individuals comprises a data structure or database. In some variations, the means for computing a cancer risk score comprises a computer or microprocessor. In some variations, the means for reporting the cancer risk score comprises a visible display, an audio output, a link to a data structure or database, or a printer.

[0051] In some embodiments, a medical diagnostic test system for evaluating risk for developing a cancer or risk for cancer progression, the system comprises: a data collection tool adapted to collect biomarker measurement data representative of measurements of biomarkers in at least one biological sample from an individual; and an analysis tool comprising a statistical analysis engine adapted to generate a representation of a correlation between a risk for developing a cancer and measurements of the biomarkers, wherein the representation of the correlation is adapted to be executed to generate a result; and an index computation tool adapted to analyze the result to determine the individual's risk for developing a cancer or for cancer progression, and represent the result as an index value; wherein said biomarkers are defined as a set or panel as described elsewhere herein. In some variations, the analysis tool comprises a first

analysis tool comprising a first statistical analysis engine, the system further comprising a second analysis tool comprising a second statistical analysis engine adapted to select the representation of the correlation between the risk for developing a cancer or risk for cancer progression and measurements of the biomarkers from among a plurality of representations capable of representing the correlation. In some variations, the system further comprising a reporting tool adapted to generate a report comprising the index value.

[0052] In some embodiments, a system for diagnosing susceptibility to cancer in a human subject comprises (a) at least one processor; (b) at least one computer-readable medium; (c) a susceptibility database operatively coupled to a computer-readable medium of the system and containing information associating measurements of one or more biomarkers selected from Figures 12, 13 and 14 and cancer in a population of humans; (d) a measurement tool that receives an input about the human subject and generates information from the input about one or more biomarkers selected from Figures 12, 13 and 14 from the human subject; and (e) an analysis tool (routine) that (i) is operatively coupled to the susceptibility database and the measurement tool, (ii) is stored on a computer-readable medium of the system, (iii) is adapted to be executed on a processor of the system, to compare the information about the human subject with the information about the population in the susceptibility database and generate a conclusion with respect to susceptibility to cancer in the human subject.

[0053] In some embodiments, a system for diagnosing cancer in a human subject comprises (a) at least one processor; (b) at least one computer-readable medium; (c) a susceptibility database operatively coupled to a computer-readable medium of the system and containing information associating measurements of biomarkers selected from Figures 12, 13 and 14 and cancer in a population of humans; (d) a measurement tool that receives an input about the human subject and generates information from the input about one or more biomarkers selected from Figures 12, 13 and 14 from the human subject; and (e) an analysis tool (routine) that (i) is operatively coupled to the susceptibility database and the measurement tool, (ii) is stored on a computer-readable medium of the system, (iii) is adapted to be executed on a processor of the system, to compare the information about the human subject with the information about the population in the susceptibility database and generate a conclusion with respect to the presence of cancer in the human subject. In some embodiments, the biomarkers are measured by amplification or by hybridization to a microarray.

[0054] In the systems in the preceding two paragraphs, the input about the human subject can be a biological sample from the human subject, and the measurement tool comprises a tool to measure one or more biomarkers selected from Figures 12, 13 and 14 in the biological sample, thereby generating biomarker measurements from a human subject. In some embodiments, the systems further comprise a communication tool operatively coupled to the analysis tool, stored on a computer-readable medium of the system and adapted to be executed on a processor of the system to generate a communication for the human subject, or a medical practitioner for the subject, containing the conclusion with respect to cancer for the subject.

[0055] In some embodiments of systems comprising a communication tool operatively connected to the analysis tool or routine, the systems comprise a routine stored on a computer-readable medium of the system and adapted to be executed on a processor of the system, to: generate a communication containing the conclusion; and transmit the communication to the subject or the medical practitioner, or enable the subject or medical practitioner to access the communication.

[0056] In some embodiments, any of the systems comprise a medical protocol database operatively connected to a computer-readable medium of the system and containing information correlating the conclusion and medical protocols for human subjects at risk for or suffering from cancer; and a medical protocol tool (or routine), operatively connected to the medical protocol database and the analysis tool or routine, stored on a computer-readable medium of the system, and adapted to be executed on a processor of the system, to compare the conclusion from the analysis routine with respect to cancer for the subject and the medical protocol database, and generate a protocol report with respect to the probability that one or more medical protocols in the database will reduce susceptibility to cancer, delay onset of cancer, increase the likelihood of detecting cancer at an early stage to facilitate early treatment or treat the cancer. Where the communication tool is operatively connected to the medical protocol tool or routine, the system may generate a communication that further includes the protocol report.

[0057] Yet another aspect is a computer readable medium having computer executable instructions for evaluating risk for developing a cancer, the computer readable medium comprising: a routine, stored on the computer readable medium and adapted to be executed by a processor, to store biomarker measurement data representing a set or panel of biomarkers; and a

routine stored on the computer readable medium and adapted to be executed by a processor to analyze the biomarker measurement data to evaluate a risk for developing a cancer or for risk of cancer progression. The panels of biomarkers are defined as described in any of the preceding paragraphs.

[0058] Still another aspect is a method developing a model for evaluation of risk for developing a cancer or for cancer progression, the method comprising: obtaining biomarker measurement data, wherein the biomarker measurement data is representative of measurements of biomarkers from a population and includes endpoints of the population; inputting the biomarker measurement data of at least a subset of the population into a model; training the model for endpoints using the inputted biomarker measurement data to derive a representation of a correlation between a risk of developing a cancer or for cancer progression and measurements of biomarkers in at least one biological sample from an individual; wherein said biomarkers for which measurement data is obtained comprise a set or panel of markers of the invention as defined elsewhere herein.

[0059] Another aspect is a kit comprising reagents for measuring a panel of biomarkers, wherein the panel of biomarkers are defined as described in any of the preceding paragraphs, or in a figures, or in other descriptions of preferred panels of markers found herein. In some embodiments, such reagents are packaged together. In some embodiments, the reagents are primers used to amplify miRNA(s) in a panel. In some embodiments, the reagents are DNA arrays that hybridize to miRNA(s) in a panel. In some embodiments, the kit further includes an analysis program for evaluating risk of an individual developing a cancer from measurements of the group of biomarkers from at least one biological sample from the individual.

[0060] In measuring miRNA, an amplification reaction using appropriate primers as reagents may be done quantitatively, and the amount of amplified RNA can then be determined with an appropriate probe with a detectable label. The probe may be an oligonucleotide including oligos with nonnative linkages such as phosphothiolate or phosphoramidate, or a peptide nucleic acid (PNA). Nonnative bases may also be included. Thus, a kit may comprise a reagent for an assay which reagent is specific for the miRNA(s), as well as additional reagents needed in order to quantitate the results. Specific miRNA levels can also be measured using general molecular biology techniques commonly known in the art such as Northern blot, quantitative reverse

transcription polymerase chain reaction (qRT-PCR), next-generation sequencing or microarray. qRT-PCR is a more sensitive and efficient procedure detect specific messenger RNA or microRNA. The RNA sample is first reverse transcribed, the target sequences can then be amplified using thermostable DNA polymerase. The concentration of a particular RNA sequence in a sample can be determined by examining the amount of amplified products. Microarray technology allows simultaneous measurement of the concentrations of multiple RNA species. Oligonucleotides complementary to specific miRNA sequences are immobilized on solid support. The RNA in the sample is labeled with ColorMatrix™ or florescent dye. After subsequent hybridization of the labeled material to the solid support, the intensities of fluorescent for ColorMatrix™ dye remaining on the solid support determines the concentrations of specific RNA sequences in the samples. The concentration of specific miRNA species can also be determined by NanoString™ nCounter™ system which provides direct digital readout of the number of RNA molecules in the sample without the use of amplification. NanoString™ technology involves mixing the RNA sample with pairs of capture and reporter probes, tailored to each RNA sequence of interest. After hybridization and washing away excess probes, probe-bound target nucleic acids are stretched on a surface and scanned to detect fluorescent-barcodes of the reporter probes. This allows for up to 1000-plex measurement with high sensitivity and without amplification bias. Technologies such as electrochemical biosensor arrays, surface plasma resonance and other targeted capture assays can also be utilized to quantify molecular markers simultaneously by measuring changes in electro-current, light absorption, fluorescence, or enzymatic substrates reactions.

[0061] Another aspect includes methods for the prophylactic treatment of a subject at risk for a cancer according to procedures described herein. In some embodiments, the invention includes a method of prophylaxis for cancer comprising: obtaining risk score data representing a cancer risk score for an individual, wherein the cancer risk score is computed according to a method or improvement of the invention; and generating prescription treatment data representing a prescription for a treatment regimen to delay or prevent the onset of cancer to an individual identified by the cancer risk score as being at elevated risk for cancer. In some embodiments, a method of prophylaxis for cancer comprises: evaluating risk, for at least one subject, of developing a cancer according to the method or improvement of the invention; and treating a

subject identified as being at elevated risk for a cancer with a treatment regimen to delay or prevent the onset of cancer.

[0062] Another aspect includes methods for the therapeutic treatment of a subject indentified as having a cancer according to procedures described herein.

[0063] In some embodiments, methods for the prophylactic or therapeutic treatment of a subject comprise administering a drug that increases the amount of a miRNA identified herein that is produced by the body to fight a cancer. In some embodiments, methods comprise administering a drug to inhibit a miRNA or decrease the amount of a miRNA identified herein that is part of the cause of or exacerbates a cancer. In some embodiments, methods comprise both administering a drug that increases the amount of a miRNA identified herein that is produced by the body to fight a cancer, and administering a drug to inhibit a miRNA or decrease the amount of a miRNA identified herein that is part of the cause of or exacerbates a cancer. In some embodiments, the subject is treated with the drug and also receives any other standard of care treatment for the cancer. A drug can be any product including, but not limited, to: small molecules; RNAs or vectors encoding RNAs, such as miRNAs (including miRNAs identified herein), snRNAs and antisense RNAs; peptides or polypeptides; and antibody products that penetrate cells.

[0064] A further aspect is a method of evaluating the current status of a cancer in an individual comprising obtaining biomarker measurement data and evaluating the current status of a cancer in the individual based on an output from a model, wherein the biomarkers are any biomarker of the invention.

[0065] The foregoing paragraphs are not intended to define every aspect of the invention, and additional aspects are described in other sections. This entire document is intended to be related as a unified disclosure, and it should be understood that all combinations of features described herein are contemplated, even if the combination of features are not found together in the same sentence, or paragraph, or section of this document. With respect to aspects of the invention described as a genus, all individual species are individually considered separate aspects of the invention. With respect to aspects described as a range, all sub-ranges and individual values are specifically contemplated.

[0066] Aspects and embodiments of the invention are illustrated by the following non-limiting example.

Examples

[0067] A generalized framework for the inference of regulation by miRNAs (FIRM) was constructed. In Example 1, a compendium of transcriptome profiles was compiled from studies that had interrogated differential expression of genes in response to targeted perturbation of specific miRNAs (Brueckner et al 2007; Ceppi et al. 2009; Tsung-Cheng Chang et al. 2007; Fasanaro et al. 2009; Frankel et al. 2008; Georges et al. 2008; Grimson et al. 2007; Lin He et al. 2007; Hendrickson et al. 2008; Charles D Johnson et al. 2007; Karginov et al. 2007; Lee P Lim et al. 2005; Linsley et al. 2007; Malzkorn et al. 2010; Ozen et al. 2008; Sengupta et al. 2008; Tan et al. 2009; Tsai et al. 2009; Valastyan et al. 2009; Wang-Xia Wang et al. 2010; Frank Weber et al. 2006). In Example 2, using this compendium of miRNA-perturbed transcriptomes it was demonstrated that functional miRNA binding sites (8 bp of complementarity) preferentially reside in the 3' UTRs. Further, using preferential 3' UTR localization as a heuristic was demonstrated to significantly increase sensitivity and specificity of miRNA-binding site discovery by Weeder-miRvestigator. In Example 3, using the compendium of miRNA-perturbed transcriptomes the best performing algorithms were identified and integrated into a generalized framework for inference of miRNA regulatory networks. Finally, the utility of this framework was demonstrated by applying it to a set of 2,240 co-expression signatures from 46 different cancers. The original study was able to associate only four signatures to putative regulation by a known miRNA (Goodarzi et al. 2009). In contrast, using the integrated framework 1,324 signatures were explained as potential outcomes of regulation by specific miRNAs in miRBase. By applying functional enrichment and semantic similarity identified within this expansive network specific miRNAs associated with hallmarks of cancer were identified. Further, filtering gene co-expression signatures for specific hallmarks of cancer such as "tissue invasion and metastasis" generated a metastatic cancer-miRNA regulatory network of 33 miRNAs. Importantly, this revealed that a relatively small subset of miRNAs regulate multiple oncogenic processes across different cancers. Through in depth analyses of data from prior studies as well as new data from targeted miRNA-perturbation experiments, the role of miR-29 family members

in lung adenocarcinoma was validated and gene targets for regulation by the relatively unknown miR-767-5p were discovered. Example 4 relates to the use of the FIRM approach to identify other miRNAs associated with hallmarks of cancer. The discussion in Example 5 illustrates how these analyses and validations demonstrate how the cancer-miRNA regulatory network can be used to accelerate discovery of miRNA-based biomarkers and therapeutics.

Methods

De Novo Identification of 3' UTR Motifs

[0068] Sequences and RefSeq gene definition files were downloaded from the UCSC genome browser FTP site (ftp://hgdownload.cse.ucsc.edulgoldenPath/currentGenomes/Homo_sapiens). Details can be found in the Supplementary Method section below. The Weeder de novo motif detection algoirthm (Pavesi et al. 2006) was then used to identify over-represented miRNA binding sites in the 3' UTR of putatively miRNA co-regulated genes (Fan et al. 2009; Linhart et al. 2008).

miRvestigator Identification of Complementary miRNA for 3' UTR Motif

[0069] MiRvestigator employs a hidden Markov model (BIMM) to align and compute a probability describing the complementarity of a specific miRNA seed to a 3' UTR motif (Plaisier et al. 2011). The miRvestigator HIVIM is described in detail in the supplementary methods. The 3' UTR motif is first converted to a miRvestigator HIVIM and the Viterbi algorithm is used to provide a complementarity p-value by comparing the HIVIM to all potential seed sequences from miRBase. There are different models for the base-pairing of miRNA seeds to the complementary protein coding transcript binding sites as described in Figure 1 (Bartel 2009; Brennecke et al. 2005). The significance of the complementarity for a given miRNA is then calculated by exhaustively computing the complete distribution of complementarity probabilities for all potential miRNA k-mer seed sequences (where k = 6, 7 or 8 bp). The miRNA(s) with the smallest complementarity p-value are considered the most likely to regulate the set of transcripts from which the 3' UTR motif was derived.

Simulating Synthetic Motifs and 3' UTRs Sequences

[0070] Motifs were simulated based upon the reverse complement of the 8 bp seed sequence 5'- UGGAAUGU-3' for miR-1 (MIMAT0000416). The miRNA seed signal determined the percent that the seed nucleotide was given in each column of the PSSM and the remaining signal was distributed randomly to the other three nucleotides. We simulated motifs with different entropies by adding between 10 to 75 % noise at a 5 percent interval to each seed nucleotide position. A seed nucleotide signal of 25 percent is the random case as one of the other three nucleotides is likely to have a higher frequency than the seed nucleotide. Thirty sequences were simulated by randomly sampling 8mers from the distribution 8mers in 3' UTRs and inserting an instance of the reverse complement of the miR-1 seed sequence at varying proportions (0 to 100%). The reciever operating characteristic (ROC) area under the curve (AUC) was calculated using the ROCR package (Sing et al. 2005).

Assessing Bias in the Distribution of miRNA Binding Sites

[0071] Instances of Weeder motif binding sites from either full transcripts (5' UTR, coding sequence (CDS), 3' UTR) or just 3' UTRs of genes matching to the perturbed miRNA were identified for the compendium of experimentally determined miRNA target gene sets. Significance for the normalized counts per 1 Kbp was calculated for the distribution of matches in each gene region and for each experimentally determined miRNA target gene set by comparison to 1,000,000 randomly sampled gene sets of the same size. A combined p-value was computed by using Stouffer's Z-score method. The ROCR package was again used to compute ROC curves and ROC AUCs for each method. The pROC package was used to calculate the 95% confidence interval and pairwise p-values to determine if there is a significant difference between the ROC curves of the methods (Robin et al. 2011).

Identifying Enriched Predicted miRNA Binding Sites

[0072] The PITA, TargetScan, miRanda and miRSVR miRNA target gene prediction databases were downloaded from their respective web sites. The significance for enrichment of genes with a predicted miRNA binding site was calculated using the hypergeometric p-value for

each miRNA. The miRNA(s) with the smallest hypergeometric p-value are considered the most likely to regulate the signature. Multiple hypothesis testing correction was applied using the BenjaminHochberg approach for controlling the false discovery rate (FDR) equal to or less than 0.001 (FDR < 0.001), and requiring at least 10% of the genes to be targeted by the specific miRNA.

Selecting Optimal Methods to Infer miRNA Regulatory Network

[0073] Each inference method was applied to the compendium of 50 miRNA target gene sets (Supplementary Table 2). The ROCR and pROC packages in R were used to compute ROC curves, ROC AUC and p-values between ROC curves.

miR2Disease Overlap

[0074] First, we created a mapping between the 46 cancer subtypes and the disease classifications in the manually curated miR2Disease database. Instances were then identified where an inferred miRNA regulator was previously observed to be dysregulated or causal in the same cancer type. Significance of the enrichment of overlap between miR2Disease and the cancer-miRNA regulatory network was calculated using a hypergeometric p-value in R.

Functional Enrichment and Semantic Similarity to Hallmarks of Cancer

[0075] Enrichment of GO biological process terms in each cancer co-expression signature were assessed using the topG0 package in R (Alexa et al. 2006) by computing a hypergeometric pvalue with Benjamini-Hochberg correction (FDR < 0.05). All GO terms passing the significance threshold for a co-expression signature were included in downstream analyses. Semantic similarity between a significantly enriched GO term and each hallmark of cancer was assessed by using the Jiang and Conrath similarity measure as implemented in the R package GOSim (Fröhlich et al. 2007). For each co-expression signature the similarity scores between its enriched GO terms and the GO terms for each hallmark of cancer was computed, and the maximum for each hallmark was returned. Similarity scores gyeater than or equal to 0.8 were considered sufficient for inferring a link between the enriched GO terms for a co-expression

signature and a hallmark of cancer. Random sampling of 1,000 GO terms and computing the Jiang and Conrath scores demonstrated that a similarity score greater than or equal to 0.8 resulted in a permuted p-value < 5.1×10^{-4}.

miR-29 Family Co-Expression Signature Overlaps

[0076] A hypergeometric p-value was used to test for significant overlap between the lung adenocarcinoma signature genes and the genes up-regulated by in vitro due to knock-down of miR-29 family milMAs.

Luciferase Reporter Assay

[0077] The 3' UTRs for genes of interest were amplified from cDNA (primers in Supplementary Table 12) and cloned into the pmirGLO Dual-Luciferase miRNA target expression vector behind firefly luciferase. The sequence and orientation for all 3' UTRs inserted into pmirGLO were verified by sequencing. HEK293 cells were plated at a density of 100,000 cells per well and cotransfected in 96 well plates 24 hours after plating. Cells were transfected using DharmaFect DUO (Dharmacon) with 75 ng of the 3' UTR fused reporter vector and either 50 nM of miR-29a, miR-29b, miR-29c, miR-767-5p or cel-miR-67 (negative control) miRNA mimic (Dharmacon). Twenty-four hours after transfection firefly and renilla luciferase activities were measured using the Dual-Glo assay (Promega) on a Synergy 114 hybrid multi-mode microplate reader (BioTek) per manufacturer recommendations. Experiments were conducted in biological triplicates. Luminescence measurements were first background subtracted using a vehicle only control, and then firefly luminescence was normalized to renilla luminescence. Experimental comparisons are made to vector only controls. Student's T-test and fold-changes were calculated using standard methods. MiRNA binding sites for MMP2 and SPARC were deleted using recombinant PCR (primers in Supplementary Table 12). Dose response curves for COL3A1 and SPARC were conducted using 50nM, 5nM, 500pM, 50pM and 5pM miRNA mimic concentrations.

Supplementary Methods

De Novo Identification of 3' UTR Motifs

[0078] Sequences and RefSeq gene definition files were downloaded from the UCSC genome browser FTP site (ftp://hgdownload.cse.ucsc.edu/goldenPath/currentGenomes/Homo_sapiens). To reduce overlap the set of RefSeq genes that mapped to an Entrez gene were collapsed and the regulatory regions were merged to include all potential regulatory sequences. The RefSeq to Entrez gene mapping was downloaded from NCBI Gene FTP site (ftp://ftp.ncbi.nih.gov/gene/DATA/gene2refseq.gz). To provide a 3' untranslated region (UTR) for as many genes as possible we set the minimum 3' UTR length to the median annotated 3' UTR length of 844 bp (Kertesz et al. 2007). The same approach was used for the 5' UTR with a minimum 5' UTR length of 183 bp. The coding sequences were acquired as they were annotated, and were not filtered in anyway. All annotated introns were removed as they are present only transiently in expressed transcripts. The Weeder *de novo* motif detection algoirthm (Pavesi et al. 2006) was then used to identify over-represented miRNA binding sites in the 3' UTR of putatively miRNA co-regulated genes (Fan et al. 2009; Linhart et al. 2008).

miRvestigator Hidden Markov Model (HMM) from Position Specific Scoring Matrix

[0079] Two general problems are faced when comparing an miRNA seed which is a string of nucleotides 8 base pairs long (and may be complementary for 6, 7 or 8 base pairs) to a PSSM (a matrix of 4 nucleotide probabilities that must sum to 1 in a column by a variable number of columns). First the miRNA seed sequence must be aligned to the PSSM, and second the certainty of the match between the miRNA seed and the PSSM must be computed. The Viterbi algorithm identifies the optimal path through an HMM for an observed sequence of events, and there can solve both of these problems simultaneously by turning the PSSM into an Hidden Markov Model (HMM) and the miRNA seed nucleotide sequence into the observed sequence of events. The overall structure of the miRvestigator HMM is described in Figure 5. Each column n of the PSSM is converted into a hidden state $PSSM_n$ which emits the nucleotides A, G, C and T with the probability of each nucleotide in the PSSM column. There are also two non-matching states NM_1 and NM_2, which are used to buffer entry and exit respectively to and from the PSSM. The non-matching states emit nucleotides at a random frequency of 0.25 for each nucleotide, thus not

favoring any nucleotide over another. This buffering allows for non-matching states at the start and end of the aligned seed to the PSSM, and do not allow for gapping. From the start state the transmission probability is evenly distributed to each $PSSM_n$ state and the NM_1 state (1/(length of PSSM + 1)). This allows the alignment to start with equal probability at any point in the miRvestigator HMM. If the alignment starts with NM_1 the transition probability back to NM_1 is 0.01 and the transition to the next PSSM column state is 0.99. The transition between $PSSM_n$ column state and $PSSM_{n+1}$ column state is 0.99, and 0.01 to the end buffering NM_2 non-matching state. The last $PSSM_N$ state transitions to the end state with a probability of 1. The NM_2 non-matching state transitions to itself and the end state with a probability of 1, therefore when an alignment transitions to the NM_2 state it stays there till it transitions to the end state. The emitted observations are the miRNA seed sequence being fed into the miRvestigator HMM. The output from the Viterbi algorithm is the optimal state path (a path made up of the $PSSM_n$, NM_1, NM_2, $WOBBLE_n$ states) through the mirvestigator HMM given the miRNA seed nucleotide sequence and a probability for this optimal alignment.

Significance of the Viterbi Optimal State Path Probability

[0080] The significance of a the Viterbi optimal state path probability for a given miRNA is then calculated by exhaustively computing the complete distribution of Viterbi optimal state path probabilities for all potential miRNA k-mer seed sequences (where k = 6, 7 or 8 base pairs). Only k-mers which are present in the regulatory regions of the transcripts being investigated are included in the exhaustive computation. The complete distribution of Viterbi probabilities is then used to provide a p-value for each miRBase miRNA seed sequence by counting the number of k-mers with a Viterbi optimal state path probability greater than or equal to the miRNA seed of interest divided by the total number of potential k-mers. This provides a p-value for the alignment and match for each miRNA seed sequences to a PSSM identified from cis-regulatory regions. The miRNAs are then ranked based upon the Viterbi optimal state path p-values and the miRNA(s) with the smallest p-values is the most likely to regulate the set of transcripts.

Modeling Wobble Base-Pairing with miRvestigator HMM

[0081] Wobble base-pairing was included in the miRvestigator HMM for the case where a G=U wobble base-pairing defines the miRNA to protein coding transcript complementarity (Baek et al. 2008; Guo et al. 2010; Hendrickson et al. 2009; Selbach et al. 2008). The individual miRNA to protein coding transcript G=U wobble base-pairing is a problem that will need to be solved at the level of *de novo* motif identification. A wobble base-pairing state is added to the model only if a G and/or U have a nucleotide seed frequency of 25%. For the case where the G seed nucleotide frequency is greater than 25% and the U seed nucleotide frequency is below 25% the wobble state emits the nucleotide A with a probability of 1. For the case where the U seed nucleotide frequency is greater than 25% and the G seed nucleotide frequency is below 25% the wobble state emits the nucleotide C with a probability of 1. For the case where both the G and U seed nucleotide frequencies are greater than 25% the wobble state emits A and C with a probability of 0.5. When a wobble state is added the transition probability from the $PSSM_n$ state to the $WOBBLE_{n+1}$ state is set to 0.19, the transition probability from the $PSSM_n$ state to the $PSSM_{n+1}$ state is set to 0.8, and the transition probability from the $PSSM_n$ state to the NM_2 state remains at 0.01. The transition probability from the wobble state $WOBBLE_n$ to $PSSM_{n+1}$ is set to 1, which precludes a wobble base-pairing at the terminus of a state path for either transitioning to the NM_2 state or to the end state.

Example 1

Inferring miRNA Mediated Regulation through Analysis of Co-Expressed Genes

[0082] The inference of a miRNA regulatory network can be accomplished in two ways. The first approach requires prior knowledge of genome-wide binding site locations for known miRNAs (Sethupathy et al. 2006). There are many algorithms that utilize this target enrichment strategy for inference of miRNA regulatory networks (Betel et al. 2010; Grimson et al. 2007; Linhart et al. 2008). The second approach performs the de novo discovery of conserved putative miRNA-binding sites within the 3' UTRs of co-expressed genes. Weeder is one such algorithm that accurately discovers conserved cis-regulatory elements in 3' UTRs (Fan et al. 2009; Linhart et al. 2008). The information of conserved cis-regulatory sequences can then be utilized for pattern matching to seed sequences of known miRNAs in miRBase. We had previously reported a web framework using the miRvestigator algorithm for performing such pattern matching

(Plaisier et al. 2011). Here, we present results on the performance of Weeder and miRvestigator applied to simulated datasets. We then utilize a compendium of experimentally generated data from targeted miRNA perturbation studies to demonstrate that restricting Weeder's search space to 3' UTRs sequences increases the sensitivity and specificity of Weeder-miRvestigator. Finally, we use the compendium to compare the performance of algorithms for the inference of miRNA regulation and combine the optimal methods into an integrated framework.

Weeder-miRvestigator

[0083] We constructed a framework for accurate inference of miRNA-mediated regulation using as input just the 3' UTR sequences of co-expressed genes by coupling Weeder de novo motif detection and miRvestigator for subsequent association to known miRNA seeds (Figure 1). We tested the sensitivity and specificity of miRvestigator independent of Weeder using synthetic 3' UTR motifs. Starting with the seed sequence of miR-1 we computationally generated a set of synthetic motifs with increasing entropy. Using these synthetic motifs we computed the receiver operating characteristic (ROC) area under the curve (AUC) across a range of motif entropies. The ROC AUC is a standard approach to evaluate the sensitivity and specificity of classification or feature selection by an algorithm. This statistical analysis demonstrated that the miRvestigator scoring function (complementarity p-value metric) outperforms regular expression in both sensitivity and specificity for higher entropies (Figure 2A, Supplementary Methods). Using the same approach we tested the performance of the integrated Weeder-miRvestigator framework in recovering the miR-1 seed sequence from a set of synthetic sequences into which it was inserted at a known frequency (0 to 100%). The results showed that by integrating the two algorithms we can sensitively and specifically recover the complementary miRNA seed (ROC AUC —0.9) even when it is present in just 40% of the query sequences (Figure 2B). We conclude from these experiments that the integrated Weeder-miRvestigator approach is a sensitive and specific method for inference of miRNA mediated regulation from 3' UTRs of coregulated genes.

Example 2

Restricting Searches to 3' UTR Increases Sensitivity and Specificity of WeedermiRvestigator

[0084] MiRNA target prediction algorithms (including PITA, TargetScan, miRANDA, and miRSVR) improved their performance by restricting searches to the 3' UTRs of transcripts where it has been demonstrated statistically that functional miRNA binding sites are preferentially located (Grimson et al. 2007). To determine the validity of this heuristic we investigated the distribution of functional miRNA binding sites within co-regulated transcripts by applying Weeder-miRvestigator to full transcript sequences (5' UTR, coding sequence (CDS) and 3' UTR). First, we compiled a compendium of miRNA target gene sets from 50 transcriptomes that were generated by perturbing specific miRNAs (22 independent studies, 41 unique mIRNAs, Supplementary Table 2). The analysis was then restricted to target gene sets in the compendium where Weeder-miRvestigator was able to identify the corresponding perturbed miRNA (27 of 50 sets). The 3' UTRs were significantly enriched for miRNA-binding sites with 8 bp complementarity to the miRNA seed sequence (p-value = 3.2 x 10-5, Figure 2C and D). Remarkably, none of the other transcript regions showed significant enrichment of miRNA-binding sites (p-value > 1.5 x10-4, p-value corrected for 27 miRNAs x 3 transcript regions x 4 instance complementarities to the miRNA seed (All, 8 bp, 7bp and 6 bp complementarities)). This unbiased analysis has independently confirmed the observation of Grimson, et al. that functional miRNA binding sites preferentially reside in the 3' UTRs. Next, we compared the sensitivity and specificity of searching full transcripts versus restricting the search space to the 3' UTRs by computing ROC curves for Weeder-miRvestigator. Restricting the search space to 3'UTRs (ROC AUC = 0.96) significantly increased the sensitivity and specificity of miRNA-binding site discovery by Weeder (p-value = 1.8 x 10-2) relative to corresponding searches on full transcript sequences (ROC AUC = 0.80). Therefore, all subsequent miRNA-binding site searches with Weeder were restricted to the 3' UTR of putatively co-regulated gene sets.

Example 3

Selecting Optimal Methods to Infer a Comprehensive miRNA Regulatory Network

[0085] While multiple hypotheses testing correction procedures can reduce the number of false positives (incorrectly inferred regulatory interactions), it also results in a higher false negative rate (i.e. missing regulatory interactions). Therefore, we hypothesized that integrating results from multiple inference methods would construct a more comprehensive cancer-miRNA

regulatory network as each method identifies a different subset of the miRNA regulatory network. To assess this we first identified the best performing network inference methods by computing a ROC curve from the predictions of applying each method to the compendium of experimentally determined miRNA target gene sets. In addition to Weeder-miRvestigator, we tested four additional algorithms that infer miRNA regulation through enrichment of predicted binding sites in 3' UTRs of co-expressed genes: PITA, TargetScan, miRanda and miRSVR. This comparative analysis demonstrated that Weeder-miRvestigator, PITA and TargetScan are the best performing algorithms for inference of miRNA mediated regulation (Figure 3A; ROC AUC ± 95% confidence interval = 0.96 ± 0.03, 0.94 ± 0.04 and 0.90 ± 0.05, respectively; Supplementary Table 3). Using cancer as an example, we explain in subsequent sections how the integration of these three best performing algorithms provides a generalizable framework for inference of regulation by miRNAs (FIRM) to infer comprehensive miRNA regulatory networks for complex diseases.

Constructing a Cancer-miRNA Regulatory Network Using FIRM

[0086] A previous study published by Goodarzi, et al. analyzed transcriptome profiles from 46 different cancers and identified 2,240 cancer-subtype characteristic co-expression signatures. Interestingly, the authors were able to associate only four of these signatures to regulation by a specific miRNA in miRBase (Goodarzi et al. 2009). We analyzed these co-expression signatures using FIRM with the intent of constructing a comprehensive cancer-miRNA regulatory network. Weeder-miRvestigator, PITA and TargetScan predicted miRNA regulators for 119, 662 and 1,029 co-expression signatures, respectively (Weeder-miRvestigator criteria: perfect 7-mer or 8-mer match, FDR < 0.05, Supplementary Table 4; PITA and TargetScan criteria: FDR < 0.001 and enrichment > 10%, Supplementary Tables 5 and 6, respectively). There was significant overlap in pairwise comparisons of predictions for the same cancer (Weeder-miRvestigator vs. PITA = 0.045, Weeder-miRvestigator vs. TargetScan = 0.019 and PITA vs. TargetScan = 7.4×10^{-22}; Figure 3B). While this significant overlap demonstrates concordance across the methods, a large fraction of the inferred miRNA regulation was unique to each method. This is not surprising given the high false negative rates of these methods and the different principles they use for identifying miRNA mediated regulation. In other words, predictions made by the three

algorithms are mostly complementary. Combining results from all three methods in FIRM resulted in the construction of a comprehensive miRNA regulatory network that links 1,324 co-expression signatures to post-transcriptional regulation mediated by 608 miRNAs (Supplementary Table 7). Within this network 443 co-expression signatures were associated to miRNAs by more than one algorithm. Twenty co-expression signatures were independently associated to the same miRNA by two different algorithms (Supplementary Table 7). Interestingly, the only prediction that was consistent across all algorithms was that the miR-29 family regulates genes whose co-expression is observed in lung adenocarcinoma. In the following sections we investigate which miRNAs regulate oncogenic processes and the degree to which this network recapitulates known dysregulation of miRNAs in miR2Disease.

The Cancer-miRNA Network Recapitulates miR2Disease and Discovers miRNAs that are Causal in Cancers

[0087] We investigated whether the cancer-miRNA regulatory network was able to recapitulate miRNAs that are both dysregulated in tumors and causally linked to specific oncogenic processes. We performed this analysis by comparing the cancer-miRNA network to entries in miR2Disease, a manually curated database of miRNAs that are dysregulated and causally associated with 163 human diseases, including the 46 cancers in our study. Remarkably, there was significant enrichment of known dysregulated miRNAs in the cancer-miRNA network. Altogether 191 putative miRNA regulators in our inferred network were previously shown to be dysregulated in patient tumors of the same cancer type (p-value = 2.1×10^{-91}, Supplementary Table 7). Importantly, there were significant overlaps with predictions by each of the three algorithms (Weeder-miRvestigator p-value = 0.029, PITA p-value = 7.4×10^{-23} and TargetScan p-value = 1.1×10^{-32}). This result further demonstrates the value of combining the three algorithms in FIRM to infer a more comprehensive miRNA regulatory network.

[0088] Using miR2Disease, we further investigated whether the dysregulated miRNAs predicted by FIRM were also known to causally influence cancer phenotypes. It was striking that over a third of the putative miRNA regulators that were dysregulated were also known to causally affect cancer phenotypes (66 miRNAs, p-value = 1.4×10^{-34}, Supplementary Table 7). Among these, three of the most highly connected miRNAs (miR-29b, miR-200b and miR-296-5p) were

dysregulated in at least 8 cancers and causal in at least 4 cancers. These results demonstrate that the network inferred by FIRM had captured disease-relevant miRNA regulation of cancer. It also suggests that the network contains novel testable hypotheses regarding the role of miRNAs in regulation of cancer beyond what is documented in miR2Disease. A key next step is the prioritization of these novel testable hypotheses by integrating orthogonal information.

Identifying miRNAs Regulating the Hallmarks of Cancer

[0089] Associating a miRNA to a co-expression signature in patient tumors does not by itself implicate it in the regulation of key oncogenic processes. However, the network enables the discovery of cancer-relevant miRNAs through analysis of target genes for functional enrichment of one or more hallmarks of cancer (Douglas Hanahan and Robert A Weinberg 2011; D Hanahan and R A Weinberg 2000): 1) "self sufficiency in growth signals", 2) "insensitivity to antigrowth signals", 3) "evading apoptosis", 4) "limitless replicative potential", 5) "sustained angiogenesis", 6) "tissue invasion and metastasis", 7) "genome instability and mutation", 8) "tumor promoting inflammation", 9) "reprogramming energy metabolism", and 10) "evading immune detection". We analyzed genes within each of the co-expression signatures for hallmarks of cancer through their associations to specific Gene Ontology (GO) biological process terms.

[0090] In total 627 of the 2,240 co-expression signatures were significantly enriched for GO terms (FDR < 0.05), and 314 were associated with a putative miRNA in the regulatory network (Supplementary Table 8). To further filter this set and discover specific co-expression signatures associated with oncogenesis, we manually curated the lowest level GO terms for each of the 10 hallmarks of cancer (Supplementary Table 9), e.g. the hallmark of cancer "Evading Apoptosis" is associated with the GO term "Positive Regulation of Anti-Apoptosis". Based on semantic similarity between GO terms we then associated 158 of the 314 putatively miRNA regulated co-expression signatures to one or more hallmarks of cancer (Jiang-Conrath Semantic Similarity Score > 0.8, permuted p-value < 5.1 x 10-4, Supplementary Table 8).

[0091] Metastatic potential is one of the defining features of malignant tumors making putative miRNA-regulators of "tissue invasion and metastasis" excellent biomarker candidates. As an initial filter we selected 85 of the 158 "hallmarks of cancer"-associated co-expression signatures that had significant overlap (p-value < 0.05) between GO annotated- and putatively miRNAregulated

genes. Next, we extracted from these 85 co-expression signatures a subnetwork of 33 miRNAs and their predicted regulatory influences on 47 co-expression signatures associated with "tissue invasion and metastasis" — i.e. the metastatic cancer miRNA-regulatory network (Figure 4A, Supplementary Table 10). Notably, at least three miRNAs, miR-29a/b/c, miR199a/b-3p and miR-222 are known to be differentially expressed in the cancer type predicted by this subnetwork. While some of these prior studies had independently revealed phenotypic consequences of perturbing the miR-29 family on tumor invasiveness, FIRM proposes a mechanistic explanation by predicting that these miRNAs directly regulate specific genes involved in "tissue invasion and metastasis". We have performed detailed experimental validations demonstrating the regulation of metastasis associated genes by the miR-29 miRNAs and results of these experiments are presented in a later section.

A Relatively Small Subset of miRNAs Regulate Oncogenic Processes in Diverse Cancers

[0092] Regulation of the same oncogenic process by the same miRNA across different cancers reinforces the likelihood that the inferred miRNA regulation is real. In the cancer-miRNA regulatory network the number of co-expression signatures regulated by a miRNA follows a power-law distribution ($y = 2.1 \pm 0.0$; goodness of fit p-value $< 1.0 \times 10\text{-}4$) with each miRNA predicted to regulate on average 3.3 ± 3.3 co-expression signatures (Barabasi and Albert 1999). This suggests that some miRNAs regulate common biological processes across multiple cancers. Therefore, we filtered the cancer-miRNA regulatory network for miRNAs predicted to regulate genes within two or more co-expression signatures enriched for the same GO term(s). This analysis recovered 24 miRNAs that were predicted to combinatorially regulate 74 non-redundant co-expression signatures. Again, using semantic similarity to the hallmarks of cancer we discovered a subnetwork of 38 co-expression signatures from 30 cancer types that are regulated by 13 highly connected miRNAs (miR-29a/b/c, miR-130a, miR-296-5p, miR-338-5p, miR-369- 5p, miR-656, miR-760, miR-767-5p, miR-890, miR-939, miR-1275, miR-1276 and miR-1291) — i.e. a cross-cancer-miRNA regulatory network (Figure 4B, Supplementary Table 11). Each of the 13 miRNAs putatively regulates the same oncogenic processes across two or more cancers (Figure 4B). We have already discussed role of miR-29 family in regulation of "tissue invasion and metastasis". Further, reversing down regulation of miR-130a in metastatic prostate cancer cell lines has been previously demonstrated to increase apoptosis (Boll et al.

2012). This independently validates the cancer-miRNA regulatory network predicted effect of miR-130a on "evading apoptosis". Finally, the predicted role of miR-296-5p in "activating invasion and metastasis" has also been validated by an independent study that discovered down-regulation of this miRNA in metastases relative to primary tumors (Vaira et al. 2011). Notably, 5 of the 13 miRNAs (hsa-miR-29a/b/c, miR-296-5p, miR-760, miR-767-5p and miR-1276) were inferred for co-expression signatures where a significant fraction of genes are direct miRNA targets and have GO annotated functions in oncogenic processes (Figure 4A). It is noteworthy that such filtering is too stringent and would have excluded known cancer-related miRNAs such as miR-130a. Therefore, the integration of co-expression, shared miRNA-binding sites, and GO annotations, together overcome the incompleteness and uncertainties across all of these orthogonal datasets to discover novel biologically-meaningful regulation by miRNAs. Thus, we contemplate that all of the 13 miRNAs are useful as general purpose cancer biomarkers.

Extracellular Matrix Genes Co-Regulated by miR-29 Family in Lung Adenocarcinoma

[0093] In both the metastatic and cross-cancer-miRNA regulatory network, the miR-29 family (miR-29a, miR-29b and miR-29c) was predicted to be responsible for 8 co-expression signatures, five of which were associated with four hallmarks of cancer, viz. "tissue invasion and metastasis", "sustained angiogenesis", "insensitivity to anti-growth signals" and "self sufficiency in growth signals" (Figure 4A and 4B). Two of these co-expression signatures were from lung adenocarcinoma patient tumors, "AD Lung Beer 31" and "AD Lung Bhattacharjee 59" (Bhattacharjee et al. 2001; David G Beer et al. 2002). The miR-29 family was associated to the co-expression signature from "AD Lung Beer 31" by all three inference methods; on the other hand, only PITA picked miR-29 as the putative regulator responsible for the co-expression signature from "AD Lung Bhattacharjee 59".

[0094] Two independent studies demonstrated that over-expression of miR-29a reduces the invasiveness of lung carcinoma cell lines (Muniyappa et al. 2009) and knock-down of miR-29b increases invasiveness (Rothschild et al. 2012). Serving as independent validation of the network predicted role of miR-29 family as regulators of "activating invasion and metastasis" in lung cancer. The direction of this association is concordant with a different set of studies which independently discovered that miR-29 family members were down-regulated in lung

adenocarcinomas relative to normal lung (Landi et al. 2010; Yanaihara et al. 2006). Taken together these orthogonal sets of results strongly suggest that down-regulation of the miR-29 family increases tumor invasiveness thereby decreasing patient survival (Rothschild et al. 2012).

[0095] A major strength of the cancer-miRNA regulatory network is that it identifies specific genes that are directly regulated by a specific miRNA. For instance, miR-29 family is implicated in modulating metastatic potential of patient tumors because it is predicted to directly regulate 79 and 64 genes in two co-expression signatures -- "AD Lung Beer 31" and "AD Lung Bhatacharjee 59". Notably, the two co-expression signatures have a significant overlap of 32 genes (p-value = 2.1×10^{-46}). We assessed whether these genes were indeed targets for regulation by the miR-29 family by investigating if they were differentially regulated when endogenous miRNAs of the miR29 family were knocked-down in a fetal lung fibroblast cell line (Cushing et al. 2011). Sixteen genes from "AD Lung Beer 31", and 9 genes from "AD Lung Bhattacharjee 59" were up-regulated in response to knock-down of the three miR-29 family members (p-values = 6.1×10^{-14} and 1.5×10^{-8}, respectively). Altogether 17 genes from both co-expression signatures were up-regulated in the Cushing et al. study (Table 1), and notably all of these genes contain one or more miR-29 family binding sites in their 3' UTRs (Table 1).

[0096] Differential regulation of the seventeen genes in the Cushing et al. study does not demonstrate direct regulation by miR29 family miRNAs through physical interaction with predicted binding sites within 3' UTRs of these genes. However, it is possible to demonstrate direct miRNA regulation by fusing the 3' UTR of each putative target gene to a luciferase reporter, selectively deleting specific binding sites, and performing luciferase assays in cell lines that are co-transfected with the wildtype or mutated reporter-fusion construct and the synthetic miRNA mimic (at different concentrations) (Lal et al. 2011). We selected a total of 8 genes *(COL3A1 , COL4A1, COL4A2, FBN1 , PDGFRB, SERP1NH1,* and *SPARC* —see Table 1) to investigate using the aforementioned luciferase assay whether they were direct targets for regulation by miR29 family miRNAs (miR-29a, miR-29b and miR-29c). These genes were selected because they were predicted by the FIRM methods to (i) be in co-expression signatures regulated by the miR-29 family, (ii) contain miR-29 family binding sites, (iii) have functional association to "tissue invasion and metastasis" (e.g. collagens, metallo-proteases, etc.), and (iv) be up-regulated by miR-29 family knock-down in lung fibroblasts in the Cushing et al. study.

[0097] First, we used qRT-PCR to demonstrate that the miR-29a mimic significantly down regulates transcript levels of luciferase when it is fused to 3' UTRs of either *COL3 A1* or *SPARC (COL3A1* p-value = 3.2 x10^{-2}, fold-change = -3.9; *SPARC* p-value = 4.2 x 10^{-2}, fold-change = - 1.7). This validates our central thesis that perturbing a miRNA results in observable changes in transcript levels of the predicted target transcripts with corresponding miRNA-binding sites in the 3' UTR. We then assayed the effects of all three miR-29 mimics (miR-29a, miR-29b and miR-29c) on normalized luciferase activity relative to a control (i.e. no miRNA mimic). Significant reduction in normalized luciferase expression (p-value < 0.05) was observed for 7 of the 8 genes tested (Table 2), and there was no consequence when luciferase was fused to the negative control 3' UTR from *HIST1H2AC* (miR-29a: p-value = 0.99, fold-change = 1.2). Deletion of all the putative miR-29 binding sites from the 3' UTRs of *MMP2* and *SPARC* abolished down regulation of luciferase activity by the miR-29 family mimics, conclusively demonstrating that miR-29 directly regulates abundance of predicted target transcripts via binding to the predicted 3' UTR sites (MMP2-deletion: 1 site deleted, fold-change = 1.1, p-value = 8.6 x 10^{-1}; SPARC-deletion: 2 sites deleted, fold-change = 1.4, p-value = 1.0; Figure 5A).

[0098] Finally, titration of the miR-29a mimic demonstrated it down regulates *COL3A1* and *SPARC* in a dose-dependent manner (Figure 5B).

miR-767-5p Regulates a Collagen-Specific Subset of miR-29 Target Genes

[0099] Analysis of predicted regulation by miR-29 demonstrates that the cancer-miRNA regulatory network makes accurate predictions that can be validated experimentally through a combination of miRNA perturbation and targeted mutagenesis of specific binding sites in the 3' UTRs. We conducted further experimental analysis of predicted regulation by miR-767-5p to assess the specificity of using FIRM inferences to identify genes regulated by a miRNA. We selected miR-767-5p because this miRNA partially shares the miR-29 seed sequence. Specifically, both the metastatic and cross cancer-miRNA regulatory networks contain the PITA predictions that miR-767-5p regulates genes associated with four hallmarks of cancer ("insensitivity to antigrowth signals", "self sufficiency in growth signals", "sustained angiogenesis" and "tissue invasion and metastasis") from four co-expression signatures (AD Ovarian Welsh 20, HSCC Head-Neck Chung 1, and SQ Bhattacharjee 18 and 44) across 3 cancer types (Bhattacharjee et al. 2001; Chung et al. 2004; Welsh et al. 2001).

[00100] Unlike the miR-29 family, miR-767-5p has not been previously associated with any oncogenic processes. Therefore, we first evaluated whether there is any evidence for expression of miR-767-5p in head and neck, lung, or ovarian cancers to support the prediction by the cancer-miRNA regulatory network. A scan of miRNA-seq data from The Cancer Genome Atlas (TCGA) shows that miR-767-5p is indeed expressed in lung squamous cell carcinoma, head and neck squamous cell carcinoma, and ovarian serous cystadenocarcinoma (data not shown). Additionally, the MirZ miRNA expression atlas identifies miR-767-5p expression in astrocytoma, osteosarcoma and teratocarcinoma cell lines (Hausser et al. 2009). Future studies with the completed TCGA data will be able to determine whether miR-767-5p is differentially expressed between tumor and normal and whether miR-767-5p is predictive of patient survival. Based on this evidence we proceeded to test the effect of perturbing miR-767-5p on transcript abundance of the PITA predicted targets. Over-expression of miR-767-5p using a miRNA mimic led to significant reduction (p-value < 0.05) in the normalized luciferase activity for 3 of the 4 predicted miRNA target genes (COL3A1, COL5A2, COL10A1 and LOX; Table 2).

[00101] In addition to validating a novel oncogenesis-associated miRNA, the aforementioned rationale for selecting miR-767-5p was that it also shares 6 bp of similarity to the 8 bp seed region of the miR-29 family leading to a significant overlap between their predicted target genes (65% for PITA and 35% for TargetScan). This may explain why miR-767-5p and the miR-29 family are both predicted regulators of the HSCC Head-Neck Chung 1 co-expression signature. However, the two seed sequences have little similarity in the 3' region (Figure 15). The partial overlap in the miRNA seeds and their predicted targets provides an opportunity to test the specificity of using FIRM inferences to identify genes regulated by a miRNA. First, we tested all 11 3' UTR luciferase fusions by over-expressing miR-29a, miR-29b, and miR-29c and miR-767-5p. Of the 22 regulatory interactions tested (Table 2) we observed only 1 false positive (miR-767-5p did not affect LOXtranscript levels) and 2 false negatives (the cancer-miRNA network did not predict the experimentally observed regulation of COL4A2 by miR-767-5p, and regulation of COL10,41 by the miR-29 family). Thus the false discovery rate was 7.1% -a significant improvement over previously published estimates (Sethupathy et al. 2006). Consistent with the cancer-miRNA network predictions, of the 11 genes that were tested only the five collagens were significantly regulated (p-value < 0.05) by both miR-767-5p and miR-29 family. Despite sharing 6 bp of similarity in the seed sequence, miR-767-5p had no effect on

transcript abundance of the other six bona fide miR-29 family targets to underscore the specificity of the cancer-miRNA regulatory network predictions filtered through FIRM.

Example 4

[00102] The FIRM approach was used to identify miRNAs regulating a number of hallmarks of cancer as described above as well as additional hallmarks of cancer. The miRNAs associated with additional hallmarks of cancer are set out in Figure 14 along with their particular tissues and cancer types.

Example 5

Discussion

[00103] As genome-wide analyses for discovery of molecular signatures of complex disease becomes routine it is imperative that these data are integrated into predictive and actionable models that drive targeted hypothesis-driven discovery of diagnostics, prognostics and, ultimately, therapeutics. The systems integration of disparate kinds of information boosts signal to noise enabling the discovery of biologically meaningful patterns as we have demonstrated here through inference of a cancer miRNA regulatory network. The success of the FIRM approach depended not only on integration of three best performing algorithms that use complementary strategies for inference of miRNA regulatory networks, but also on the integration of disparate data types such as gene co-expression, and distributions of both known and de novo discovered miRNA binding sites (Figure 6). This is a remarkable achievement given that the information for miRNA binding and regulation exists in a contiguous stretch of merely 6-8 nucleotides located within the expansive 3' UTRs of >20,000 genes in a genome of 6 billion bps.

[00104] Further, we have also demonstrated that by incorporating the mechanistic basis of miRNA regulation, *i.e.* binding to complementary sequences in the 3' UTRs of co-expressed genes, the network can be more easily assayed with targeted experimental and functional evaluation. In doing so we were able to demonstrate that the cancer-miRNA regulatory network had captured a significant proportion of known miRNA dysregulation and their causal influence

on cancer phenotypes. In fact the network also made specific experimentally testable novel predictions regarding the role of 158 miRNAs in mediating co-expression of genes associated with oncogenic processes. Among these were 33 miRNAs that were predicted to regulate metastatic processes including a core set of 13 miRNAs that were predicted to regulate the same set of oncogenic processes across different cancer types. Our focused investigation of the role of miR-29 family in promoting metastasis in lung adenocarcinoma demonstrates how these network predictions can drive discovery of new biology.

[00105] As a generalizable framework for inferring miRNA mediated regulation, FIRM will also benefit from simultaneous measurement of changes in miRNA and mRNA levels in patient tumors. However, negative correlation with gene expression changes alone does not accurately identify bona fide targets for the miRNA (Tsunglin Liu et al. 2007; Ritchie et al. 2009; Liang Wang et al. 2009). Thus clustering of the gene expression data and subsequent analysis with FIRM will be necessary for the inference of accurate miRNA regulatory networks. Correlation with the putative miRNA regulators could be used post hoc as a secondary screen to filter the predicted list of targets, and prioritize miRNAs for further experimental validation. We have demonstrated the power of this approach by performing targeted experiments to test predictions from the cancer-miRNA regulatory network. These experiments have discovered novel regulation of specific oncogenesis-associated genes by miRNAs that are shared across different cancer types. Importantly, in addition to providing mechanistic linkages between a known tumor suppressor miRNA (miR-29) and regulation of specific genes with metastatic potential, we have also discovered a novel oncogenesis associated miRNA (miR-767-5p). The choice of miRNAs for validating network predictions has also helped to highlight the sensitivity and specificity of FIRM performance. As such, we have not only demonstrated the extraordinary value of the cancer-miRNA network in cancer research; but also the power of FIRM to construct from easily generated gene expression data similar miRNA regulatory networks for any disease.

We contemplate integrating inference of miRNA regulation into the clustering procedure. This will act as a constraint for accurate discovery of genes co-regulated by the same miRNA. The cMonkey biclustering algorithm already incorporates de novo discovery of transcription factor binding sites within gene promoters to limit the space of gene-gene associations to accurately discover sets of genes that are regulated by the same transcription factor (Reiss et al. 2006). The incorporation of constraints based on mechanisms of miRNA regulation will greatly improve the

ability of cMonkey to model eukaryotic transcriptional regulatory networks. We contemplate that the ability of cMonkey to discover conditional coregulation of genes increases the sensitivity of FIRM and also provides the context (disease type, stage of progression, etc.) for regulatory influence of a miRNA.

Availability of miRvestigator, FIRM and Cancer-miRNA Regulatory Network

[00106] MiRvestigator was developed as an open source project using the Python programming language and is available both as a web service (http://mirvestigator.systemsbiology.net) and as source code (http://github.com/cplaisier/miRvestigator) (Plaisier et al. 2011). The FIRM and cancer-miRNA regulatory network are freely available at http://cmrn.systemsbiology.net

Data Access

[00107] To facilitate reader access and usability we have developed and hosted a freely available website (http://cmrn.systemsbiology.net) containing: 1) all data contained within the cancer-miRNA regulatory network, 2) including the compendium of 50 experimentally defined miRNA target gene sets, and 3) the FIRM framework to infer miRNA regulatory networks from gene coexpression information. Our hope is that this will provide cancer researchers with a usable interface to explore the cancer-miRNA regulatory network, computational biologists with a valuable resource to compare methods of inferring miRNA mediated regulation, and researchers with the tools to infer miRNA regulatory networks for their disease of interest.

[00108] While the present invention has been described in terms of various embodiments and examples, it is understood that variations and improvements will occur to those skilled in the art. Therefore, only such limitations as appear in the claims should be placed on the invention.

[00109] All documents referred to in this application, including priority documents, are hereby incorporated by reference in their entirety with particular attention to the content for which they are referred.

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Tables

Table1. Genes validated to be regulated by miR-29 family.

Gene Symbols	Entrez Gene ID	AD Lung Beer 31	AD Lung Bhattacharjee 59	miR-29 Family Target Sites		
				Weeder-miRvestigator	PITA	TargetScan
COL1A1	1277	Yes		a/b/c	a/b/c	a
COL1A2	1278		Yes		a/b/c	a
COL3A1	1281	Yes	Yes	a/b/c	a/b/c	b
COL4A1	1282	Yes	Yes	a/b/c	a/b/c	b
COL4A2	1284	Yes		a/b/c	a/b/c	a
COL5A1	1289	Yes		a/b/c	a/b/c	a
COL5A2	1290	Yes	Yes	a/b/c	a/b/c	a
COL15A1	1306	Yes	Yes	a/b/c	a/b/c	b
FBN1	2200	Yes	Yes	a/b/c	a/b/c	a
FSTL1	11167	Yes		a/b/c		a
LOXL2	4017	Yes		a/b/c		a
MMP2	4313	Yes		a/b/c	a/b/c	a
PDGFRB	5159	Yes	Yes	a/b/c	a/b/c	a
PPIC	5480	Yes		a/b/c		b
SERPINH1	871	Yes	Yes	a/b/c		b
SPARC	6678	Yes	Yes	a/b/c		a
TRIB2	28951	Yes		a/b/c	a/b/c	a

a = miR-29a, b = miR-29b, c = miR-29c.

Table2. Genes validated to be regulated by miR-29 family and miR-767-5p.

Gene	miR-29a		miR-29b		miR-29c		miR-767-5p	
	Fold-Change	P-Value	Fold-Change	P-Value	Fold-Change	P-Value	Fold-Change	P-Value
COL3A1	-4.2	3.1×10^{-5}	-3.7	1.5×10^{-3}	-3.8	1.4×10^{-4}	-1.7	7.1×10^{-1}
COL4A1	-3.0	2.2×10^{-3}	-3.1	3.1×10^{-4}	-1.6	5.3×10^{-3}	-1.6	1.5×10^{-1}
COL4A2	-2.3	2.1×10^{-4}	-1.8	7.1×10^{-3}	-2.5	5.4×10^{-3}	-1.3	4.2×10^{-1}
COL5A2	-2.1	2.8×10^{-3}	-1.8	7.2×10^{-3}	-1.9	4.1×10^{-3}	-1.3	2.8×10^{-2}
COL10A1	-2.1	9.9×10^{-5}	-1.8	4.7×10^{-4}	-2.0	3.2×10^{-4}	-1.6	2.2×10^{-3}
SPARC	-2.8	4.3×10^{-5}	-3.5	1.1×10^{-3}	-3.2	6.2×10^{-4}	1.1	9.0×10^{-1}
FBN1	-2.5	1.2×10^{-3}	-3.9	7.2×10^{-3}	-2.3	1.6×10^{-2}	1.1	3.8×10^{-1}
SERPINH1	-2.0	3.8×10^{-3}	-2.5	1.8×10^{-3}	-1.6	6.1×10^{-4}	1.1	4.5×10^{-1}
LOX	-1.4	2.1×10^{-3}	-1.5	2.3×10^{-2}	-1.4	2.0×10^{-2}	1.0	2.3×10^{-1}
MMP2	-1.2	4.8×10^{-2}	-1.4	1.5×10^{-2}	-1.4	5.3×10^{-2}	1.5	1.0
PDGFRB	-1.2	6.2×10^{-2}	-1.1	8.5×10^{-2}	-1.1	6.7×10^{-1}	1.2	8.8×10^{-1}

Shaded region indicates the only genes regulated by *both* miR-29 family and miR-767-5p, all five are collagens.

Supplementary Table 1.

Inference Method	miRNA Seed Complementarity	Cross-Species Conservation	Free Energy of Annealing	Free Energy of Secondary mRNA Structure	Gene Expression miRNA Perturbation Experiments
PITA	X	X	X	X	
TargetScan	X	X			
miRanda	X	X	X		
miRSVR	X	X	X		X

Supplementary Table 2.

PMID	miRNA	Perturbation	System	Biological Model	Environment	Assay	Target Genes
15685193	hsa-miR-1	miRNA	HeLa	Ovarian Cancer	*in vitro*	Transcriptomics	98
15685193	hsa-miR-124	miRNA	HeLa	Ovarian Cancer	*in vitro*	Transcriptomics	165
15685193	hsa-miR-hes-3 [B]	miRNA	HeLa	Ovarian Cancer	*in vitro*	Transcriptomics	61
16549876	hsa-miR-124	miRNA	HepG2	Liver Cancer	*in vitro*	Transcriptomics	13
16822819	hsa-miR-192	Patient GE & Microcosm	Patients	Follicular Thyroid Cancer	*in vivo*	Transcriptomics	48
16822819	hsa-miR-197	Patient GE & Microcosm	Patients	Follicular Thyroid Cancer	*in vivo*	Transcriptomics	57
16822819	hsa-miR-346	Patient GE & Microcosm	Patients	Follicular Thyroid Cancer	*in vivo*	Transcriptomics	24
17242205	hsa-miR-103	miRNA	HCT116 & DLD-1	Colon Cancer	*in vitro*	Transcriptomics	110
17242205	hsa-miR-106b	miRNA	HCT116 & DLD-1	Colon Cancer	*in vitro*	Transcriptomics	22
17242205	hsa-miR-107	miRNA	HCT116 & DLD-1	Colon Cancer	*in vitro*	Transcriptomics	81
17242205	hsa-miR-141	miRNA	HCT116 & DLD-1	Colon Cancer	*in vitro*	Transcriptomics	100
17242205	hsa-miR-15a	miRNA	HCT116 & DLD-1	Colon Cancer	*in vitro*	Transcriptomics	102
17242205	hsa-miR-15b	miRNA	HCT116 & DLD-1	Colon Cancer	*in vitro*	Transcriptomics	186
17242205	hsa-miR-16	miRNA	HCT116 & DLD-1	Colon Cancer	*in vitro*	Transcriptomics	64
17242205	hsa-miR-17	miRNA	HCT116 & DLD-1	Colon Cancer	*in vitro*	Transcriptomics	75
17242205	hsa-miR-192	miRNA	HCT116 & DLD-1	Colon Cancer	*in vitro*	Transcriptomics	483
17242205	hsa-miR-195	miRNA	HCT116 & DLD-1	Colon Cancer	*in vitro*	Transcriptomics	185
17242205	hsa-miR-20	miRNA	HCT116 & DLD-1	Colon Cancer	*in vitro*	Transcriptomics	65
17242205	hsa-miR-200a	miRNA	HCT116 & DLD-1	Colon Cancer	*in vitro*	Transcriptomics	89
17242205	hsa-miR-200b	miRNA	HCT116 & DLD-1	Colon Cancer	*in vitro*	Transcriptomics	68
17242205	hsa-miR-215	miRNA	HCT116 & DLD-1	Colon Cancer	*in vitro*	Transcriptomics	165
17242205	hsa-let-7c	miRNA	HCT116 & DLD-1	Colon Cancer	*in vitro*	Transcriptomics	52
17308078	hsa-let-7a	miRNA	A549, HeLa & HepG2	Lung, Ovarian & Liver Cancer	*in vitro*	Transcriptomics	195
17540599	hsa-miR-34a	miRNA	IMR90	Primary Normal Lung	*in vitro*	Transcriptomics	100
17554337	hsa-miR-34a	miRNA	HCT116	Colon Cancer	*in vitro*	Transcriptomics	421
17612493	hsa-miR-7	miRNA	HeLa	Ovarian Cancer	*in vitro*	Transcriptomics	49
17612493	hsa-miR-9	miRNA	HeLa	Ovarian Cancer	*in vitro*	Transcriptomics	13
17612493	hsa-miR-122a	miRNA	HeLa	Ovarian Cancer	*in vitro*	Transcriptomics	33
17612493	hsa-miR-128	miRNA	HeLa	Ovarian Cancer	*in vitro*	Transcriptomics	34
17612493	hsa-miR-132	miRNA	HeLa	Ovarian Cancer	*in vitro*	Transcriptomics	60
17612493	hsa-miR-133a	miRNA	HeLa	Ovarian Cancer	*in vitro*	Transcriptomics	197
17612493	hsa-miR-142-3p	miRNA	HeLa	Ovarian Cancer	*in vitro*	Transcriptomics	81
17612493	hsa-miR-148b	miRNA	HeLa	Ovarian Cancer	*in vitro*	Transcriptomics	56
17612493	hsa-miR-181a	miRNA	HeLa	Ovarian Cancer	*in vitro*	Transcriptomics	19
17699775	hsa-let-7b	miRNA	HCT116	Colon Cancer	*in vitro*	Transcriptomics	197
17891175	hsa-miR-125a	Patient GE	Patients	Prostate Cancer	*in vivo*	Transcriptomics	25
17991735	hsa-miR-21	Anti-miR	MCF-7	Breast Cancer	*in vitro*	Transcriptomics	309
18042700	hsa-miR-124	RIP-Chip + miRNA	HEK293S	Human Embryonic Kindey	*in vitro*	Transcriptomics	287
18390668	hsa-miR-29c	miRNA	HeLa & HepG2	Ovarian Cancer & Human Embryonic Kidney	*in vitro*	Transcriptomics	12
18461144	hsa-miR-1	RIP-Chip + miRNA	HEK293T	Human Embryonic Kindey	*in vitro*	Transcriptomics	68
18461144	hsa-miR-124	RIP-Chip + miRNA	HEK293T	Human Embryonic Kindey	*in vitro*	Transcriptomics	419
19074876	hsa-miR-192	miRNA	HCT116	Colon Cancer	*in vitro*	Transcriptomics	18
19193853	hsa-miR-155	Anti-miR	Cultured Dendritic Cells	Moncyte Derived Dendritic Cells	*in vitro*	Transcriptomics	22
19296470	hsa-miR-122	miRNA	Mahlavu, HuH-7 and SK-HEP-1	Hepatocellular Carcinoma	*in vitro*	Transcriptomics	31
19524507	hsa-miR-31	miRNA	MDA-MB-231	Breast Cancer	*in vitro*	Luciferase	16
19734348	hsa-miR-17-5p/20a/93/106a/106b [E]	RIP-Chip + Anti-miR	L428 & L1236	Hodgkin Lymphoma	*in vitro*	Transcriptomics	84
19775293	hsa-miR-184	miRNA & miRBase	A172 & T98G	Glioma	*in vitro*	Transcriptomics	17
19826008	hsa-miR-210	Anti-miR	HUVEC	Human Umbilical Vein Embryonic Cells	*in vitro*	Transcriptomics	32
20042474	hsa-miR-124	RIP-Chip + miRNA	H4 & SH-SY5Y	Neuroblastoma	*in vitro*	Transcriptomics	10
20042474	hsa-miR-128	RIP-Chip + miRNA	H4 & SH-SY5Y	Neuroblastoma	*in vitro*	Transcriptomics	11

Supplementary Table 3.

	Weeder:miRvestigator	PITA	TargetScan	miRSVR	miRanda
Weeder:miRvestigator		0.49	0.063	**1.7E-08**	**1.8E-09**
PITA			0.23	**4.6E-07**	**6.8E-08**
TargetScan				**1.4E-04**	**3.8E-05**
miRSVR					0.81
miRanda					

Supplementary Table 4.

Dataset	Cluster	miRNAname	Complementarity Model	Complementarity	P-value Viterbi
AC_Brain_Sun	4	hsa-miR-937	7mer-a1	CGCGCGGA _||||||| -CGCGCCT	6.10E-05
AC_Brain_Sun	5	hsa-miR-523	7mer-a1	CGCGCGTT _||||||| -CGCGCAA	6.10E-05
AC_Brain_Sun	17	hsa-miR-487b	7mer-a1	NGTANGAT _||||||| -CATGCTA	6.10E-05
AC_Brain_Sun	50	hsa-miR-1234	7mer-m8	TAGGCCNA _||||||| -TCCGGCT	6.10E-05
AD_Lung_Beer	19	hsa-miR-487b	7mer-a1	GTANNATC |||||||_ CATGCTA-	6.10E-05
AD_Lung_Beer	31	hsa-miR-29b hsa-miR-29c hsa-miR-29a	8mer	TGGTGCTA |||||||| ACCACGAT	1.53E-05
AD_Lung_Bhattacharjee	6	hsa-miR-941	8mer	GCCGGGTG |||||||| CGGCCCAC	1.53E-05
AD_Lung_Bhattacharjee	27	hsa-miR-487b	7mer-a1	CGTACGAT _||||||| -CATGCTA	6.10E-05
AD_Lung_Bhattacharjee	44	hsa-miR-655	7mer-a1	CTGTATTA _||||||| -ACATAAT	6.10E-05
AD_Lung_Bhattacharjee	64	hsa-miR-150	7mer-a1	GTTGGGAG _||||||| -AACCCTC	6.10E-05
AD_Lung_Bhattacharjee	65	hsa-miR-3177	7mer-a1	CGCCSTGC _||||||| -CGGCACG	6.10E-05

AD_Lung_Stearman	29	hsa-miR-598	7mer-m8	TGANNTAT |||||||_ ACTGCAT-	6.10E-05
AD_Ovarian_Welsh	6	hsa-let-7e-3p	8mer	CYNTATAG |||||||| GGCATATC	1.53E-05
AD_Ovarian_Welsh	13	hsa-miR-3178	7mer-a1	TCNCGCCC _||||||| -GCGCGGG	6.10E-05
AD_Ovarian_Welsh	24	hsa-miR-1469	7mer-a1	GCGCCGAT |||||||_ CGCGGCT-	6.10E-05
AD_Ovarian_Welsh	29	hsa-miR-3194	7mer-m8	GCTGGCCN |||||||_ CGACCGG-	6.10E-05
AD_Pancreas_Logsdon	3	hsa-miR-3178	7mer-m8	GCGCCCCG |||||||_ CGCGGGG-	6.10E-05
AD_Pancreas_Logsdon	10	hsa-miR-1273	7mer-m8	GGTCKCCC _||||||| -CAGCGGG	6.10E-05
AD_Pancreas_Logsdon	12	hsa-let-7f hsa-miR-98 hsa-let-7b hsa-let-7c hsa-let-7a hsa-let-7g hsa-let-7e hsa-let-7i hsa-let-7d	7mer-a1	CTNCCTCN |||||||_ GATGGAG-	6.10E-05
AO_Brain_Bredel	10	hsa-miR-4285	7mer-m8	TCNCCNCA |||||||_ AGCGGCG-	6.10E-05
B-CLL_Leukemia_Haslinger	54	hsa-miR-937	7mer-a1	CGCGCGGA _||||||| -CGCGCCT	6.10E-05
B-CLL_Leukemia_Haslinger	58	hsa-miR-337	7mer-m8	CNCCNTTC _||||||| -CGGCAAG	6.10E-05
B-CLL_Leukemia_Haslinger	69	hsa-miR-450a	7mer-a1	ATNNCAAA _||||||| -AGCGTTT	6.10E-05

BPH_Prostate_Dhanasekaran	13	hsa-miR-423-3p	7mer-a1	GACNGAGC ||||||| -TGGCTCG	6.10E-05
CA_Bladder_Dyrskjot	13	hsa-miR-548k	7mer-a1	NNTACTTT ||||||| -CATGAAA	6.10E-05
CA_Bladder_Dyrskjot	17	hsa-miR-885-3p	7mer-a1	CNCTGCCN ||||||| GCGACGG-	6.10E-05
CA_Bladder_Dyrskjot	26	hsa-miR-194	7mer-m8	TGTTANAA ||||||| ACAATGT-	6.10E-05
CA_Bladder_Dyrskjot	35	hsa-miR-1469	7mer-a1	GCGCCGAT ||||||| CGCGGCT-	6.10E-05
CA_Breast_Richardson	15	hsa-let-7d-3p	7mer-a1	TNNTATAC ||||||| AGCATAT-	6.10E-05
CA_Breast_Richardson	17	hsa-miR-566	7mer-m8	TGGNNCCC ||||||| -CCGCGGG	6.10E-05
CA_Breast_Richardson	46	hsa-miR-487b	7mer-m8	TANNATTA ||||||| ATGCTAA-	6.10E-05
CA_Breast_Sorlie	24	hsa-miR-1538	8mer	CCGGGCCN |||||||| GGCCCGGC	1.53E-05
CA_Colon_Graudens	11	hsa-miR-523	8mer	GCGCNTTC |||||||| CGCGCAAG	1.53E-05
CCC_Ovarian_Hendrix	11	hsa-miR-638	7mer-a1	CCNNTCCC ||||||| -GCTAGGG	6.10E-05
CCC_Ovarian_Hendrix	23	hsa-miR-523	7mer-a1	GCGCKTTA ||||||| CGCGCAA-	6.10E-05

CCC_Ovarian_Hendrix	55	hsa-miR-1471	7mer-a1	TACGCGGG _||||||| -TGCGCCC	6.10E-05
COID_Lung_Bhattacharjee	10	hsa-miR-138-2-3p	7mer-m8	AAATAGNN |||||||_ TTTATCG-	6.10E-05
COID_Lung_Bhattacharjee	48	hsa-miR-886	7mer-a1	CCNACCCA |||||||_ GGCTGGG-	6.10E-05
COID_Lung_Bhattacharjee	84	hsa-miR-615	7mer-m8	CNACCCCC _||||||| -CTGGGGG	6.10E-05
COID_Lung_Bhattacharjee	87	hsa-miR-1181	7mer-m8	GNGACGGA |||||||_ CGCTGCC-	6.10E-05
DLBCL_Lymphoma_Alizadeh	5	hsa-miR-132-3p	7mer-m8	ACCACNGT _||||||| -GGTGCCA	6.10E-05
END_Ovarian_Hendrix	0	hsa-miR-598	8mer	ATGANNTA |||||||| TACTGCAT	1.53E-05
END_Ovarian_Hendrix	18	hsa-miR-487b	7mer-a1	NGTACGAT _||||||| -CATGCTA	6.10E-05
END_Ovarian_Hendrix	19	hsa-miR-3195	7mer-a1	ACCGGCGC _||||||| -GGCCGCG	6.10E-05
END_Ovarian_Hendrix	45	hsa-miR-1471	7mer-a1	TACGCGGG _||||||| -TGCGCCC	6.10E-05
END_Ovarian_Hendrix	47	hsa-miR-1471	7mer-m8	CGCGGGCG |||||||_ GCGCCCG-	6.10E-05
END_Ovarian_Hendrix	52	hsa-miR-1538	7mer-a1	CNNGGCCT |||||||_ GGCCCGG-	6.10E-05

END_Ovarian_Hendrix	58	hsa-miR-621	7mer-m8	GCTAGCNG |||||||_ CGATCGG-	6.10E-05
END_Ovarian_Hendrix	82	hsa-let-7d-3p	7mer-a1	GTNNTATA _||||||| -AGCATAT	6.10E-05
FL_Lymphoma_Alizadeh	2	hsa-miR-425-3p	7mer-a1	TTCCNGAC |||||||_ AAGGGCT-	6.10E-05
FL_Lymphoma_Alizadeh	4	hsa-miR-4261	7mer-a1	TGTTTCCC |||||||_ ACAAAGG-	6.10E-05
GBM_Brain_Liang	14	hsa-miR-496	7mer-a1	CAATACTC _||||||| -TTATGAG	6.10E-05
GBM_Brain_Liang	17	hsa-miR-361	7mer-a1	TCTGATAG |||||||_ AGACTAT-	6.10E-05
GBM_Brain_Liang	18	hsa-miR-369	7mer-a1	GTNGATNG |||||||_ CAGCTAG-	6.10E-05
GCT_Seminoma_Korkola	3	hsa-miR-324	8mer	GGGATGNG |||||||| CCCTACGC	1.53E-05
GCT_Seminoma_Korkola	42	hsa-miR-1181	8mer	GGNGASGG |||||||| CCGCTGCC	1.53E-05
GCT_Seminoma_Korkola	75	hsa-miR-25 hsa-miR-32 hsa-miR-92a hsa-miR-92b hsa-miR-363 hsa-miR-367	7mer-a1	NNTGCAAT _||||||| -CACGTTA	6.10E-05
GL_Brain_Bredel	15	hsa-miR-126	8mer	CGGTANGA |||||||| GCCATGCT	1.53E-05
GL_Brain_Bredel	18	hsa-miR-187	8mer	AGACANGA |||||||| TCTGTGCT	1.53E-05

GL_Brain_Bredel	24	hsa-miR-516b	7mer-a1	ACTCCAGA _||||||| -GAGGTCT	6.10E-05
GL_Brain_Bredel	48	hsa-miR-2277	7mer-a1	CGCTGTCN |||||||_ GCGACAG-	6.10E-05
GL_Brain_Bredel	66	hsa-miR-223	7mer-a1	AACTGACT |||||||_ TTGACTG-	6.10E-05
GL_Brain_Bredel	78	hsa-miR-126	8mer	CGGTAMGA |||||||| GCCATGCT	1.53E-05
GL_Brain_Rickman	2	hsa-miR-718	7mer-a1	GGNGGAAC |||||||_ CCGCCTT-	6.10E-05
GL_Brain_Rickman	26	hsa-miR-1469	7mer-a1	GCGCCSAT |||||||_ CGCGGCT-	6.10E-05
GLB_Brain_Sun	29	hsa-miR-1181	7mer-m8	CGCGACGG _|||||| -CGCTGCC	6.10E-05
GLB_Brain_Sun	64	hsa-let-7e-3p	7mer-a1	CCNTATAC |||||||_ GGCATAT-	6.10E-05
HSCC_Head-Neck_Chung	1	hsa-miR-29b hsa-miR-29c hsa-miR-29a	7mer-m8	NNGTGCTA _||||||| -CCACGAT	6.10E-05
IDC_Breast_Radvanyi	8	hsa-miR-604	7mer-a1	CNCAGCCN |||||||_ GCGTCGG-	6.10E-05
IDC_Breast_Radvanyi	14	hsa-miR-590-3p	7mer-a1	ATAAAATT _||||||| -ATTTTAA	6.10E-05
IDC_Breast_Radvanyi	23	hsa-miR-376a-3p	7mer-a1	NNAATCTA _||||||| -CTTAGAT	6.10E-05

IDC_Breast_Radvanyi	50	hsa-miR-1247	7mer-m8	CGACGGGT _||||||| -CTGCCCA	6.10E-05
IDC_Breast_Radvanyi	59	hsa-miR-1469	7mer-a1	GCGCCGAC |||||||_ CGCGGCT-	6.10E-05
ILC_Breast_Radvanyi	6	hsa-let-7d-3p	7mer-a1	TNNTATAC |||||||_ AGCATAT-	6.10E-05
ILC_Breast_Radvanyi	11	hsa-miR-483	7mer-a1	TCCCNTCT _||||||| -GGGCAGA	6.10E-05
ME_Melanoma_Hoek	3	hsa-miR-4285	8mer	CTCGCCGC ||||||| GAGCGGCG	1.53E-05
ML_Melanoma_Talantov	13	hsa-miR-337	7mer-m8	GCCNTTCG |||||||_ CGGCAAG-	6.10E-05
ML_Melanoma_Talantov	19	hsa-miR-302c-3p	7mer-m8	TKTTAAAT |||||||_ ACAATTT-	6.10E-05
ML_Melanoma_Talantov	28	hsa-miR-3175	7mer-m8	NCTCCCCN _||||||| -GAGGGGC	6.10E-05
ML_Melanoma_Talantov	34	hsa-miR-548c-3p	7mer-a1	ANATTTTT _||||||| -CTAAAAA	6.10E-05
MPC_Prostate_Dhanasekaran	0	hsa-miR-3074	7mer-a1	GCTGATAT _||||||| -GACTATA	6.10E-05
MPC_Prostate_Dhanasekaran	42	hsa-miR-582-3p	7mer-a1	TACCAGTT _||||||| -TGGTCAA	6.10E-05
MPM_Mesothelioma_Gordon	9	hsa-miR-219	7mer-a1	NNACAATC _||||||| -CTGTTAG	6.10E-05

MPM_Mesothelioma_Gordon	13	hsa-miR-1250	7mer-m8	CNCACCGT _||||||| -CGTGGCA	6.10E-05
MPM_Mesothelioma_Gordon	19	hsa-miR-615	7mer-m8	CSACCCCC _||||||| -CTGGGGG	6.10E-05
MPM_Mesothelioma_Gordon	22	hsa-miR-1284	7mer-m8	NGTATAGA _||||||| -CATATCT	6.10E-05
MPM_Mesothelioma_Gordon	40	hsa-miR-3178	7mer-a1	TCNCNCCC _||||||| -GCGCGGG	6.10E-05
MUC_Ovarian_Hendrix	42	hsa-miR-1181	7mer-m8	GNGACGGT |||||||_ CGCTGCC-	6.10E-05
MUC_Ovarian_Hendrix	56	hsa-miR-508-3p	7mer-a1	TACAATNN |||||||_ ATGTTAG-	6.10E-05
OD_Brain_Bredel	5	hsa-miR-423-3p	7mer-a1	TACCNAGC _||||||| -TGGCTCG	6.10E-05
OD_Brain_Bredel	16	hsa-miR-1181	8mer	GGNGANGG ||||||| CCGCTGCC	1.53E-05
OD_Brain_Bredel	19	hsa-miR-551a hsa-miR-551b	7mer-m8	CGGGTCGC _||||||| -CCCAGCG	6.10E-05
OD_Brain_Bredel	37	hsa-miR-29a-3p	7mer-m8	AATCAGTA |||||||_ TTAGTCA-	6.10E-05
ODGL_Brain_Sun	37	hsa-miR-126	8mer	CGGTACGA |||||||| GCCATGCT	1.53E-05
ODGL_Brain_Sun	38	hsa-miR-1469	7mer-a1	GCGCCGAT |||||||_ CGCGGCT-	6.10E-05

PDC_Pancreas_Ishikawa	3	hsa-miR-369	7mer-a1	GTNGATCG |||||||_ CAGCTAG-	6.10E-05
PPC_Prostate_Dhanasekaran	19	hsa-miR-101-3p	7mer-a1	AGATAACT _||||||| -CTATTGA	6.10E-05
RCCC_Renal_Boer	7	hsa-miR-32 hsa-miR-92a hsa-miR-92b	7mer-m8	TGCAATAC |||||||_ ACGTTAT-	6.10E-05
RCCC_Renal_Lenburg	2	hsa-miR-487b	8mer	GTANNATT |||||||| CATGCTAA	1.53E-05
RCCC_Renal_Lenburg	3	hsa-miR-548f hsa-miR-548e hsa-miR-548x	7mer-m8	TANTTTTT _||||||| -TCAAAAA	6.10E-05
SMCL_Lung_Bhattacharjee	16	hsa-miR-339-3p	7mer-a1	CGGCGCTC _||||||| -CCGCGAG	6.10E-05
SMCL_Lung_Bhattacharjee	23	hsa-miR-3183	7mer-m8	GAGAGGCC |||||||_ CTCTCCG-	6.10E-05
SMCL_Lung_Bhattacharjee	51	hsa-miR-1273	8mer	TGTNNCCC |||||||| ACAGCGGG	1.53E-05
SMCL_Lung_Bhattacharjee	60	hsa-miR-671-3p	7mer-a1	GAACCKGC |||||||_ CTTGGCC-	6.10E-05
SQ_Lung_Bhattacharjee	8	hsa-miR-1203	7mer-a1	CNCTCCGG _||||||| -CGAGGCC	6.10E-05
SQ_Lung_Bhattacharjee	34	hsa-miR-718	8mer	GGNGGAAG |||||||| CCGCCTTC	1.53E-05
SQ_Lung_Bhattacharjee	35	hsa-miR-449c-3p	7mer-m8	GCTAGCAA _||||||| -GATCGTT	6.10E-05

SQ_Lung_Bhattacharjee	44	hsa-miR-4285	7mer-m8	TCNCCGCG |||||||_ AGCGGCG-	6.10E-05
SRS_Ovarian_Hendrix	67	hsa-miR-886	7mer-a1	CCNACCCT |||||||_ GGCTGCG-	6.10E-05
SRS_Ovarian_Hendrix	75	hsa-miR-937	7mer-a1	CGCGCGGA _||||||| -CGCGCCT	6.10E-05
SRS_Ovarian_Hendrix	81	hsa-miR-3135	7mer-a1	CCTAGGNN |||||||_ GGATCCG-	6.10E-05
TU_Prostate_Lapointe	14	hsa-miR-138-1-3p	7mer-a1	NNAAGTAG _||||||| -CTTCATC	6.10E-05
TU_Prostate_Lapointe	24	hsa-miR-487b	8mer	GTANNATT |||||||| CATGCTAA	1.53E-05
TU_Prostate_Lapointe	26	hsa-miR-566	7mer-m8	GGCGCCCG |||||||_ CCGCGGG-	6.10E-05
TU_Prostate_Lapointe	40	hsa-miR-369	7mer-a1	GTNGATCG |||||||_ CAGCTAG-	6.10E-05

Supplementary Table 5.

Dataset	Cluster	miRNA	Uncorrected P-value	miR2Disease
AC Brain Sun	4	hsa-mir-222	0.000357084	glioma
AC Brain Sun	6	hsa-mir-1284	4.83E-06	-
AC Brain Sun	7	hsa-mir-582-3p	1.18E-05	-
AC Brain Sun	12	hsa-mir-485-3p	2.89E-06	-
AC Brain Sun	19	hsa-mir-218	3.23E-05	-
AC Brain Sun	32	hsa-mir-1266	0.000659312	-
AC Brain Sun	39	hsa-mir-1266	0.00017731	-
AC Brain Sun	46	hsa-mir-548c-3p	4.75E-09	-
AC Brain Sun	50	hsa-mir-32	0.000138143	-
AC Brain Sun	51	hsa-mir-922	0.000626124	-
AD Lung Beer	1	hsa-mir-766	2.26E-05	-
AD Lung Beer	3	hsa-mir-338	3.66E-05	lung cancer
AD Lung Beer	7	hsa-mir-548b hsa-mir-548a hsa-mir-548d hsa-mir-548i hsa-mir-548j hsa-mir-548c hsa-mir-548h	2.53E-05	-
AD Lung Beer	8	hsa-mir-939	9.03E-05	-
AD Lung Beer	9	hsa-mir-548k	1.61E-05	-
AD Lung Beer	11	hsa-mir-9	0.000564437	lung cancer|lung cancer|non-small cell lung cancer (NSCLC)
AD Lung Beer	12	hsa-mir-1208	7.53E-05	-
AD Lung Beer	14	hsa-mir-571	4.68E-06	-
AD Lung Beer	18	hsa-mir-876-3p	0.00023225	-
AD Lung Beer	24	hsa-mir-770	2.97E-05	-
AD Lung Beer	27	hsa-mir-320 hsa-mir-320a hsa-mir-320b hsa-mir-320d	0.000120148	-
AD Lung Beer	28	hsa-mir-147	0.00058663	-
AD Lung Beer	29	hsa-mir-661	0.000210827	-
AD Lung Beer	31	hsa-mir-29 hsa-mir-29a hsa-mir-29b	5.80E-06	lung cancer|lung cancer
AD Lung Beer	32	hsa-mir-656	0.000276057	-
AD Lung Beer	33	hsa-mir-380	0.000197824	-
AD Lung Beer	34	hsa-mir-193b	0.000113204	-
AD Lung Beer	35	hsa-mir-222	0.000175181	non-small cell lung cancer (NSCLC)
AD Lung Beer	40	hsa-mir-320 hsa-mir-320a hsa-mir-320b hsa-mir-320d	4.80E-05	-
AD Lung Beer	44	hsa-mir-484	3.38E-05	-

AD Lung Beer	46	hsa-mir-874	2.07E-05	-
AD Lung Beer	51	hsa-mir-1202	0.00026996	-
AD Lung Beer	52	hsa-mir-372	0.000455224	non-small cell lung cancer (NSCLC)
AD Lung Beer	53	hsa-mir-581	3.77E-06	-
AD Lung Bhattacharjee	2	hsa-mir-645	0.000246382	-
AD Lung Bhattacharjee	7	hsa-mir-570	3.97E-05	-
AD Lung Bhattacharjee	14	hsa-mir-517 hsa-mir-517a	6.67E-05	-
AD Lung Bhattacharjee	19	hsa-mir-1322	0.00026893	-
AD Lung Bhattacharjee	20	hsa-mir-599	8.73E-05	-
AD Lung Bhattacharjee	22	hsa-mir-875-3p	2.47E-05	-
AD Lung Bhattacharjee	28	hsa-mir-122	0.00016338	-
AD Lung Bhattacharjee	30	hsa-mir-607	1.31E-05	-
AD Lung Bhattacharjee	33	hsa-mir-892a	0.000442944	-
AD Lung Bhattacharjee	39	hsa-mir-525-3p hsa-mir-524-3p	0.000313314	-
AD Lung Bhattacharjee	42	hsa-mir-760	0.000234775	-
AD Lung Bhattacharjee	44	hsa-mir-633	9.95E-06	-
AD Lung Bhattacharjee	46	hsa-mir-548a-3p hsa-mir-548e hsa-mir-548f	4.38E-07	-
AD Lung Bhattacharjee	47	hsa-mir-409-3p	1.02E-05	-
AD Lung Bhattacharjee	49	hsa-mir-567	0.000411819	-
AD Lung Bhattacharjee	53	hsa-mir-146b hsa-mir-146a	0.000204499	lung cancer
AD Lung Bhattacharjee	58	hsa-mir-655	2.48E-05	-
AD Lung Bhattacharjee	59	hsa-mir-29 hsa-mir-29a hsa-mir-29b	6.04E-07	lung cancer|lung cancer
AD Lung Bhattacharjee	60	hsa-mir-190b hsa-mir-190	9.50E-06	-
AD Lung Bhattacharjee	67	hsa-mir-361	0.000188291	-
AD Lung Bhattacharjee	69	hsa-mir-23b hsa-mir-23a	2.83E-06	-
AD Lung Bhattacharjee	72	hsa-mir-507 hsa-mir-557	5.02E-05	-
AD Lung Bhattacharjee	75	hsa-mir-1270 hsa-mir-620	0.000200137	-
AD Lung Bhattacharjee	76	hsa-mir-371-3p	3.23E-05	-
AD Lung Stearman	0	hsa-mir-518a hsa-mir-527	7.85E-06	-
AD Lung Stearman	7	hsa-mir-1269	8.43E-05	-
AD Lung Stearman	9	hsa-mir-548g	0.000161471	-
AD Lung Stearman	13	hsa-mir-455	0.000102984	-
AD Lung Stearman	18	hsa-mir-1257	0.000200203	-
AD Lung Stearman	25	hsa-mir-200a hsa-mir-141	0.000459035	cancer|lung cancer
AD Lung Stearman	33	hsa-mir-196b hsa-mir-196a	9.42E-05	-
AD Ovarian Welsh	0	hsa-mir-510	0.000176975	-

AD Ovarian Welsh	2	hsa-mir-122	0.00027714	-
AD Ovarian Welsh	3	hsa-mir-1283	2.12E-05	-
AD Ovarian Welsh	5	hsa-mir-188-3p	0.000360695	-
AD Ovarian Welsh	7	hsa-mir-650	0.00037885	-
AD Ovarian Welsh	11	hsa-mir-1323 hsa-mir-548o	0.00020088	-
AD Ovarian Welsh	15	hsa-mir-1282	6.41E-06	-
AD Ovarian Welsh	20	hsa-mir-767	0.000326469	-
AD Ovarian Welsh	21	hsa-mir-96	0.000127997	-
AD Ovarian Welsh	25	hsa-mir-572	6.54E-06	ovarian cancer (OC)
AD Ovarian Welsh	26	hsa-mir-210	8.63E-05	-
AD Ovarian Welsh	29	hsa-mir-1280	1.97E-06	-
AD Ovarian Welsh	30	hsa-mir-1207	2.62E-05	-
AD Ovarian Welsh	31	hsa-mir-380	0.000597339	-
AD Pancreas Logsdon	13	hsa-mir-486	0.000129758	-
AD Pancreas Logsdon	14	hsa-mir-517 hsa-mir-517a	4.15E-05	-
AD Pancreas Logsdon	15	hsa-mir-556-3p	9.44E-05	-
AD Pancreas Logsdon	16	hsa-mir-561	0.000136915	-
AO Brain Bredel	11	hsa-mir-608	1.92E-05	-
AO Brain Bredel	13	hsa-mir-506	0.000219864	-
AO Brain Bredel	17	hsa-mir-191	3.22E-05	-
AO Brain Bredel	20	hsa-mir-324	0.000220545	-
AO Brain Bredel	30	hsa-mir-1255b hsa-mir-1255a	0.000171809	-
AO Brain Bredel	33	hsa-mir-450b	0.000452261	-
AO Brain Bredel	35	hsa-mir-939	0.000489612	-
B-CLL Leukemia Haslinger	15	hsa-mir-338	6.09E-05	-
B-CLL Leukemia Haslinger	21	hsa-mir-429 hsa-mir-200b hsa-mir-200	5.23E-09	cancer
B-CLL Leukemia Haslinger	25	hsa-mir-1237	9.44E-05	-
B-CLL Leukemia Haslinger	27	hsa-mir-760	1.19E-07	-
B-CLL Leukemia Haslinger	29	hsa-mir-520f	0.000157234	-
B-CLL Leukemia Haslinger	30	hsa-mir-654-3p	0.000489152	-
B-CLL Leukemia Haslinger	34	hsa-mir-492	4.95E-05	-
B-CLL Leukemia Haslinger	35	hsa-mir-1294	2.05E-06	-
B-CLL Leukemia Haslinger	37	hsa-mir-545	2.30E-05	-
B-CLL Leukemia Haslinger	40	hsa-mir-582-3p	0.000202998	-
B-CLL Leukemia Haslinger	46	hsa-mir-1249	0.000175139	-
B-CLL Leukemia Haslinger	48	hsa-mir-520d hsa-mir-524	0.000143885	-
B-CLL Leukemia Haslinger	49	hsa-mir-660	0.000361137	-

B-CLL Leukemia Haslinger	52	hsa-mir-323-3p	0.000171267	-
B-CLL Leukemia Haslinger	53	hsa-mir-513a-3p	5.06E-05	-
B-CLL Leukemia Haslinger	55	hsa-mir-1323 hsa-mir-548o	2.12E-07	-
B-CLL Leukemia Haslinger	59	hsa-mir-636	1.65E-05	-
B-CLL Leukemia Haslinger	62	hsa-mir-515	2.65E-05	-
B-CLL Leukemia Haslinger	64	hsa-mir-1278	0.000299993	-
B-CLL Leukemia Haslinger	68	hsa-mir-377	0.000193905	-
B-CLL Leukemia Haslinger	69	hsa-mir-532	0.000295895	-
BPH Prostate Dhanasekaran	4	hsa-mir-543	1.06E-05	-
BPH Prostate Dhanasekaran	5	hsa-mir-1283	0.000141737	-
BPH Prostate Dhanasekaran	6	hsa-mir-648	0.000281772	-
BPH Prostate Dhanasekaran	7	hsa-mir-508	0.000256525	-
BPH Prostate Dhanasekaran	8	hsa-mir-891b	7.31E-05	-
BPH Prostate Dhanasekaran	10	hsa-mir-1290	0.000500185	-
BPH Prostate Dhanasekaran	11	hsa-mir-520d hsa-mir-524	5.08E-05	-
BPH Prostate Dhanasekaran	12	hsa-mir-33b hsa-mir-33a	0.000395585	-
BPH Prostate Dhanasekaran	15	hsa-mir-770	2.71E-05	-
BPH Prostate Dhanasekaran	16	hsa-mir-548e	4.60E-05	-
CA Bladder Dyrskjot	0	hsa-mir-607	6.23E-05	-
CA Bladder Dyrskjot	1	hsa-mir-940	1.95E-05	-
CA Bladder Dyrskjot	8	hsa-mir-140-3p	0.000606179	-
CA Bladder Dyrskjot	9	hsa-mir-452	6.57E-08	bladder cancer
CA Bladder Dyrskjot	12	hsa-mir-607	0.000333178	-
CA Bladder Dyrskjot	16	hsa-mir-1205	4.42E-05	-
CA Bladder Dyrskjot	19	hsa-mir-659	0.00021994	-
CA Bladder Dyrskjot	21	hsa-mir-590-3p	0.000292988	-
CA Bladder Dyrskjot	25	hsa-mir-550	0.000110985	-
CA Bladder Dyrskjot	26	hsa-mir-1224	9.15E-06	-
CA Bladder Dyrskjot	27	hsa-mir-365	1.19E-05	-
CA Bladder Dyrskjot	31	hsa-mir-520d hsa-mir-524	0.000672309	-

CA Bladder Dyrskjot	32	hsa-mir-320 hsa-mir-320a hsa-mir-320b hsa-mir-320d	3.19E-06	-
CA Bladder Dyrskjot	36	hsa-mir-548n	2.24E-07	-
CA Bladder Dyrskjot	42	hsa-mir-1183	4.30E-05	-
CA Bladder Dyrskjot	47	hsa-mir-331	1.08E-05	-
CA Bladder Dyrskjot	51	hsa-mir-1276	0.000118306	-
CA Bladder Dyrskjot	53	hsa-mir-1206	3.97E-05	-
CA Bladder Dyrskjot	56	hsa-mir-335	8.82E-06	-
CA Bladder Dyrskjot	64	hsa-mir-590-3p	3.58E-12	-
CA Bladder Dyrskjot	66	hsa-mir-1827	0.00059065	-
CA Bladder Dyrskjot	71	hsa-mir-633	4.25E-05	-
CA Bladder Dyrskjot	75	hsa-mir-487a	0.000410448	-
CA Bladder Dyrskjot	79	hsa-mir-147b	4.66E-05	-
CA Bladder Dyrskjot	81	hsa-mir-455-3p	0.000167082	-
CA Bladder Dyrskjot	82	hsa-mir-519d	0.000101549	-
CA Breast Richardson	2	hsa-mir-590-3p	9.05E-05	-
CA Breast Richardson	4	hsa-mir-433	5.10E-05	-
CA Breast Richardson	13	hsa-mir-590-3p	8.34E-05	-
CA Breast Richardson	32	hsa-mir-1245	3.51E-05	-
CA Breast Richardson	33	hsa-mir-876	0.000262306	-
CA Breast Richardson	34	hsa-mir-410	2.79E-07	-
CA Breast Richardson	38	hsa-mir-1271	5.68E-05	-
CA Breast Richardson	43	hsa-mir-1246	0.000277995	-
CA Breast Richardson	45	hsa-mir-181d hsa-mir-181b	0.000100856	breast cancer
CA Breast Richardson	46	hsa-mir-323-3p	3.35E-05	-
CA Breast Richardson	53	hsa-mir-548m	1.84E-05	-
CA Breast Richardson	55	hsa-mir-130b hsa-mir-301a hsa-mir-301b hsa-mir-130a hsa-mir-454	0.000665578	-
CA Breast Richardson	56	hsa-mir-146b hsa-mir-146a	0.000198109	breast cancer
CA Breast Sorlie	2	hsa-mir-653	0.000159728	-
CA Breast Sorlie	5	hsa-mir-220	0.000125447	-
CA Breast Sorlie	8	hsa-mir-494	0.000325493	-
CA Breast Sorlie	10	hsa-mir-23b hsa-mir-23a	0.000228613	-
CA Breast Sorlie	11	hsa-mir-33a	0.000170146	-
CA Breast Sorlie	12	hsa-mir-548c-3p	0.00053872	-
CA Breast Sorlie	14	hsa-mir-632	0.000123817	-
CA Breast Sorlie	18	hsa-mir-490-3p	0.000434944	-

CA Breast Sorlie	19	hsa-mir-155	6.17E-05	breast cancer|breast cancer|breast cancer|breast cancer
CA Breast Sorlie	20	hsa-mir-1279	9.67E-07	-
CA Colon Graudens	2	hsa-mir-551b hsa-mir-551a	2.41E-05	-
CA Colon Graudens	3	hsa-mir-552	0.000397074	-
CA Colon Graudens	8	hsa-mir-595	0.000150353	-
CA Colon Graudens	9	hsa-mir-338-3p	0.000383018	-
CA Colon Graudens	14	hsa-mir-1244	0.000207966	-
CA Colon Graudens	17	hsa-mir-642	0.000254189	-
CA Colon Graudens	19	hsa-mir-148a	6.28E-05	-
CA Colon Graudens	24	hsa-mir-381 hsa-mir-300	1.03E-05	-
CA Colon Graudens	25	hsa-mir-202	0.000193429	-
CA Colon Graudens	28	hsa-mir-566	0.000134232	-
CA Colon Graudens	29	hsa-mir-337-3p	0.00025569	-
CA Colon Graudens	30	hsa-mir-125b hsa-mir-125a	0.000141991	colorectal cancer|colorectal cancer
CA Colon Graudens	35	hsa-mir-325	1.27E-06	-
CA Colon Graudens	36	hsa-mir-576	0.000293879	-
CA Colon Graudens	38	hsa-mir-320 hsa-mir-320a hsa-mir-320b hsa-mir-320d	9.49E-06	colorectal cancer|colorectal cancer
CA Colon Graudens	39	hsa-mir-873	1.14E-05	-
CA Colon Graudens	40	hsa-mir-507 hsa-mir-557	0.000113046	-
CA Colon Graudens	41	hsa-mir-1243	9.02E-05	-
CA Renal Higgins	1	hsa-mir-590-3p	0.000514794	-
CA Renal Higgins	10	hsa-mir-875-3p	3.13E-05	-
CA Renal Higgins	13	hsa-mir-423	4.95E-06	-
CA Renal Higgins	14	hsa-mir-140	0.000244645	-
CCC Ovarian Hendrix	1	hsa-mir-1200	0.000441527	-
CCC Ovarian Hendrix	4	hsa-mir-194	2.92E-06	-
CCC Ovarian Hendrix	7	hsa-mir-532	0.000214675	-
CCC Ovarian Hendrix	11	hsa-mir-29 hsa-mir-29a hsa-mir-29b	3.61E-07	ovarian cancer (OC)
CCC Ovarian Hendrix	12	hsa-mir-876	1.89E-05	-
CCC Ovarian Hendrix	13	hsa-mir-143	1.94E-05	epithelial ovarian cancer (EOC)
CCC Ovarian Hendrix	23	hsa-mir-105	0.00057308	epithelial ovarian cancer (EOC)
CCC Ovarian Hendrix	24	hsa-mir-19b hsa-mir-19a	0.000228998	-
CCC Ovarian Hendrix	25	hsa-mir-183	2.99E-05	ovarian cancer (OC)
CCC Ovarian Hendrix	30	hsa-mir-590	6.39E-05	-

CCC Ovarian Hendrix	33	hsa-mir-127	0.000208615	cancer|epithelial ovarian cancer (EOC)
CCC Ovarian Hendrix	35	hsa-mir-1283	0.000100312	-
CCC Ovarian Hendrix	37	hsa-mir-1302	9.90E-05	-
CCC Ovarian Hendrix	42	hsa-mir-590-3p	3.94E-05	-
CCC Ovarian Hendrix	45	hsa-mir-382	0.000105777	-
CCC Ovarian Hendrix	47	hsa-mir-548p	4.74E-05	-
CCC Ovarian Hendrix	51	hsa-mir-1279	0.000323532	-
CCC Ovarian Hendrix	56	hsa-mir-409-3p	0.000166079	-
CCC Ovarian Hendrix	59	hsa-mir-552	2.65E-05	-
CCC Ovarian Hendrix	60	hsa-mir-105	1.20E-06	epithelial ovarian cancer (EOC)
CLL Lymphoma Alizadeh	0	hsa-mir-1283	9.53E-05	-
CLL Lymphoma Alizadeh	3	hsa-mir-513b	1.11E-05	-
CLL Lymphoma Alizadeh	7	hsa-mir-1263	9.63E-05	-
CLL Lymphoma Alizadeh	8	hsa-mir-222	0.000378332	-
CLL Lymphoma Alizadeh	10	hsa-mir-21 hsa-mir-590	6.63E-05	chronic lymphocytic leukemia (CLL)
COID Lung Bhattacharjee	0	hsa-mir-663	9.57E-05	-
COID Lung Bhattacharjee	2	hsa-mir-548d-3p	0.000222684	-
COID Lung Bhattacharjee	3	hsa-mir-940	7.85E-05	-
COID Lung Bhattacharjee	5	hsa-mir-361	0.000204845	-
COID Lung Bhattacharjee	7	hsa-mir-431	6.94E-05	-
COID Lung Bhattacharjee	8	hsa-mir-607	0.000109642	-
COID Lung Bhattacharjee	9	hsa-mir-622	0.000578648	-
COID Lung Bhattacharjee	10	hsa-mir-513a-3p	9.27E-06	-
COID Lung Bhattacharjee	11	hsa-mir-501	0.000106934	-
COID Lung Bhattacharjee	12	hsa-mir-509 hsa-mir-509-3	0.00045535	-
COID Lung Bhattacharjee	17	hsa-mir-885-3p	2.71E-07	-
COID Lung Bhattacharjee	19	hsa-mir-553	2.94E-05	-
COID Lung Bhattacharjee	21	hsa-mir-590-3p	0.000341529	-
COID Lung Bhattacharjee	25	hsa-mir-1276	1.52E-05	-
COID Lung Bhattacharjee	28	hsa-mir-758	0.000192537	-
COID Lung Bhattacharjee	31	hsa-mir-331-3p	0.000462838	-
COID Lung Bhattacharjee	40	hsa-mir-1181	2.31E-05	-
COID Lung Bhattacharjee	41	hsa-mir-1303	0.000150263	-
COID Lung Bhattacharjee	44	hsa-mir-504	3.96E-05	-
COID Lung Bhattacharjee	47	hsa-mir-574-3p	2.48E-05	-

COID Lung Bhattacharjee	60	hsa-mir-505	0.00037429	-
COID Lung Bhattacharjee	61	hsa-mir-494	1.43E-05	-
COID Lung Bhattacharjee	67	hsa-mir-512-3p	0.000326325	-
COID Lung Bhattacharjee	71	hsa-mir-1237	0.000255541	-
COID Lung Bhattacharjee	73	hsa-mir-1262	0.000380974	-
COID Lung Bhattacharjee	74	hsa-mir-513a-3p	4.85E-06	-
COID Lung Bhattacharjee	75	hsa-mir-1300	0.000178305	-
COID Lung Bhattacharjee	78	hsa-mir-920	0.000256218	-
COID Lung Bhattacharjee	81	hsa-mir-369-3p	3.12E-05	-
COID Lung Bhattacharjee	86	hsa-mir-580	5.05E-05	-
COID Lung Bhattacharjee	89	hsa-mir-1254	0.000134399	-
COID Lung Bhattacharjee	91	hsa-mir-1275	5.25E-06	-
DLBCL Lymphoma Alizadeh	1	hsa-mir-138	3.63E-05	-
DLBCL Lymphoma Alizadeh	5	hsa-mir-198	0.000115292	-
DLBCL Lymphoma Alizadeh	6	hsa-mir-542	1.20E-05	-
DLBCL Lymphoma Alizadeh	7	hsa-mir-532-3p	3.78E-05	-
DLBCL Lymphoma Alizadeh	9	hsa-mir-892b	0.000231852	-
DLBCL Lymphoma Alizadeh	10	hsa-mir-325	0.00021668	-
DLBCL Lymphoma Alizadeh	11	hsa-mir-1203	6.38E-05	-
END Ovarian Hendrix	3	hsa-mir-510	1.61E-06	-
END Ovarian Hendrix	4	hsa-mir-608	2.66E-05	ovarian cancer (OC)
END Ovarian Hendrix	6	hsa-mir-29 hsa-mir-29a hsa-mir-29b	6.95E-05	ovarian cancer (OC)
END Ovarian Hendrix	7	hsa-mir-1302	1.69E-05	-
END Ovarian Hendrix	8	hsa-mir-200a hsa-mir-141	0.000119842	cancer|epithelial ovarian cancer (EOC)|ovarian cancer (OC)|ovarian cancer (OC)|ovarian cancer (OC)
END Ovarian Hendrix	13	hsa-mir-1276	0.000413656	-
END Ovarian Hendrix	18	hsa-mir-890	6.81E-05	-
END Ovarian Hendrix	22	hsa-mir-15b hsa-mir-15a hsa-mir-16 hsa-mir-497 hsa-mir-195	0.000286656	ovarian cancer (OC)
END Ovarian Hendrix	23	hsa-mir-1259	0.000453022	-
END Ovarian Hendrix	25	hsa-mir-653	0.000151323	-

END Ovarian Hendrix	26	hsa-mir-548c-3p	1.03E-05	-
END Ovarian Hendrix	32	hsa-mir-802	0.000186055	-
END Ovarian Hendrix	35	hsa-mir-1276	9.71E-20	-
END Ovarian Hendrix	38	hsa-mir-944	0.000151186	-
END Ovarian Hendrix	39	hsa-mir-508	0.000310807	ovarian cancer (OC)
END Ovarian Hendrix	48	hsa-mir-125a-3p	0.000130068	-
END Ovarian Hendrix	50	hsa-mir-539	3.78E-05	-
END Ovarian Hendrix	51	hsa-mir-130b hsa-mir-301a hsa-mir-301b hsa-mir-130a hsa-mir-454	6.35E-05	-
END Ovarian Hendrix	60	hsa-mir-580	1.92E-06	-
END Ovarian Hendrix	69	hsa-mir-607	0.000218523	-
END Ovarian Hendrix	82	hsa-mir-505	8.54E-06	-
FL Lymphoma Alizadeh	4	hsa-mir-1295	1.54E-05	-
FL Lymphoma Alizadeh	6	hsa-mir-338	0.000302415	follicular lymphoma (FL)
FL Lymphoma Alizadeh	9	hsa-mir-767-3p	0.000117612	-
FL Lymphoma Alizadeh	11	hsa-mir-148a hsa-mir-148b hsa-mir-152	0.000429493	-
GBM Brain Liang	12	hsa-mir-520g hsa-mir-520h	0.000557506	-
GBM Brain Liang	14	hsa-mir-125a-3p	0.000424903	-
GBM Brain Liang	15	hsa-mir-144	0.000662353	-
GBM Brain Liang	17	hsa-mir-600	0.00022619	-
GCT Seminoma Korkola	6	hsa-mir-34b	0.000166029	-
GCT Seminoma Korkola	8	hsa-mir-940	1.62E-05	-
GCT Seminoma Korkola	14	hsa-mir-1323 hsa-mir-548o	3.12E-05	-
GCT Seminoma Korkola	20	hsa-mir-632	4.09E-05	-
GCT Seminoma Korkola	21	hsa-mir-548k	4.81E-06	-
GCT Seminoma Korkola	25	hsa-mir-105	0.000213709	-
GCT Seminoma Korkola	26	hsa-mir-138	0.000182637	-
GCT Seminoma Korkola	31	hsa-mir-22	3.97E-06	-
GCT Seminoma Korkola	36	hsa-mir-196b hsa-mir-196a	0.000488975	-
GCT Seminoma Korkola	37	hsa-mir-106b hsa-mir-17 hsa-mir-106a hsa-mir-93 hsa-mir-20b hsa-mir-20a	7.12E-05	-
GCT Seminoma Korkola	38	hsa-mir-370	0.000160824	-
GCT Seminoma Korkola	39	hsa-mir-769	2.72E-05	-
GCT Seminoma Korkola	40	hsa-mir-577	0.000614553	-
GCT Seminoma Korkola	42	hsa-mir-149	0.000282927	-
GCT Seminoma Korkola	47	hsa-mir-485	0.000532439	-
GCT Seminoma Korkola	56	hsa-mir-499-3p	0.000181753	-

GCT Seminoma Korkola	62	hsa-mir-548m	7.00E-07	-
GCT Seminoma Korkola	66	hsa-mir-532-3p	0.000274953	-
GCT Seminoma Korkola	72	hsa-mir-490-3p	8.74E-07	-
GCT Seminoma Korkola	74	hsa-let-7f hsa-let-7g hsa-let-7a hsa-let-7b hsa-let-7d hsa-let-7i hsa-mir-98 hsa-let-7	1.23E-06	-
GCT Seminoma Korkola	75	hsa-mir-664	0.000114433	-
GCT Seminoma Korkola	76	hsa-mir-220b	5.80E-05	-
GCT Seminoma Korkola	80	hsa-mir-623	8.85E-05	-
GCT Seminoma Korkola	87	hsa-mir-1179	4.11E-05	-
GCT Seminoma Korkola	88	hsa-mir-129	7.94E-05	-
GCT Seminoma Korkola	89	hsa-mir-568	0.00034329	-
GCT Seminoma Korkola	90	hsa-mir-362	3.27E-06	-
GCT Seminoma Korkola	93	hsa-mir-193a	0.000207726	-
GCT Seminoma Korkola	95	hsa-mir-1283	3.81E-07	-
GCT Seminoma Korkola	98	hsa-mir-224	0.000173618	-
GCT Seminoma Korkola	100	hsa-mir-486-3p	0.000207588	-
GCT Seminoma Korkola	102	hsa-mir-125b hsa-mir-125a	5.68E-06	-
GCT Seminoma Korkola	105	hsa-mir-34a hsa-mir-34c hsa-mir-449a hsa-mir-449b	0.000332836	-
GCT Seminoma Korkola	107	hsa-mir-199b-3p hsa-mir-199a-3p	0.000212588	cancer
GCT Seminoma Korkola	108	hsa-mir-570	0.000279799	-
GCT Seminoma Korkola	109	hsa-mir-548p	5.74E-06	-
GCT Seminoma Korkola	110	hsa-mir-18a hsa-mir-18b	2.70E-05	-
GCT Seminoma Korkola	112	hsa-mir-590-3p	5.49E-06	-
GL Brain Bredel	0	hsa-mir-1208	9.31E-05	-
GL Brain Bredel	9	hsa-mir-549	0.000116643	-
GL Brain Bredel	11	hsa-mir-542-3p	0.000201348	-
GL Brain Bredel	12	hsa-mir-384	0.000466337	-
GL Brain Bredel	15	hsa-mir-654-3p	6.04E-07	-
GL Brain Bredel	20	hsa-mir-487b	0.000468745	-
GL Brain Bredel	21	hsa-mir-633	6.38E-05	-
GL Brain Bredel	24	hsa-mir-1245	0.000261253	-
GL Brain Bredel	25	hsa-mir-338	0.000377267	-
GL Brain Bredel	33	hsa-mir-625	0.000450263	-
GL Brain Bredel	36	hsa-mir-661	0.00010024	-
GL Brain Bredel	37	hsa-mir-544	0.000666316	-
GL Brain Bredel	39	hsa-mir-363	0.000215653	-

GL Brain Bredel	40	hsa-mir-526b	0.000108823	-
GL Brain Bredel	41	hsa-mir-484	0.000147486	-
GL Brain Bredel	46	hsa-mir-154	0.000413209	-
GL Brain Bredel	54	hsa-mir-582-3p	5.64E-05	-
GL Brain Bredel	57	hsa-mir-769-3p hsa-mir-450b-3p	5.61E-05	-
GL Brain Bredel	59	hsa-mir-125a-3p	2.04E-06	-
GL Brain Bredel	60	hsa-mir-513a	0.000188295	-
GL Brain Bredel	61	hsa-mir-572	5.05E-06	-
GL Brain Bredel	64	hsa-mir-220b	9.88E-05	-
GL Brain Bredel	65	hsa-mir-532	0.000243031	-
GL Brain Bredel	71	hsa-mir-651	0.000504986	-
GL Brain Bredel	75	hsa-mir-889	0.000677584	-
GL Brain Rickman	1	hsa-mir-493	3.61E-05	-
GL Brain Rickman	4	hsa-mir-302f	3.04E-05	-
GL Brain Rickman	9	hsa-mir-1207	0.000100819	-
GL Brain Rickman	11	hsa-mir-653	8.21E-05	-
GL Brain Rickman	13	hsa-mir-486-3p	0.000165893	-
GL Brain Rickman	14	hsa-mir-149	0.000224784	glioblastoma multiforme (GBM)
GL Brain Rickman	21	hsa-mir-624	8.28E-05	-
GL Brain Rickman	22	hsa-mir-542-3p	5.93E-05	-
GL Brain Rickman	23	hsa-mir-490	1.28E-05	-
GL Brain Rickman	29	hsa-mir-544	3.71E-06	-
GL Brain Rickman	31	hsa-let-7e hsa-let-7f hsa-let-7g hsa-let-7a hsa-let-7b hsa-let-7d hsa-let-7i hsa-mir-98 hsa-let-7	1.86E-05	-
GL Brain Rickman	34	hsa-mir-125a-3p	5.67E-05	-
GLB Brain Sun	1	hsa-mir-767	9.57E-05	-
GLB Brain Sun	2	hsa-mir-577	0.000325921	-
GLB Brain Sun	8	hsa-mir-140-3p	6.49E-07	-
GLB Brain Sun	10	hsa-mir-588	2.76E-05	-
GLB Brain Sun	12	hsa-mir-924	0.000279414	-
GLB Brain Sun	14	hsa-mir-1299	0.0006165	-
GLB Brain Sun	15	hsa-mir-582-3p	6.42E-06	-
GLB Brain Sun	17	hsa-mir-621	4.22E-05	-
GLB Brain Sun	18	hsa-mir-655	2.74E-05	-
GLB Brain Sun	20	hsa-mir-556-3p	1.56E-05	-
GLB Brain Sun	21	hsa-mir-188	0.000650779	-
GLB Brain Sun	24	hsa-mir-381 hsa-mir-300	6.92E-05	-

GLB Brain Sun	27	hsa-mir-590-3p	0.000472328	-
GLB Brain Sun	28	hsa-mir-369-3p	5.05E-05	-
GLB Brain Sun	31	hsa-mir-936	1.07E-05	-
GLB Brain Sun	40	hsa-mir-1274a	0.000402526	-
GLB Brain Sun	41	hsa-mir-760	7.71E-09	-
GLB Brain Sun	43	hsa-mir-331	5.34E-05	-
GLB Brain Sun	50	hsa-mir-664	6.69E-05	-
GLB Brain Sun	51	hsa-mir-28-3p	0.000446009	-
GLB Brain Sun	54	hsa-mir-548m	5.72E-06	-
GLB Brain Sun	62	hsa-mir-216a	0.000157554	-
GLB Brain Sun	67	hsa-mir-544	4.07E-07	-
GLB Brain Sun	68	hsa-mir-888	7.93E-05	-
GLB Brain Sun	69	hsa-mir-1288	0.000168213	-
GLB Brain Sun	71	hsa-mir-1182	0.000395608	-
GLB Brain Sun	72	hsa-mir-571	6.09E-05	-
GLB Brain Sun	76	hsa-mir-561	3.82E-05	-
HSCC Head-Neck Chung	1	hsa-mir-767	9.70E-05	-
HSCC Head-Neck Chung	2	hsa-mir-148a hsa-mir-148b hsa-mir-152	0.000575605	head and neck squamous cell carcinoma (HNSCC)|Oral Squamous Cell Carcinoma (OSCC)
HSCC Head-Neck Chung	7	hsa-mir-487a	4.23E-05	-
HSCC Head-Neck Chung	10	hsa-mir-1226	0.000450182	-
HSCC Head-Neck Cromer	3	hsa-mir-496	2.71E-05	-
HSCC Head-Neck Cromer	11	hsa-mir-129	4.13E-05	-
HSCC Head-Neck Cromer	12	hsa-mir-1297 hsa-mir-26a hsa-mir-26b	3.36E-05	Oral Squamous Cell Carcinoma (OSCC)
HSCC Head-Neck Cromer	13	hsa-mir-875-3p	1.98E-05	-
HSCC Head-Neck Cromer	18	hsa-mir-214	0.000212009	head and neck squamous cell carcinoma (HNSCC)
HSCC Head-Neck Cromer	20	hsa-mir-543	0.000173579	-
HSCC Head-Neck Cromer	22	hsa-mir-218	0.000659831	-
HSCC Head-Neck Cromer	23	hsa-mir-380	0.000341454	-
HSCC Head-Neck Cromer	25	hsa-mir-1264	7.12E-05	-
HSCC Head-Neck Cromer	26	hsa-mir-199a hsa-mir-199b	0.000146104	cancer|Oral Squamous Cell Carcinoma (OSCC)|Oral Squamous Cell Carcinoma (OSCC)|Oral Squamous Cell Carcinoma (OSCC)

IDC Breast Radvanyi	4	hsa-mir-661	0.00019994	breast cancer
IDC Breast Radvanyi	5	hsa-mir-1274a	9.35E-05	-
IDC Breast Radvanyi	6	hsa-mir-652	4.44E-06	-
IDC Breast Radvanyi	8	hsa-mir-1273	1.23E-05	-
IDC Breast Radvanyi	14	hsa-mir-556	0.000534734	-
IDC Breast Radvanyi	15	hsa-mir-182	2.40E-05	breast cancer
IDC Breast Radvanyi	16	hsa-mir-9	0.000460178	breast cancer|breast cancer|breast cancer
IDC Breast Radvanyi	21	hsa-mir-493	0.000515054	-
IDC Breast Radvanyi	22	hsa-mir-1274a	0.000321613	-
IDC Breast Radvanyi	34	hsa-mir-532	6.62E-05	-
IDC Breast Radvanyi	35	hsa-mir-488	0.000481039	-
IDC Breast Radvanyi	41	hsa-mir-361-3p	5.52E-05	-
IDC Breast Radvanyi	44	hsa-mir-548a-3p	0.000104312	-
IDC Breast Radvanyi	47	hsa-mir-760	0.000124285	-
IDC Breast Radvanyi	48	hsa-mir-630	0.000196602	-
IDC Breast Radvanyi	51	hsa-mir-548l	0.000143163	-
IDC Breast Radvanyi	54	hsa-mir-1277	0.000645264	-
IDC Breast Radvanyi	56	hsa-mir-216b	0.00013594	-
IDC Breast Radvanyi	60	hsa-mir-923	4.22E-05	-
ILC Breast Radvanyi	4	hsa-mir-122	1.22E-06	-
ILC Breast Radvanyi	5	hsa-mir-501	0.000523698	-
ILC Breast Radvanyi	19	hsa-mir-663b	3.73E-05	-
ILC Breast Radvanyi	22	hsa-mir-508-3p	0.000193266	-
MCA Breast Radvanyi	7	hsa-mir-595	0.000118204	-
MCA Breast Radvanyi	12	hsa-mir-489	0.000319697	-
MCA Breast Radvanyi	21	hsa-mir-626	0.000107826	-
ME Melanoma Hoek	0	hsa-mir-34b	9.82E-05	malignant melanoma
ME Melanoma Hoek	3	hsa-mir-1308	9.97E-05	-
ME Melanoma Hoek	6	hsa-mir-410	6.65E-05	-
ME Melanoma Hoek	9	hsa-mir-106b hsa-mir-17 hsa-mir-106a hsa-mir-93 hsa-mir-20b hsa-mir-20a	0.000626339	malignant melanoma
ME Melanoma Hoek	12	hsa-mir-892a	2.65E-05	-
ME Melanoma Hoek	15	hsa-mir-217	5.33E-05	-
ME Melanoma Hoek	23	hsa-mir-32	0.000286963	-
ME Melanoma Hoek	35	hsa-mir-200b hsa-mir-200	4.37E-05	cancer|malignant melanoma
ME Melanoma Hoek	39	hsa-mir-212 hsa-mir-132	9.98E-05	-

ME Melanoma Hoek	41	hsa-mir-938	4.28E-08	-
ME Melanoma Hoek	44	hsa-mir-1299	3.96E-05	-
ME Melanoma Hoek	47	hsa-mir-549	5.91E-05	-
ME Melanoma Hoek	50	hsa-mir-548c-3p	0.000144326	-
ML Melanoma Talantov	0	hsa-mir-603	0.000216878	-
ML Melanoma Talantov	3	hsa-mir-181a hsa-mir-181	2.83E-06	malignant melanoma
ML Melanoma Talantov	7	hsa-mir-125b hsa-mir-125a	4.64E-05	malignant melanoma
ML Melanoma Talantov	9	hsa-mir-151-3p	0.000153257	-
ML Melanoma Talantov	10	hsa-mir-623	4.85E-05	-
ML Melanoma Talantov	12	hsa-mir-125b hsa-mir-125a	0.000126841	malignant melanoma
ML Melanoma Talantov	14	hsa-mir-519a hsa-mir-519c-3p hsa-mir-519b-3p	2.70E-07	-
ML Melanoma Talantov	19	hsa-mir-421	0.000150563	-
ML Melanoma Talantov	22	hsa-mir-520d hsa-mir-524	3.48E-05	-
ML Melanoma Talantov	23	hsa-mir-548p	7.57E-06	-
ML Melanoma Talantov	25	hsa-mir-606	0.000376617	-
ML Melanoma Talantov	26	hsa-mir-607	5.50E-05	-
ML Melanoma Talantov	34	hsa-mir-767-3p	3.81E-06	-
MM Myeloma Zhan	1	hsa-mir-519e	0.000195242	-
MM Myeloma Zhan	2	hsa-mir-587	0.00038156	-
MM Myeloma Zhan	3	hsa-mir-590-3p	2.57E-08	-
MM Myeloma Zhan	4	hsa-mir-361-3p	0.00038289	-
MM Myeloma Zhan	6	hsa-mir-516b	5.95E-05	-
MM Myeloma Zhan	7	hsa-mir-510	0.000138587	-
MM Myeloma Zhan	9	hsa-mir-9	0.000100248	-
MM Myeloma Zhan	13	hsa-mir-655	7.50E-05	-
MM Myeloma Zhan	17	hsa-mir-320 hsa-mir-320a hsa-mir-320b hsa-mir-320d	8.23E-06	-
MM Myeloma Zhan	20	hsa-mir-1226	3.53E-05	-
MM Myeloma Zhan	21	hsa-mir-183	0.000548746	-
MM Myeloma Zhan	22	hsa-mir-1236	0.000330323	-
MM Myeloma Zhan	24	hsa-mir-140-3p	4.31E-05	multiple myeloma (MM)
MM Myeloma Zhan	25	hsa-mir-188	0.000241687	-
MM Myeloma Zhan	29	hsa-mir-760	1.88E-08	-
MM Myeloma Zhan	30	hsa-mir-588	0.000131928	-
MM Myeloma Zhan	31	hsa-mir-597	0.000240387	-
MM Myeloma Zhan	32	hsa-mir-212 hsa-mir-132	0.000138448	-
MM Myeloma Zhan	35	hsa-mir-650	0.000432285	-

MM Myeloma Zhan	40	hsa-mir-382	0.000167046	-
MM Myeloma Zhan	43	hsa-mir-23b hsa-mir-23a	1.74E-05	-
MM Myeloma Zhan	45	hsa-mir-595	0.00024781	-
MM Myeloma Zhan	46	hsa-mir-425	5.54E-05	-
MM Myeloma Zhan	47	hsa-mir-875-3p	0.000422238	-
MPC Prostate Dhanasekaran	0	hsa-mir-1323 hsa-mir-548o	6.62E-07	-
MPC Prostate Dhanasekaran	7	hsa-mir-330 hsa-mir-326	6.20E-05	prostate cancer
MPC Prostate Dhanasekaran	9	hsa-mir-190b hsa-mir-190	2.92E-06	-
MPC Prostate Dhanasekaran	12	hsa-mir-139	7.63E-07	-
MPC Prostate Dhanasekaran	13	hsa-mir-1257	8.37E-06	-
MPC Prostate Dhanasekaran	14	hsa-mir-133b hsa-mir-133a	0.00010216	-
MPC Prostate Dhanasekaran	16	hsa-mir-944	7.22E-07	-
MPC Prostate Dhanasekaran	19	hsa-mir-661	1.85E-05	-
MPC Prostate Dhanasekaran	21	hsa-mir-498	0.000467932	prostate cancer
MPC Prostate Dhanasekaran	22	hsa-mir-105	2.03E-05	-
MPC Prostate Dhanasekaran	26	hsa-mir-935	0.000148827	-
MPC Prostate Dhanasekaran	30	hsa-mir-659	0.000152617	-
MPC Prostate Dhanasekaran	34	hsa-mir-544	6.81E-07	-
MPC Prostate Dhanasekaran	35	hsa-mir-203	0.000205357	-
MPC Prostate Dhanasekaran	44	hsa-mir-1323 hsa-mir-548o	1.10E-06	-
MPC Prostate Dhanasekaran	45	hsa-mir-490-3p	1.70E-06	-
MPM Mesothelioma Gordon	7	hsa-mir-526b	7.16E-05	-
MPM Mesothelioma Gordon	11	hsa-mir-491-3p	3.42E-05	-

MPM Mesothelioma Gordon	14	hsa-mir-361-3p	1.00E-04	-
MPM Mesothelioma Gordon	16	hsa-mir-548m	3.90E-08	-
MPM Mesothelioma Gordon	27	hsa-mir-1301	4.84E-05	-
MPM Mesothelioma Gordon	35	hsa-mir-371	0.000204415	-
MPM Mesothelioma Gordon	38	hsa-mir-1276	8.53E-06	-
MPM Mesothelioma Gordon	41	hsa-mir-519e	0.000107989	-
MPM Mesothelioma Gordon	42	hsa-mir-183	0.00048608	-
MPM Mesothelioma Gordon	48	hsa-mir-561	0.000418507	-
MPM Mesothelioma Gordon	51	hsa-mir-605	6.36E-05	-
MPM Mesothelioma Gordon	53	hsa-mir-1182	0.00019028	-
MPM Mesothelioma Gordon	56	hsa-mir-595	4.65E-05	Malignant mesothelioma (MM)
MPM Mesothelioma Gordon	61	hsa-mir-545	5.77E-05	-
MPM Mesothelioma Gordon	62	hsa-mir-1279	0.000304825	-
MPM Mesothelioma Gordon	63	hsa-mir-548b hsa-mir-548a hsa-mir-548d hsa-mir-548i hsa-mir-548j hsa-mir-548c hsa-mir-548h	3.47E-06	-
MPM Mesothelioma Gordon	65	hsa-mir-590-3p	0.00046845	-
MUC Ovarian Hendrix	0	hsa-mir-556-3p	1.09E-05	-
MUC Ovarian Hendrix	2	hsa-mir-22	0.00025469	-
MUC Ovarian Hendrix	7	hsa-mir-607	0.000283493	-
MUC Ovarian Hendrix	8	hsa-mir-1226	4.84E-05	-
MUC Ovarian Hendrix	14	hsa-mir-148a hsa-mir-148b hsa-mir-152	8.43E-05	epithelial ovarian cancer (EOC)
MUC Ovarian Hendrix	15	hsa-mir-340	1.89E-05	-
MUC Ovarian Hendrix	18	hsa-mir-548n	0.000222366	-
MUC Ovarian Hendrix	21	hsa-mir-216b	0.000279976	-
MUC Ovarian Hendrix	25	hsa-mir-548c-3p	1.02E-05	-
MUC Ovarian Hendrix	41	hsa-mir-34a hsa-mir-34c hsa-mir-449a hsa-mir-449b	0.000165758	ovarian cancer (OC)|ovarian cancer (OC)

MUC Ovarian Hendrix	44	hsa-mir-217	0.000155736	-
MUC Ovarian Hendrix	45	hsa-mir-765	8.97E-05	-
MUC Ovarian Hendrix	57	hsa-mir-766	0.000194385	-
MUC Ovarian Hendrix	60	hsa-mir-369-3p	0.000117663	-
MUC Ovarian Hendrix	61	hsa-mir-940	2.22E-05	-
MUC Ovarian Hendrix	63	hsa-mir-184	3.31E-05	epithelial ovarian cancer (EOC)
MUC Ovarian Hendrix	67	hsa-mir-1224-3p	0.000283759	-
MUC Ovarian Hendrix	68	hsa-mir-606	8.68E-06	-
MUC Ovarian Hendrix	71	hsa-mir-361-3p	0.00031521	-
MUC Ovarian Hendrix	74	hsa-mir-27a hsa-mir-27b	0.000125726	-
MUC Ovarian Hendrix	76	hsa-mir-144	9.98E-05	-
OD Brain Bredel	2	hsa-mir-768	2.72E-05	-
OD Brain Bredel	3	hsa-mir-615-3p	0.000123587	-
OD Brain Bredel	8	hsa-mir-651	0.000193833	-
OD Brain Bredel	9	hsa-mir-548e	0.000425304	-
OD Brain Bredel	12	hsa-mir-588	9.48E-05	-
OD Brain Bredel	18	hsa-mir-1261	0.00060741	-
OD Brain Bredel	19	hsa-mir-487a	0.000532445	-
OD Brain Bredel	21	hsa-mir-369-3p	6.82E-05	-
OD Brain Bredel	24	hsa-mir-193a-3p	0.000341762	-
OD Brain Bredel	25	hsa-mir-512-3p	0.000343389	-
OD Brain Bredel	33	hsa-mir-1231	4.51E-05	-
OD Brain Bredel	41	hsa-mir-1276	5.88E-05	-
OD Brain Bredel	43	hsa-mir-412	0.000207539	-
OD Brain Bredel	45	hsa-mir-324	0.000220545	-
OD Brain Bredel	52	hsa-mir-325	0.000190267	-
OD Brain Bredel	56	hsa-mir-126	1.37E-05	-
OD Brain Bredel	57	hsa-mir-148b hsa-mir-152	1.28E-05	-
ODGL Brain Sun	9	hsa-mir-142-3p	2.46E-05	-
ODGL Brain Sun	18	hsa-mir-1274b	4.99E-05	-
ODGL Brain Sun	20	hsa-mir-570	1.84E-05	-
ODGL Brain Sun	25	hsa-mir-548p	2.43E-05	-
ODGL Brain Sun	26	hsa-mir-622	0.000200859	-
ODGL Brain Sun	31	hsa-mir-490-3p	0.00051022	-
ODGL Brain Sun	33	hsa-mir-335	4.85E-05	-
ODGL Brain Sun	36	hsa-mir-361-3p	5.23E-06	-
ODGL Brain Sun	39	hsa-mir-218	0.000131483	-

ODGL Brain Sun	41	hsa-mir-374b hsa-mir-374a	1.52E-05	-
ODGL Brain Sun	44	hsa-mir-1276	0.00049542	-
ODGL Brain Sun	50	hsa-mir-548c-3p	3.15E-05	-
ODGL Brain Sun	52	hsa-mir-1270 hsa-mir-620	6.91E-05	-
ODGL Brain Sun	53	hsa-mir-548m	9.39E-05	-
ODGL Brain Sun	58	hsa-mir-181d hsa-mir-181b	2.72E-05	glioma
ODGL Brain Sun	60	hsa-mir-556-3p	0.000290266	-
ODGL Brain Sun	64	hsa-mir-539	0.00028035	-
ODGL Brain Sun	65	hsa-mir-340	3.02E-06	-
PPC Prostate Dhanasekaran	0	hsa-mir-558	0.000302978	-
PPC Prostate Dhanasekaran	1	hsa-mir-520d hsa-mir-524	0.000129964	-
PPC Prostate Dhanasekaran	2	hsa-mir-217	0.000339362	-
PPC Prostate Dhanasekaran	3	hsa-mir-624	0.000227035	-
PPC Prostate Dhanasekaran	4	hsa-mir-760	0.000111326	-
PPC Prostate Dhanasekaran	9	hsa-mir-153	1.70E-06	-
PPC Prostate Dhanasekaran	10	hsa-mir-421	0.000113825	-
PPC Prostate Dhanasekaran	11	hsa-mir-628-3p	4.46E-05	-
PPC Prostate Dhanasekaran	14	hsa-mir-34a hsa-mir-34c hsa-mir-449a hsa-mir-449b	0.000448451	prostate cancer
PPC Prostate Dhanasekaran	19	hsa-mir-548e	4.34E-07	-
PPC Prostate Dhanasekaran	22	hsa-mir-802	1.01E-05	-
PPC Prostate Dhanasekaran	23	hsa-mir-376	8.08E-05	-
PPC Prostate Dhanasekaran	27	hsa-mir-654-3p	0.000130064	-
PPC Prostate Dhanasekaran	28	hsa-mir-544	1.12E-10	-
PPC Prostate Dhanasekaran	41	hsa-mir-18a hsa-mir-18b	1.28E-05	-
RCCC Renal Boer	0	hsa-mir-140-3p	0.000185774	-
RCCC Renal Boer	3	hsa-mir-217	0.000238884	-

RCCC Renal Boer	4	hsa-mir-1262	0.0004252	-
RCCC Renal Boer	8	hsa-mir-1206	0.000348303	-
RCCC Renal Boer	9	hsa-mir-1256	0.000206072	-
RCCC Renal Boer	12	hsa-mir-760	0.000652786	-
RCCC Renal Boer	13	hsa-mir-200a hsa-mir-141	6.74E-05	cancer
RCCC Renal Boer	14	hsa-mir-590-3p	0.000647061	-
RCCC Renal Boer	15	hsa-mir-548k	0.000242163	-
RCCC Renal Lenburg	6	hsa-mir-651	0.000604766	-
RCCC Renal Lenburg	8	hsa-mir-660	3.63E-05	-
SMCL Lung Bhattacharjee	1	hsa-mir-1237	0.00015325	-
SMCL Lung Bhattacharjee	2	hsa-mir-1266	0.000383019	-
SMCL Lung Bhattacharjee	9	hsa-mir-362-3p hsa-mir-329	0.000160237	-
SMCL Lung Bhattacharjee	10	hsa-mir-720	0.000354772	-
SMCL Lung Bhattacharjee	15	hsa-mir-216b	0.000194459	-
SMCL Lung Bhattacharjee	16	hsa-mir-1274a	0.000233435	-
SMCL Lung Bhattacharjee	17	hsa-mir-888	0.000289329	-
SMCL Lung Bhattacharjee	18	hsa-mir-624	6.67E-06	-
SMCL Lung Bhattacharjee	21	hsa-mir-570	0.000277837	-
SMCL Lung Bhattacharjee	22	hsa-mir-548n	0.000215679	-
SMCL Lung Bhattacharjee	25	hsa-mir-101	0.000395032	lung cancer|lung cancer
SMCL Lung Bhattacharjee	29	hsa-mir-513a-3p	1.00E-05	-
SMCL Lung Bhattacharjee	30	hsa-mir-548n	4.80E-06	-
SMCL Lung Bhattacharjee	34	hsa-mir-1207	3.88E-05	-
SMCL Lung Bhattacharjee	41	hsa-mir-512-3p	0.000567462	-
SMCL Lung Bhattacharjee	45	hsa-mir-432	0.000596485	-
SMCL Lung Bhattacharjee	46	hsa-mir-499	8.39E-05	-
SMCL Lung Bhattacharjee	52	hsa-mir-483-3p	3.55E-05	-
SMCL Lung Bhattacharjee	55	hsa-mir-590-3p	0.000205653	-
SMCL Lung Bhattacharjee	56	hsa-mir-888	0.00034326	-
SQ Lung Bhattacharjee	4	hsa-mir-423	0.000143527	lung cancer
SQ Lung Bhattacharjee	15	hsa-mir-96	4.75E-05	non-small cell lung cancer (NSCLC)
SQ Lung Bhattacharjee	16	hsa-mir-802	0.000178602	-
SQ Lung Bhattacharjee	18	hsa-mir-767	2.17E-06	-
SQ Lung Bhattacharjee	19	hsa-mir-423	3.84E-05	lung cancer
SQ Lung Bhattacharjee	22	hsa-mir-548n	0.000156966	-
SQ Lung Bhattacharjee	28	hsa-mir-616	0.000166731	-

SQ Lung Bhattacharjee	32	hsa-mir-532-3p	0.000103573	-
SQ Lung Bhattacharjee	33	hsa-mir-339	3.36E-06	lung cancer
SQ Lung Bhattacharjee	37	hsa-mir-770	0.000210707	-
SQ Lung Bhattacharjee	41	hsa-mir-885-3p	5.21E-05	-
SQ Lung Bhattacharjee	42	hsa-mir-637	8.30E-06	-
SQ Lung Bhattacharjee	43	hsa-mir-597	4.56E-05	-
SQ Lung Bhattacharjee	44	hsa-mir-767	0.000168025	-
SQ Lung Bhattacharjee	46	hsa-mir-650	0.0001481	-
SQ Lung Bhattacharjee	52	hsa-mir-411	0.000356853	-
SRS Ovarian Hendrix	1	hsa-mir-641	5.26E-05	-
SRS Ovarian Hendrix	2	hsa-mir-505	8.02E-06	-
SRS Ovarian Hendrix	11	hsa-mir-361	1.61E-05	ovarian cancer (OC)
SRS Ovarian Hendrix	15	hsa-mir-1293	1.58E-05	-
SRS Ovarian Hendrix	22	hsa-mir-624	0.000609064	-
SRS Ovarian Hendrix	27	hsa-mir-362	3.10E-05	-
SRS Ovarian Hendrix	30	hsa-mir-424	5.59E-07	ovarian cancer (OC)
SRS Ovarian Hendrix	41	hsa-mir-650	7.93E-06	-
SRS Ovarian Hendrix	45	hsa-mir-146b-3p	0.000287347	-
SRS Ovarian Hendrix	52	hsa-mir-626	0.000199193	-
SRS Ovarian Hendrix	53	hsa-mir-376b hsa-mir-376a	9.72E-08	epithelial ovarian cancer (EOC)
SRS Ovarian Hendrix	54	hsa-mir-448	0.00035465	-
SRS Ovarian Hendrix	55	hsa-mir-548l	4.93E-05	-
SRS Ovarian Hendrix	57	hsa-mir-561	5.83E-05	-
SRS Ovarian Hendrix	60	hsa-mir-188-3p	0.000485917	-
SRS Ovarian Hendrix	66	hsa-mir-892b	6.69E-06	-
SRS Ovarian Hendrix	69	hsa-mir-330-3p	9.80E-09	-
SRS Ovarian Hendrix	70	hsa-mir-641	3.14E-07	-
SRS Ovarian Hendrix	72	hsa-mir-1276	2.59E-10	-
SRS Ovarian Hendrix	73	hsa-mir-340	3.32E-06	-
TU Prostate Lapointe	0	hsa-mir-874	5.58E-05	-
TU Prostate Lapointe	1	hsa-mir-1297 hsa-mir-26a hsa-mir-26b	0.000505563	prostate cancer|prostate cancer
TU Prostate Lapointe	4	hsa-mir-532-3p	3.70E-07	-
TU Prostate Lapointe	9	hsa-mir-208a hsa-mir-208b	1.34E-05	-
TU Prostate Lapointe	17	hsa-mir-96	0.000125874	prostate cancer
TU Prostate Lapointe	18	hsa-mir-760	6.17E-05	-
TU Prostate Lapointe	24	hsa-mir-496	3.93E-06	-
TU Prostate Lapointe	31	hsa-mir-631	0.000651307	-

TU Prostate Lapointe	33	hsa-mir-802	9.41E-05	-
TU Prostate Lapointe	35	hsa-mir-758	1.84E-05	-
TU Prostate Lapointe	37	hsa-mir-199b-3p hsa-mir-199a-3p	0.000280073	cancer|prostate cancer
TU Prostate Lapointe	38	hsa-mir-1264	0.000492613	-
TU Prostate Lapointe	39	hsa-mir-590-3p	1.58E-05	-

Supplementary Table 6.

Dataset	Cluster	miRNA	Uncorrected P-value	miR2Disease
IDC Breast Radvanyi	9	hsa-mir-661	1.62E-05	breast cancer
CA Breast Richardson	16	hsa-mir-18a	3.62E-06	breast cancer
IDC Breast Radvanyi	28	hsa-mir-149	2.94E-05	breast cancer
ILC Breast Radvanyi	20	hsa-mir-328	0.000540368	breast cancer
MCA Breast Radvanyi	18	hsa-mir-663	3.07E-05	breast cancer|breast cancer
CA Breast Richardson	27	hsa-mir-663	2.76E-06	breast cancer|breast cancer
MCA Breast Radvanyi	2	hsa-mir-204	0.000170357	breast cancer|breast cancer
CA Breast Richardson	68	hsa-mir-663	1.21E-06	breast cancer|breast cancer
IDC Breast Radvanyi	15	hsa-mir-205	6.43E-06	breast cancer|breast cancer|breast cancer
MCA Breast Radvanyi	19	hsa-mir-210	0.00017588	breast cancer|breast cancer|breast cancer
B-CLL Leukemia Haslinger	44	hsa-mir-200b	0.000562281	cancer
OD Brain Bredel	12	hsa-mir-200a	1.77E-05	cancer
MPM Mesothelioma Gordon	31	hsa-mir-127	0.000264768	cancer
MPC Prostate Dhanasekaran	0	hsa-mir-200b	4.80E-05	cancer
B-CLL Leukemia Haslinger	55	hsa-mir-200b	3.75E-07	cancer
CA Renal Higgins	3	hsa-mir-199a-3p	0.000230566	cancer
AD Ovarian Welsh	0	hsa-mir-200b	1.65E-06	cancer|epithelial ovarian cancer (EOC)|ovarian cancer (OC)|ovarian cancer (OC)
MUC Ovarian Hendrix	49	hsa-mir-200b	3.93E-06	cancer|epithelial ovarian cancer (EOC)|ovarian cancer (OC)|ovarian cancer (OC)
SRS Ovarian Hendrix	68	hsa-mir-200b	4.92E-06	cancer|epithelial ovarian cancer (EOC)|ovarian cancer (OC)|ovarian cancer (OC)|serous ovarian cancer
ME Melanoma Hoek	35	hsa-mir-200b	1.13E-06	cancer|malignant melanoma
B-CLL Leukemia Haslinger	69	hsa-mir-146a	0.000450962	chronic lymphocytic leukemia (CLL)
CLL Lymphoma Alizadeh	4	hsa-mir-29b	0.000197019	chronic lymphocytic leukemia (CLL)|chronic lymphocytic leukemia (CLL)|chronic lymphocytic leukemia (CLL)
CA Colon Graudens	32	hsa-mir-296	1.18E-06	colorectal cancer
CA Colon Graudens	2	hsa-mir-451	1.16E-05	colorectal cancer
CA Colon Graudens	37	hsa-mir-32	0.000107611	colorectal cancer
CA Colon Graudens	15	hsa-mir-140	0.00034922	colorectal cancer
CA Colon Graudens	38	hsa-mir-96	1.79E-05	colorectal cancer|colorectal cancer
SRS Ovarian Hendrix	60	hsa-mir-184	0.000490759	epithelial ovarian cancer (EOC)
SRS Ovarian Hendrix	64	hsa-mir-377	0.000266561	epithelial ovarian cancer (EOC)
END Ovarian Hendrix	66	hsa-mir-101	4.40E-06	epithelial ovarian cancer (EOC)
CCC Ovarian Hendrix	20	hsa-mir-495	2.23E-05	epithelial ovarian cancer (EOC)
END Ovarian Hendrix	28	hsa-mir-495	1.97E-05	epithelial ovarian cancer (EOC)
CCC Ovarian Hendrix	61	hsa-mir-145	0.000153611	epithelial ovarian cancer (EOC)|epithelial ovarian cancer (EOC)
END Ovarian Hendrix	49	hsa-mir-145	0.000588653	epithelial ovarian cancer (EOC)|epithelial ovarian cancer (EOC)
SRS Ovarian Hendrix	15	hsa-let-7d	0.000397689	epithelial ovarian cancer (EOC)|epithelial ovarian cancer (EOC)|ovarian cancer (OC)
END Ovarian Hendrix	37	hsa-mir-125b	0.000475101	epithelial ovarian cancer (EOC)|ovarian cancer (OC)
END Ovarian Hendrix	78	hsa-mir-125a	0.000362188	epithelial ovarian cancer (EOC)|ovarian cancer (OC)
FL Lymphoma Alizadeh	2	hsa-mir-149	2.16E-05	follicular lymphoma (FL)
GBM Brain Liang	7	hsa-mir-323	5.85E-05	glioblastoma multiforme (GBM)
GL Brain Bredel	60	hsa-mir-25	9.54E-05	glioblastoma|glioma
ODGL Brain Sun	57	hsa-mir-296	9.53E-06	glioma
GL Brain Bredel	32	hsa-mir-15a	0.000311239	glioma
OD Brain Bredel	14	hsa-mir-296	7.12E-06	glioma

AO Brain Bredel	1	hsa-mir-181a	0.000168423	glioma
AO Brain Bredel	28	hsa-mir-296	7.75E-06	glioma
AC Brain Sun	12	hsa-mir-210	6.54E-05	glioma
HSCC Head-Neck Cromer	22	hsa-mir-30b	3.14E-05	head and neck squamous cell carcinoma (HNSCC)
RCCC Renal Lenburg	0	hsa-mir-489	2.02E-05	kidney cancer
RCCC Renal Boer	7	hsa-mir-106b	0.000251281	kidney cancer
SMCL Lung Bhattacharjee	58	hsa-mir-423	0.000179756	lung cancer
AD Lung Beer	18	hsa-mir-19a	5.85E-07	lung cancer
AD Lung Bhattacharjee	0	hsa-mir-338	1.12E-06	lung cancer
SMCL Lung Bhattacharjee	20	hsa-mir-423	7.09E-06	lung cancer
AD Lung Stearman	29	hsa-mir-425	3.76E-05	lung cancer
SQ Lung Bhattacharjee	4	hsa-mir-214	7.88E-05	lung cancer
COID Lung Bhattacharjee	78	hsa-mir-27b	0.000262632	lung cancer
AD Lung Bhattacharjee	27	hsa-mir-451	0.000277652	lung cancer
COID Lung Bhattacharjee	30	hsa-mir-423	0.000201932	lung cancer
COID Lung Bhattacharjee	40	hsa-mir-93	0.000170538	lung cancer
SMCL Lung Bhattacharjee	35	hsa-mir-212	0.000352999	lung cancer
SMCL Lung Bhattacharjee	45	hsa-mir-125a	0.000506289	lung cancer|lung cancer
SQ Lung Bhattacharjee	32	hsa-mir-210	0.000299713	lung cancer|lung cancer
AD Lung Beer	31	hsa-mir-29b	1.59E-06	lung cancer|lung cancer
COID Lung Bhattacharjee	10	hsa-mir-101	7.34E-07	lung cancer|lung cancer
SMCL Lung Bhattacharjee	53	hsa-mir-20a	2.42E-05	lung cancer|lung cancer|lung cancer
AD Lung Bhattacharjee	52	hsa-let-7a	0.000427939	lung cancer|lung cancer|lung cancer|lung cancer|lung cancer|non-small cell lung cancer (NSCLC)|non-small cell lung cancer (NSCLC)
AD Lung Beer	0	hsa-let-7d	8.49E-05	lung cancer|non-small cell lung cancer (NSCLC)
AD Lung Stearman	7	hsa-mir-16	6.72E-05	lung cancer|non-small cell lung cancer (NSCLC)
ME Melanoma Hoek	20	hsa-mir-331	0.000508693	malignant melanoma
ML Melanoma Talantov	8	hsa-mir-199b	3.48E-05	malignant melanoma
ML Melanoma Talantov	27	hsa-mir-96	0.000474947	malignant melanoma
MPM Mesothelioma Gordon	59	hsa-mir-423	7.33E-06	Malignant mesothelioma (MM)
MPM Mesothelioma Gordon	19	hsa-mir-423	0.000166269	Malignant mesothelioma (MM)
SQ Lung Bhattacharjee	49	hsa-mir-34a	0.000184016	non-small cell lung cancer (NSCLC)
SRS Ovarian Hendrix	24	hsa-mir-635	0.000119101	ovarian cancer (OC)
MUC Ovarian Hendrix	28	hsa-mir-296	8.33E-06	ovarian cancer (OC)
AD Ovarian Welsh	25	hsa-mir-572	0.000107609	ovarian cancer (OC)
MUC Ovarian Hendrix	30	hsa-mir-635	0.000153945	ovarian cancer (OC)
SRS Ovarian Hendrix	83	hsa-mir-637	1.65E-06	ovarian cancer (OC)
SRS Ovarian Hendrix	20	hsa-mir-296	0.000493587	ovarian cancer (OC)
SRS Ovarian Hendrix	67	hsa-mir-608	6.23E-07	ovarian cancer (OC)
MUC Ovarian Hendrix	26	hsa-mir-296	6.09E-05	ovarian cancer (OC)
MUC Ovarian Hendrix	48	hsa-mir-608	8.32E-05	ovarian cancer (OC)
SRS Ovarian Hendrix	78	hsa-mir-206	0.000254763	ovarian cancer (OC)
END Ovarian Hendrix	15	hsa-mir-542-3p	3.11E-05	ovarian cancer (OC)
END Ovarian Hendrix	17	hsa-mir-30e	0.000158264	ovarian cancer (OC)
AD Ovarian Welsh	4	hsa-mir-424	9.76E-06	ovarian cancer (OC)
TU Prostate Lapointe	10	hsa-mir-32	9.82E-06	prostate cancer
PPC Prostate Dhanasekaran	34	hsa-mir-149	0.000124363	prostate cancer
TU Prostate Lapointe	13	hsa-mir-497	0.000100169	prostate cancer
TU Prostate Lapointe	23	hsa-mir-25	0.000249991	prostate cancer

TU Prostate Lapointe	19	hsa-mir-296	6.89E-07	prostate cancer
MPC Prostate Dhanasekaran	11	hsa-mir-34a	0.000291101	prostate cancer
MPC Prostate Dhanasekaran	7	hsa-mir-296	4.29E-06	prostate cancer
PPC Prostate Dhanasekaran	17	hsa-mir-34a	0.000201155	prostate cancer
PPC Prostate Dhanasekaran	32	hsa-mir-296	1.77E-05	prostate cancer
MPC Prostate Dhanasekaran	16	hsa-mir-101	2.53E-05	prostate cancer|prostate cancer|prostate cancer
RCCC Renal Boer	0	hsa-mir-494	4.34E-05	renal clear cell carcinoma
GCT Seminoma Korkola	87	hsa-mir-371	8.90E-07	testicular germ cell tumor
GCT Seminoma Korkola	101	hsa-mir-372	3.92E-07	testicular germ cell tumor|testicular germ cell tumor
MUC Ovarian Hendrix	21	hsa-mir-520d	3.10E-05	-
MUC Ovarian Hendrix	19	hsa-mir-548g	1.81E-05	-
AD Lung Bhattacharjee	55	hsa-mir-1286	5.31E-05	-
GL Brain Bredel	22	hsa-mir-657	0.000105499	-
GLB Brain Sun	36	hsa-mir-423	2.03E-07	-
COID Lung Bhattacharjee	58	hsa-mir-23a	0.000106957	-
AD Ovarian Welsh	1	hsa-mir-548d-3p	6.48E-07	-
CA Colon Graudens	24	hsa-mir-522	1.62E-06	-
SMCL Lung Bhattacharjee	18	hsa-mir-513	4.74E-05	-
ME Melanoma Hoek	26	hsa-mir-577	0.00015717	-
B-CLL Leukemia Haslinger	38	hsa-mir-548g	8.13E-05	-
SMCL Lung Bhattacharjee	6	hsa-mir-1201	0.000464237	-
AD Lung Beer	38	hsa-mir-933	2.88E-05	-
BPH Prostate Dhanasekaran	18	hsa-mir-513a-3p	1.76E-05	-
GCT Seminoma Korkola	89	hsa-mir-1257	5.15E-06	-
MPM Mesothelioma Gordon	64	hsa-mir-655	6.39E-06	-
GCT Seminoma Korkola	28	hsa-mir-146a	0.000148787	-
HSCC Head-Neck Chung	9	hsa-mir-708	0.000132985	-
GLB Brain Sun	72	hsa-mir-1294	6.36E-05	-
B-CLL Leukemia Haslinger	36	hsa-mir-587	0.000191245	-
CA Breast Sorlie	20	hsa-mir-590-3p	3.24E-07	-
GCT Seminoma Korkola	112	hsa-mir-548n	7.79E-15	-
AD Lung Stearman	13	hsa-mir-23a	5.53E-05	-
COID Lung Bhattacharjee	51	hsa-mir-656	3.16E-09	-
CA Breast Richardson	28	hsa-mir-765	0.000106308	-
AD Lung Bhattacharjee	30	hsa-mir-548c-3p	9.03E-14	-
ILC Breast Radvanyi	2	hsa-mir-423-3p	0.000203181	-
MPM Mesothelioma Gordon	29	hsa-mir-1265	0.000313362	-
ML Melanoma Talantov	26	hsa-mir-664	2.21E-05	-
CA Bladder Dyrskjot	39	hsa-mir-486-3p	0.000214753	-
GLB Brain Sun	18	hsa-mir-498	6.03E-09	-
PPC Prostate Dhanasekaran	29	hsa-mir-509-3p	0.000145973	-
CA Breast Richardson	33	hsa-mir-1251	0.000477316	-
CA Breast Richardson	3	hsa-mir-578	8.26E-06	-
GCT Seminoma Korkola	37	hsa-mir-519a	1.33E-09	-
GL Brain Rickman	22	hsa-mir-374b	4.01E-07	-
CA Bladder Dyrskjot	1	hsa-mir-637	6.92E-11	-
SRS Ovarian Hendrix	16	hsa-mir-548k	1.82E-06	-
AD Lung Bhattacharjee	81	hsa-mir-516b	1.26E-05	-
FL Lymphoma Alizadeh	0	hsa-mir-92a	1.01E-07	-

MPC Prostate Dhanasekaran	29	hsa-mir-663	6.65E-05	-
AD Lung Beer	43	hsa-mir-1275	0.000105766	-
CA Bladder Dyrskjot	3	hsa-mir-1308	8.73E-07	-
5RS Ovarian Hendrix	10	hsa-mir-34c-3p	4.69E-07	-
MPC Prostate Dhanasekaran	26	hsa-mir-548j	0.000385787	-
CCC Ovarian Hendrix	44	hsa-mir-548m	1.07E-05	-
CA Bladder Dyrskjot	53	hsa-mir-944	1.08E-06	-
GCT Seminoma Korkola	31	hsa-mir-891a	0.000233697	-
COID Lung Bhattacharjee	25	hsa-mir-361	6.17E-05	-
MM Myeloma Zhan	50	hsa-mir-28	7.86E-05	-
AD Ovarian Welsh	10	hsa-mir-921	6.01E-06	-
SMCL Lung Bhattacharjee	46	hsa-mir-891b	0.000383258	-
RCCC Renal Boer	1	hsa-mir-371	0.000530325	-
PPC Prostate Dhanasekaran	1	hsa-mir-561	1.34E-05	-
GCT Seminoma Korkola	80	hsa-mir-573	3.65E-06	-
CCC Ovarian Hendrix	14	hsa-mir-1276	1.06E-05	-
GL Brain Bredel	17	hsa-mir-877	0.000266194	-
END Ovarian Hendrix	32	hsa-mir-548d-3p	6.61E-11	-
COID Lung Bhattacharjee	48	hsa-mir-886	0.000189G2	-
CA Bladder Dyrskjot	23	hsa-mir-211	8.07E-07	-
MPM Mesothelioma Gordon	56	hsa-mir-590-3p	9.29E-06	-
BPH Prostate Dhanasekaran	7	hsa-mir-380	4.14E-06	-
5RS Ovarian Hendrix	75	hsa-mir-372	1.97E-08	-
COID Lung Bhattacharjee	5	hsa-mir-548o	2.41E-05	-
GL Brain Bredel	78	hsa-mir-424	0.000301626	-
BPH Prostate Dhanasekaran	9	hsa-mir-574	0.000269626	-
FL Lymphoma Alizadeh	11	hsa-mir-614	0.000529183	-
GCT Seminoma Korkola	63	hsa-mir-889	3.04E-06	-
END Ovarian Hendrix	77	hsa-mir-590-3p	4.95E-09	-
DLBCL Lymphoma Alizadeh	3	hsa-mir-744	1.82E-05	-
MPM Mesothelioma Gordon	52	hsa-mir-606	8.63E-08	-
SQ Lung Bhattacharjee	30	hsa-mir-1233	0.000445813	-
CA Bladder Dyrskjot	25	hsa-mir-1204	2.52E-05	-
GCT Seminoma Korkola	73	hsa-mir-675	0.000190634	-
MUC Ovarian Hendrix	55	hsa-mir-486-3p	1.46E-05	-
SMCL Lung Bhattacharjee	2	hsa-mir-940	1.23E-05	-
GCT Seminoma Korkola	3	hsa-mir-296	2.40E-07	-
CCC Ovarian Hendrix	37	hsa-mir-1237	0.000328049	-
AC Brain Sun	46	hsa-mir-590-3p	9.16E-09	-
PPC Prostate Dhanasekaran	28	hsa-mir-944	3.15E-12	-
HSCC Head-Neck Cromer	20	hsa-mir-567	4.16E-07	-
MUC Ovarian Hendrix	23	hsa-mir-486-3p	2.97E-07	-
GLB Brain Sun	73	hsa-mir-187	5.00E-06	-
ME Melanoma Hoek	16	hsa-mir-631	0.000590804	-
COID Lung Bhattacharjee	64	hsa-mir-661	6.54E-07	-
COID Lung Bhattacharjee	75	hsa-mir-874	7.97E-05	-
CA Breast Richardson	58	hsa-mir-889	6.58E-05	-
CA Breast Richardson	53	hsa-mir-486	3.46E-05	-
GCT Seminoma Korkola	85	hsa-mir-181	0.000115903	-

ODGL Brain Sun	11	hsa-mir-219-1-3p	0.000228608	-
CA Breast Richardson	65	hsa-mir-1254	4.75E-05	-
AD Ovarian Welsh	21	hsa-mir-606	8.71E-05	-
MPC Prostate Dhanasekaran	48	hsa-mir-625	0.000326443	-
SMCL Lung Bhattacharjee	11	hsa-mir-1321	0.000308592	-
H5CC Head-Neck Chung	10	hsa-mir-607	3.02E-05	-
GBM Brain Liang	13	hsa-mir-1278	0.000208092	-
GL Brain Rickman	23	hsa-mir-935	9.26E-06	-
AC Brain Sun	28	hsa-mir-539	4.32E-05	-
GLB Brain Sun	1	hsa-mir-324	3.16E-05	-
DLBCL Lymphoma Alizadeh	7	hsa-mir-1301	0.000173451	-
SRS Ovarian Hendrix	21	hsa-mir-944	4.95E-07	-
ODGL Brain Sun	63	hsa-mir-410	0.000134983	-
AD Lung Beer	15	hsa-mir-586	0.000587308	-
MUC Ovarian Hendrix	72	hsa-mir-409	0.00020328	-
CA Breast Richardson	51	hsa-mir-633	1.08E-05	-
GCT Seminoma Korkola	83	hsa-mir-1254	0.000197016	-
CCC Ovarian Hendrix	43	hsa-mir-1247	2.38E-07	-
B-CLL Leukemia Haslinger	31	hsa-mir-1321	0.000537156	-
MM Myeloma Zhan	39	hsa-mir-647	0.000511455	-
CA Breast Richardson	25	hsa-mir-1252	0.000611632	-
BPH Prostate Dhanasekaran	20	hsa-mir-1224-3p	9.26E-06	-
GCT Seminoma Korkola	72	hsa-mir-760	4.02E-05	-
SRS Ovarian Hendrix	55	hsa-mir-338	1.40E-06	-
IDC Breast Radvanyi	7	hsa-mir-450b-3p	0.000288602	-
MUC Ovarian Hendrix	34	hsa-mir-1291	0.000213025	-
MUC Ovarian Hendrix	56	hsa-mir-548c-3p	2.02E-10	-
OD Brain Bredel	57	hsa-mir-423	2.25E-06	-
TU Prostate Lapointe	0	hsa-mir-219-2-3p	7.92E-05	-
SMCL Lung Bhattacharjee	28	hsa-mir-744	9.04E-05	-
TU Prostate Lapointe	17	hsa-mir-219	0.000106525	-
END Ovarian Hendrix	20	hsa-mir-663b	9.77E-05	-
GCT Seminoma Korkola	96	hsa-mir-29a	8.00E-05	-
B-CLL Leukemia Haslinger	53	hsa-mir-513a-3p	1.99E-05	-
CCC Ovarian Hendrix	7	hsa-mir-382	0.000180447	-
CA Bladder Dyrskjot	9	hsa-mir-548c-3p	1.50E-14	-
CA Bladder Dyrskjot	65	hsa-mir-888	1.94E-05	-
END Ovarian Hendrix	76	hsa-mir-888	8.60E-06	-
GLB Brain Sun	54	hsa-mir-921	2.44E-08	-
GCT Seminoma Korkola	40	hsa-mir-548n	0.000170776	-
GLB Brain Sun	0	hsa-mir-637	3.57E-05	-
RCCC Renal Boer	13	hsa-mir-1279	1.39E-06	-
MUC Ovarian Hendrix	76	hsa-mir-573	7.31E-08	-
AD Lung Bhattacharjee	22	hsa-mir-519	0.000399164	-
END Ovarian Hendrix	9	hsa-mir-486-3p	2.89E-06	-
AD Lung Bhattacharjee	75	hsa-mir-637	2.83E-06	-
ME Melanoma Hoek	0	hsa-mir-582	4.80E-05	-
MUC Ovarian Hendrix	73	hsa-mir-361-3p	4.66E-10	-
CA Breast Richardson	61	hsa-mir-1271	0.000378242	-

AC Brain Sun	17	hsa-mir-617	0.000105979	-
TU Prostate Lapointe	34	hsa-mir-886	0.000346316	-
MUC Ovarian Hendrix	13	hsa-mir-1280	0.000351255	-
DLBCL Lymphoma Alizadeh	2	hsa-mir-660	0.000277854	-
GLB Brain Sun	31	hsa-mir-501-3p	0.000148691	-
MUC Ovarian Hendrix	15	hsa-mir-944	7.48E-12	-
GCT Seminoma Korkola	102	hsa-mir-34a	9.24E-05	-
HSCC Head-Neck Cromer	10	hsa-mir-520a	0.000571699	-
ODGL Brain Sun	0	hsa-mir-637	0.000354231	-
MPM Mesothelioma Gordon	27	hsa-mir-128	0.000309287	-
GL Brain Bredel	57	hsa-mir-193a-3p	0.000180522	-
CA Bladder Dyrskjot	42	hsa-mir-362	9.61E-05	-
MPC Prostate Dhanasekaran	22	hsa-mir-382	5.46E-06	-
ILC Breast Radvanyi	4	hsa-mir-548a-3p	0.000525313	-
CA Bladder Dyrskjot	13	hsa-mir-548c-3p	6.28E-07	-
AD Lung Bhattacharjee	35	hsa-mir-133a	1.57E-05	-
MUC Ovarian Hendrix	27	hsa-mir-423	0.000146728	-
MUC Ovarian Hendrix	18	hsa-mir-606	5.19E-05	-
GCT Seminoma Korkola	25	hsa-mir-607	1.21E-08	-
MPM Mesothelioma Gordon	51	hsa-mir-376a	0.000159942	-
GLB Brain Sun	20	hsa-mir-331	3.35E-05	-
AD Lung Bhattacharjee	44	hsa-mir-1284	6.45E-06	-
GCT Seminoma Korkola	21	hsa-mir-520f	2.04E-08	-
SRS Ovarian Hendrix	66	hsa-mir-548c-3p	8.80E-09	-
CA Breast Richardson	59	hsa-mir-608	1.67E-05	-
AD Lung Bhattacharjee	10	hsa-mir-1321	6.35E-06	-
DLBCL Lymphoma Alizadeh	6	hsa-mir-483-3p	0.000603016	-
END Ovarian Hendrix	38	hsa-mir-944	3.49E-09	-
CCC Ovarian Hendrix	51	hsa-mir-499-3p	0.000444328	-
MPC Prostate Dhanasekaran	17	hsa-mir-1266	3.02E-06	-
END Ovarian Hendrix	34	hsa-mir-1826	3.03E-05	-
RCCC Renal Lenburg	8	hsa-mir-889	6.31E-06	-
END Ovarian Hendrix	11	hsa-mir-940	9.79E-05	-
GL Brain Bredel	72	hsa-mir-760	0.000219694	-
AD Lung Bhattacharjee	17	hsa-mir-491	4.14E-05	-
COID Lung Bhattacharjee	52	hsa-mir-154	0.000584551	-
GCT Seminoma Korkola	75	hsa-mir-708	3.60E-05	-
ML Melanoma Talantov	23	hsa-mir-1259	2.73E-07	-
ME Melanoma Hoek	9	hsa-mir-494	4.40E-05	-
ML Melanoma Talantov	14	hsa-mir-548c-3p	4.53E-14	-
AD Lung Stearman	36	hsa-mir-1269	1.34E-05	-
ILC Breast Radvanyi	24	hsa-mir-340	0.000381565	-
ODGL Brain Sun	47	hsa-mir-1204	1.23E-05	-
CCC Ovarian Hendrix	9	hsa-mir-1291	5.79E-05	-
B-CLL Leukemia Haslinger	68	hsa-mir-520g	0.000419055	-
GLB Brain Sun	68	hsa-mir-299	0.000302475	-
BPH Prostate Dhanasekaran	13	hsa-mir-922	3.12E-05	-
OD Brain Bredel	3	hsa-mir-195	0.00018012	-
MUC Ovarian Hendrix	3	hsa-mir-1205	0.000111582	-

SQ Lung Bhattacharjee	15	hsa-mir-569	3.55E-07	-
AD Lung Beer	6	hsa-mir-548c-3p	1.66E-05	-
CA Renal Higgins	17	hsa-mir-663	3.57E-07	-
CCC Ovarian Hendrix	10	hsa-mir-615	2.06E-05	-
SR5 Ovarian Hendrix	30	hsa-mir-582	2.24E-07	-
CA Renal Higgins	13	hsa-mir-663	4.59E-05	-
CA Breast Richardson	50	hsa-mir-380	1.42E-05	-
CA Bladder Dyrskjot	71	hsa-mir-662	0.000356281	-
5MCL Lung Bhattacharjee	5	hsa-mir-1321	0.000105392	-
SR5 Ovarian Hendrix	17	hsa-mir-193b	0.000508028	-
RCCC Renal Boer	9	hsa-mir-502-3p	0.000234434	-
SQ Lung Bhattacharjee	19	hsa-mir-647	9.65E-06	-
END Ovarian Hendrix	31	hsa-mir-1253	0.000484638	-
MPM Mesothelioma Gordon	36	hsa-mir-487a	3.08E-06	-
CA Breast Richardson	15	hsa-mir-494	1.40E-06	-
MM Myeloma Zhan	4	hsa-mir-185	6.20E-06	-
CA Colon Graudens	40	hsa-mir-369-3p	4.96E-06	-
CA Breast Richardson	18	hsa-mir-135a	3.32E-06	-
ILC Breast Radvanyi	10	hsa-mir-548c-3p	0.000529657	-
MUC Ovarian Hendrix	8	hsa-mir-486-3p	2.29E-05	-
GI Brain Rickman	32	hsa-mir-889	0.000162082	-
AD Lung Bhattacharjee	34	hsa-mir-296	1.13E-05	-
GCT Seminoma Korkola	52	hsa-mir-508	1.79E-05	-
GLB Brain Sun	3	hsa-mir-320a	0.000334921	-
CA Breast Richardson	46	hsa-mir-607	8.39E-07	-
MPM Mesothelioma Gordon	15	hsa-mir-1229	0.000201101	-
CA Colon Graudens	31	hsa-mir-548o	4.28E-06	-
PPC Prostate Dhanasekaran	2	hsa-mir-641	0.000166542	-
END Ovarian Hendrix	65	hsa-mir-331-3p	0.000108718	-
SR5 Ovarian Hendrix	59	hsa-mir-656	0.000449134	-
MM Myeloma Zhan	34	hsa-mir-147b	0.000550706	-
CA Bladder Dyrskjot	22	hsa-mir-663	9.26E-07	-
CCC Ovarian Hendrix	13	hsa-mir-500	0.000239274	-
ME Melanoma Hoek	15	hsa-mir-1292	0.000135688	-
CA Bladder Dyrskjot	10	hsa-mir-597	7.62E-05	-
AC Brain Sun	31	hsa-mir-1280	5.32E-05	-
GCT Seminoma Korkola	16	hsa-mir-1183	4.57E-05	-
5MCL Lung Bhattacharjee	47	hsa-mir-302e	0.000548428	-
GI Brain Bredel	47	hsa-mir-1236	0.000346282	-
GCT Seminoma Korkola	32	hsa-mir-608	0.000145012	-
CCC Ovarian Hendrix	0	hsa-mir-194	6.00E-06	-
MUC Ovarian Hendrix	65	hsa-mir-380	2.65E-05	-
GLB Brain Sun	59	hsa-mir-1252	3.13E-05	-
AC Brain Sun	18	hsa-mir-1305	0.000570172	-
GCT Seminoma Korkola	69	hsa-mir-296	0.000405059	-
END Ovarian Hendrix	43	hsa-mir-590-3p	1.16E-05	-
MM Myeloma Zhan	26	hsa-mir-1321	5.01E-06	-
MPM Mesothelioma Gordon	2	hsa-mir-1207	0.000107599	-
HSCC Head-Neck Chung	4	hsa-mir-548l	5.28E-05	-

CA Bladder Dyrskjot	36	hsa-mir-548c-3p	5.69E-13	-
AD Lung Bhattacharjee	19	hsa-mir-1247	0.000325418	-
CA Bladder Dyrskjot	16	hsa-mir-939	9.40E-07	-
SRS Ovarian Hendrix	11	hsa-mir-590-3p	0.000114458	-
MUC Ovarian Hendrix	66	hsa-mir-889	0.000101883	-
AD Lung Stearman	6	hsa-mir-380	9.21E-05	-
BPH Prostate Dhanasekaran	4	hsa-mir-1278	0.000153909	-
CA Breast Richardson	29	hsa-mir-1302	5.51E-05	-
AD Ovarian Welsh	11	hsa-mir-1225	0.000597055	-
COID Lung Bhattacharjee	20	hsa-mir-615-3p	0.000534605	-
MPM Mesothelioma Gordon	54	hsa-mir-548h	0.000153669	-
GCT Seminoma Korkola	34	hsa-mir-136	9.69E-10	-
CA Colon Graudens	5	hsa-mir-548h	0.000122758	-
CA Breast Richardson	45	hsa-mir-513a-3p	7.34E-10	-
TU Prostate Lapointe	11	hsa-mir-152	1.30E-05	-
OD Brain Bredel	47	hsa-mir-219-1-3p	0.000375423	-
SMCL Lung Bhattacharjee	50	hsa-mir-664	5.89E-14	-
MPM Mesothelioma Gordon	33	hsa-mir-768	0.000220019	-
MPC Prostate Dhanasekaran	8	hsa-mir-219-1-3p	0.000270967	-
CCC Ovarian Hendrix	33	hsa-mir-770	0.000104352	-
GLB Brain Sun	49	hsa-mir-340	5.60E-05	-
END Ovarian Hendrix	48	hsa-mir-1304	1.80E-05	-
CA Bladder Dyrskjot	72	hsa-mir-296	1.00E-10	-
AD Lung Beer	42	hsa-mir-651	0.000137443	-
MM Myeloma Zhan	15	hsa-mir-922	2.66E-05	-
SRS Ovarian Hendrix	26	hsa-mir-325	9.20E-05	-
CA Colon Graudens	14	hsa-mir-886	0.00042904	-
MPC Prostate Dhanasekaran	36	hsa-mir-942	4.86E-05	-
GL Brain Bredel	66	hsa-mir-27a	0.000131506	-
ILC Breast Radvanyi	26	hsa-mir-486-3p	1.82E-06	-
SRS Ovarian Hendrix	35	hsa-mir-220a	6.69E-06	-
PPC Prostate Dhanasekaran	27	hsa-mir-1279	2.59E-05	-
COID Lung Bhattacharjee	11	hsa-mir-513b	1.56E-05	-
MUC Ovarian Hendrix	50	hsa-mir-889	4.39E-06	-
ME Melanoma Hoek	12	hsa-mir-935	8.40E-06	-
SQ Lung Bhattacharjee	24	hsa-mir-889	9.55E-06	-
ODGL Brain Sun	20	hsa-mir-548e	2.16E-06	-
ODGL Brain Sun	25	hsa-mir-548l	3.21E-08	-
ODGL Brain Sun	2	hsa-mir-939	1.10E-11	-
COID Lung Bhattacharjee	69	hsa-mir-765	0.000160635	-
END Ovarian Hendrix	3	hsa-mir-1279	0.000316131	-
END Ovarian Hendrix	51	hsa-mir-342	4.60E-05	-
SQ Lung Bhattacharjee	45	hsa-mir-654	9.06E-05	-
MPC Prostate Dhanasekaran	34	hsa-mir-1279	3.65E-08	-
AD Lung Bhattacharjee	12	hsa-mir-590-3p	0.000565441	-
AD Pancreas Logsdon	18	hsa-mir-939	9.11E-05	-
B-CLL Leukemia Haslinger	41	hsa-mir-483	0.000426084	-
ML Melanoma Talantov	36	hsa-mir-663	7.10E-09	-
GCT Seminoma Korkola	106	hsa-mir-513b	0.000341133	-

SQ Lung Bhattacharjee	50	hsa-mir-607	6.96E-05	-
GCT Seminoma Korkola	111	hsa-mir-296	0.000178861	-
SQ Lung Bhattacharjee	27	hsa-mir-940	8.78E-05	-
MM Myeloma Zhan	47	hsa-mir-662	7.87E-05	-
END Ovarian Hendrix	40	hsa-mir-944	8.92E-07	-
IDC Breast Radvanyi	4	hsa-mir-608	0.000192757	-
SRS Ovarian Hendrix	6	hsa-mir-185	0.000528828	-
GL Brain Rickman	9	hsa-mir-1207	4.71E-06	-
GL Brain Bredel	0	hsa-mir-548i	0.000241782	-
B-CLL Leukemia Haslinger	65	hsa-mir-1247	0.000436296	-
AD Lung Bhattacharjee	6	hsa-mir-602	0.000348747	-
SRS Ovarian Hendrix	32	hsa-mir-331-3p	1.37E-05	-
END Ovarian Hendrix	72	hsa-mir-548d-3p	8.31E-06	-
CA Bladder Dyrskjot	40	hsa-mir-548d-3p	0.000121089	-
ME Melanoma Hoek	39	hsa-mir-944	3.30E-06	-
GCT Seminoma Korkola	39	hsa-mir-639	9.46E-05	-
GCT Seminoma Korkola	98	hsa-mir-203	5.28E-08	-
SRS Ovarian Hendrix	48	hsa-mir-1278	7.16E-05	-
END Ovarian Hendrix	60	hsa-mir-570	2.61E-09	-
GL Brain Rickman	15	hsa-mir-487a	0.000117352	-
AD Lung Beer	53	hsa-mir-548d-3p	1.04E-06	-
MUC Ovarian Hendrix	63	hsa-mir-1247	6.75E-05	-
COID Lung Bhattacharjee	23	hsa-mir-1228	0.000222914	-
SMCL Lung Bhattacharjee	61	hsa-mir-331-3p	3.73E-06	-
MUC Ovarian Hendrix	0	hsa-mir-410	5.36E-08	-
COID Lung Bhattacharjee	12	hsa-mir-494	8.93E-06	-
ME Melanoma Hoek	41	hsa-mir-451	0.000175004	-
MUC Ovarian Hendrix	69	hsa-mir-579	5.85E-05	-
MUC Ovarian Hendrix	60	hsa-mir-574-3p	3.68E-05	-
END Ovarian Hendrix	50	hsa-mir-548c-3p	2.18E-10	-
PPC Prostate Dhanasekaran	33	hsa-mir-548e	9.16E-06	-
GLB Brain Sun	25	hsa-mir-600	6.06E-06	-
MM Myeloma Zhan	11	hsa-mir-658	0.00033622	-
IDC Breast Radvanyi	41	hsa-mir-939	6.12E-06	-
CA Breast Richardson	37	hsa-mir-1289	0.000579338	-
SRS Ovarian Hendrix	79	hsa-mir-944	5.09E-05	-
AD Pancreas Logsdon	12	hsa-mir-933	0.000128551	-
SRS Ovarian Hendrix	9	hsa-mir-1297	0.000150331	-
RCCC Renal Lenburg	9	hsa-mir-1238	0.000381766	-
AC Brain Sun	37	hsa-mir-569	0.000257268	-
MPC Prostate Dhanasekaran	12	hsa-mir-340	5.22E-11	-
IDC Breast Radvanyi	14	hsa-mir-323-3p	0.000103181	-
PPC Prostate Dhanasekaran	37	hsa-mir-553	0.000599727	-
CA Bladder Dyrskjot	15	hsa-mir-1323	2.35E-07	-
END Ovarian Hendrix	82	hsa-mir-320b	1.53E-05	-
HSCC Head-Neck Chung	7	hsa-mir-573	4.02E-05	-
MM Myeloma Zhan	13	hsa-mir-770	3.53E-05	-
B-CLL Leukemia Haslinger	35	hsa-mir-486-3p	5.55E-09	-
CA Bladder Dyrskjot	54	hsa-mir-491	6.59E-06	-

SRS Ovarian Hendrix	61	hsa-mir-1224-3p	0.000355435	-
AO Brain Bredel	22	hsa-mir-663	3.41E-06	-
IDC Breast Radvanyi	56	hsa-mir-576	0.000441942	-
B-CLL Leukemia Haslinger	21	hsa-mir-548c-3p	1.93E-14	-
MUC Ovarian Hendrix	7	hsa-mir-590-3p	1.46E-10	-
B-CLL Leukemia Haslinger	52	hsa-mir-302a	0.000364911	-
GL Brain Rickman	34	hsa-mir-1274a	4.31E-05	-
ML Melanoma Talantov	9	hsa-mir-493	0.000491063	-
MPC Prostate Dhanasekaran	40	hsa-mir-220	9.77E-06	-
CA Breast Sorlie	23	hsa-mir-423	0.000106954	-
AD Lung Bhattacharjee	82	hsa-mir-647	0.000162289	-
AD Ovarian Welsh	9	hsa-mir-524	3.48E-05	-
GL Brain Rickman	27	hsa-mir-182	7.81E-05	-
CA Bladder Dyrskjot	80	hsa-mir-616	7.12E-05	-
FL Lymphoma Alizadeh	5	hsa-mir-581	0.000111755	-
TU Prostate Lapointe	32	hsa-mir-608	6.56E-07	-
SRS Ovarian Hendrix	73	hsa-mir-340	1.71E-08	-
B-CLL Leukemia Haslinger	51	hsa-mir-448	0.000227269	-
CA Bladder Dyrskjot	24	hsa-mir-663	2.33E-05	-
ODGL Brain Sun	7	hsa-mir-548k	0.000124326	-
ODGL Brain Sun	41	hsa-mir-26b	5.24E-05	-
AD Lung Beer	28	hsa-mir-1245	0.000608297	-
CA Breast Sorlie	17	hsa-mir-640	0.000265634	-
SMCL Lung Bhattacharjee	7	hsa-mir-615	0.00025691	-
CA Bladder Dyrskjot	29	hsa-mir-548c-3p	1.79E-06	-
CA Breast Richardson	2	hsa-mir-590-3p	8.86E-05	-
PPC Prostate Dhanasekaran	20	hsa-mir-1207	0.000191478	-
SRS Ovarian Hendrix	57	hsa-mir-548d-3p	5.11E-06	-
OD Brain Bredel	54	hsa-mir-1275	7.51E-05	-
MUC Ovarian Hendrix	68	hsa-mir-1305	1.03E-05	-
MPM Mesothelioma Gordon	32	hsa-mir-541	0.000130877	-
AD Lung Stearman	27	hsa-mir-300	5.00E-06	-
RCCC Renal Boer	15	hsa-mir-300	0.000145597	-
MPC Prostate Dhanasekaran	2	hsa-mir-548c-3p	2.35E-06	-
CA Bladder Dyrskjot	64	hsa-mir-590-3p	1.06E-25	-
AC Brain Sun	3	hsa-mir-1205	2.84E-05	-
CA Breast Richardson	54	hsa-mir-361-3p	2.22E-12	-
B-CLL Leukemia Haslinger	28	hsa-mir-376	0.000318075	-
B-CLL Leukemia Haslinger	54	hsa-mir-1321	3.27E-05	-
SMCL Lung Bhattacharjee	31	hsa-mir-513a-3p	1.28E-08	-
AD Lung Bhattacharjee	41	hsa-mir-296	6.11E-05	-
AD Lung Stearman	32	hsa-mir-588	0.00048611	-
GCT Seminoma Korkola	0	hsa-mir-1251	3.03E-05	-
AD Lung Bhattacharjee	14	hsa-mir-938	0.000464954	-
GCT Seminoma Korkola	108	hsa-mir-590	0.000599626	-
ODGL Brain Sun	65	hsa-mir-495	3.90E-08	-
B-CLL Leukemia Haslinger	16	hsa-mir-1285	8.55E-08	-
AD Ovarian Welsh	31	hsa-mir-548c-3p	1.17E-06	-
GLB Brain Sun	37	hsa-mir-1256	0.000894523	-

IDC Breast Radvanyi	18	hsa-mir-1207-3p	0.000171598	-
AD Lung Bhattacharjee	8	hsa-mir-1324	2.99E-05	-
IDC Breast Radvanyi	65	hsa-mir-802	3.44E-17	-
CCC Ovarian Hendrix	56	hsa-mir-587	0.000320898	-
5Q Lung Bhattacharjee	23	hsa-mir-586	0.000126996	-
GLB Brain Sun	27	hsa-mir-889	4.14E-06	-
CA Bladder Dyrskjot	32	hsa-mir-1270	1.86E-06	-
CA Bladder Dyrskjot	58	hsa-mir-328	0.000324179	-
COID Lung Bhattacharjee	74	hsa-mir-513a-3p	1.46E-07	-
B-CLL Leukemia Haslinger	43	hsa-mir-483-3p	6.86E-05	-
HSCC Head-Neck Cromer	26	hsa-mir-885	1.44E-05	-
GLB Brain Sun	35	hsa-mir-922	0.000367795	-
ML Melanoma Talantov	10	hsa-mir-1180	0.000368404	-
AD Ovarian Welsh	8	hsa-mir-1260	3.07E-05	-
CCC Ovarian Hendrix	58	hsa-mir-586	3.47E-08	-
AC Brain Sun	50	hsa-mir-483-3p	0.000171585	-
BPH Prostate Dhanasekaran	1	hsa-mir-579	0.00020642	-
ODGL Brain Sun	27	hsa-mir-136	0.000113816	-
COID Lung Bhattacharjee	43	hsa-mir-658	7.50E-05	-
GL Brain Rickman	17	hsa-mir-146b-3p	0.000528862	-
CA Breast Richardson	19	hsa-mir-586	0.000229107	-
5RS Ovarian Hendrix	4	hsa-mir-1250	1.87E-05	-
CA Breast Sorlie	16	hsa-mir-579	3.19E-05	-
HSCC Head-Neck Cromer	18	hsa-mir-615-3p	0.000195451	-
MPM Mesothelioma Gordon	62	hsa-mir-708	0.000307699	-
ML Melanoma Talantov	40	hsa-mir-296	4.56E-06	-
MUC Ovarian Hendrix	54	hsa-mir-921	1.11E-05	-
CA Bladder Dyrskjot	12	hsa-mir-1244	0.000260354	-
TU Prostate Lapointe	33	hsa-mir-548c-3p	1.75E-07	-
MPC Prostate Dhanasekaran	27	hsa-mir-1271	0.000148676	-
CA Renal Higgins	4	hsa-mir-34b	2.00E-07	-
END Ovarian Hendrix	4	hsa-mir-612	0.00056313	-
MPM Mesothelioma Gordon	44	hsa-mir-338	8.55E-05	-
B-CLL Leukemia Haslinger	17	hsa-mir-590-3p	1.39E-13	-
CA Bladder Dyrskjot	48	hsa-mir-520b	0.000475673	-
CCC Ovarian Hendrix	46	hsa-mir-340	7.26E-09	-
HSCC Head-Neck Chung	1	hsa-mir-450b	3.20E-05	-
COID Lung Bhattacharjee	6	hsa-mir-874	4.15E-05	-
CA Bladder Dyrskjot	37	hsa-mir-548n	9.02E-08	-
CA Bladder Dyrskjot	14	hsa-mir-944	3.76E-05	-
5RS Ovarian Hendrix	44	hsa-mir-584	0.000486209	-
ODGL Brain Sun	22	hsa-mir-423	7.28E-09	-
AD Lung Bhattacharjee	46	hsa-mir-548c-3p	3.06E-06	-
AD Lung Stearman	19	hsa-mir-370	2.85E-06	-
GL Brain Rickman	8	hsa-mir-634	0.000383758	-
SRS Ovarian Hendrix	3	hsa-mir-146b-3p	0.000175563	-
CA Bladder Dyrskjot	56	hsa-mir-1238	2.31E-06	-
IDC Breast Radvanyi	43	hsa-mir-1224	5.00E-05	-
ILC Breast Radvanyi	19	hsa-mir-338-3p	0.000520796	-

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END Ovarian Hendrix	16	hsa-mir-588	3.82E-06	-
MPM Mesothelioma Gordon	13	hsa-mir-585	4.85E-05	-
HSCC Head-Neck Cromer	12	hsa-mir-513a-3p	2.34E-05	-
COID Lung Bhattacharjee	24	hsa-mir-342	7.55E-05	-
IDC Breast Radvanyi	27	hsa-mir-323	0.000569837	-
ODGL Brain Sun	50	hsa-mir-217	0.000123791	-
AD Lung Bhattacharjee	24	hsa-mir-608	1.22E-06	-
GCT Seminoma Korkola	71	hsa-mir-361-3p	4.76E-07	-
AD Lung Beer	12	hsa-mir-378	0.000355275	-
SQ Lung Bhattacharjee	29	hsa-mir-486-3p	8.12E-06	-
MM Myeloma Zhan	35	hsa-mir-129	0.000200071	-
CCC Ovarian Hendrix	4	hsa-mir-194	1.45E-05	-
AD Ovarian Welsh	16	hsa-mir-548l	0.000120211	-
AD Lung Beer	34	hsa-mir-646	0.00025737	-
GBM Brain Liang	2	hsa-mir-548c-3p	0.000318973	-
OD Brain Bredel	30	hsa-mir-1306	0.000381469	-
END Ovarian Hendrix	75	hsa-mir-489	0.000119996	-
AD Lung Beer	10	hsa-mir-600	1.44E-06	-
MPC Prostate Dhanasekaran	18	hsa-mir-1263	1.48E-05	-
PPC Prostate Dhanasekaran	35	hsa-mir-663b	0.000144273	-
MPM Mesothelioma Gordon	61	hsa-mir-1287	2.33E-05	-
AO Brain Bredel	32	hsa-mir-564	5.13E-06	-
CA Bladder Dyrskjot	75	hsa-mir-513	7.29E-05	-
CA Colon Graudens	28	hsa-mir-508	0.000295908	-
ML Melanoma Talantov	3	hsa-mir-548n	4.08E-06	-
GCT Seminoma Korkola	30	hsa-mir-588	0.000275648	-
PPC Prostate Dhanasekaran	31	hsa-mir-515-3p	0.000197799	-
ODGL Brain Sun	49	hsa-mir-423	1.08E-05	-
CA Bladder Dyrskjot	62	hsa-mir-637	1.36E-05	-
CA Bladder Dyrskjot	46	hsa-mir-342	3.59E-08	-
HSCC Head-Neck Cromer	19	hsa-mir-548l	1.75E-07	-
AD Lung Beer	40	hsa-mir-561	7.29E-05	-
CCC Ovarian Hendrix	18	hsa-mir-326	7.22E-06	-
MUC Ovarian Hendrix	61	hsa-mir-410	4.05E-06	-
AC Brain Sun	19	hsa-mir-485	1.27E-05	-
COID Lung Bhattacharjee	14	hsa-mir-557	0.000108663	-
CA Bladder Dyrskjot	38	hsa-mir-1281	0.000191838	-
CLL Lymphoma Alizadeh	0	hsa-mir-546j	0.000459332	-
SMCL Lung Bhattacharjee	29	hsa-mir-548c-3p	9.77E-08	-
SQ Lung Bhattacharjee	21	hsa-mir-455	0.000112719	-
MM Myeloma Zhan	9	hsa-mir-185	7.75E-05	-
HSCC Head-Neck Cromer	8	hsa-mir-142	1.01E-07	-
CA Bladder Dyrskjot	18	hsa-mir-1291	2.29E-05	-
PPC Prostate Dhanasekaran	4	hsa-mir-939	9.40E-06	-
DLBCL Lymphoma Alizadeh	1	hsa-mir-16	8.17E-05	-
PPC Prostate Dhanasekaran	14	hsa-mir-1202	0.000130297	-
SRS Ovarian Hendrix	1	hsa-mir-409-3p	9.82E-05	-
COID Lung Bhattacharjee	66	hsa-mir-507	9.71E-06	-
MM Myeloma Zhan	10	hsa-mir-1305	6.75E-06	-

ME Melanoma Hoek	37	hsa-mir-380	1.50E-07	-
ODGL Brain Sun	62	hsa-mir-1294	6.05E-05	-
CA Bladder Dyrskjot	21	hsa-mir-944	2.51E-06	-
COID Lung Bhattacharjee	0	hsa-mir-518d	2.57E-05	-
CA Colon Graudens	6	hsa-mir-658	8.78E-05	-
GCT Seminoma Korkola	88	hsa-mir-338	3.32E-08	-
AD Lung Stearman	35	hsa-mir-668	0.000306085	-
B-CLL Leukemia Haslinger	45	hsa-mir-889	9.32E-06	-
HSCC Head-Neck Cromer	27	hsa-mir-615	5.07E-06	-
GCT Seminoma Korkola	66	hsa-mir-1291	1.92E-05	-
AD Lung Beer	22	hsa-mir-525	0.000251267	-
AO Brain Bredel	0	hsa-mir-635	9.52E-05	-
MUC Ovarian Hendrix	75	hsa-mir-512-3p	1.28E-06	-
SQ Lung Bhattacharjee	14	hsa-mir-486-3p	5.23E-06	-
MPC Prostate Dhanasekaran	23	hsa-mir-302f	0.000532122	-
IDC Breast Radvanyi	46	hsa-mir-675	0.000483213	-
CA Bladder Dyrskjot	35	hsa-mir-486-3p	0.000273385	-
CCC Ovarian Hendrix	45	hsa-mir-1250	2.30E-05	-
ODGL Brain Sun	1	hsa-mir-647	1.96E-05	-
CA Breast Richardson	62	hsa-mir-622	0.000211265	-
OD Brain Bredel	15	hsa-mir-765	0.000578248	-
B-CLL Leukemia Haslinger	8	hsa-mir-939	9.79E-06	-
CA Breast Sorlie	8	hsa-mir-1255a	3.53E-05	-
GLB Brain Sun	50	hsa-mir-548c-3p	2.66E-06	-
GCT Seminoma Korkola	82	hsa-mir-576	0.000285312	-
END Ovarian Hendrix	23	hsa-mir-22	6.91E-05	-
OD Brain Bredel	62	hsa-let-7f	0.000585924	-
MM Myeloma Zhan	36	hsa-mir-1273	0.000403952	-
CA Colon Graudens	0	hsa-mir-138	6.29E-05	-
GCT Seminoma Korkola	29	hsa-mir-548c-3p	3.74E-08	-
B-CLL Leukemia Haslinger	15	hsa-mir-654-3p	2.08E-05	-
ILC Breast Radvanyi	6	hsa-mir-579	8.72E-06	-
MUC Ovarian Hendrix	12	hsa-mir-658	0.000144043	-
TU Prostate Lapointe	1	hsa-mir-590-3p	3.15E-07	-
HSCC Head-Neck Cromer	25	hsa-mir-495	1.15E-06	-
CLL Lymphoma Alizadeh	1	hsa-mir-1204	3.50E-05	-
AO Brain Bredel	18	hsa-mir-497	0.000198786	-
TU Prostate Lapointe	31	hsa-mir-339-3p	5.79E-05	-
CA Breast Richardson	55	hsa-mir-544	1.29E-06	-
HSCC Head-Neck Chung	8	hsa-mir-410	4.98E-05	-
IDC Breast Radvanyi	26	hsa-mir-886	0.000540903	-
SRS Ovarian Hendrix	28	hsa-mir-186	1.67E-06	-
BPH Prostate Dhanasekaran	11	hsa-mir-369-3p	0.000568201	-
SQ Lung Bhattacharjee	7	hsa-mir-765	5.75E-05	-
ML Melanoma Talantov	7	hsa-mir-296	6.02E-07	-
ME Melanoma Hoek	33	hsa-mir-1265	0.000457688	-
GCT Seminoma Korkola	50	hsa-mir-376	2.33E-06	-
END Ovarian Hendrix	22	hsa-mir-944	1.00E-05	-
MUC Ovarian Hendrix	22	hsa-mir-1293	5.80E-05	-

AC Brain Sun	7	hsa-mir-548l	1.20E-07	-
AC Brain Sun	16	hsa-mir-655	1.38E-06	-
HSCC Head-Neck Chung	5	hsa-mir-1202	0.000335288	-
PPC Prostate Dhanasekaran	23	hsa-mir-518a	7.91E-05	-
GLB Brain Sun	55	hsa-mir-32	0.000230839	-
MUC Ovarian Hendrix	31	hsa-mir-342	2.61E-05	-
END Ovarian Hendrix	69	hsa-mir-186	6.88E-06	-
ODGL Brain Sun	48	hsa-mir-384	0.000253138	-
TU Prostate Lapointe	4	hsa-mir-185	0.000290147	-
AD Lung Beer	5	hsa-mir-1292	9.07E-05	-
PPC Prostate Dhanasekaran	10	hsa-mir-889	8.82E-06	-
CA Bladder Dyrskjot	82	hsa-mir-656	1.37E-06	-
AD Lung Bhattacharjee	4	hsa-mir-1321	3.68E-07	-
IDC Breast Radvanyi	24	hsa-mir-1291	4.64E-05	-
B-CLL Leukemia Haslinger	37	hsa-mir-323-3p	6.95E-10	-
MPM Mesothelioma Gordon	17	hsa-mir-1296	0.000161062	-
AC Brain Sun	6	hsa-mir-139	0.000306314	-
GLB Brain Sun	4	hsa-mir-542	4.28E-07	-
ODGL Brain Sun	30	hsa-mir-483	0.000412141	-
ODGL Brain Sun	60	hsa-let-7d	0.000130896	-
COID Lung Bhattacharjee	80	hsa-mir-548l	6.43E-13	-
ODGL Brain Sun	32	hsa-mir-153	2.80E-06	-
GCT Seminoma Korkola	17	hsa-mir-615	2.79E-07	-
B-CLL Leukemia Haslinger	25	hsa-mir-548c-3p	7.95E-06	-
AC Brain Sun	22	hsa-mir-185	3.82E-05	-
BPH Prostate Dhanasekaran	12	hsa-mir-939	8.80E-05	-
CA Bladder Dyrskjot	63	hsa-mir-372	1.77E-07	-
B-CLL Leukemia Haslinger	13	hsa-mir-892b	0.000527397	-
GL Brain Bredel	46	hsa-mir-548l	1.16E-05	-
MPM Mesothelioma Gordon	41	hsa-mir-381	0.000443852	-
ODGL Brain Sun	10	hsa-mir-208a	0.000136267	-
MPC Prostate Dhanasekaran	44	hsa-mir-576-3p	9.02E-05	-
CA Colon Graudens	10	hsa-mir-1225	0.000267591	-
PPC Prostate Dhanasekaran	38	hsa-mir-607	2.03E-05	-
GLB Brain Sun	29	hsa-mir-1275	9.58E-09	-
SQ Lung Bhattacharjee	13	hsa-mir-296	2.05E-08	-
END Ovarian Hendrix	62	hsa-mir-571	6.37E-05	-
AC Brain Sun	23	hsa-mir-1207-3p	0.000547066	-
CA Bladder Dyrskjot	7	hsa-mir-361	0.000142136	-
ODGL Brain Sun	39	hsa-mir-1283	3.48E-05	-
CLL Lymphoma Alizadeh	13	hsa-mir-423	0.000349636	-
CCC Ovarian Hendrix	25	hsa-mir-744	0.000564266	-
SQ Lung Bhattacharjee	18	hsa-mir-410	2.12E-05	-
TU Prostate Lapointe	39	hsa-mir-656	3.01E-07	-
GL Brain Bredel	79	hsa-mir-340	2.04E-18	-
PPC Prostate Dhanasekaran	41	hsa-mir-369-3p	3.86E-06	-
MUC Ovarian Hendrix	20	hsa-mir-640	0.000235199	-
PPC Prostate Dhanasekaran	9	hsa-mir-661	1.10E-05	-
MUC Ovarian Hendrix	52	hsa-mir-541	0.00046487	-

GBM Brain Liang	5	hsa-mir-939	0.00056305	-	
FL Lymphoma Alizadeh	7	hsa-mir-1282	0.000138941	-	
AD Lung Bhattacharjee	47	hsa-mir-1245	2.22E-06	-	
B-CLL Leukemia Haslinger	62	hsa-mir-548c-3p	8.00E-10	-	
CCC Ovarian Hendrix	60	hsa-mir-1305	3.35E-05	-	
B-CLL Leukemia Haslinger	29	hsa-mir-1270	0.000171591	-	
HSCC Head-Neck Chung	3	hsa-mir-1286	9.91E-06	-	
MM Myeloma Zhan	16	hsa-mir-134	8.11E-05	-	
GCT Seminoma Korkola	60	hsa-mir-551a	6.95E-05	-	
COID Lung Bhattacharjee	21	hsa-mir-944	8.19E-10	-	
IDC Breast Radvanyi	8	hsa-mir-631	0.000564379	-	
CA Bladder Dyrskjot	70	hsa-mir-502	2.29E-05	-	
CA Breast Richardson	23	hsa-mir-544	0.000153218	-	
AO Brain Bredel	38	hsa-mir-1282	0.000299426	-	
ODGL Brain Sun	53	hsa-mir-548n	5.14E-09	-	
MUC Ovarian Hendrix	24	hsa-mir-361-3p	0.000241059	-	
GLB Brain Sun	5	hsa-mir-515	0.000373578	-	
MPM Mesothelioma Gordon	24	hsa-mir-361-3p	0.000101355	-	
AD Ovarian Welsh	17	hsa-mir-1321	1.68E-05	-	
HSCC Head-Neck Chung	6	hsa-mir-590-3p	1.29E-05	-	
MM Myeloma Zhan	3	hsa-mir-548c-3p	2.85E-14	-	
CA Colon Graudens	17	hsa-mir-597	7.44E-05	-	
B-CLL Leukemia Haslinger	46	hsa-mir-1247	0.000479165	-	
CA Bladder Dyrskjot	79	hsa-mir-508-3p	0.00023817	-	
CCC Ovarian Hendrix	47	hsa-mir-122	7.65E-06	-	
RCCC Renal Lenburg	3	hsa-mir-888	0.00018121	-	
AD Ovarian Welsh	29	hsa-mir-1225-3p	0.000495059	-	
ML Melanoma Talantov	18	hsa-mir-513a-3p	1.30E-08	-	
MPM Mesothelioma Gordon	38	hsa-mir-145	8.33E-05	-	
CA Breast Sorlie	19	hsa-mir-129	8.52E-06	-	
CA Renal Higgins	10	hsa-mir-483-3p	0.000138161	-	
MPM Mesothelioma Gordon	42	hsa-mir-539	3.04E-05	-	
ME Melanoma Hoek	25	hsa-mir-26a	2.11E-05	-	
GL Brain Rickman	4	hsa-mir-361	3.19E-05	-	
GLB Brain Sun	28	hsa-mir-323-3p	4.84E-05	-	
GL Brain Rickman	10	hsa-mir-648	3.05E-06	-	
AD Lung Beer	33	hsa-mir-379	6.19E-05	-	
MPC Prostate Dhanasekaran	5	hsa-mir-211	0.000182393	-	
TU Prostate Lapointe	29	hsa-mir-522	2.97E-11	-	
END Ovarian Hendrix	13	hsa-mir-23a	6.11E-07	-	
CA Bladder Dyrskjot	31	hsa-mir-656	1.34E-05	-	
AD Lung Stearman	25	hsa-mir-519a	8.68E-05	-	
GL Brain Bredel	77	hsa-mir-744	1.44E-05	-	
COID Lung Bhattacharjee	16	hsa-mir-376a	0.000262419	-	
MPM Mesothelioma Gordon	1	hsa-mir-1224	2.48E-05	-	
RCCC Renal Lenburg	10	hsa-mir-1273	0.000324812	-	
ILC Breast Radvanyi	3	hsa-mir-383	0.000402616	-	
ML Melanoma Talantov	12	hsa-mir-324-3p	6.94E-05	-	
MCA Breast Radvanyi	17	hsa-mir-219	1.57E-07	-	

B-CLL Leukemia Haslinger	66	hsa-mir-939	3.01E-10	-
GL Brain Bredel	27	hsa-mir-181	0.000133619	-
B-CLL Leukemia Haslinger	10	hsa-mir-454	1.68E-05	-
OD Brain Bredel	52	hsa-mir-411	0.000409711	-
MPM Mesothelioma Gordon	16	hsa-mir-590-3p	9.51E-17	-
CA Bladder Dyrskjot	45	hsa-mir-608	4.60E-07	-
CA Bladder Dyrskjot	59	hsa-mir-374a	8.54E-06	-
SQ Lung Bhattacharjee	22	hsa-mir-607	1.71E-06	-
MPC Prostate Dhanasekaran	14	hsa-mir-502	0.000300801	-
B-CLL Leukemia Haslinger	49	hsa-mir-1227	0.00034531	-
B-CLL Leukemia Haslinger	9	hsa-mir-1245	0.000110184	-
PPC Prostate Dhanasekaran	19	hsa-mir-144	3.07E-06	-
GBM Brain Liang	1	hsa-mir-423	7.21E-07	-
CA Bladder Dyrskjot	67	hsa-mir-630	0.000123706	-
MPC Prostate Dhanasekaran	35	hsa-mir-203	1.86E-06	-
GLB Brain Sun	8	hsa-mir-501	3.42E-06	-
MM Myeloma Zhan	0	hsa-mir-1207	3.32E-06	-
AC Brain Sun	4	hsa-mir-371-3p	8.52E-05	-
CCC Ovarian Hendrix	27	hsa-mir-556	0.000258408	-
SQ Lung Bhattacharjee	5	hsa-mir-595	5.58E-05	-
COID Lung Bhattacharjee	60	hsa-mir-516a-3p	5.94E-05	-
MPC Prostate Dhanasekaran	42	hsa-mir-331	2.97E-05	-
COID Lung Bhattacharjee	8	hsa-mir-340	7.24E-07	-
MUC Ovarian Hendrix	25	hsa-mir-582	3.54E-06	-
AD Lung Bhattacharjee	28	hsa-mir-548a-3p	5.98E-06	-
AD Lung Bhattacharjee	64	hsa-mir-765	2.85E-06	-
MPM Mesothelioma Gordon	28	hsa-mir-590-3p	0.000287627	-
MPM Mesothelioma Gordon	63	hsa-mir-548c-3p	2.51E-09	-
B-CLL Leukemia Haslinger	23	hsa-mir-548o	0.000480335	-
MPM Mesothelioma Gordon	6	hsa-mir-192	0.000120946	-
TU Prostate Lapointe	24	hsa-mir-548g	1.22E-06	-
OD Brain Bredel	7	hsa-mir-23b	2.03E-06	-
COID Lung Bhattacharjee	68	hsa-mir-1272	0.00018659	-
PDC Pancreas Ishikawa	2	hsa-mir-448	8.41E-05	-
GLB Brain Sun	62	hsa-mir-495	0.000134046	-
MM Myeloma Zhan	40	hsa-mir-612	0.000176116	-
CA Breast Richardson	17	hsa-mir-423	2.85E-12	-
ML Melanoma Talantov	28	hsa-mir-1207	1.66E-07	-
CA Renal Higgins	20	hsa-mir-1261	0.000372363	-
ML Melanoma Talantov	4	hsa-mir-146b-3p	0.000174949	-
ODGL Brain Sun	17	hsa-mir-548l	1.04E-07	-
GLB Brain Sun	10	hsa-mir-409	6.77E-05	-
MM Myeloma Zhan	33	hsa-mir-507	4.95E-06	-
TU Prostate Lapointe	21	hsa-mir-608	2.73E-06	-
RCCC Renal Lenburg	2	hsa-mir-499	4.25E-06	-
ME Melanoma Hoek	6	hsa-mir-186	1.22E-05	-
SMCL Lung Bhattacharjee	52	hsa-mir-939	8.05E-05	-
GLB Brain Sun	63	hsa-mir-939	0.000398514	-
MM Myeloma Zhan	32	hsa-mir-379	0.000580382	-

AD Lung Stearman	33	hsa-mir-1293	1.13E-05	-
CCC Ovarian Hendrix	42	hsa-mir-590-3p	4.63E-06	-
GL Brain Bredel	39	hsa-mir-572	0.000290782	-
HSCC Head-Neck Chung	2	hsa-mir-944	0.00016901	-
ODGL Brain Sun	28	hsa-mir-219-2-3p	0.000579468	-
COID Lung Bhattacharjee	19	hsa-mir-615	0.000145391	-
SQ Lung Bhattacharjee	0	hsa-mir-662	5.74E-05	-
MPM Mesothelioma Gordon	5	hsa-mir-603	0.000121912	-
AC Brain Sun	2	hsa-mir-548c-3p	3.42E-07	-
GCT Seminoma Korkola	104	hsa-mir-557	0.000174051	-
CA Bladder Dyrskjot	43	hsa-mir-939	6.16E-05	-
FL Lymphoma Alizadeh	9	hsa-mir-942	0.000136728	-
GL Brain Rickman	1	hsa-mir-1283	0.000424966	-
PPC Prostate Dhanasekaran	8	hsa-mir-340	0.000508247	-
CA Breast Richardson	67	hsa-mir-889	8.08E-06	-
HSCC Head-Neck Cromer	2	hsa-mir-374b	9.21E-06	-
ODGL Brain Sun	61	hsa-mir-142	0.000296262	-
BPH Prostate Dhanasekaran	16	hsa-mir-302f	1.09E-05	-
CA Bladder Dyrskjot	27	hsa-mir-129	6.69E-05	-
HSCC Head-Neck Cromer	5	hsa-mir-486-3p	4.46E-05	-
MM Myeloma Zhan	17	hsa-mir-495	3.10E-07	-
ODGL Brain Sun	58	hsa-mir-889	2.02E-06	-
COID Lung Bhattacharjee	86	hsa-mir-410	1.85E-06	-
HSCC Head-Neck Cromer	13	hsa-mir-622	0.000123772	-
COID Lung Bhattacharjee	92	hsa-mir-920	0.000526041	-
AD Lung Bhattacharjee	50	hsa-mir-495	2.46E-06	-
END Ovarian Hendrix	6	hsa-mir-890	2.65E-06	-
SRS Ovarian Hendrix	70	hsa-mir-433	1.13E-06	-
SMCL Lung Bhattacharjee	32	hsa-mir-582	1.16E-05	-
ILC Breast Radvanyi	15	hsa-mir-518b	0.000273711	-
ML Melanoma Talantov	34	hsa-mir-548n	6.91E-09	-
AD Lung Bhattacharjee	33	hsa-mir-490	5.05E-05	-
CCC Ovarian Hendrix	57	hsa-mir-590	0.000391567	-
GCT Seminoma Korkola	4	hsa-mir-376	0.000177892	-
MM Myeloma Zhan	6	hsa-mir-600	0.000129022	-
GCT Seminoma Korkola	42	hsa-mir-637	0.000565519	-
AC Brain Sun	44	hsa-mir-939	4.50E-09	-
GL Brain Bredel	38	hsa-mir-486-3p	2.00E-07	-
CA Renal Higgins	14	hsa-mir-549	2.84E-05	-
CA Breast Richardson	34	hsa-mir-186	1.78E-13	-
PPC Prostate Dhanasekaran	22	hsa-mir-561	5.02E-08	-
CCC Ovarian Hendrix	11	hsa-mir-602	0.000244248	-
AD Lung Bhattacharjee	9	hsa-mir-154	0.000580128	-
SRS Ovarian Hendrix	36	hsa-mir-890	0.000614411	-
COID Lung Bhattacharjee	7	hsa-mir-608	0.000285439	-
AD Lung Beer	44	hsa-mir-452	0.000208474	-
AD Lung Beer	46	hsa-mir-606	1.91E-05	-
CA Bladder Dyrskjot	28	hsa-mir-296	2.19E-05	-
AC Brain Sun	11	hsa-mir-574-3p	6.73E-05	-

AD Lung Bhattacharjee	65	hsa-mir-486-3p	0.000152303	-
COID Lung Bhattacharjee	36	hsa-mir-890	0.000161298	-
GLB Brain Sun	76	hsa-mir-139	3.32E-05	-
COID Lung Bhattacharjee	85	hsa-mir-1180	0.000353754	-
CA Breast Richardson	38	hsa-mir-103	1.94E-07	-
PPC Prostate Dhanasekaran	7	hsa-mir-1202	0.000547775	-
GCT Seminoma Korkola	6	hsa-mir-448	5.34E-05	-
CA Bladder Dyrskjot	68	hsa-mir-550	0.000398159	-
COID Lung Bhattacharjee	18	hsa-mir-663b	0.000354525	-
ME Melanoma Hoek	44	hsa-mir-1183	5.26E-08	-
DLBCL Lymphoma Alizadeh	4	hsa-mir-297	0.000102804	-
SRS Ovarian Hendrix	38	hsa-mir-17	8.61E-05	-
GCT Seminoma Korkola	62	hsa-mir-144	9.85E-06	-
5MCL Lung Bhattacharjee	36	hsa-mir-296	1.79E-06	-
AD Lung Bhattacharjee	16	hsa-mir-361-3p	6.21E-06	-
CCC Ovarian Hendrix	29	hsa-mir-636	0.000218326	-
AD Lung Bhattacharjee	20	hsa-mir-1245	4.94E-07	-
GLB Brain Sun	15	hsa-mir-219-1-3p	6.29E-06	-
GLB Brain Sun	57	hsa-mir-921	7.38E-05	-
AD Lung Beer	4	hsa-mir-1183	1.54E-05	-
GLB Brain Sun	67	hsa-mir-544	3.10E-07	-
B-CLL Leukemia Haslinger	61	hsa-mir-588	0.000290466	-
COID Lung Bhattacharjee	67	hsa-mir-181d	0.000603461	-
MUC Ovarian Hendrix	35	hsa-mir-340	1.91E-08	-
CA Colon Graudens	4	hsa-mir-144	2.99E-06	-
AD Lung Beer	9	hsa-mir-548k	1.83E-07	-
GCT Seminoma Korkola	48	hsa-mir-455	0.000192751	-
GCT Seminoma Korkola	14	hsa-mir-340	1.72E-06	-
MPC Prostate Dhanasekaran	10	hsa-mir-554	0.000168264	-
ODGL Brain Sun	23	hsa-mir-1225	0.000182529	-
AC Brain Sun	1	hsa-mir-642	4.72E-05	-
MPM Mesothelioma Gordon	21	hsa-mir-548c-3p	5.39E-10	-
TU Prostate Lapointe	7	hsa-mir-579	2.35E-09	-
CA Breast Richardson	31	hsa-mir-376a	0.000581498	-
IDC Breast Radvanyi	51	hsa-mir-548n	2.37E-07	-
GLB Brain Sun	60	hsa-mir-548f	3.12E-07	-
CA Breast Richardson	7	hsa-mir-590-3p	2.62E-05	-
GCT Seminoma Korkola	92	hsa-mir-564	1.88E-05	-
MM Myeloma Zhan	38	hsa-mir-652	0.000174084	-
OD Brain Bredel	5	hsa-mir-1180	0.000184744	-
AD Pancreas Logsdon	4	hsa-mir-22	0.000277647	-
PDC Pancreas Ishikawa	1	hsa-mir-106b	0.000224128	-
SRS Ovarian Hendrix	69	hsa-mir-29b	5.50E-06	-
END Ovarian Hendrix	70	hsa-mir-939	1.49E-07	-
CA Bladder Dyrskjot	26	hsa-mir-486	7.83E-07	-
GLB Brain Sun	13	hsa-mir-744	0.000603573	-
AD Pancreas Logsdon	15	hsa-mir-130b	0.000605398	-
AD Ovarian Welsh	14	hsa-mir-338	2.13E-06	-
ML Melanoma Talantov	33	hsa-mir-605	1.62E-05	-

SRS Ovarian Hendrix	42	hsa-mir-1298	9.78E-06	-
GCT Seminoma Korkola	10	hsa-mir-153	0.00019375	-
MPM Mesothelioma Gordon	11	hsa-mir-889	9.17E-07	-
RCCC Renal Boer	11	hsa-mir-659	0.000194706	-
MM Myeloma Zhan	7	hsa-mir-645	0.000256879	-
PPC Prostate Dhanasekaran	12	hsa-mir-342-3p	6.39E-05	-
GL Brain Bredel	52	hsa-mir-516a-3p	1.62E-06	-
CA Breast Richardson	63	hsa-mir-561	7.97E-06	-
CA Colon Grauders	36	hsa-mir-512-3p	3.64E-07	-
TU Prostate Lapointe	35	hsa-mir-548a	5.28E-05	-
SRS Ovarian Hendrix	12	hsa-mir-125a-3p	5.25E-05	-
ML Melanoma Talantov	22	hsa-mir-570	1.67E-05	-
MM Myeloma Zhan	49	hsa-mir-138	0.000244706	-
GBM Brain Liang	16	hsa-mir-663	2.49E-05	-
GCT Seminoma Korkola	15	hsa-mir-1323	0.000155769	-
SMCL Lung Bhattacharjee	30	hsa-mir-655	4.15E-08	-
GCT Seminoma Korkola	110	hsa-mir-1306	3.03E-05	-
BPH Prostate Dhanasekaran	5	hsa-mir-1290	4.31E-05	-
SQ Lung Bhattacharjee	9	hsa-mir-891a	2.16E-05	-
CA Bladder Dyrskjot	8	hsa-mir-331	5.47E-05	-
IDC Breast Radvanyi	12	hsa-mir-590-3p	4.83E-05	-
SMCL Lung Bhattacharjee	57	hsa-mir-448	1.38E-09	-
OD Brain Bredel	50	hsa-mir-1254	0.00026912	-
TU Prostate Lapointe	26	hsa-mir-663	6.26E-07	-
GCT Seminoma Korkola	26	hsa-mir-374a	2.65E-05	-
OD Brain Bredel	36	hsa-mir-326	0.000315988	-
GL Brain Rickman	16	hsa-mir-586	4.77E-05	-
AC Brain Sun	27	hsa-mir-612	0.000162631	-
GCT Seminoma Korkola	2	hsa-mir-661	3.65E-05	-
B-CLL Leukemia Haslinger	59	hsa-mir-1228	0.000144933	-
MM Myeloma Zhan	41	hsa-mir-339	1.98E-05	-
GCT Seminoma Korkola	95	hsa-mir-548c-3p	6.76E-11	-
COID Lung Bhattacharjee	61	hsa-mir-34c-3p	2.25E-05	-
END Ovarian Hendrix	29	hsa-mir-944	0.000347953	-
GLB Brain Sun	42	hsa-mir-602	0.000127309	-
CA Breast Sorlie	4	hsa-mir-611	4.29E-05	-
GCT Seminoma Korkola	35	hsa-mir-18a	0.000590569	-
AD Ovarian Welsh	22	hsa-mir-1207	0.000144063	-
B-CLL Leukemia Haslinger	11	hsa-mir-34c-3p	0.000384596	-
GCT Seminoma Korkola	45	hsa-mir-183	0.000103017	-
DLBCL Lymphoma Alizadeh	9	hsa-mir-1277	0.000225187	-
CA Bladder Dyrskjot	19	hsa-mir-331-3p	4.56E-07	-
HSCC Head-Neck Cromer	6	hsa-mir-1275	0.000221713	-
END Ovarian Hendrix	26	hsa-mir-656	3.57E-08	-
B-CLL Leukemia Haslinger	1	hsa-mir-487a	5.33E-09	-
RCCC Renal Lenburg	5	hsa-mir-515-3p	9.30E-05	-
SMCL Lung Bhattacharjee	43	hsa-mir-671-3p	0.000437915	-
GCT Seminoma Korkola	58	hsa-mir-595	1.51E-06	-
B-CLL Leukemia Haslinger	50	hsa-mir-296	0.000233149	-

TU Prostate Lapointe	6	hsa-mir-876-3p	0.000324998	-
MM Myeloma Zhan	24	hsa-mir-1259	0.000330827	-
PPC Prostate Dhanasekaran	3	hsa-mir-578	1.16E-05	-
AD Lung Bhattacharjee	50	hsa-mir-642	5.69E-05	-
AD Lung Bhattacharjee	74	hsa-mir-543	7.59E-05	-
GL Brain Rickman	21	hsa-mir-495	3.72E-05	-
CLL Lymphoma Alizadeh	10	hsa-mir-590	0.000327927	-
IDC Breast Radvanyi	42	hsa-mir-766	0.000456161	-
AD Lung Bhattacharjee	69	hsa-mir-522	4.93E-10	-
OD Brain Bredel	61	hsa-mir-937	0.000101996	-
MM Myeloma Zhan	31	hsa-mir-512-3p	8.13E-05	-
IDC Breast Radvanyi	39	hsa-mir-125a-3p	0.000512311	-
AD Lung Bhattacharjee	45	hsa-mir-340	6.92E-08	-
AD Lung Bhattacharjee	58	hsa-mir-655	7.25E-09	-
GCT Seminoma Korkola	93	hsa-mir-640	5.11E-06	-
HSCC Head-Neck Cromer	4	hsa-mir-662	0.000280826	-
MPM Mesothelioma Gordon	8	hsa-mir-1180	1.21E-06	-
AD Lung Stearman	5	hsa-mir-342-3p	1.18E-06	-
GL Brain Rickman	3	hsa-mir-182	1.60E-05	-
GCT Seminoma Korkola	67	hsa-mir-1266	2.88E-05	-
COID Lung Bhattacharjee	39	hsa-mir-608	0.000130832	-
GCT Seminoma Korkola	1	hsa-mir-1234	4.72E-05	-
GCT Seminoma Korkola	5	hsa-mir-1204	0.000522965	-
CA Bladder Dyrskjot	77	hsa-mir-620	0.000552255	-
ODGL Brain Sun	29	hsa-mir-509-3	0.000305758	-
B-CLL Leukemia Haslinger	12	hsa-mir-1302	0.000390653	-
AC Brain Sun	5	hsa-mir-637	0.000149584	-
GLB Brain Sun	74	hsa-mir-369-3p	7.86E-05	-
COID Lung Bhattacharjee	42	hsa-mir-671	4.57E-05	-
CA Bladder Dyrskjot	0	hsa-mir-643	0.000314026	-
GLB Brain Sun	2	hsa-mir-577	4.84E-05	-
MPC Prostate Dhanasekaran	33	hsa-mir-886	0.000278531	-
ODGL Brain Sun	9	hsa-mir-186	3.31E-06	-
ODGL Brain Sun	3	hsa-mir-889	6.19E-07	-
GCT Seminoma Korkola	20	hsa-mir-495	5.27E-07	-
MUC Ovarian Hendrix	47	hsa-mir-654	0.000586378	-
CCC Ovarian Hendrix	59	hsa-mir-1258	7.38E-05	-
IDC Breast Radvanyi	63	hsa-mir-548h	0.000316845	-
GCT Seminoma Korkola	9	hsa-mir-296	4.54E-11	-
GLB Brain Sun	24	hsa-mir-494	7.74E-06	-
COID Lung Bhattacharjee	79	hsa-mir-508-3p	0.000523991	-
GCT Seminoma Korkola	56	hsa-mir-548m	7.53E-06	-
MUC Ovarian Hendrix	40	hsa-mir-618	2.30E-05	-
TU Prostate Lapointe	37	hsa-mir-509-3p	1.50E-05	-
CCC Ovarian Hendrix	35	hsa-mir-607	4.23E-05	-
RCCC Renal Boer	5	hsa-mir-374a	0.000225536	-
END Ovarian Hendrix	41	hsa-mir-338	3.20E-06	-
SMCL Lung Bhattacharjee	59	hsa-mir-340	8.26E-06	-
GCT Seminoma Korkola	70	hsa-mir-939	5.97E-09	-

CA Breast Richardson	56	hsa-mir-34b	9.69E-06	-
MPM Mesothelioma Gordon	48	hsa-mir-606	4.93E-05	-
AO Brain Bredel	21	hsa-mir-1203	0.000359483	-
COID Lung Bhattacharjee	28	hsa-mir-608	0.000125912	-
SRS Ovarian Hendrix	14	hsa-mir-1290	0.000463364	-
ML Melanoma Talantov	21	hsa-mir-450b	7.89E-05	-
BPH Prostate Dhanasekaran	10	hsa-mir-624	2.78E-05	-

Supplementary Table 7.

		miRvestigator		PITA		TargetScan		
Dataset	Signature	miRNA	miR2Disease Validation	miRNA	miR2Disease Validation	miRNA	miR2Disease Validation	Overlap
GL Brain Rickman	9			hsa-mir-1207-5p		hsa-mir-1207-5p		1
CA Bladder Dyrskjot	64			hsa-mir-590-3p		hsa-mir-590-3p		1
GLB Brain Sun	67			hsa-mir-544 hsa-mir-544b		hsa-mir-544 hsa-mir-544b		1
GLB Brain Sun	2			hsa-mir-577		hsa-mir-577		1
CA Breast Richardson	2			hsa-mir-590-3p		hsa-mir-590-3p		1
B-CLL Leukemia Haslinger	53			hsa-mir-513a-3p		hsa-mir-513a-3p		1
AD Lung Beer	9			hsa-mir-548k		hsa-mir-548k		1
AD Lung Beer	31	hsa-mir-29b hsa-mir-29c hsa-mir-29a	Causal	hsa-mir-29b hsa-mir-29c hsa-mir-29a	Causal	hsa-mir-29b	Causal	1
AD Lung Bhattacharjee	58			hsa-mir-655		hsa-mir-655		1
COID Lung Bhattacharjee	74			hsa-mir-513a-3p		hsa-mir-513a-3p		1
SMCL Lung Bhattacharjee	22			hsa-mir-548n		hsa-mir-548n		1
AD Lung Stearman	18			hsa-mir-1257		hsa-mir-1257		1
CLL Lymphoma Alizadeh	10			hsa-mir-21 hsa-mir-590-5p	Dysregulated	hsa-mir-590-5p		1
ME Melanoma Hoek	35			hsa-mir-200b hsa-mir-200c hsa-mir-200a	Causal	hsa-mir-200b	Causal	1
AD Ovarian Welsh	25			hsa-mir-572	Dysregulated	hsa-mir-572	Dysregulated	1
CCC Ovarian Hendrix	42			hsa-mir-590-3p		hsa-mir-590-3p		1
CCC Ovarian Hendrix	4			hsa-mir-194		hsa-mir-194		1
5R5 Ovarian Hendrix	73			hsa-mir-340		hsa-mir-340		1
END Ovarian Hendrix	35			hsa-mir-1276		hsa-mir-1276		1
MPC Prostate Dhanasekaran	35			hsa-mir-203		hsa-mir-203		1
TU Prostate Lapointe	39			hsa-mir-590-3p		hsa-mir-656		0
CA Bladder Dyrskjot	56			hsa-mir-335		hsa-mir-1238		0
CA Bladder Dyrskjot	36			hsa-mir-548n		hsa-mir-548c-3p		0
CA Bladder Dyrskjot	51			hsa-mir-1276				0
TU Prostate Lapointe	13					hsa-mir-497	Dysregulated	0
CA Bladder Dyrskjot	22					hsa-mir-663b hsa-mir-663		0
CA Bladder Dyrskjot	45					hsa-mir-608		0
TU Prostate Lapointe	14	hsa-mir-138-1*						0
TU Prostate Lapointe	17			hsa-mir-96	Dysregulated	hsa-mir-219-5p		0
TU Prostate Lapointe	33			hsa-mir-802		hsa-mir-548c-3p		0
TU Prostate Lapointe	18			hsa-mir-760				0
TU Prostate Lapointe	31			hsa-mir-631		hsa-mir-339-3p		0
CA Bladder Dyrskjot	53			hsa-mir-1206		hsa-mir-944		0

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TU Prostate Lapointe	37			hsa-mir-199b-3p hsa-mir-199a-3p	Causal	hsa-mir-509-3p hsa-mir-509-3-5p	0
CA Bladder Dyrskjot	67					hsa-mir-630	0
CA Bladder Dyrskjot	82			hsa-mir-519d		hsa-mir-656	0
TU Prostate Lapointe	19					hsa-mir-296-5p Dysregulated	0
CA Bladder Dyrskjot	81			hsa-mir-455-3p			0
CA Bladder Dyrskjot	14					hsa-mir-944	0
CA Bladder Dyrskjot	24					hsa-mir-663b hsa-mir-663	0
CA Bladder Dyrskjot	25			hsa-mir-550b hsa-mir-550a		hsa-mir-1204	0
CA Bladder Dyrskjot	26	hsa-mir-194		hsa-mir-1224-5p		hsa-mir-486-5p	0
CA Bladder Dyrskjot	27			hsa-mir-365		hsa-mir-129-5p	0
CA Bladder Dyrskjot	21			hsa-mir-590-3p		hsa-mir-944	0
CA Bladder Dyrskjot	48					hsa-mir-520b	0
CA Bladder Dyrskjot	49					hsa-mir-432	0
CA Bladder Dyrskjot	46					hsa-mir-342-5p	0
CA Bladder Dyrskjot	47			hsa-mir-331-5p		hsa-mir-197	0
CA Bladder Dyrskjot	42			hsa-mir-1183		hsa-mir-362-5p	0
CA Bladder Dyrskjot	28					hsa-mir-296-5p	0
CA Bladder Dyrskjot	43					hsa-mir-939	0
CA Bladder Dyrskjot	40					hsa-mir-548d-3p	0
CA Bladder Dyrskjot	1			hsa-mir-940		hsa-mir-637	0
CA Bladder Dyrskjot	0			hsa-mir-607		hsa-mir-643	0
CA Renal Higgins	10			hsa-mir-875-3p		hsa-mir-483-3p	0
CA Renal Higgins	13			hsa-mir-423-5p		hsa-mir-663b hsa-mir-663	0
CA Bladder Dyrskjot	7					hsa-mir-361-5p	0
CA Bladder Dyrskjot	6					hsa-mir-939	0
CA Renal Higgins	14			hsa-mir-140-5p		hsa-mir-549	0
CA Bladder Dyrskjot	8			hsa-mir-140-3p		hsa-mir-331-5p	0
CA Bladder Dyrskjot	68					hsa-mir-550b hsa-mir-550a	0
CA Bladder Dyrskjot	79			hsa-mir-147 hsa-mir-147b		hsa-mir-508-3p	0
RCCC Renal Boer	11					hsa-mir-659	0
CA Bladder Dyrskjot	13	hsa-mir-548k				hsa-mir-548c-3p	0
RCCC Renal Boer	13			hsa-mir-200a hsa-mir-141	Causal	hsa-mir-1279	0
RCCC Renal Boer	12			hsa-mir-760			0
CA Bladder Dyrskjot	75			hsa-mir-487a		hsa-mir-513c hsa-mir-513b hsa-mir-513a-5p	0
RCCC Renal Boer	14			hsa-mir-590-3p			0
CA Bladder Dyrskjot	72					hsa-mir-296-5p	0

CA Bladder Dyrskjot	71			hsa-mir-633		hsa-mir-662		0
RCCC Renal Boer	3			hsa-mir-217				0
CA Bladder Dyrskjot	15					hsa-mir-1323		0
CA Bladder Dyrskjot	32			hsa-mir-320e hsa-mir-320d hsa-mir-320c hsa-mir-320b hsa-mir-320a		hsa-mir-1270		0
RCCC Renal Boer	4			hsa-mir-1262				0
RCCC Renal Boer	7	hsa-mir-32 hsa-mir-92a hsa-mir-92b				hsa-mir-106b	Dysregulated	0
CA Bladder Dyrskjot	10					hsa-mir-597		0
RCCC Renal Boer	9			hsa-mir-1256		hsa-mir-502-3p		0
RCCC Renal Boer	8			hsa-mir-1206				0
CA Bladder Dyrskjot	63					hsa-mir-372		0
CA Bladder Dyrskjot	58					hsa-mir-328		0
CA Bladder Dyrskjot	17	hsa-mir-885-3p						0
CA Bladder Dyrskjot	16			hsa-mir-1205		hsa-mir-939		0
CA Bladder Dyrskjot	19			hsa-mir-659		hsa-mir-331-3p		0
RCCC Renal Lenburg	3	hsa-mir-548f hsa-mir-548e hsa-mir-548x				hsa-mir-888		0
RCCC Renal Lenburg	2	hsa-mir-487b				hsa-mir-499a-5p hsa-mir-499-5p		0
CA Bladder Dyrskjot	23					hsa-mir-211		0
CA Bladder Dyrskjot	37					hsa-mir-548n		0
CA Bladder Dyrskjot	35	hsa-mir-1469				hsa-mir-486-3p		0
RCCC Renal Lenburg	9					hsa-mir-1238		0
RCCC Renal Lenburg	8			hsa-mir-660		hsa-mir-889		0
CA Bladder Dyrskjot	54					hsa-mir-491-5p		0
GCT Seminoma Korkola	25			hsa-mir-105		hsa-mir-607		0
CA Bladder Dyrskjot	31			hsa-mir-520d-5p hsa-mir-524-5p		hsa-mir-656		0
ODGL Brain Sun	0					hsa-mir-637		0
GCT Seminoma Korkola	20			hsa-mir-632		hsa-mir-495		0
GCT Seminoma Korkola	21			hsa-mir-548k		hsa-mir-520f		0
GBM Brain Liang	13					hsa-mir-1278		0
GBM Brain Liang	12			hsa-mir-520g hsa-mir-520h				0
GBM Brain Liang	15			hsa-mir-144				0
GBM Brain Liang	14	hsa-mir-496		hsa-mir-125a-3p				0
GBM Brain Liang	17	hsa-mir-361-5p		hsa-mir-600				0
GCT Seminoma Korkola	4					hsa-mir-376a hsa-mir-376b hsa-mir-376c		0
GBM Brain Liang	18	hsa-mir-369-5p						0

GBM Brain Liang	1					hsa-mir-423-5p		0
GCT Seminoma Korkola	58					hsa-mir-595		0
GBM Brain Liang	2					hsa-mir-548c-3p		0
TU Prostate Lapointe	35			hsa-mir-758		hsa-mir-548am hsa-mir-548ab hsa-mir-548aa hsa-mir-548ag hsa-mir-548ak hsa-mir-548aj hsa-mir-548ai hsa-mir-548ah hsa-mir-548an hsa-mir-548al hsa-mir-548ae hsa-mir-548ad hsa-mir-548a-5p hsa-mir-548ac		0
GCT Seminoma Korkola	56			hsa-mir-499-3p		hsa-mir-548m		0
GBM Brain Liang	7					hsa-mir-323-5p hsa-mir-323b-5p	Dysregulated	0
TU Prostate Lapointe	38			hsa-mir-1264		hsa-mir-633		0
GCT Seminoma Korkola	52					hsa-mir-508-5p		0
GCT Seminoma Korkola	88			hsa-mir-129-5p		hsa-mir-338-5p		0
GCT Seminoma Korkola	89			hsa-mir-568		hsa-mir-1257		0
GCT Seminoma Korkola	111					hsa-mir-296-5p		0
GCT Seminoma Korkola	110			hsa-mir-18a hsa-mir-18b		hsa-mir-1306		0
GCT Seminoma Korkola	112			hsa-mir-590-3p		hsa-mir-548n		0
OD Brain Bredel	19	hsa-mir-551a hsa-mir-551b		hsa-mir-487a				0
OD Brain Bredel	62					hsa-let-7f		0
GCT Seminoma Korkola	80			hsa-mir-623		hsa-mir-573		0
OD Brain Bredel	52			hsa-mir-325		hsa-mir-411	Dysregulated	0
OD Brain Bredel	24			hsa-mir-193a-3p				0
OD Brain Bredel	25			hsa-mir-512-3p				0
GCT Seminoma Korkola	85					hsa-mir-181d hsa-mir-181a hsa-mir-181b hsa-mir-181c		0
GCT Seminoma Korkola	3	hsa-mir-324-5p				hsa-mir-296-5p		0
OD Brain Bredel	21			hsa-mir-369-3p		hsa-mir-548c-3p		0
GCT Seminoma Korkola	109			hsa-mir-548p				0
GCT Seminoma Korkola	102			hsa-mir-125b hsa-mir-125a-5p		hsa-mir-34a		0
GCT Seminoma Korkola	67					hsa-mir-1266		0
GCT Seminoma Korkola	100			hsa-mir-486-3p				0

GCT Seminoma Korkola	101					hsa-mir-372	Causal	0
OD Brain Bredel	45			hsa-mir-324-5p				0
GCT Seminoma Korkola	107			hsa-mir-199b-3p hsa-mir-199a-3p	Causal			0
OD Brain Bredel	43			hsa-mir-412				0
GCT Seminoma Korkola	105			hsa-mir-34a hsa-mir-34c-5p hsa-mir-449a hsa-mir-449b				0
GCT Seminoma Korkola	39			hsa-mir-769-5p		hsa-mir-639		0
GCT Seminoma Korkola	38			hsa-mir-370				0
TU Prostate Lapointe	11					hsa-mir-152		0
OD Brain Bredel	3			hsa-mir-615-3p		hsa-mir-195	Dysregulated	0
GCT Seminoma Korkola	31			hsa-mir-22		hsa-mir-891a		0
OD Brain Bredel	5	hsa-mir-423-3p				hsa-mir-1180		0
GCT Seminoma Korkola	37			hsa-mir-106b hsa-mir-17 hsa-mir-106a hsa-mir-93 hsa-mir-20b hsa-mir-20a		hsa-mir-519a		0
GCT Seminoma Korkola	36			hsa-mir-196b hsa-mir-196a				0
GCT Seminoma Korkola	35					hsa-mir-18a		0
OD Brain Bredel	9			hsa-mir-548e				0
OD Brain Bredel	8			hsa-mir-651				0
OD Brain Bredel	56			hsa-mir-126				0
GCT Seminoma Korkola	62			hsa-mir-548m		hsa-mir-144		0
GCT Seminoma Korkola	63					hsa-mir-889		0
OD Brain Bredel	12			hsa-mir-588		hsa-mir-200a	Causal	0
GCT Seminoma Korkola	66			hsa-mir-532-3p		hsa-mir-1291		0
CA Renal Higgins	20					hsa-mir-1261		0
GCT Seminoma Korkola	68					hsa-mir-1182		0
GCT Seminoma Korkola	69					hsa-mir-296-5p		0
GCT Seminoma Korkola	2					hsa-mir-661		0
GCT Seminoma Korkola	6			hsa-mir-34b		hsa-mir-448		0
GCT Seminoma Korkola	98			hsa-mir-224		hsa-mir-203		0
GCT Seminoma Korkola	90			hsa-mir-362-5p				0
OD Brain Bredel	16	hsa-mir-1181						0
OD Brain Bredel	33			hsa-mir-1231				0
GCT Seminoma Korkola	95			hsa-mir-1283		hsa-mir-548c-3p		0
OD Brain Bredel	57			hsa-mir-148b hsa-mir-152		hsa-mir-423-5p		0
OD Brain Bredel	37	hsa-mir-29a*						0
TU Prostate Lapointe	10					hsa-mir-32	Dysregulated	0
GCT Seminoma Korkola	10					hsa-mir-153		0
GCT Seminoma Korkola	15					hsa-mir-1323		0

GCT Seminoma Korkola	14			hsa-mir-1323 hsa-mir-548o		hsa-mir-340		0
GCT Seminoma Korkola	17					hsa-mir-615-5p		0
GL Brain Bredel	30					hsa-mir-342-5p	**Dysregulated**	0
GL Brain Bredel	54			hsa-mir-582-3p				0
GL Brain Bredel	37			hsa-mir-544 hsa-mir-544b				0
GCT Seminoma Korkola	48					hsa-mir-455-5p		0
GCT Seminoma Korkola	47			hsa-mir-485-5p				0
GL Brain Bredel	61			hsa-mir-572				0
GCT Seminoma Korkola	45					hsa-mir-183		0
GCT Seminoma Korkola	42	hsa-mir-1181		hsa-mir-149		hsa-mir-637		0
GCT Seminoma Korkola	40			hsa-mir-577		hsa-mir-548n		0
GL Brain Bredel	66	hsa-mir-223	**Dysregulated**			hsa-mir-27a	**Dysregulated**	0
GCT Seminoma Korkola	1					hsa-mir-1234		0
CA Renal Higgins	1			hsa-mir-590-3p				0
GCT Seminoma Korkola	9					hsa-mir-296-5p		0
GL Brain Bredel	52					hsa-mir-516a-3p		0
GL Brain Bredel	24	hsa-mir-516b		hsa-mir-1245b-5p hsa-mir-1245				0
GCT Seminoma Korkola	75	hsa-mir-25 hsa-mir-32 hsa-mir-92a hsa-mir-92b hsa-mir-363 hsa-mir-367	**Dysregulated**	hsa-mir-664		hsa-mir-708		0
GCT Seminoma Korkola	74			hsa-let-7f hsa-let-7g hsa-let-7a hsa-let-7b hsa-let-7d hsa-let-7i hsa-mir-98 hsa-let-7c hsa-let-7e				0
GL Brain Bredel	27					hsa-mir-181d hsa-mir-181a hsa-mir-181b hsa-mir-181c	**Dysregulated**	0
GL Brain Bredel	20			hsa-mir-487b	**Dysregulated**			0
GL Brain Bredel	21			hsa-mir-633				0
GL Brain Bredel	48	hsa-mir-2277-5p						0
GCT Seminoma Korkola	0					hsa-mir-1251		0
GL Brain Bredel	46			hsa-mir-154		hsa-mir-548l		0
CA Renal Higgins	3					hsa-mir-199a-3p	**Causal**	0
GL Brain Bredel	40			hsa-mir-526b				0
GL Brain Bredel	41			hsa-mir-484				0
GL Brain Bredel	0			hsa-mir-1208		hsa-mir-548i		0
GL Brain Bredel	9			hsa-mir-549				0
GL Brain Bredel	78	hsa-mir-126				hsa-mir-424	**Dysregulated**	0

CA Renal Higgins	4				hsa-mir-34b	0
GL Brain Bredel	33		hsa-mir-625			0
GL Brain Bredel	39		hsa-mir-363		hsa-mir-572	0
GL Brain Bredel	77				hsa-mir-744	0
GL Brain Bredel	75		hsa-mir-889			0
GL Brain Bredel	72				hsa-mir-760	0
GL Brain Bredel	71		hsa-mir-651			0
GL Brain Bredel	59		hsa-mir-125a-3p			0
GL Brain Bredel	38				hsa-mir-486-3p	0
GL Brain Bredel	79				hsa-mir-340	0
GL Brain Bredel	11		hsa-mir-542-3p			0
CA Breast Richardson	43		hsa-mir-1246			0
GL Brain Bredel	12		hsa-mir-384			0
GL Brain Bredel	15	hsa-mir-126	hsa-mir-654-3p			0
GL Brain Bredel	17				hsa-mir-877	0
GL Brain Bredel	32				hsa-mir-15a **Dysregulated**	0
GL Brain Bredel	31				hsa-mir-615-3p	0
GL Brain Bredel	36		hsa-mir-661			0
GL Brain Bredel	18	hsa-mir-187				0
GL Brain Bredel	57		hsa-mir-769-3p hsa-mir-450b-3p		hsa-mir-193a-3p	0
GL Brain Bredel	65		hsa-mir-532-5p			0
AO Brain Bredel	20		hsa-mir-324-5p			0
AO Brain Bredel	21				hsa-mir-1203	0
AO Brain Bredel	22				hsa-mir-663b hsa-mir-663	0
AO Brain Bredel	28				hsa-mir-296-5p **Causal**	0
GCT Seminoma Korkola	83				hsa-mir-1254	0
AO Brain Bredel	1				hsa-mir-181a **Causal**	0
AO Brain Bredel	0				hsa-mir-635	0
GBM Brain Liang	5				hsa-mir-939	0
AO Brain Bredel	38				hsa-mir-1282	0
AO Brain Bredel	11		hsa-mir-608			0
AO Brain Bredel	10	hsa-mir-4285				0
AO Brain Bredel	13		hsa-mir-506			0
AO Brain Bredel	17		hsa-mir-191			0
CA Renal Higgins	17				hsa-mir-663b hsa-mir-663	0
AO Brain Bredel	18				hsa-mir-497	0
AO Brain Bredel	30		hsa-mir-1255b hsa-mir-1255a			0
AO Brain Bredel	35		hsa-mir-939			0
AO Brain Bredel	33		hsa-mir-450b-5p			0
AO Brain Bredel	32				hsa-mir-564	0
GL Brain Rickman	26	hsa-mir-1469				0
GL Brain Rickman	27				hsa-mir-182	0

GL Brain Rickman	21				hsa-mir-624		hsa-mir-495		0
GL Brain Rickman	22				hsa-mir-542-3p		hsa-mir-374b		0
GL Brain Rickman	23				hsa-mir-490-5p		hsa-mir-935		0
GL Brain Rickman	29				hsa-mir-544 hsa-mir-544b		hsa-mir-568		0
GL Brain Rickman	1				hsa-mir-493		hsa-mir-1283		0
GL Brain Rickman	3						hsa-mir-182		0
GL Brain Rickman	2	hsa-mir-718							0
GL Brain Rickman	4				hsa-mir-302f		hsa-mir-361-5p		0
GL Brain Rickman	8						hsa-mir-634		0
GL Brain Rickman	11				hsa-mir-653				0
GL Brain Rickman	10						hsa-mir-648		0
GL Brain Rickman	13				hsa-mir-486-3p				0
GL Brain Rickman	15						hsa-mir-487a		0
GL Brain Rickman	14				hsa-mir-149	**Dysregulated**			0
GL Brain Rickman	17						hsa-mir-146b-3p		0
GL Brain Rickman	16						hsa-mir-586		0
GL Brain Rickman	31				hsa-let-7e hsa-let-7f hsa-let-7g hsa-let-7a hsa-let-7b hsa-let-7d hsa-let-7i hsa-mir-98 hsa-let-7c	**Dysregulated**			0
GL Brain Rickman	34				hsa-mir-125a-3p				0
GL Brain Rickman	32						hsa-mir-889		0
ODGL Brain Sun	30						hsa-mir-483-5p		0
RCCC Renal Boer	15				hsa-mir-548k		hsa-mir-300		0
ODGL Brain Sun	22						hsa-mir-423-5p		0
ODGL Brain Sun	29						hsa-mir-509-3p hsa-mir-509-3-5p		0
ODGL Brain Sun	60				hsa-mir-556-3p		hsa-let-7d		0
ODGL Brain Sun	61						hsa-mir-142-5p		0
ODGL Brain Sun	62						hsa-mir-1294		0
ODGL Brain Sun	63						hsa-mir-410	**Dysregulated**	0
ODGL Brain Sun	64				hsa-mir-539				0
ODGL Brain Sun	53				hsa-mir-548m		hsa-mir-548n		0
ODGL Brain Sun	52				hsa-mir-1270 hsa-mir-620				0
ODGL Brain Sun	23						hsa-mir-1225-5p		0
ODGL Brain Sun	25				hsa-mir-548p		hsa-mir-548l		0
ODGL Brain Sun	26				hsa-mir-622				0
ODGL Brain Sun	27						hsa-mir-136	**Dysregulated**	0
ODGL Brain Sun	20				hsa-mir-570		hsa-mir-548e		0
RCCC Renal Boer	1						hsa-mir-371b-5p hsa-mir-371-5p		0

ODGL Brain Sun	48					hsa-mir-384		0
ODGL Brain Sun	49					hsa-mir-423-5p		0
ODGL Brain Sun	47					hsa-mir-1204		0
ODGL Brain Sun	44		hsa-mir-1276					0
RCCC Renal Boer	0		hsa-mir-140-3p			hsa-mir-494	**Dysregulated**	0
ODGL Brain Sun	28					hsa-mir-219-2-3p		0
ODGL Brain Sun	41		hsa-mir-374b hsa-mir-374a			hsa-mir-26b		0
ODGL Brain Sun	1					hsa-mir-647		0
CA Bladder Dyrskjot	70					hsa-mir-502-5p		0
ODGL Brain Sun	3					hsa-mir-889		0
ODGL Brain Sun	2					hsa-mir-939		0
ODGL Brain Sun	7					hsa-mir-548k		0
ODGL Brain Sun	9		hsa-mir-142-3p	**Dysregulated**		hsa-mir-186		0
ODGL Brain Sun	50		hsa-mir-548c-3p			hsa-mir-217		0
ODGL Brain Sun	58		hsa-mir-181d hsa-mir-181b	**Causal**		hsa-mir-889		0
ODGL Brain Sun	11					hsa-mir-219-1-3p		0
ODGL Brain Sun	10					hsa-mir-208a		0
ODGL Brain Sun	39		hsa-mir-218	**Dysregulated**		hsa-mir-1283		0
ODGL Brain Sun	38	hsa-mir-1469						0
ODGL Brain Sun	17					hsa-mir-548l		0
ODGL Brain Sun	33		hsa-mir-335					0
ODGL Brain Sun	57					hsa-mir-296-5p	**Causal**	0
ODGL Brain Sun	36		hsa-mir-361-3p					0
ODGL Brain Sun	37	hsa-mir-126						0
ODGL Brain Sun	32					hsa-mir-153		0
ODGL Brain Sun	31		hsa-mir-490-3p					0
ODGL Brain Sun	65		hsa-mir-340			hsa-mir-495		0
AC Brain Sun	51		hsa-mir-922					0
AC Brain Sun	34					hsa-mir-223	**Dysregulated**	0
CA Bladder Dyrskjot	38					hsa-mir-1281		0
AC Brain Sun	27					hsa-mir-612		0
AC Brain Sun	23					hsa-mir-1207-3p		0
AC Brain Sun	46		hsa-mir-548c-3p			hsa-mir-590-3p		0
AC Brain Sun	44					hsa-mir-939		0
OD Brain Bredel	54					hsa-mir-1275		0
RCCC Renal Lenburg	10					hsa-mir-1273 hsa-mir-1273c hsa-mir-1273d hsa-mir-1273e hsa-mir-1273f hsa-mir-1273g		0

AC Brain Sun	1						hsa-mir-642a hsa-mir-642b		0
AC Brain Sun	3						hsa-mir-1205		0
AC Brain Sun	2						hsa-mir-548c-3p		0
AC Brain Sun	5	hsa-mir-523					hsa-mir-637		0
AC Brain Sun	4	hsa-mir-937		hsa-mir-222	Causal		hsa-mir-371-3p		0
AC Brain Sun	7			hsa-mir-582-3p			hsa-mir-548l		0
AC Brain Sun	6			hsa-mir-1284			hsa-mir-139-5p	Dysregulated	0
AC Brain Sun	8						hsa-mir-196a		0
AC Brain Sun	28						hsa-mir-539		0
AC Brain Sun	12			hsa-mir-485-3p	Dysregulated		hsa-mir-210	Dysregulated	0
AC Brain Sun	11						hsa-mir-574-3p		0
CA Bladder Dyrskjot	66			hsa-mir-1827					0
AC Brain Sun	39			hsa-mir-1266					0
AC Brain Sun	22						hsa-mir-185		0
AC Brain Sun	17	hsa-mir-487b	Dysregulated				hsa-mir-617		0
AC Brain Sun	16						hsa-mir-655		0
AC Brain Sun	19			hsa-mir-218	Dysregulated		hsa-mir-485-5p		0
AC Brain Sun	18						hsa-mir-1305		0
AC Brain Sun	31						hsa-mir-1280		0
AC Brain Sun	37						hsa-mir-569		0
AC Brain Sun	32			hsa-mir-1266					0
AC Brain Sun	50	hsa-mir-1234		hsa-mir-32			hsa-mir-483-3p		0
GLB Brain Sun	58						hsa-mir-1287		0
RCCC Renal Lenburg	5						hsa-mir-515-3p		0
GLB Brain Sun	36						hsa-mir-423-5p		0
GLB Brain Sun	54			hsa-mir-548m			hsa-mir-921		0
GLB Brain Sun	51			hsa-mir-28-3p					0
GLB Brain Sun	43			hsa-mir-331-5p					0
GLB Brain Sun	60						hsa-mir-548f		0
GLB Brain Sun	62			hsa-mir-216a			hsa-mir-495		0
GLB Brain Sun	63						hsa-mir-939		0
GLB Brain Sun	64	hsa-let-7e*							0
GLB Brain Sun	68			hsa-mir-888			hsa-mir-299-5p	Dysregulated	0
GLB Brain Sun	69			hsa-mir-1288					0
RCCC Renal Lenburg	6			hsa-mir-651					0
GLB Brain Sun	24			hsa-mir-381 hsa-mir-300	Dysregulated		hsa-mir-494		0
GLB Brain Sun	25						hsa-mir-600		0
GLB Brain Sun	27			hsa-mir-590-3p			hsa-mir-889		0
GLB Brain Sun	20			hsa-mir-556-3p			hsa-mir-331-5p		0
GLB Brain Sun	21			hsa-mir-188-5p					0
GLB Brain Sun	49						hsa-mir-340		0
GLB Brain Sun	42						hsa-mir-602		0
GLB Brain Sun	28			hsa-mir-369-3p			hsa-mir-323-3p		0
GLB Brain Sun	29	hsa-mir-1181					hsa-mir-1275		0

GLB Brain Sun	41			hsa-mir-760			0
GLB Brain Sun	1			hsa-mir-767-5p		hsa-mir-324-5p	0
GLB Brain Sun	0					hsa-mir-637	0
GLB Brain Sun	3					hsa-mir-320a	0
GLB Brain Sun	5					hsa-mir-515-5p	0
GLB Brain Sun	4					hsa-mir-542-5p	0
CA Bladder Dyrskjot	12			hsa-mir-607		hsa-mir-1244	0
GLB Brain Sun	8			hsa-mir-140-3p		hsa-mir-501-5p	0
GLB Brain Sun	13					hsa-mir-744	0
GCT Seminoma Korkola	26			hsa-mir-138		hsa-mir-374a	0
GLB Brain Sun	12			hsa-mir-924			0
GLB Brain Sun	73					hsa-mir-187	0
GLB Brain Sun	72			hsa-mir-571		hsa-mir-1294	0
GLB Brain Sun	71			hsa-mir-1182			0
CA Bladder Dyrskjot	65					hsa-mir-888	0
GLB Brain Sun	59					hsa-mir-1252	0
GLB Brain Sun	10			hsa-mir-588		hsa-mir-409-5p	0
GLB Brain Sun	15			hsa-mir-582-3p		hsa-mir-219-1-3p	0
GLB Brain Sun	14			hsa-mir-1299			0
GLB Brain Sun	17			hsa-mir-621			0
GLB Brain Sun	31			hsa-mir-936		hsa-mir-501-3p	0
GLB Brain Sun	37					hsa-mir-1256	0
GLB Brain Sun	50			hsa-mir-664		hsa-mir-548c-3p	0
GLB Brain Sun	35					hsa-mir-922	0
CA Colon Graudens	15					hsa-mir-140-5p	Causal 0
GLB Brain Sun	55					hsa-mir-32	0
GLB Brain Sun	74					hsa-mir-369-3p	0
GLB Brain Sun	18			hsa-mir-655		hsa-mir-498	0
GLB Brain Sun	57					hsa-mir-921	0
CA Breast Sorlie	24	hsa-mir-1538					0
CA Breast Sorlie	20			hsa-mir-1279		hsa-mir-590-3p	0
GCT Seminoma Korkola	28					hsa-mir-146a	0
CA Breast Sorlie	2			hsa-mir-653			0
CA Breast Sorlie	4					hsa-mir-611	0
CA Breast Sorlie	8			hsa-mir-494		hsa-mir-1255a	0
CA Breast Sorlie	11			hsa-mir-33a			0
CA Breast Sorlie	10			hsa-mir-23b hsa-mir-23a			0
CA Breast Sorlie	12			hsa-mir-548c-3p			0
CA Breast Sorlie	14			hsa-mir-632			0
CA Breast Sorlie	17					hsa-mir-640	0
CA Breast Sorlie	16					hsa-mir-579	0
CA Breast Sorlie	19			hsa-mir-155	Causal	hsa-mir-129-5p	0
CA Breast Sorlie	18			hsa-mir-490-3p			0
GCT Seminoma Korkola	34					hsa-mir-136	0

GCT Seminoma Korkola	8			hsa-mir-940				0
CA Breast Richardson	61					hsa-mir-1271		0
CA Breast Richardson	62					hsa-mir-622		0
CA Breast Richardson	63					hsa-mir-561		0
CA Breast Richardson	53			hsa-mir-548m		hsa-mir-486-5p		0
CA Breast Richardson	67					hsa-mir-889		0
CA Breast Richardson	68					hsa-mir-663b hsa-mir-663	Dysregulated	0
CA Breast Richardson	34			hsa-mir-410		hsa-mir-186		0
CA Breast Richardson	25					hsa-mir-1252		0
CA Breast Richardson	27					hsa-mir-663b hsa-mir-663	Dysregulated	0
CA Breast Richardson	46	hsa-mir-487b		hsa-mir-323-3p		hsa-mir-607		0
CA Breast Richardson	45			hsa-mir-181d hsa-mir-181b	Dysregulated	hsa-mir-513a-3p		0
CA Breast Richardson	29					hsa-mir-1302		0
CA Breast Richardson	3					hsa-mir-578		0
CA Breast Richardson	4			hsa-mir-433				0
CA Breast Richardson	28					hsa-mir-765		0
CA Breast Richardson	56			hsa-mir-146b-5p hsa-mir-146a	Causal	hsa-mir-34b		0
CA Breast Richardson	7					hsa-mir-590-3p		0
CA Breast Richardson	33			hsa-mir-876-5p		hsa-mir-1251		0
CA Breast Richardson	38			hsa-mir-1271		hsa-mir-103b hsa-mir-103a		0
CA Breast Richardson	15	hsa-let-7d*				hsa-mir-494		0
CA Breast Richardson	32			hsa-mir-1245b-5p hsa-mir-1245				0
CA Breast Richardson	58					hsa-mir-889		0
CA Breast Richardson	13			hsa-mir-590-3p				0
CA Breast Richardson	59					hsa-mir-608		0
CA Breast Richardson	17	hsa-mir-566				hsa-mir-423-5p		0
CA Breast Richardson	16					hsa-mir-18a	Dysregulated	0
CA Breast Richardson	19					hsa-mir-586		0
CA Breast Richardson	18					hsa-mir-135a		0
CA Breast Richardson	23					hsa-mir-544 hsa-mir-544b		0
CA Breast Richardson	51					hsa-mir-633		0
CA Breast Richardson	50					hsa-mir-380		0
CA Breast Richardson	55			hsa-mir-130b hsa-mir-301a hsa-mir-301b hsa-mir-130a hsa-mir-454		hsa-mir-544 hsa-mir-544b		0
CA Breast Richardson	54					hsa-mir-361-3p		0
CA Breast Richardson	31					hsa-mir-376a		0
CA Breast Richardson	65					hsa-mir-1254		0

OD Brain Bredel	30					hsa-mir-1306			0
MCA Breast Radvanyi	21			hsa-mir-626					0
MCA Breast Radvanyi	2					hsa-mir-204	Causal		0
MCA Breast Radvanyi	7			hsa-mir-595		hsa-mir-324-3p			0
COID Lung Bhattacharjee	71			hsa-mir-1237					0
MCA Breast Radvanyi	12			hsa-mir-489					0
OD Brain Bredel	36					hsa-mir-326			0
MCA Breast Radvanyi	17					hsa-mir-219-5p			0
MCA Breast Radvanyi	19					hsa-mir-210	Causal		0
MCA Breast Radvanyi	18					hsa-mir-663b hsa-mir-663	Dysregulated		0
ILC Breast Radvanyi	24					hsa-mir-340			0
ILC Breast Radvanyi	26					hsa-mir-486-3p			0
ILC Breast Radvanyi	20					hsa-mir-328	Dysregulated		0
ILC Breast Radvanyi	22			hsa-mir-508-3p					0
GCT Seminoma Korkola	82					hsa-mir-576-5p			0
ILC Breast Radvanyi	3					hsa-mir-383			0
ILC Breast Radvanyi	2					hsa-mir-423-3p			0
ILC Breast Radvanyi	5			hsa-mir-501-5p					0
ILC Breast Radvanyi	4			hsa-mir-122	Dysregulated	hsa-mir-548a-3p			0
MM Myeloma Zhan	14					hsa-mir-548l			0
ILC Breast Radvanyi	6	hsa-let-7d*				hsa-mir-579			0
ILC Breast Radvanyi	11	hsa-mir-483-5p							0
ILC Breast Radvanyi	10					hsa-mir-548c-3p			0
ILC Breast Radvanyi	15					hsa-mir-518b			0
ILC Breast Radvanyi	19			hsa-mir-663b hsa-mir-663	Dysregulated	hsa-mir-338-3p			0
IDC Breast Radvanyi	56			hsa-mir-216b		hsa-mir-576-5p			0
IDC Breast Radvanyi	54			hsa-mir-1277					0
IDC Breast Radvanyi	48			hsa-mir-630					0
IDC Breast Radvanyi	43					hsa-mir-1224-5p			0
GCT Seminoma Korkola	87			hsa-mir-1179		hsa-mir-371b-5p hsa-mir-371-5p	Dysregulated		0
IDC Breast Radvanyi	63					hsa-mir-548h			0
IDC Breast Radvanyi	65					hsa-mir-802			0
CA Bladder Dyrskjot	80					hsa-mir-616			0
IDC Breast Radvanyi	42					hsa-mir-766			0
IDC Breast Radvanyi	24					hsa-mir-1291			0
IDC Breast Radvanyi	23	hsa-mir-376a*							0
IDC Breast Radvanyi	27					hsa-mir-323-5p hsa-mir-323b-5p			0
GBM Brain Liang	16					hsa-mir-663b hsa-mir-663			0
IDC Breast Radvanyi	21			hsa-mir-493					0
GCT Seminoma Korkola	29					hsa-mir-548c-3p			0
IDC Breast Radvanyi	47			hsa-mir-760					0

IDC Breast Radvanyi	44			hsa-mir-548a-3p						0
IDC Breast Radvanyi	28						hsa-mir-149	Dysregulated		0
IDC Breast Radvanyi	41			hsa-mir-361-3p			hsa-mir-939			0
IDC Breast Radvanyi	2						hsa-mir-513a-3p			0
IDC Breast Radvanyi	4			hsa-mir-661	Causal		hsa-mir-608			0
IDC Breast Radvanyi	7						hsa-mir-450b-3p			0
GCT Seminoma Korkola	108			hsa-mir-570			hsa-mir-590-5p			0
IDC Breast Radvanyi	9						hsa-mir-661	Causal		0
IDC Breast Radvanyi	8	hsa-mir-604		hsa-mir-1273 hsa-mir-1273c hsa-mir-1273d hsa-mir-1273e hsa-mir-1273f hsa-mir-1273g			hsa-mir-631			0
IDC Breast Radvanyi	15			hsa-mir-182	Causal		hsa-mir-205	Causal		0
IDC Breast Radvanyi	14	hsa-mir-590-3p		hsa-mir-556-5p			hsa-mir-323-3p			0
IDC Breast Radvanyi	39						hsa-mir-125a-3p			0
IDC Breast Radvanyi	12						hsa-mir-590-3p			0
IDC Breast Radvanyi	59	hsa-mir-1469								0
IDC Breast Radvanyi	16			hsa-mir-9	Causal					0
IDC Breast Radvanyi	51			hsa-mir-548l			hsa-mir-548n			0
IDC Breast Radvanyi	35			hsa-mir-488						0
IDC Breast Radvanyi	34			hsa-mir-532-5p						0
OD Brain Bredel	47						hsa-mir-219-1-3p			0
IDC Breast Radvanyi	18						hsa-mir-1207-3p			0
IDC Breast Radvanyi	50	hsa-mir-1247								0
CA Colon Graudens	28			hsa-mir-566			hsa-mir-508-5p			0
CA Colon Graudens	29			hsa-mir-337-3p						0
CA Colon Graudens	24			hsa-mir-381 hsa-mir-300			hsa-mir-522			0
CA Colon Graudens	25			hsa-mir-202						0
GCT Seminoma Korkola	106						hsa-mir-513b			0
CA Colon Graudens	40			hsa-mir-507 hsa-mir-557			hsa-mir-369-3p			0
CA Colon Graudens	41			hsa-mir-1243						0
CA Colon Graudens	0						hsa-mir-138			0
CA Colon Graudens	3			hsa-mir-552						0
CA Colon Graudens	2			hsa-mir-551b hsa-mir-551a			hsa-mir-451b hsa-mir-451	Causal		0
GCT Seminoma Korkola	104						hsa-mir-557			0
CA Colon Graudens	4						hsa-mir-144			0
CA Colon Graudens	6						hsa-mir-658			0
CA Colon Graudens	9			hsa-mir-338-3p						0
CA Colon Graudens	8			hsa-mir-595						0
CA Colon Graudens	39			hsa-mir-873						0

CA Colon Graudens	11	hsa-mir-523				hsa-mir-1225-5p			0
CA Colon Graudens	10								0
CA Colon Graudens	38			hsa-mir-320e hsa-mir-320d hsa-mir-320c hsa-mir-320b hsa-mir-320a	**Dysregulated**	hsa-mir-96	**Dysregulated**		0
OD Brain Bredel	41			hsa-mir-1276					0
CA Colon Graudens	14			hsa-mir-1244					0
CA Colon Graudens	17			hsa-mir-642a hsa-mir-642b		hsa-mir-597			0
RCCC Renal Lenburg	0					hsa-mir-489	**Dysregulated**		0
CA Colon Graudens	32					hsa-mir-296-5p	**Dysregulated**		0
CA Colon Graudens	31					hsa-mir-548o			0
CA Colon Graudens	30			hsa-mir-125b hsa-mir-125a-5p	**Dysregulated**				0
CA Colon Graudens	37					hsa-mir-32	**Dysregulated**		0
CA Colon Graudens	36			hsa-mir-576-5p		hsa-mir-512-3p			0
CA Colon Graudens	35			hsa-mir-325					0
CA Colon Graudens	19			hsa-mir-148a					0
HSCC Head-Neck Cromer	25			hsa-mir-1264		hsa-mir-495			0
HSCC Head-Neck Cromer	26			hsa-mir-199a-5p hsa-mir-199b-5p	**Dysregulated**	hsa-mir-885-5p			0
HSCC Head-Neck Cromer	27					hsa-mir-615-5p			0
HSCC Head-Neck Cromer	20			hsa-mir-543		hsa-mir-567			0
HSCC Head-Neck Cromer	22			hsa-mir-218		hsa-mir-30b	**Dysregulated**		0
HSCC Head-Neck Cromer	23			hsa-mir-380					0
HSCC Head-Neck Cromer	3			hsa-mir-496					0
HSCC Head-Neck Cromer	2					hsa-mir-374b	**Dysregulated**		0
HSCC Head-Neck Cromer	5					hsa-mir-486-3p			0
HSCC Head-Neck Cromer	4					hsa-mir-662			0
GCT Seminoma Korkola	30					hsa-mir-588			0
HSCC Head-Neck Cromer	6					hsa-mir-1275			0
HSCC Head-Neck Cromer	8					hsa-mir-142-5p			0
HSCC Head-Neck Cromer	11			hsa-mir-129-5p					0
HSCC Head-Neck Cromer	10					hsa-mir-570a-5p			0
HSCC Head-Neck Cromer	13			hsa-mir-875-3p		hsa-mir-622			0
HSCC Head-Neck Cromer	12			hsa-mir-1297 hsa-mir-26a hsa-mir-26b	**Dysregulated**	hsa-mir-513a-3p			0
MM Myeloma Zhan	10					hsa-mir-1305			0
OD Brain Bredel	7					hsa-mir-23b			0
HSCC Head-Neck Cromer	18			hsa-mir-214	**Dysregulated**	hsa-mir-615-3p			0
HSCC Head-Neck Chung	10			hsa-mir-1226		hsa-mir-607			0
HSCC Head-Neck Chung	1	hsa-mir-29b hsa-mir-29c hsa-mir-29a	**Dysregulated**	hsa-mir-767-5p		hsa-mir-450b-5p			0

IDC Breast Radvanyi	6			hsa-mir-652			0
H5CC Head-Neck Chung	3					hsa-mir-1286	0
H5CC Head-Neck Chung	2			hsa-mir-148a hsa-mir-148b hsa-mir-152	Dysregulated	hsa-mir-944	0
H5CC Head-Neck Chung	5					hsa-mir-1202	0
H5CC Head-Neck Chung	4					hsa-mir-548l	0
H5CC Head-Neck Chung	7			hsa-mir-487a		hsa-mir-573	0
H5CC Head-Neck Chung	6					hsa-mir-590-3p	0
H5CC Head-Neck Chung	9					hsa-mir-708	0
H5CC Head-Neck Chung	8					hsa-mir-410	0
B-CLL Leukemia Haslinger	30			hsa-mir-654-3p			0
B-CLL Leukemia Haslinger	28					hsa-mir-376a hsa-mir-376b hsa-mir-376c	0
GCT Seminoma Korkola	60					hsa-mir-551a	0
B-CLL Leukemia Haslinger	36					hsa-mir-587	0
B-CLL Leukemia Haslinger	61					hsa-mir-588	0
B-CLL Leukemia Haslinger	62			hsa-mir-515-5p		hsa-mir-548c-3p	0
B-CLL Leukemia Haslinger	64			hsa-mir-1278			0
B-CLL Leukemia Haslinger	65					hsa-mir-1247	0
B-CLL Leukemia Haslinger	66					hsa-mir-939	0
B-CLL Leukemia Haslinger	68			hsa-mir-377		hsa-mir-520g	0
B-CLL Leukemia Haslinger	69	hsa-mir-450a		hsa-mir-532-5p		hsa-mir-146a	Dysregulated 0
B-CLL Leukemia Haslinger	52			hsa-mir-323-3p		hsa-mir-302a	0
B-CLL Leukemia Haslinger	25			hsa-mir-1237		hsa-mir-548c-3p	0
B-CLL Leukemia Haslinger	27			hsa-mir-760			0
B-CLL Leukemia Haslinger	21			hsa-mir-429 hsa-mir-200b hsa-mir-200c hsa-mir-200a	Causal	hsa-mir-548c-3p	0
B-CLL Leukemia Haslinger	48			hsa-mir-520d-5p hsa-mir-524-5p			0
B-CLL Leukemia Haslinger	23					hsa-mir-548o	0
B-CLL Leukemia Haslinger	46			hsa-mir-1249		hsa-mir-1247	0
B-CLL Leukemia Haslinger	44					hsa-mir-200b	Causal 0
B-CLL Leukemia Haslinger	45					hsa-mir-889	0
B-CLL Leukemia Haslinger	29			hsa-mir-520f		hsa-mir-1270	0
B-CLL Leukemia Haslinger	40			hsa-mir-582-3p			0
B-CLL Leukemia Haslinger	41					hsa-mir-483-5p	0
B-CLL Leukemia Haslinger	1					hsa-mir-487a	0
B-CLL Leukemia Haslinger	0					hsa-mir-409-5p	0
B-CLL Leukemia Haslinger	5					hsa-mir-622	0
B-CLL Leukemia Haslinger	9					hsa-mir-1245b-5p hsa-mir-1245	0
B-CLL Leukemia Haslinger	8					hsa-mir-939	0
B-CLL Leukemia Haslinger	56					hsa-mir-548b-3p	0

B-CLL Leukemia Haslinger	43							hsa-mir-483-3p	0
B-CLL Leukemia Haslinger	35			hsa-mir-1294				hsa-mir-486-3p	0
END Ovarian Hendrix	77							hsa-mir-590-3p	0
B-CLL Leukemia Haslinger	15			hsa-mir-338-5p				hsa-mir-654-3p	0
B-CLL Leukemia Haslinger	58	hsa-mir-337-5p							0
B-CLL Leukemia Haslinger	11							hsa-mir-34c-3p	0
B-CLL Leukemia Haslinger	10							hsa-mir-454	0
B-CLL Leukemia Haslinger	13							hsa-mir-892b	0
B-CLL Leukemia Haslinger	38							hsa-mir-548g	0
B-CLL Leukemia Haslinger	59			hsa-mir-636				hsa-mir-1228	0
B-CLL Leukemia Haslinger	17							hsa-mir-590-3p	0
B-CLL Leukemia Haslinger	16							hsa-mir-1285	0
B-CLL Leukemia Haslinger	54	hsa-mir-937						hsa-mir-1321	0
B-CLL Leukemia Haslinger	49			hsa-mir-660				hsa-mir-1227	0
B-CLL Leukemia Haslinger	51							hsa-mir-448	0
B-CLL Leukemia Haslinger	50							hsa-mir-296-5p	0
B-CLL Leukemia Haslinger	34			hsa-mir-492					0
B-CLL Leukemia Haslinger	55			hsa-mir-1323 hsa-mir-548o				hsa-mir-200b	Causal	0
B-CLL Leukemia Haslinger	37			hsa-mir-545				hsa-mir-323-3p	0
B-CLL Leukemia Haslinger	31							hsa-mir-1321	0
AD Lung Beer	51			hsa-mir-1202					0
AD Lung Beer	22							hsa-mir-525-5p	0
AD Lung Beer	34			hsa-mir-193b				hsa-mir-646	0
AD Lung Beer	53			hsa-mir-581				hsa-mir-548d-3p	0
AD Lung Beer	24			hsa-mir-770-5p					0
OD Brain Bredel	15							hsa-mir-765	0
AD Lung Beer	27			hsa-mir-320e hsa-mir-320d hsa-mir-320c hsa-mir-320b hsa-mir-320a					0
GLB Brain Sun	76			hsa-mir-561				hsa-mir-139-5p	Dysregulated	0
AD Lung Beer	46			hsa-mir-874				hsa-mir-606	0
AD Lung Beer	44			hsa-mir-484				hsa-mir-452	0
AD Lung Beer	42							hsa-mir-651	0
AD Lung Beer	43							hsa-mir-1275	0
AD Lung Beer	40			hsa-mir-320e hsa-mir-320d hsa-mir-320c hsa-mir-320b hsa-mir-320a				hsa-mir-561	0
AD Lung Beer	1			hsa-mir-766					0
AD Lung Beer	0							hsa-let-7d	Causal	0
AD Lung Beer	3			hsa-mir-338-5p	Dysregulated				0
GCT Seminoma Korkola	93			hsa-mir-193a-5p				hsa-mir-640	0
AD Lung Beer	5							hsa-mir-1292	0
AD Lung Beer	4							hsa-mir-1183	0

AD Lung Beer	7			hsa-mir-548b-5p hsa-mir-548am hsa-mir-548ab hsa-mir-548aa hsa-mir-548ag hsa-mir-548ak hsa-mir-548aj hsa-mir-548ai hsa-mir-548ah hsa-mir-548an hsa-mir-548al hsa-mir-548ae hsa-mir-548ad hsa-mir-548a-5p hsa-mir-548ac hsa-mir-548d-5p hsa-mir-548i hsa-mir-548j hsa-mir-548c-5p hsa-mir-548h					0
AD Lung Beer	6							hsa-mir-548c-3p	0
AD Lung Beer	8			hsa-mir-939				hsa-mir-637	0
AD Lung Beer	28			hsa-mir-147 hsa-mir-147b				hsa-mir-1245b-5p hsa-mir-1245	0
AD Lung Beer	38							hsa-mir-933	0
AD Lung Beer	29			hsa-mir-661					0
AD Lung Beer	11			hsa-mir-9	**Dysregulated**				0
OD Brain Bredel	18			hsa-mir-1261					0
AD Lung Beer	12			hsa-mir-1208				hsa-mir-378b hsa-mir-378c hsa-mir-378f hsa-mir-378g hsa-mir-378d hsa-mir-378e hsa-mir-378h hsa-mir-378i hsa-mir-378	0
AD Lung Beer	15							hsa-mir-586	0
AD Lung Beer	14			hsa-mir-571				hsa-mir-542-5p	0
AD Lung Beer	32			hsa-mir-656					0
MUC Ovarian Hendrix	35							hsa-mir-340	0
AD Lung Beer	35			hsa-mir-222	**Causal**				0
AD Lung Beer	52			hsa-mir-372	**Causal**				0
AD Lung Beer	19	hsa-mir-487b							0
AD Lung Beer	18			hsa-mir-876-3p				hsa-mir-19a	**Causal**	0
AD Lung Beer	33			hsa-mir-380				hsa-mir-379	0
GCT Seminoma Korkola	96							hsa-mir-29a	0

CA Bladder Dyrskjot	18					hsa-mir-1291	0
AD Lung Bhattacharjee	60			hsa-mir-190b hsa-mir-190		hsa-mir-495	0
AD Lung Bhattacharjee	82					hsa-mir-647	0
AD Lung Bhattacharjee	64	hsa-mir-150	**Dysregulated**			hsa-mir-765	0
AD Lung Bhattacharjee	65	hsa-mir-3177-5p				hsa-mir-486-3p	0
AD Lung Bhattacharjee	67			hsa-mir-361-5p			0
AD Lung Bhattacharjee	69			hsa-mir-23b hsa-mir-23a		hsa-mir-522	0
AD Lung Bhattacharjee	81					hsa-mir-516b	0
AD Lung Bhattacharjee	24					hsa-mir-608	0
HSCC Head-Neck Cromer	19					hsa-mir-548l	0
AD Lung Bhattacharjee	27	hsa-mir-487b				hsa-mir-451b hsa-mir-451 **Dysregulated**	0
AD Lung Bhattacharjee	20			hsa-mir-599		hsa-mir-1245b-5p hsa-mir-1245	0
AD Lung Bhattacharjee	22			hsa-mir-875-3p		hsa-mir-619	0
AD Lung Bhattacharjee	46			hsa-mir-548a-3p hsa-mir-548e hsa-mir-548f		hsa-mir-548c-3p	0
AD Lung Bhattacharjee	47			hsa-mir-409-3p		hsa-mir-1245b-5p hsa-mir-1245	0
AD Lung Bhattacharjee	44	hsa-mir-655		hsa-mir-633		hsa-mir-1284	0
AD Lung Bhattacharjee	45					hsa-mir-340	0
AD Lung Bhattacharjee	42			hsa-mir-760			0
AD Lung Bhattacharjee	41					hsa-mir-296-5p	0
AD Lung Bhattacharjee	0					hsa-mir-338-5p **Dysregulated**	0
OD Brain Bredel	61					hsa-mir-937	0
AD Lung Bhattacharjee	2			hsa-mir-645			0
AD Lung Bhattacharjee	4					hsa-mir-1321	0
AD Lung Bhattacharjee	7			hsa-mir-570		hsa-mir-1305	0
AD Lung Bhattacharjee	6	hsa-mir-941				hsa-mir-602	0
AD Lung Bhattacharjee	9					hsa-mir-154	0
AD Lung Bhattacharjee	8					hsa-mir-1324	0
AD Lung Bhattacharjee	52					hsa-let-7a **Causal**	0
AD Lung Bhattacharjee	28			hsa-mir-122		hsa-mir-548a-3p	0
AD Lung Bhattacharjee	49			hsa-mir-567			0
GCT Seminoma Korkola	16					hsa-mir-1183	0
AD Lung Bhattacharjee	39			hsa-mir-525-3p hsa-mir-524-3p			0
AD Lung Bhattacharjee	35					hsa-mir-133a	0
AD Lung Bhattacharjee	76			hsa-mir-371-3p			0
AD Lung Bhattacharjee	75			hsa-mir-1270 hsa-mir-620		hsa-mir-637	0
AD Lung Bhattacharjee	74					hsa-mir-543	0

AD Lung Bhattacharjee	72			hsa-mir-507 hsa-mir-557			0
MPC Prostate Dhanasekaran	36					hsa-mir-942	0
AD Lung Bhattacharjee	10					hsa-mir-1321	0
GL Brain Bredel	22					hsa-mir-657	0
AD Lung Bhattacharjee	59			hsa-mir-29b hsa-mir-29c hsa-mir-29a	Causal		0
AD Lung Bhattacharjee	14			hsa-mir-517c hsa-mir-517b hsa-mir-517a		hsa-mir-938	0
AD Lung Bhattacharjee	17					hsa-mir-491-5p	0
GCT Seminoma Korkola	50					hsa-mir-376a hsa-mir-376b hsa-mir-376c	0
AD Lung Bhattacharjee	33			hsa-mir-892a		hsa-mir-490-5p	0
AD Lung Bhattacharjee	30			hsa-mir-607		hsa-mir-548c-3p	0
AD Lung Bhattacharjee	50					hsa-mir-642a hsa-mir-642b	0
AD Lung Bhattacharjee	53			hsa-mir-146b-5p hsa-mir-146a	Dysregulated		0
AD Lung Bhattacharjee	34					hsa-mir-296-5p	0
AD Lung Bhattacharjee	19			hsa-mir-1322		hsa-mir-1247	0
AD Lung Bhattacharjee	55					hsa-mir-1286	0
AD Lung Bhattacharjee	12					hsa-mir-590-3p	0
GL Brain Bredel	60			hsa-mir-513a-5p		hsa-mir-25 **Dysregulated**	0
COID Lung Bhattacharjee	24					hsa-mir-342-5p	0
COID Lung Bhattacharjee	25			hsa-mir-1276		hsa-mir-361-5p	0
COID Lung Bhattacharjee	20					hsa-mir-615-3p	0
COID Lung Bhattacharjee	21			hsa-mir-590-3p		hsa-mir-944	0
COID Lung Bhattacharjee	23					hsa-mir-1228	0
COID Lung Bhattacharjee	28			hsa-mir-758		hsa-mir-608	0
COID Lung Bhattacharjee	0			hsa-mir-663b hsa-mir-663		hsa-mir-518d-5p	0
COID Lung Bhattacharjee	8			hsa-mir-607		hsa-mir-340	0
COID Lung Bhattacharjee	58					hsa-mir-23a	0
CA Colon Graudens	5					hsa-mir-548h	0
COID Lung Bhattacharjee	51					hsa-mir-656	0
COID Lung Bhattacharjee	52					hsa-mir-154	0
COID Lung Bhattacharjee	89			hsa-mir-1254			0
COID Lung Bhattacharjee	80					hsa-mir-548l	0
COID Lung Bhattacharjee	81			hsa-mir-369-3p			0
COID Lung Bhattacharjee	86			hsa-mir-580		hsa-mir-410	0
COID Lung Bhattacharjee	87	hsa-mir-1181					0
COID Lung Bhattacharjee	84	hsa-mir-615-5p					0
COID Lung Bhattacharjee	85					hsa-mir-1180	0

COID Lung Bhattacharjee	3			hsa-mir-940				0
COID Lung Bhattacharjee	7			hsa-mir-431		hsa-mir-608		0
COID Lung Bhattacharjee	39					hsa-mir-608		0
COID Lung Bhattacharjee	31			hsa-mir-331-3p				0
COID Lung Bhattacharjee	30					hsa-mir-423-5p	**Dysregulated**	0
CA Bladder Dyrskjot	29					hsa-mir-548c-3p		0
COID Lung Bhattacharjee	36					hsa-mir-890		0
COID Lung Bhattacharjee	60			hsa-mir-505		hsa-mir-516a-3p		0
COID Lung Bhattacharjee	61			hsa-mir-494		hsa-mir-34c-3p		0
GCT Seminoma Korkola	5					hsa-mir-1204		0
COID Lung Bhattacharjee	64					hsa-mir-661		0
COID Lung Bhattacharjee	66					hsa-mir-507		0
COID Lung Bhattacharjee	67			hsa-mir-512-3p		hsa-mir-181d		0
COID Lung Bhattacharjee	68					hsa-mir-1272		0
COID Lung Bhattacharjee	69					hsa-mir-765		0
COID Lung Bhattacharjee	2			hsa-mir-548d-3p				0
COID Lung Bhattacharjee	6					hsa-mir-874		0
COID Lung Bhattacharjee	91			hsa-mir-1275				0
COID Lung Bhattacharjee	92					hsa-mir-920		0
COID Lung Bhattacharjee	11			hsa-mir-501-5p		hsa-mir-513b		0
COID Lung Bhattacharjee	10		hsa-mir-138-2*	hsa-mir-513a-3p		hsa-mir-101	**Dysregulated**	0
COID Lung Bhattacharjee	12			hsa-mir-509-5p hsa-mir-509-3p hsa-mir-509-3-5p		hsa-mir-494		0
COID Lung Bhattacharjee	14					hsa-mir-557		0
COID Lung Bhattacharjee	17			hsa-mir-885-3p				0
COID Lung Bhattacharjee	16					hsa-mir-376a		0
COID Lung Bhattacharjee	19			hsa-mir-553		hsa-mir-615-5p		0
COID Lung Bhattacharjee	18					hsa-mir-663b hsa-mir-663		0
GL Brain Bredel	25			hsa-mir-338-5p	**Dysregulated**	hsa-mir-513b		0
COID Lung Bhattacharjee	47			hsa-mir-574-3p				0
COID Lung Bhattacharjee	44			hsa-mir-504				0
COID Lung Bhattacharjee	45					hsa-mir-615-5p		0
COID Lung Bhattacharjee	42					hsa-mir-671-5p		0
COID Lung Bhattacharjee	43					hsa-mir-658		0
COID Lung Bhattacharjee	40			hsa-mir-1181		hsa-mir-93	**Causal**	0
COID Lung Bhattacharjee	41			hsa-mir-1303				0
COID Lung Bhattacharjee	5			hsa-mir-361-5p		hsa-mir-548o		0
COID Lung Bhattacharjee	9			hsa-mir-622				0
GCT Seminoma Korkola	73					hsa-mir-675		0
COID Lung Bhattacharjee	75					hsa-mir-874		0
COID Lung Bhattacharjee	73			hsa-mir-1262				0
COID Lung Bhattacharjee	72					hsa-mir-548n		0
GCT Seminoma Korkola	72			hsa-mir-490-3p		hsa-mir-760		0
COID Lung Bhattacharjee	79					hsa-mir-508-3p		0

COID Lung Bhattacharjee	78			hsa-mir-920		hsa-mir-27b	Dysregulated	0
SQ Lung Bhattacharjee	41			hsa-mir-885-3p				0
SQ Lung Bhattacharjee	22			hsa-mir-548n		hsa-mir-607		0
SQ Lung Bhattacharjee	35	hsa-mir-449c*						0
SQ Lung Bhattacharjee	34	hsa-mir-718						0
SQ Lung Bhattacharjee	23					hsa-mir-586		0
SQ Lung Bhattacharjee	24					hsa-mir-889		0
GCT Seminoma Korkola	70					hsa-mir-939		0
SQ Lung Bhattacharjee	27					hsa-mir-940		0
SQ Lung Bhattacharjee	21					hsa-mir-455-5p		0
SQ Lung Bhattacharjee	49					hsa-mir-34a	Causal	0
SQ Lung Bhattacharjee	46			hsa-mir-650				0
SQ Lung Bhattacharjee	44	hsa-mir-4285		hsa-mir-767-5p				0
SQ Lung Bhattacharjee	45					hsa-mir-654-5p		0
SQ Lung Bhattacharjee	28			hsa-mir-616				0
SQ Lung Bhattacharjee	29					hsa-mir-486-3p		0
SQ Lung Bhattacharjee	40					hsa-mir-339-3p		0
SQ Lung Bhattacharjee	42			hsa-mir-637				0
SQ Lung Bhattacharjee	0					hsa-mir-662		0
GL Brain Bredel	47					hsa-mir-1236		0
SQ Lung Bhattacharjee	5					hsa-mir-595		0
SQ Lung Bhattacharjee	4			hsa-mir-423-5p	Dysregulated	hsa-mir-214	Dysregulated	0
SQ Lung Bhattacharjee	7					hsa-mir-765		0
SQ Lung Bhattacharjee	9					hsa-mir-891a		0
SQ Lung Bhattacharjee	8	hsa-mir-1203						0
SQ Lung Bhattacharjee	43			hsa-mir-597		hsa-mir-635		0
SQ Lung Bhattacharjee	13					hsa-mir-296-5p		0
SQ Lung Bhattacharjee	15			hsa-mir-96	Dysregulated	hsa-mir-569		0
SQ Lung Bhattacharjee	14					hsa-mir-486-3p		0
SQ Lung Bhattacharjee	16			hsa-mir-802				0
SQ Lung Bhattacharjee	19			hsa-mir-423-5p	Dysregulated	hsa-mir-647		0
SQ Lung Bhattacharjee	18			hsa-mir-767-5p		hsa-mir-410		0
SQ Lung Bhattacharjee	30					hsa-mir-1233		0
SQ Lung Bhattacharjee	37			hsa-mir-770-5p				0
SQ Lung Bhattacharjee	50					hsa-mir-607		0
SQ Lung Bhattacharjee	52			hsa-mir-411				0
SQ Lung Bhattacharjee	33			hsa-mir-339-5p	Dysregulated			0
SQ Lung Bhattacharjee	32			hsa-mir-532-3p		hsa-mir-210	Dysregulated	0
SMCL Lung Bhattacharjee	30			hsa-mir-548n		hsa-mir-655		0
SMCL Lung Bhattacharjee	36					hsa-mir-296-5p		0
SMCL Lung Bhattacharjee	60	hsa-mir-671-3p						0
SMCL Lung Bhattacharjee	61					hsa-mir-331-3p		0
SMCL Lung Bhattacharjee	35					hsa-mir-212	Dysregulated	0
SMCL Lung Bhattacharjee	32					hsa-mir-582-5p		0
MUC Ovarian Hendrix	13					hsa-mir-1280		0
SMCL Lung Bhattacharjee	25			hsa-mir-101	Dysregulated			0

SMCL Lung Bhattacharjee	20			hsa-mir-570		hsa-mir-423-5p	Dysregulated	0
SMCL Lung Bhattacharjee	21							0
SMCL Lung Bhattacharjee	46			hsa-mir-499a-5p hsa-mir-499-5p		hsa-mir-891b		0
SMCL Lung Bhattacharjee	23	hsa-mir-3183						0
SMCL Lung Bhattacharjee	45			hsa-mir-432		hsa-mir-125a-5p	Causal	0
SMCL Lung Bhattacharjee	28					hsa-mir-744		0
SMCL Lung Bhattacharjee	43					hsa-mir-671-3p		0
SMCL Lung Bhattacharjee	41			hsa-mir-512-3p				0
SMCL Lung Bhattacharjee	1			hsa-mir-1237		hsa-mir-940		0
SMCL Lung Bhattacharjee	2			hsa-mir-1266		hsa-mir-1321		0
SMCL Lung Bhattacharjee	5					hsa-mir-615-5p		0
SMCL Lung Bhattacharjee	7							0
SMCL Lung Bhattacharjee	9			hsa-mir-362-3p hsa-mir-329				0
SMCL Lung Bhattacharjee	34			hsa-mir-1207-5p				0
SMCL Lung Bhattacharjee	47					hsa-mir-302e		0
SMCL Lung Bhattacharjee	15			hsa-mir-216b	Dysregulated			0
SMCL Lung Bhattacharjee	29			hsa-mir-513a-3p		hsa-mir-548c-3p		0
SMCL Lung Bhattacharjee	11					hsa-mir-1321		0
SMCL Lung Bhattacharjee	10			hsa-mir-720				0
SMCL Lung Bhattacharjee	59					hsa-mir-340		0
SMCL Lung Bhattacharjee	58					hsa-mir-423-5p	Dysregulated	0
SMCL Lung Bhattacharjee	17			hsa-mir-888				0
SMCL Lung Bhattacharjee	55			hsa-mir-590-3p				0
SMCL Lung Bhattacharjee	57					hsa-mir-448		0
SMCL Lung Bhattacharjee	56			hsa-mir-888				0
SMCL Lung Bhattacharjee	51	hsa-mir-1273 hsa-mir-1273c hsa-mir-1273d hsa-mir-1273e hsa-mir-1273f hsa-mir-1273g						0
SMCL Lung Bhattacharjee	50					hsa-mir-664		0
SMCL Lung Bhattacharjee	53					hsa-mir-20a	Causal	0
SMCL Lung Bhattacharjee	52			hsa-mir-483-3p		hsa-mir-939		0
SMCL Lung Bhattacharjee	16	hsa-mir-339-3p						0
SMCL Lung Bhattacharjee	18			hsa-mir-624		hsa-mir-513c hsa-mir-513b hsa-mir-513a-5p		0
SMCL Lung Bhattacharjee	31					hsa-mir-513a-3p		0
AD Lung Stearman	25			hsa-mir-200a hsa-mir-141	Causal	hsa-mir-519a		0
AD Lung Stearman	27					hsa-mir-300		0
AD Lung Stearman	29	hsa-mir-598				hsa-mir-425	Dysregulated	0
CA Breast Richardson	37					hsa-mir-1289		0

AD Lung Stearman	0			hsa-mir-518a-5p hsa-mir-527		hsa-mir-369-3p		0
AD Lung Stearman	5					hsa-mir-342-3p		0
AD Lung Stearman	7			hsa-mir-1269b hsa-mir-1269		hsa-mir-16	Causal	0
AD Lung Stearman	6					hsa-mir-380		0
AD Lung Stearman	9			hsa-mir-548g				0
AD Lung Stearman	13			hsa-mir-455-5p		hsa-mir-23a		0
AD Lung Stearman	19					hsa-mir-370		0
AD Lung Stearman	36					hsa-mir-1269b hsa-mir-1269		0
AD Lung Stearman	35					hsa-mir-668		0
AD Lung Stearman	33			hsa-mir-196b hsa-mir-196a		hsa-mir-1293		0
AD Lung Stearman	32					hsa-mir-588		0
FL Lymphoma Alizadeh	11			hsa-mir-148a hsa-mir-148b hsa-mir-152		hsa-mir-614		0
FL Lymphoma Alizadeh	0					hsa-mir-92a	Dysregulated	0
FL Lymphoma Alizadeh	2	hsa-mir-425*				hsa-mir-149	Dysregulated	0
FL Lymphoma Alizadeh	5					hsa-mir-581		0
FL Lymphoma Alizadeh	4	hsa-mir-4261		hsa-mir-1295				0
FL Lymphoma Alizadeh	7					hsa-mir-1282		0
FL Lymphoma Alizadeh	6			hsa-mir-338-5p	Dysregulated			0
FL Lymphoma Alizadeh	9			hsa-mir-767-3p		hsa-mir-942		0
DLBCL Lymphoma Alizadeh	11			hsa-mir-1203				0
DLBCL Lymphoma Alizadeh	10			hsa-mir-325				0
DLBCL Lymphoma Alizadeh	1			hsa-mir-138		hsa-mir-16		0
DLBCL Lymphoma Alizadeh	3					hsa-mir-744		0
DLBCL Lymphoma Alizadeh	2					hsa-mir-660		0
DLBCL Lymphoma Alizadeh	5	hsa-mir-132*		hsa-mir-198				0
DLBCL Lymphoma Alizadeh	4					hsa-mir-297		0
DLBCL Lymphoma Alizadeh	7			hsa-mir-532-3p		hsa-mir-1301		0
DLBCL Lymphoma Alizadeh	6			hsa-mir-542-5p		hsa-mir-483-3p		0
DLBCL Lymphoma Alizadeh	9			hsa-mir-892b		hsa-mir-1277		0
CLL Lymphoma Alizadeh	13					hsa-mir-423-5p		0
CLL Lymphoma Alizadeh	1					hsa-mir-1204		0
CLL Lymphoma Alizadeh	0			hsa-mir-1283		hsa-mir-548j		0
CLL Lymphoma Alizadeh	3			hsa-mir-513b				0
CLL Lymphoma Alizadeh	4					hsa-mir-29b	Causal	0
CLL Lymphoma Alizadeh	7			hsa-mir-1263				0
CLL Lymphoma Alizadeh	8			hsa-mir-222				0
ME Melanoma Hoek	25					hsa-mir-26a		0
ME Melanoma Hoek	26					hsa-mir-577		0
ME Melanoma Hoek	20					hsa-mir-331-5p	Dysregulated	0
OD Brain Bredel	50					hsa-mir-1254		0

ME Melanoma Hoek	47			hsa-mir-549					0
ME Melanoma Hoek	44			hsa-mir-1299			hsa-mir-1183		0
ME Melanoma Hoek	41			hsa-mir-938			hsa-mir-451b hsa-mir-451		0
ME Melanoma Hoek	0			hsa-mir-34b	Dysregulated		hsa-mir-582-5p		0
ME Melanoma Hoek	3	hsa-mir-4285							0
CA Bladder Dyrskjot	9			hsa-mir-452	Dysregulated		hsa-mir-548c-3p		0
ME Melanoma Hoek	6			hsa-mir-410			hsa-mir-186		0
ME Melanoma Hoek	9			hsa-mir-106b hsa-mir-17 hsa-mir-106a hsa-mir-93 hsa-mir-20b hsa-mir-20a	Dysregulated		hsa-mir-494		0
ME Melanoma Hoek	39			hsa-mir-212 hsa-mir-132			hsa-mir-944		0
ME Melanoma Hoek	12			hsa-mir-892a			hsa-mir-935		0
ME Melanoma Hoek	15			hsa-mir-217			hsa-mir-1292		0
ME Melanoma Hoek	16						hsa-mir-631		0
ME Melanoma Hoek	33			hsa-mir-32			hsa-mir-1265		0
ME Melanoma Hoek	23								0
ME Melanoma Hoek	37						hsa-mir-380		0
ME Melanoma Hoek	50			hsa-mir-548c-3p					0
GCT Seminoma Korkola	92						hsa-mir-564		0
ML Melanoma Talantov	25			hsa-mir-606					0
ML Melanoma Talantov	26			hsa-mir-607			hsa-mir-664		0
ML Melanoma Talantov	27						hsa-mir-96	Dysregulated	0
ML Melanoma Talantov	21						hsa-mir-450b-5p		0
ML Melanoma Talantov	22			hsa-mir-520d-5p hsa-mir-524-5p			hsa-mir-570		0
ML Melanoma Talantov	23			hsa-mir-548p					0
ML Melanoma Talantov	28	hsa-mir-3175					hsa-mir-1207-5p		0
ML Melanoma Talantov	29						hsa-mir-1257		0
ML Melanoma Talantov	40						hsa-mir-296-5p		0
ML Melanoma Talantov	0			hsa-mir-603					0
ML Melanoma Talantov	3			hsa-mir-181a hsa-mir-181d hsa-mir-181b hsa-mir-181c	Dysregulated		hsa-mir-548n		0
ML Melanoma Talantov	4						hsa-mir-146b-3p		0
ML Melanoma Talantov	7			hsa-mir-125b hsa-mir-125a-5p	Dysregulated		hsa-mir-296-5p		0
ML Melanoma Talantov	9			hsa-mir-151-3p			hsa-mir-493		0
ML Melanoma Talantov	8						hsa-mir-199b-5p	Dysregulated	0
ML Melanoma Talantov	13	hsa-mir-337-5p							0
ML Melanoma Talantov	10			hsa-mir-623			hsa-mir-1180		0
ML Melanoma Talantov	12			hsa-mir-125b hsa-mir-125a-5p	Dysregulated		hsa-mir-324-3p		0

ML Melanoma Talantov	14			hsa-mir-519a hsa-mir-519c-3p hsa-mir-519b-3p		hsa-mir-548c-3p	0
ML Melanoma Talantov	19	hsa-mir-302c*		hsa-mir-421		hsa-mir-548c-3p	0
ML Melanoma Talantov	18					hsa-mir-513a-3p	0
ML Melanoma Talantov	36					hsa-mir-663b hsa-mir-663	0
ML Melanoma Talantov	34	hsa-mir-548c-3p		hsa-mir-767-3p		hsa-mir-548n	0
ML Melanoma Talantov	33					hsa-mir-605	0
MPM Mesothelioma Gordon	56			hsa-mir-595	**Dysregulated**	hsa-mir-590-3p	0
MPM Mesothelioma Gordon	41			hsa-mir-519e		hsa-mir-381	0
MPM Mesothelioma Gordon	42			hsa-mir-183		hsa-mir-539	0
MPM Mesothelioma Gordon	29					hsa-mir-1265	0
MPM Mesothelioma Gordon	61			hsa-mir-545		hsa-mir-1287	0
MPM Mesothelioma Gordon	62			hsa-mir-1279		hsa-mir-708	0
MPM Mesothelioma Gordon	36					hsa-mir-487a	0
MPM Mesothelioma Gordon	64					hsa-mir-655	0
MPM Mesothelioma Gordon	65			hsa-mir-590-3p		hsa-mir-548n	0
MPM Mesothelioma Gordon	52					hsa-mir-606	0
MPM Mesothelioma Gordon	24					hsa-mir-361-3p	0
MPM Mesothelioma Gordon	27			hsa-mir-1301		hsa-mir-128	0
MPM Mesothelioma Gordon	21					hsa-mir-548c-3p	0
MPM Mesothelioma Gordon	22	hsa-mir-1284					0
MPM Mesothelioma Gordon	44					hsa-mir-338-5p	0
MPM Mesothelioma Gordon	48			hsa-mir-561		hsa-mir-606	0
MPM Mesothelioma Gordon	28					hsa-mir-590-3p	0
MPM Mesothelioma Gordon	40	hsa-mir-3178					0
MPM Mesothelioma Gordon	1					hsa-mir-1224-5p	0
MPM Mesothelioma Gordon	2					hsa-mir-1207-5p	0
MPM Mesothelioma Gordon	5					hsa-mir-603	0
MPM Mesothelioma Gordon	7			hsa-mir-526b			0
MPM Mesothelioma Gordon	6					hsa-mir-192	0
MPM Mesothelioma Gordon	9	hsa-mir-219-5p					0
MPM Mesothelioma Gordon	8					hsa-mir-1180	0
MPM Mesothelioma Gordon	35			hsa-mir-371b-5p hsa-mir-371-5p			0
MPM Mesothelioma Gordon	13	hsa-mir-1250				hsa-mir-585	0
MPM Mesothelioma Gordon	38			hsa-mir-1276		hsa-mir-145	0
MPM Mesothelioma Gordon	59					hsa-mir-423-5p	**Dysregulated** 0
MPM Mesothelioma Gordon	14			hsa-mir-361-3p			0
MPM Mesothelioma Gordon	11			hsa-mir-491-3p		hsa-mir-889	0
MPM Mesothelioma Gordon	15					hsa-mir-1229	0
MPM Mesothelioma Gordon	17					hsa-mir-1296	0
MPM Mesothelioma Gordon	16			hsa-mir-548m		hsa-mir-590-3p	0
MPM Mesothelioma Gordon	54					hsa-mir-548h	0
MPM Mesothelioma Gordon	51			hsa-mir-605		hsa-mir-376a	0

MPM Mesothelioma Gordon	53			hsa-mir-1182				0
MPM Mesothelioma Gordon	19	hsa-mir-615-5p				hsa-mir-423-5p	Dysregulated	0
MPM Mesothelioma Gordon	63			hsa-mir-548b-5p hsa-mir-548am hsa-mir-548ab hsa-mir-548aa hsa-mir-548ag hsa-mir-548ak hsa-mir-548aj hsa-mir-548ai hsa-mir-548ah hsa-mir-548al hsa-mir-548ae hsa-mir-548ad hsa-mir-548a-5p hsa-mir-548ac hsa-mir-548d-5p hsa-mir-548i hsa-mir-548j hsa-mir-548c-5p hsa-mir-548h		hsa-mir-548c-3p		0
MPM Mesothelioma Gordon	32					hsa-mir-541		0
MPM Mesothelioma Gordon	31					hsa-mir-127-5p	Causal	0
MM Myeloma Zhan	45			hsa-mir-595				0
MM Myeloma Zhan	22			hsa-mir-1236				0
MM Myeloma Zhan	36					hsa-mir-1273 hsa-mir-1273c hsa-mir-1273d hsa-mir-1273e hsa-mir-1273f hsa-mir-1273g		0
MM Myeloma Zhan	24			hsa-mir-140-3p	Dysregulated			0
MM Myeloma Zhan	25			hsa-mir-188-5p				0
MM Myeloma Zhan	26					hsa-mir-1321		0
MM Myeloma Zhan	20			hsa-mir-1226				0
MM Myeloma Zhan	21			hsa-mir-183				0
MM Myeloma Zhan	49					hsa-mir-138		0
MM Myeloma Zhan	46			hsa-mir-425				0
MM Myeloma Zhan	47			hsa-mir-875-3p		hsa-mir-662		0
MM Myeloma Zhan	43			hsa-mir-23b hsa-mir-23a		hsa-mir-124	Causal	0
MM Myeloma Zhan	40			hsa-mir-382		hsa-mir-612		0
MM Myeloma Zhan	41					hsa-mir-339-5p		0
MM Myeloma Zhan	1			hsa-mir-519e				0
MM Myeloma Zhan	0					hsa-mir-1207-5p		0
MM Myeloma Zhan	3			hsa-mir-590-3p		hsa-mir-548c-3p		0

MM Myeloma Zhan	2			hsa-mir-587			0
MM Myeloma Zhan	4			hsa-mir-361-3p	hsa-mir-185		0
MM Myeloma Zhan	7			hsa-mir-510	hsa-mir-645		0
MM Myeloma Zhan	6			hsa-mir-516b	hsa-mir-600		0
MM Myeloma Zhan	9			hsa-mir-9	hsa-mir-185		0
MM Myeloma Zhan	39				hsa-mir-647		0
MM Myeloma Zhan	38				hsa-mir-652		0
MM Myeloma Zhan	29			hsa-mir-760			0
MM Myeloma Zhan	11				hsa-mir-658		0
AD Lung Beer	10				hsa-mir-600		0
MM Myeloma Zhan	13			hsa-mir-655	hsa-mir-770-5p		0
MM Myeloma Zhan	15				hsa-mir-922		0
CA Bladder Dyrskjot	62				hsa-mir-637		0
MM Myeloma Zhan	17			hsa-mir-320e hsa-mir-320d hsa-mir-320c hsa-mir-320b hsa-mir-320a	hsa-mir-495		0
MM Myeloma Zhan	16				hsa-mir-134		0
MM Myeloma Zhan	32			hsa-mir-212 hsa-mir-132	hsa-mir-379		0
MM Myeloma Zhan	31			hsa-mir-597	hsa-mir-512-3p		0
MM Myeloma Zhan	30			hsa-mir-588			0
MM Myeloma Zhan	50				hsa-mir-28-5p		0
MM Myeloma Zhan	35			hsa-mir-650	hsa-mir-129-5p		0
MM Myeloma Zhan	34				hsa-mir-147 hsa-mir-147b		0
MM Myeloma Zhan	33				hsa-mir-507		0
AD Ovarian Welsh	24	hsa-mir-1469					0
AD Ovarian Welsh	26			hsa-mir-210			0
AD Ovarian Welsh	20			hsa-mir-767-5p			0
AD Ovarian Welsh	21			hsa-mir-96	hsa-mir-606		0
AD Ovarian Welsh	22				hsa-mir-1207-5p		0
AD Ovarian Welsh	29	hsa-mir-3194-5p		hsa-mir-1280	hsa-mir-1225-3p		0
AD Ovarian Welsh	1				hsa-mir-548d-3p		0
AD Ovarian Welsh	0			hsa-mir-510	hsa-mir-200b	Causal	0
AD Ovarian Welsh	3			hsa-mir-1283			0
AD Ovarian Welsh	2			hsa-mir-122			0
AD Ovarian Welsh	5			hsa-mir-188-3p	hsa-mir-455-5p		0
AD Ovarian Welsh	4				hsa-mir-424	Dysregulated	0
AD Ovarian Welsh	7			hsa-mir-650			0
AD Ovarian Welsh	6	hsa-let-7e*					0
AD Ovarian Welsh	9				hsa-mir-524-5p		0
AD Ovarian Welsh	8				hsa-mir-1260 hsa-mir-1260b		0
AD Ovarian Welsh	11			hsa-mir-1323 hsa-mir-548o	hsa-mir-1225-5p		0

AD Ovarian Welsh	10					hsa-mir-921		0
AD Ovarian Welsh	13	hsa-mir-3178						0
CA Bladder Dyrskjot	77					hsa-mir-620		0
AD Ovarian Welsh	15		hsa-mir-1282					0
AD Ovarian Welsh	14					hsa-mir-338-5p		0
AD Ovarian Welsh	17					hsa-mir-1321		0
AD Ovarian Welsh	16					hsa-mir-548l		0
AD Ovarian Welsh	31		hsa-mir-380			hsa-mir-548c-3p		0
AD Ovarian Welsh	30		hsa-mir-1207-5p			hsa-mir-1204		0
CCC Ovarian Hendrix	56		hsa-mir-409-3p			hsa-mir-587		0
CCC Ovarian Hendrix	51		hsa-mir-1279			hsa-mir-499-3p		0
CCC Ovarian Hendrix	60		hsa-mir-105	**Dysregulated**		hsa-mir-1305		0
CCC Ovarian Hendrix	61					hsa-mir-145	**Dysregulated**	0
CCC Ovarian Hendrix	24		hsa-mir-19b hsa-mir-19a					0
CCC Ovarian Hendrix	25		hsa-mir-183	**Dysregulated**		hsa-mir-744		0
CCC Ovarian Hendrix	27					hsa-mir-556-5p		0
CCC Ovarian Hendrix	20					hsa-mir-495	**Causal**	0
CCC Ovarian Hendrix	23	hsa-mir-523	hsa-mir-105	**Dysregulated**				0
CCC Ovarian Hendrix	46					hsa-mir-340		0
CCC Ovarian Hendrix	47		hsa-mir-548p			hsa-mir-122		0
CCC Ovarian Hendrix	44					hsa-mir-548m		0
CCC Ovarian Hendrix	45		hsa-mir-382			hsa-mir-1250		0
CCC Ovarian Hendrix	29					hsa-mir-636		0
CCC Ovarian Hendrix	1		hsa-mir-1200					0
CCC Ovarian Hendrix	0					hsa-mir-194		0
CCC Ovarian Hendrix	2					hsa-mir-423-5p		0
CCC Ovarian Hendrix	7		hsa-mir-532-5p			hsa-mir-382		0
CCC Ovarian Hendrix	9					hsa-mir-1291		0
CCC Ovarian Hendrix	43					hsa-mir-1247		0
CCC Ovarian Hendrix	14					hsa-mir-1276		0
CCC Ovarian Hendrix	11	hsa-mir-638	hsa-mir-29b hsa-mir-29c hsa-mir-29a	**Dysregulated**		hsa-mir-602		0
CCC Ovarian Hendrix	10					hsa-mir-615-5p		0
CCC Ovarian Hendrix	13		hsa-mir-143	**Dysregulated**		hsa-mir-500b hsa-mir-500a		0
CCC Ovarian Hendrix	12		hsa-mir-876-5p			hsa-mir-508-3p		0
CCC Ovarian Hendrix	59		hsa-mir-552			hsa-mir-1258		0
CCC Ovarian Hendrix	58					hsa-mir-586		0
CCC Ovarian Hendrix	55	hsa-mir-1471						0
CCC Ovarian Hendrix	30		hsa-mir-590-5p					0
CCC Ovarian Hendrix	37		hsa-mir-1302			hsa-mir-1237		0
CCC Ovarian Hendrix	35		hsa-mir-1283			hsa-mir-607		0
CCC Ovarian Hendrix	33		hsa-mir-127-5p	**Causal**		hsa-mir-770-5p		0
CA Breast Sorlie	23					hsa-mir-423-5p		0

CCC Ovarian Hendrix	18					hsa-mir-326		0
CCC Ovarian Hendrix	57					hsa-mir-590-5p		0
MUC Ovarian Hendrix	30					hsa-mir-635	Dysregulated	0
MUC Ovarian Hendrix	54					hsa-mir-921		0
MUC Ovarian Hendrix	28					hsa-mir-296-5p	Dysregulated	0
MUC Ovarian Hendrix	45		hsa-mir-765					0
MUC Ovarian Hendrix	60		hsa-mir-369-3p			hsa-mir-574-3p		0
MUC Ovarian Hendrix	61		hsa-mir-940			hsa-mir-410		0
B-CLL Leukemia Haslinger	12					hsa-mir-1302		0
MUC Ovarian Hendrix	63		hsa-mir-184	Dysregulated		hsa-mir-1247		0
GCT Seminoma Korkola	71					hsa-mir-361-3p		0
MUC Ovarian Hendrix	65					hsa-mir-380		0
MUC Ovarian Hendrix	66					hsa-mir-889		0
MUC Ovarian Hendrix	67		hsa-mir-1224-3p					0
MUC Ovarian Hendrix	68		hsa-mir-606			hsa-mir-1305		0
MUC Ovarian Hendrix	69					hsa-mir-579		0
MUC Ovarian Hendrix	52					hsa-mir-541		0
MUC Ovarian Hendrix	24					hsa-mir-361-3p		0
MUC Ovarian Hendrix	25		hsa-mir-548c-3p			hsa-mir-582-5p		0
MUC Ovarian Hendrix	26					hsa-mir-296-5p	Dysregulated	0
MUC Ovarian Hendrix	27					hsa-mir-423-5p		0
MUC Ovarian Hendrix	20					hsa-mir-640		0
MUC Ovarian Hendrix	21		hsa-mir-216b			hsa-mir-520d-5p		0
MUC Ovarian Hendrix	22					hsa-mir-1293		0
MUC Ovarian Hendrix	23					hsa-mir-486-3p		0
MUC Ovarian Hendrix	47					hsa-mir-654-5p		0
MUC Ovarian Hendrix	44		hsa-mir-217					0
MUC Ovarian Hendrix	48					hsa-mir-608	Dysregulated	0
MUC Ovarian Hendrix	42	hsa-mir-1181						0
MUC Ovarian Hendrix	40					hsa-mir-618		0
MUC Ovarian Hendrix	41		hsa-mir-34a hsa-mir-34c-5p hsa-mir-449a hsa-mir-449b	Causal				0
MUC Ovarian Hendrix	0		hsa-mir-556-3p			hsa-mir-410		0
MUC Ovarian Hendrix	3					hsa-mir-1205		0
MUC Ovarian Hendrix	2		hsa-mir-22					0
MUC Ovarian Hendrix	7		hsa-mir-607			hsa-mir-590-3p		0
TU Prostate Lapointe	32					hsa-mir-608		0
MUC Ovarian Hendrix	8		hsa-mir-1226			hsa-mir-486-3p		0
MUC Ovarian Hendrix	56	hsa-mir-508-3p				hsa-mir-548c-3p		0
MUC Ovarian Hendrix	19					hsa-mir-548g		0
MUC Ovarian Hendrix	76		hsa-mir-144			hsa-mir-573		0
MUC Ovarian Hendrix	75					hsa-mir-512-3p		0
MUC Ovarian Hendrix	74		hsa-mir-27a hsa-mir-27b					0

MUC Ovarian Hendrix	73							hsa-mir-361-3p	0
MUC Ovarian Hendrix	72							hsa-mir-409-5p	0
MUC Ovarian Hendrix	71			hsa-mir-361-3p					0
MUC Ovarian Hendrix	14			hsa-mir-148a hsa-mir-148b hsa-mir-152	**Dysregulated**				0
AD Pancreas Logsdon	1							hsa-mir-1247	0
MUC Ovarian Hendrix	15			hsa-mir-340				hsa-mir-944	0
MUC Ovarian Hendrix	55							hsa-mir-486-3p	0
MUC Ovarian Hendrix	32							hsa-mir-490-3p	0
MUC Ovarian Hendrix	57			hsa-mir-766					0
MUC Ovarian Hendrix	49							hsa-mir-200b	**Causal** 0
AD Lung Bhattacharjee	16							hsa-mir-361-3p	0
MUC Ovarian Hendrix	34							hsa-mir-1291	0
MUC Ovarian Hendrix	18			hsa-mir-548n				hsa-mir-606	0
MUC Ovarian Hendrix	12							hsa-mir-658	0
MUC Ovarian Hendrix	31							hsa-mir-342-5p	0
MUC Ovarian Hendrix	50							hsa-mir-889	0
SRS Ovarian Hendrix	36							hsa-mir-890	0
SRS Ovarian Hendrix	42							hsa-mir-1298	0
SRS Ovarian Hendrix	22			hsa-mir-624					0
SRS Ovarian Hendrix	60			hsa-mir-188-3p				hsa-mir-184	**Dysregulated** 0
SRS Ovarian Hendrix	64							hsa-mir-377	**Causal** 0
SRS Ovarian Hendrix	66			hsa-mir-892b				hsa-mir-548c-3p	0
SRS Ovarian Hendrix	67							hsa-mir-608	**Dysregulated** 0
SRS Ovarian Hendrix	68							hsa-mir-200b	**Causal** 0
SRS Ovarian Hendrix	83							hsa-mir-637	**Dysregulated** 0
SRS Ovarian Hendrix	80							hsa-mir-324-5p	0
SRS Ovarian Hendrix	81	hsa-mir-3135b hsa-mir-3135							0
SRS Ovarian Hendrix	24							hsa-mir-635	**Dysregulated** 0
SRS Ovarian Hendrix	26							hsa-mir-325	0
SRS Ovarian Hendrix	27			hsa-mir-362-5p					0
SRS Ovarian Hendrix	20							hsa-mir-296-5p	**Dysregulated** 0
SRS Ovarian Hendrix	21							hsa-mir-944	0
SRS Ovarian Hendrix	48							hsa-mir-1278	0
SRS Ovarian Hendrix	44							hsa-mir-584	0
SRS Ovarian Hendrix	45			hsa-mir-146b-3p					0
SRS Ovarian Hendrix	28							hsa-mir-186	0
SRS Ovarian Hendrix	43							hsa-mir-299-3p	0
SRS Ovarian Hendrix	41			hsa-mir-650					0
SRS Ovarian Hendrix	1			hsa-mir-641				hsa-mir-409-3p	0
SRS Ovarian Hendrix	3							hsa-mir-146b-3p	0
SRS Ovarian Hendrix	2			hsa-mir-505					0
SRS Ovarian Hendrix	4							hsa-mir-1250	0
SRS Ovarian Hendrix	6							hsa-mir-185	0

SRS Ovarian Hendrix	9						hsa-mir-1297		0
SRS Ovarian Hendrix	19						hsa-mir-135a		0
SRS Ovarian Hendrix	75	hsa-mir-937					hsa-mir-372		0
OD Brain Bredel	40						hsa-mir-216b		0
SRS Ovarian Hendrix	17						hsa-mir-193b		0
SRS Ovarian Hendrix	70			hsa-mir-641			hsa-mir-433		0
SRS Ovarian Hendrix	15			hsa-mir-1293			hsa-let-7d	**Causal**	0
SRS Ovarian Hendrix	69			hsa-mir-330-3p			hsa-mir-29b		0
SRS Ovarian Hendrix	79						hsa-mir-944		0
SRS Ovarian Hendrix	78						hsa-mir-206	**Dysregulated**	0
SRS Ovarian Hendrix	11			hsa-mir-361-5p	**Dysregulated**		hsa-mir-590-3p		0
SRS Ovarian Hendrix	10						hsa-mir-34c-3p		0
SRS Ovarian Hendrix	38						hsa-mir-17		0
SRS Ovarian Hendrix	59						hsa-mir-656		0
SRS Ovarian Hendrix	14						hsa-mir-1290		0
SRS Ovarian Hendrix	61						hsa-mir-1224-3p		0
SRS Ovarian Hendrix	54			hsa-mir-448					0
SRS Ovarian Hendrix	30			hsa-mir-424	**Dysregulated**		hsa-mir-582-5p		0
SRS Ovarian Hendrix	53			hsa-mir-376b hsa-mir-376a	**Causal**		hsa-mir-576-5p		0
SRS Ovarian Hendrix	52			hsa-mir-626					0
SRS Ovarian Hendrix	55			hsa-mir-548l			hsa-mir-338-5p		0
SRS Ovarian Hendrix	16						hsa-mir-548k		0
SRS Ovarian Hendrix	32						hsa-mir-331-3p		0
SRS Ovarian Hendrix	12						hsa-mir-125a-3p		0
SRS Ovarian Hendrix	57			hsa-mir-561			hsa-mir-548d-3p		0
SRS Ovarian Hendrix	72			hsa-mir-1276					0
END Ovarian Hendrix	37						hsa-mir-125b	**Dysregulated**	0
END Ovarian Hendrix	60			hsa-mir-580			hsa-mir-570		0
END Ovarian Hendrix	62						hsa-mir-571		0
END Ovarian Hendrix	66						hsa-mir-101	**Dysregulated**	0
END Ovarian Hendrix	82	hsa-let-7d*		hsa-mir-505			hsa-mir-320b		0
END Ovarian Hendrix	32			hsa-mir-802			hsa-mir-548d-3p		0
END Ovarian Hendrix	25			hsa-mir-653					0
END Ovarian Hendrix	26			hsa-mir-548c-3p			hsa-mir-656		0
END Ovarian Hendrix	20						hsa-mir-663b hsa-mir-663	**Dysregulated**	0
END Ovarian Hendrix	48			hsa-mir-125a-3p			hsa-mir-1304		0
END Ovarian Hendrix	23						hsa-mir-22		0
END Ovarian Hendrix	47	hsa-mir-1471							0
END Ovarian Hendrix	45	hsa-mir-1471							0
END Ovarian Hendrix	43						hsa-mir-590-3p		0
END Ovarian Hendrix	40						hsa-mir-944		0
END Ovarian Hendrix	41						hsa-mir-338-5p		0
IDC Breast Radvanyi	46						hsa-mir-675		0
END Ovarian Hendrix	0	hsa-mir-598							0

END Ovarian Hendrix	3			hsa-mir-510		hsa-mir-1279		0
END Ovarian Hendrix	4			hsa-mir-608	Dysregulated	hsa-mir-612		0
END Ovarian Hendrix	7			hsa-mir-1302				0
END Ovarian Hendrix	6			hsa-mir-29b hsa-mir-29c hsa-mir-29a	Dysregulated	hsa-mir-890		0
END Ovarian Hendrix	9					hsa-mir-486-3p		0
END Ovarian Hendrix	8			hsa-mir-200a hsa-mir-141	Causal			0
END Ovarian Hendrix	52	hsa-mir-1538				hsa-mir-495	Causal	0
END Ovarian Hendrix	28					hsa-mir-125a-5p	Causal	0
END Ovarian Hendrix	78							0
END Ovarian Hendrix	19	hsa-mir-3195						0
END Ovarian Hendrix	39			hsa-mir-508-5p	Dysregulated			0
CA Bladder Dyrskjot	39					hsa-mir-486-3p		0
END Ovarian Hendrix	76					hsa-mir-888		0
END Ovarian Hendrix	75					hsa-mir-489		0
END Ovarian Hendrix	72					hsa-mir-548d-3p		0
END Ovarian Hendrix	70					hsa-mir-939		0
END Ovarian Hendrix	15					hsa-mir-542-3p	Dysregulated	0
END Ovarian Hendrix	69			hsa-mir-607		hsa-mir-186		0
END Ovarian Hendrix	29					hsa-mir-944		0
END Ovarian Hendrix	58	hsa-mir-621						0
END Ovarian Hendrix	11					hsa-mir-940		0
END Ovarian Hendrix	13			hsa-mir-1276		hsa-mir-23a		0
END Ovarian Hendrix	38			hsa-mir-944		hsa-mir-944		0
END Ovarian Hendrix	22			hsa-mir-15b hsa-mir-15a hsa-mir-16 hsa-mir-497 hsa-mir-195	Dysregulated	hsa-mir-944		0
END Ovarian Hendrix	17					hsa-mir-30e	Dysregulated	0
END Ovarian Hendrix	61					hsa-mir-342-5p		0
END Ovarian Hendrix	31					hsa-mir-1253		0
END Ovarian Hendrix	49					hsa-mir-145	Dysregulated	0
END Ovarian Hendrix	51			hsa-mir-130b hsa-mir-301a hsa-mir-301b hsa-mir-130a hsa-mir-454				0
END Ovarian Hendrix	50			hsa-mir-539		hsa-mir-548c-3p		0
END Ovarian Hendrix	16					hsa-mir-588		0
END Ovarian Hendrix	18	hsa-mir-487b	Dysregulated	hsa-mir-890				0
END Ovarian Hendrix	65					hsa-mir-331-3p		0
PDC Pancreas Ishikawa	1					hsa-mir-106b		0
PDC Pancreas Ishikawa	3	hsa-mir-369-5p						0
PDC Pancreas Ishikawa	2					hsa-mir-448		0

AD Pancreas Logsdon	10	hsa-mir-1273 hsa-mir-1273c hsa-mir-1273d hsa-mir-1273e hsa-mir-1273f hsa-mir-1273g		hsa-mir-486-5p					0
AD Pancreas Logsdon	13								0
AD Pancreas Logsdon	12	hsa-let-7d hsa-let-7f hsa-mir-98 hsa-let-7b hsa-let-7c hsa-let-7a hsa-let-7g hsa-let-7e hsa-let-7i	**Dysregulated**	hsa-mir-933					0
AD Pancreas Logsdon	15			hsa-mir-556-3p			hsa-mir-130b		0
AD Pancreas Logsdon	14			hsa-mir-517c hsa-mir-517b hsa-mir-517a					0
AD Pancreas Logsdon	16			hsa-mir-561					0
CA Bladder Dyrskjot	59						hsa-mir-374a		0
AD Pancreas Logsdon	18						hsa-mir-939		0
RCCC Renal Boer	5						hsa-mir-374a		0
AD Pancreas Logsdon	3	hsa-mir-3178							0
AD Pancreas Logsdon	4						hsa-mir-22		0
MPC Prostate Dhanasekaran	30			hsa-mir-659					0
MPC Prostate Dhanasekaran	29						hsa-mir-663b hsa-mir-663		0
MPC Prostate Dhanasekaran	26			hsa-mir-935			hsa-mir-548j		0
MPC Prostate Dhanasekaran	27						hsa-mir-1271		0
MPC Prostate Dhanasekaran	21			hsa-mir-498	**Dysregulated**				0
MPC Prostate Dhanasekaran	48						hsa-mir-625		0
MPC Prostate Dhanasekaran	44			hsa-mir-1323 hsa-mir-548o			hsa-mir-576-3p		0
MPC Prostate Dhanasekaran	45			hsa-mir-490-3p					0
MPC Prostate Dhanasekaran	42	hsa-mir-582-3p					hsa-mir-331-5p		0
MPC Prostate Dhanasekaran	0	hsa-mir-3074-5p		hsa-mir-1323 hsa-mir-548o			hsa-mir-200b	**Causal**	0
MPC Prostate Dhanasekaran	2						hsa-mir-548c-3p		0
MPC Prostate Dhanasekaran	5						hsa-mir-211		0
MPC Prostate Dhanasekaran	7			hsa-mir-330-5p hsa-mir-326	**Causal**		hsa-mir-296-5p	**Dysregulated**	0
MPC Prostate Dhanasekaran	9			hsa-mir-190b hsa-mir-190					0
MPC Prostate Dhanasekaran	8						hsa-mir-219-1-3p		0
MPC Prostate Dhanasekaran	13			hsa-mir-1257					0
MPC Prostate Dhanasekaran	12			hsa-mir-139-5p			hsa-mir-340		0

MPC Prostate Dhanasekaran	14			hsa-mir-133b hsa-mir-133a		hsa-mir-502-5p	0
MPC Prostate Dhanasekaran	11					hsa-mir-34a Causal	0
MPC Prostate Dhanasekaran	10					hsa-mir-554	0
MPC Prostate Dhanasekaran	22			hsa-mir-105		hsa-mir-382	0
MPC Prostate Dhanasekaran	17					hsa-mir-1266	0
MPC Prostate Dhanasekaran	16			hsa-mir-944		hsa-mir-101 Causal	0
MPC Prostate Dhanasekaran	19			hsa-mir-661			0
MPC Prostate Dhanasekaran	23					hsa-mir-302f	0
GCT Seminoma Korkola	32					hsa-mir-608	0
MPC Prostate Dhanasekaran	34			hsa-mir-544 hsa-mir-544b		hsa-mir-1279	0
MPC Prostate Dhanasekaran	18					hsa-mir-1263	0
PPC Prostate Dhanasekaran	29					hsa-mir-509-3p hsa-mir-509-3-5p	0
PPC Prostate Dhanasekaran	27			hsa-mir-654-3p		hsa-mir-1279	0
PPC Prostate Dhanasekaran	20					hsa-mir-1207-5p	0
PPC Prostate Dhanasekaran	22			hsa-mir-802		hsa-mir-561	0
PPC Prostate Dhanasekaran	23			hsa-mir-376a hsa-mir-376b hsa-mir-376c		hsa-mir-518a-5p	0
PPC Prostate Dhanasekaran	28			hsa-mir-544 hsa-mir-544b		hsa-mir-944	0
PPC Prostate Dhanasekaran	41			hsa-mir-18a hsa-mir-18b		hsa-mir-369-3p	0
PPC Prostate Dhanasekaran	1			hsa-mir-520d-5p hsa-mir-524-5p		hsa-mir-561	0
PPC Prostate Dhanasekaran	0			hsa-mir-558			0
PPC Prostate Dhanasekaran	3			hsa-mir-624		hsa-mir-578	0
PPC Prostate Dhanasekaran	2			hsa-mir-217		hsa-mir-641	0
PPC Prostate Dhanasekaran	4			hsa-mir-760		hsa-mir-939	0
PPC Prostate Dhanasekaran	7					hsa-mir-1202	0
PPC Prostate Dhanasekaran	9			hsa-mir-153		hsa-mir-661	0
PPC Prostate Dhanasekaran	8					hsa-mir-340	0
PPC Prostate Dhanasekaran	12					hsa-mir-342-3p	0
PPC Prostate Dhanasekaran	11			hsa-mir-628-3p			0
PPC Prostate Dhanasekaran	10			hsa-mir-421		hsa-mir-889	0
PPC Prostate Dhanasekaran	39					hsa-mir-139-3p	0
PPC Prostate Dhanasekaran	38					hsa-mir-607	0
PPC Prostate Dhanasekaran	14			hsa-mir-34a hsa-mir-34c-5p hsa-mir-449a hsa-mir-449b	Causal	hsa-mir-1202	0
PPC Prostate Dhanasekaran	17					hsa-mir-34a Causal	0
PPC Prostate Dhanasekaran	19		hsa-mir-101*	hsa-mir-548e		hsa-mir-144	0

PPC Prostate Dhanasekaran	31						hsa-mir-515-3p	0
PPC Prostate Dhanasekaran	37						hsa-mir-553	0
PPC Prostate Dhanasekaran	35						hsa-mir-663b hsa-mir-663	0
PPC Prostate Dhanasekaran	34						hsa-mir-149	**Dysregulated** 0
PPC Prostate Dhanasekaran	33						hsa-mir-548e	0
PPC Prostate Dhanasekaran	32						hsa-mir-296-5p	**Dysregulated** 0
BPH Prostate Dhanasekaran	20						hsa-mir-1224-3p	0
BPH Prostate Dhanasekaran	1						hsa-mir-579	0
BPH Prostate Dhanasekaran	5			hsa-mir-1283			hsa-mir-1290	0
BPH Prostate Dhanasekaran	4			hsa-mir-543			hsa-mir-1278	0
BPH Prostate Dhanasekaran	7			hsa-mir-508-5p			hsa-mir-380	0
BPH Prostate Dhanasekaran	6			hsa-mir-648				0
BPH Prostate Dhanasekaran	9						hsa-mir-574-5p	0
BPH Prostate Dhanasekaran	8			hsa-mir-891b			hsa-mir-1246	0
BPH Prostate Dhanasekaran	11			hsa-mir-520d-5p hsa-mir-524-5p			hsa-mir-369-3p	0
BPH Prostate Dhanasekaran	10			hsa-mir-1290			hsa-mir-624	0
BPH Prostate Dhanasekaran	13	hsa-mir-423-3p					hsa-mir-922	0
BPH Prostate Dhanasekaran	12			hsa-mir-33b hsa-mir-33a			hsa-mir-939	0
BPH Prostate Dhanasekaran	15			hsa-mir-770-5p				0
BPH Prostate Dhanasekaran	16			hsa-mir-548e			hsa-mir-302f	0
BPH Prostate Dhanasekaran	18						hsa-mir-513a-3p	0
TU Prostate Lapointe	24	hsa-mir-487b		hsa-mir-496			hsa-mir-548g	0
TU Prostate Lapointe	25						hsa-mir-130a	0
TU Prostate Lapointe	26	hsa-mir-566					hsa-mir-663b hsa-mir-663	0
TU Prostate Lapointe	21						hsa-mir-608	0
TU Prostate Lapointe	23						hsa-mir-25	**Dysregulated** 0
TU Prostate Lapointe	29						hsa-mir-522	0
TU Prostate Lapointe	40	hsa-mir-369-5p						0
TU Prostate Lapointe	1			hsa-mir-1297 hsa-mir-26a hsa-mir-26b	**Dysregulated**		hsa-mir-590-3p	0
TU Prostate Lapointe	0			hsa-mir-874			hsa-mir-219-2-3p	0
OD Brain Bredel	14						hsa-mir-296-5p	**Causal** 0
TU Prostate Lapointe	4			hsa-mir-532-3p			hsa-mir-185	0
TU Prostate Lapointe	7						hsa-mir-579	0
TU Prostate Lapointe	6						hsa-mir-876-3p	0
TU Prostate Lapointe	9			hsa-mir-208a hsa-mir-208b				0

Supplementary Table 8.

Co-expression Signature	GO Terms	Nature Sequence IDs	Hallmarks of Cancer	Self Sufficiency In Growth Signals	Insensitivity To Antigrowth Signals	Evading Apoptosis	Limitless Replicative Potential	Sustained Angiogenesis	Tissue Invasion And Metastasis	Genome Instability And Mutation	Tumor Promoting Inflammation	Reprogramming Energy Metabolism	Evading Immune Detection
COPD lung Bhattacharjee_24	GO:0051384|GO:0030856|GO:0030335|GO:0007399|GO:0030326|GO:0000902|GO:0000922|GO:0007160|GO:0030041|GO:0030900|GO:0001889|GO:0007411|GO:0007409|GO:0001525|GO:0042981|GO:0007275|GO:0007517|GO:0009653|GO:0060021|GO:0000904|GO:0003006|GO:0003677|GO:0030154|GO:0042127|GO:0007155|GO:0007568|GO:0030198|GO:0060429|GO:0048514|GO:0048598|GO:0007389|GO:0048568|GO:0048704|GO:0048706|GO:0048736|GO:0048738|GO:0048839|GO:0048844|GO:0048856|GO:0048869|GO:0048870|GO:0048871|GO:0048872|GO:0048873|GO:0048878|GO:0048880|GO:0048884|GO:0048886|GO:0048888|GO:0048889|GO:0048891|GO:0048892|GO:0048893|GO:0048894|GO:0048895|GO:0048896|GO:0048897|GO:0048898|GO:0048899|GO:0048902|GO:0048903|GO:0048906|GO:0048907|GO:0048908|GO:0048909|GO:0048910|GO:0048911|GO:0048912|GO:0048913|GO:0048914|GO:0048915|GO:0048916|GO:0048917|GO:0048918|GO:0048919|GO:0048920|GO:0048921|GO:0048922|GO:0048923|GO:0048924|GO:0048925|GO:0048926|GO:0048927|GO:0048928|GO:0048929|GO:0048930|GO:0048931|GO:0048932|GO:0048933|GO:0048934|GO:0048935|GO:0048936|GO:0048937|GO:0048938|GO:0048939|GO:0048940|GO:0048941|GO:0048942|GO:0048943|GO:0048944|GO:0048945|GO:0048946|GO:0048947|GO:0048948|GO:0048949|GO:0048950|GO:0048951|GO:0048952|GO:0048953|GO:0048954|GO:0048955|GO:0048956|GO:0048957|GO:0048958|GO:0048959|GO:0048960|GO:0048961|GO:0048962|GO:0048963|GO:0048964|GO:0048965|GO:0048966|GO:0048967|GO:0048968|GO:0048969|GO:0048970|GO:0048971|GO:0048972|GO:0048973|GO:0048974|GO:0048975|GO:0048976|GO:0048977|GO:0048978|GO:0048979|GO:0048980|GO:0048981|GO:0048982|GO:0048983|GO:0048984|GO:0048985|GO:0048986|GO:0048987|GO:0048988|GO:0048989|GO:0048990|GO:0048991|GO:0048992|GO:0048993|GO:0048994|GO:0048995|GO:0048996|GO:0048997|GO:0048998|GO:0048999|GO:0049000|GO:0049001|GO:0049002|GO:0049003|GO:0049004|GO:0049005|GO:0049006|GO:0049007|GO:0049008|GO:0049009|GO:0049010|GO:0049011|GO:0049012|GO:0049013|GO:0049014|GO:0049015|GO:0049016|GO:0049017|GO:0049018|GO:0049019|GO:0049020|GO:0049021|GO:0049022|GO:0049023|GO:0049024|GO:0049025|GO:0049026|GO:0049027|GO:0049028|GO:0049029|GO:0049030|GO:0049031|GO:0049032|GO:0049033|GO:0049034|GO:0049035|GO:0049036|GO:0049037|GO:0049038|GO:0049039|GO:0049040|GO:0049041|GO:0049042|GO:0049043|GO:0049044|GO:0049045|GO:0049046|GO:0049047|GO:0049048|GO:0049049|GO:0049050|GO:0049051|GO:0049052|GO:0049053|GO:0049054|GO:0049055|GO:0049056|GO:0049057|GO:0049058|GO:0049059|GO:0049060|GO:0049061|GO:0049062|GO:0049063|GO:0049064|GO:0049065|GO:0049066|GO:0049067|GO:0049068|GO:0049069|GO:0049070|GO:0049071|GO:0049072|GO:0049073|GO:0049074|GO:0049075|GO:0049076|GO:0049077|GO:0049078|GO:0049079|GO:0049080|GO:0049081|GO:0049082|GO:0049083|GO:0049084|GO:0049085|GO:0049086|GO:0049087|GO:0049088|GO:0049089|GO:0049090|GO:0049091|GO:0049092|GO:0049093|GO:0049094|GO:0049095|GO:0049096|GO:0049097|GO:0049098|GO:0049099|GO:0049100|GO:0049101|GO:0049102|GO:0049103|GO:0049104|GO:0049105|GO:0049106|GO:0049107|GO:0049108|GO:0049109|GO:0049110|GO:0049111|GO:0049112|GO:0049113|GO:0049114|GO:0049115|GO:0049116|GO:0049117|GO:0049118|GO:0049119|GO:0049120|GO:0049121|GO:0049122|GO:0049123|GO:0049124|GO:0049125|GO:0049126|GO:0049127|GO:0049128|GO:0049129|GO:0049130|GO:0049131|GO:0049132|GO:0049133|GO:0049134|GO:0049135|GO:0049136|GO:0049137|GO:0049138|GO:0049139|GO:0049140|GO:0049141|GO:0049142|GO:0049143|GO:0049144|GO:0049145|GO:0049146|GO:0049147|GO:0049148|GO:0049149|GO:0049150|GO:0049151|GO:0049152|GO:0049153|GO:0049154|GO:0049155|GO:0049156|GO:0049157|GO:0049158|GO:0049159|GO:0049160|GO:0049161|GO:0049162|GO:0049163|GO:0049164|GO:0049165|GO:0049166|GO:0049167|GO:0049168|GO:0049169|GO:0049170|GO:0049171|GO:0049172|GO:0049173|GO:0049174|GO:0049175|GO:0049176|GO:0049177|GO:0049178|GO:0049179|GO:0049180|GO:0049181|GO:0049182|GO:0049183|GO:0049184|GO:0049185|GO:0049186|GO:0049187|GO:0049188|GO:0049189|GO:0049190|GO:0049191|GO:0049192|GO:0049193|GO:0049194|GO:0049195|GO:0049196|GO:0049197|GO:0049198|GO:0049199|GO:0049200|GO:0049201|GO:0049202|GO:0049203|GO:0049204|GO:0049205|GO:0049206|GO:0049207|GO:0049208|GO:0049209|GO:0049210|GO:0049211|GO:0049212|GO:0049213|GO:0049214|GO:0049215|GO:0049216|GO:0049217|GO:0049218|GO:0049219|GO:0049220|GO:0049221|GO:0049222|GO:0049223|GO:0049224|GO:0049225|GO:0049226|GO:0049227|GO:0049228|GO:0049229|GO:0049230|GO:0049231|GO:0049232|GO:0049233|GO:0049234|GO:0049235|GO:0049236|GO:0049237|GO:0049238|GO:0049239|GO:0049240|GO:0049241|GO:0049242|GO:0049243|GO:0049244|GO:0049245|GO:0049246|GO:0049247|GO:0049248|GO:0049249|GO:0049250|GO:0049251|GO:0049252|GO:0049253|GO:0049254|GO:0049255|GO:0049256|GO:0049257|GO:0049258|GO:0049259|GO:0049260|GO:0049261|GO:0049262|GO:0049263|GO:0049264|GO:0049265|GO:0049266|GO:0049267|GO:0049268|GO:0049269|GO:0049270|GO:0049271|GO:0049272|GO:0049273|GO:0049274|GO:0049275|GO:0049276|GO:0049277|GO:0049278|GO:0049279|GO:0049280|GO:0049281|GO:0049282|GO:0049283|GO:0049284|GO:0049285|GO:0049286|GO:0049287|GO:0049288|GO:0049289|GO:0049290|GO:0049291|GO:0049292|GO:0049293|GO:0049294|GO:0049295|GO:0049296|GO:0049297|GO:0049298|GO:0049299|GO:0049300|GO:0049301|GO:0049302|GO:0049303|GO:0049304|GO:0049305|GO:0049306|GO:0049307|GO:0049308|GO:0049309|GO:0049310|GO:0049311|GO:0049312|GO:0049313|GO:0049314|GO:0049315|GO:0049316|GO:0049317|GO:0049318|GO:0049319|GO:0049320|GO:0049321|GO:0049322|GO:0049323|GO:0049324|GO:0049325|GO:0049326|GO:0049327|GO:0049328|GO:0049329|GO:0049330|GO:0049331|GO:0049332|GO:0049333|GO:0049334|GO:0049335|GO:0049336|GO:0049337|GO:0049338|GO:0049339|GO:0049340|GO:0049341|GO:0049342|GO:0049343|GO:0049344|GO:0049345|GO:0049346|GO:0049347|GO:0049348|GO:0049349|GO:0049350|GO:0049351|GO:0049352|GO:0049353|GO:0049354|GO:0049355|GO:0049356|GO:0049357|GO:0049358|GO:0049359|GO:0049360|GO:0049361|GO:0049362|GO:0049363|GO:0049364|GO:0049365|GO:0049366|GO:0049367|GO:0049368|GO:0049369|GO:0049370|GO:0049371|GO:0049372|GO:0049373|GO:0049374|GO:0049375|GO:0049376|GO:0049377|GO:0049378|GO:0049379|GO:0049380|GO:0049381|GO:0049382|GO:0049383|GO:0049384|GO:0049385|GO:0049386|GO:0049387|GO:0049388|GO:0049389|GO:0049390|GO:0049391|GO:0049392|GO:0049393|GO:0049394|GO:0049395|GO:0049396|GO:0049397|GO:0049398|GO:0049399|GO:0049400|GO:0049401|GO:0049402|GO:0049403|GO:0049404|GO:0049405|GO:0049406|GO:0049407|GO:0049408|GO:0049409|GO:0049410|GO:0049411|GO:0049412|GO:0049413|GO:0049414|GO:0049415|GO:0049416|GO:0049417|GO:0049418|GO:0049419|GO:0049420|GO:0049421|GO:0049422|GO:0049423|GO:0049424|GO:0049425|GO:0049426|GO:0049427|GO:0049428|GO:0049429|GO:0049430|GO:0049431|GO:0049432|GO:0049433|GO:0049434|GO:0049435|GO:0049436|GO:0049437|GO:0049438|GO:0049439|GO:0049440|GO:0049441|GO:0049442|GO:0049443|GO:0049444|GO:0049445|GO:0049446|GO:0049447|GO:0049448|GO:0049449|GO:0049450|GO:0049451|GO:0049452|GO:0049453|GO:0049454|GO:0049455|GO:0049456|GO:0049457|GO:0049458|GO:0049459|GO:0049460|GO:0049461|GO:0049462|GO:0049463|GO:0049464|GO:0049465|GO:0049466|GO:0049467|GO:0049468|GO:0049469|GO:0049470|GO:0049471|GO:0049472|GO:0049473|GO:0049474|GO:0049475|GO:0049476|GO:0049477|GO:0049478|GO:0049479|GO:0049480|GO:0049481|GO:0049482|GO:0049483|GO:0049484|GO:0049485|GO:0049486|GO:0049487|GO:0049488|GO:0049489|GO:0049490|GO:0049491|GO:0049492|GO:0049493|GO:0049494|GO:0049495|GO:0049496|GO:0049497|GO:0049498|GO:0049499|GO:0049500|GO:0049501|GO:0049502|GO:0049503|GO:0049504|GO:0049505|GO:0049506|GO:0049507|GO:0049508|GO:0049509|GO:0049510|GO:0049511|GO:0049512|GO:0049513|GO:0049514|GO:0049515|GO:0049516|GO:0049517|GO:0049518|GO:0049519|GO:0049520|GO:0049521|GO:0049522|GO:0049523|GO:0049524|GO:0049525|GO:0049526|GO:0049527|GO:0049528|GO:0049529|GO:0049530|GO:0049531|GO:0049532|GO:0049533|GO:0049534|GO:0049535|GO:0049536|GO:0049537|GO:0049538|GO:0049539|GO:0049540|GO:0049541|GO:0049542|GO:0049543|GO:0049544|GO:0049545|GO:0049546|GO:0049547|GO:0049548|GO:0049549|GO:0049550|GO:0049551|GO:0049552|GO:0049553|GO:0049554|GO:0049555|GO:0049556|GO:0049557|GO:0049558|GO:0049559|GO:0049560|GO:0049561|GO:0049562|GO:0049563|GO:0049564|GO:0049565|GO:0049566|GO:0049567|GO:0049568|GO:0049569|GO:0049570|GO:0049571|GO:0049572|GO:0049573|GO:0049574|GO:0049575|GO:0049576|GO:0049577|GO:0049578|GO:0049579|GO:0049580|GO:0049581|GO:0049582|GO:0049583|GO:0049584|GO:0049585|GO:0049586|GO:0049587|GO:0049588|GO:0049589|GO:0049590|GO:0049591|GO:0049592|GO:0049593|GO:0049594|GO:0049595|GO:0049596|GO:0049597|GO:0049598|GO:0049599|GO:0049600|GO:0049601|GO:0049602|GO:0049603|GO:0049604|GO:0049605|GO:0049606|GO:0049607|GO:0049608|GO:0049609|GO:0049610|GO:0049611|GO:0049612|GO:0049613|GO:0049614|GO:0049615|GO:0049616|GO:0049617|GO:0049618|GO:0049619|GO:0049620|GO:0049621|GO:0049622|GO:0049623|GO:0049624|GO:0049625|GO:0049626|GO:0049627|GO:0049628|GO:0049629|GO:0049630|GO:0049631|GO:0049632|GO:0049633|GO:0049634|GO:0049635|GO:0049636|GO:0049637|GO:0049638|GO:0049639|GO:0049640|GO:0049641|GO:0049642|GO:0049643|GO:0049644|GO:0049645|GO:0049646|GO:0049647|GO:0049648|GO:0049649|GO:0049650|GO:0049651|GO:0049652|GO:0049653|GO:0049654|GO:0049655|GO:0049656|GO:0049657|GO:0049658|GO:0049659|GO:0049660|GO:0049661|GO:0049662|GO:0049663|GO:0049664|GO:0049665|GO:0049666|GO:0049667|GO:0049668|GO:0049669|GO:0049670|GO:0049671|GO:0049672|GO:0049673|GO:0049674|GO:0049675|GO:0049676|GO:0049677|GO:0049678|GO:0049679|GO:0049680|GO:0049681|GO:0049682|GO:0049683|GO:0049684|GO:0049685|GO:0049686|GO:0049687|GO:0049688|GO:0049689|GO:0049690|GO:0049691|GO:0049692|GO:0049693|GO:0049694|GO:0049695|GO:0049696|GO:0049697|GO:0049698|GO:0049699|GO:0049700|GO:0049701|GO:0049702|GO:0049703|GO:0049704|GO:0049705|GO:0049706|GO:0049707|GO:0049708|GO:0049709|GO:0049710|GO:0049711|GO:0049712|GO:0049713|GO:0049714|GO:0049715|GO:0049716|GO:0049717|GO:0049718|GO:0049719|GO:0049720|GO:0049721|GO:0049722|GO:0049723|GO:0049724|GO:0049725|GO:0049726|GO:0049727|GO:0049728|GO:0049729|GO:0049730|GO:0049731|GO:0049732|GO:0049733|GO:0049734|GO:0049735|GO:0049736|GO:0049737|GO:0049738|GO:0049739|GO:0049740|GO:0049741|GO:0049742|GO:0049743|GO:0049744|GO:0049745|GO:0049746|GO:0049747|GO:0049748|GO:0049749|GO:0049750|GO:0049751|GO:0049752|GO:0049753|GO:0049754|GO:0049755|GO:0049756|GO:0049757|GO:0049758|GO:0049759|GO:0049760|GO:0049761|GO:0049762|GO:0049763|GO:0049764|GO:0049765|GO:0049766|GO:0049767|GO:0049768|GO:0049769|GO:0049770|GO:0049771|GO:0049772|GO:0049773|GO:0049774|GO:0049775|GO:0049776|GO:0049777|GO:0049778|GO:0049779|GO:0049780|GO:0049781|GO:0049782|GO:0049783|GO:0049784|GO:0049785|GO:0049786|GO:0049787|GO:0049788|GO:0049789|GO:0049790|GO:0049791|GO:0049792|GO:0049793|GO:0049794|GO:0049795|GO:0049796|GO:0049797|GO:0049798|GO:0049799|GO:0049800|GO:0049801|GO:0049802|GO:0049803|GO:0049804|GO:0049805|GO:0049806|GO:0049807|GO:0049808|GO:0049809|GO:0049810|GO:0049811|GO:0049812|GO:0049813|GO:0049814|GO:0049815|GO:0049816|GO:0049817|GO:0049818|GO:0049819|GO:0049820|GO:0049821|GO:0049822|GO:0049823|GO:0049824|GO:0049825|GO:0049826|GO:0049827|GO:0049828|GO:0049829|GO:0049830|GO:0049831|GO:0049832|GO:0049833|GO:0049834|GO:0049835|GO:0049836|GO:0049837|GO:0049838|GO:0049839|GO:0049840|GO:0049841|GO:0049842|GO:0049843|GO:0049844|GO:0049845|GO:0049846|GO:0049847|GO:0049848|GO:0049849|GO:0049850|GO:0049851|GO:0049852|GO:0049853|GO:0049854|GO:0049855|GO:0049856|GO:0049857|GO:0049858|GO:0049859|GO:0049860|GO:0049861|GO:0049862|GO:0049863|GO:0049864|GO:0049865|GO:0049866|GO:0049867|GO:0049868|GO:0049869|GO:0049870|GO:0049871|GO:0049872|GO:0049873|GO:0049874|GO:0049875|GO:0049876|GO:0049877|GO:0049878|GO:0049879|GO:0049880|GO:0049881|GO:0049882|GO:0049883|GO:0049884|GO:0049885|GO:0049886|GO:0049887|GO:0049888|GO:0049889|GO:0049890|GO:0049891|GO:0049892|GO:0049893|GO:0049894|GO:0049895|GO:0049896|GO:0049897|GO:0049898|GO:0049899|GO:0049900|GO:0049901|GO:0049902|GO:0049903|GO:0049904|GO:0049905|GO:0049906|GO:0049907|GO:0049908|GO:0049909|GO:0049910|GO:0049911|GO:0049912|GO:0049913|GO:0049914|GO:0049915|GO:0049916|GO:0049917|GO:0049918|GO:0049919|GO:0049920|GO:0049921|GO:0049922|GO:0049923|GO:0049924|GO:0049925|GO:0049926|GO:0049927|GO:0049928|GO:0049929|GO:0049930|GO:0049931|GO:0049932|GO:0049933|GO:0049934|GO:0049935|GO:0049936|GO:0049937|GO:0049938|GO:0049939|GO:0049940|GO:0049941|GO:0049942|GO:0049943|GO:0049944|GO:0049945	MIMAT0004694	9	0.83	0.33	1.00	0.00	0.11	1.00	1.00	0.41	0.82	0.17	0.82
SMG1 Lung Bhattacharjee_61	GO:0006397|GO:0000398|GO:0000375|GO:0000377|GO:0000398|GO:0008380|GO:0006396|GO:0016071|GO:0006406|GO:0006405|GO:0051028|GO:0050657|GO:0050658|GO:0006403|GO:0006913|GO:0051169|GO:0051236|GO:0006611|GO:0006886|GO:0015931|GO:0006810|GO:0051179|GO:0051234|GO:0006605|GO:0045184|GO:0015031|GO:0006612|GO:0006613|GO:0006614|GO:0006615|GO:0006616|GO:0006617|GO:0006618|GO:0006619|GO:0006620|GO:0006621|GO:0006622|GO:0006623|GO:0006624|GO:0006625|GO:0006626|GO:0006627|GO:0006628|GO:0006629|GO:0006630|GO:0006631|GO:0006632|GO:0006633|GO:0006634|GO:0006635|GO:0006636|GO:0006637|GO:0006638|GO:0006639|GO:0006640|GO:0006641|GO:0006642|GO:0006643|GO:0006644|GO:0006645|GO:0006646|GO:0006647|GO:0006648|GO:0006649|GO:0006650|GO:0006651|GO:0006652|GO:0006653|GO:0006654|GO:0006655|GO:0006656|GO:0006657|GO:0006658|GO:0006659|GO:0006660|GO:0006661|GO:0006662|GO:0006663|GO:0006664|GO:0006665|GO:0006666|GO:0006667|GO:0006668|GO:0006669|GO:0006670|GO:0006671|GO:0006672|GO:0006673|GO:0006674|GO:0006675|GO:0006676|GO:0006677|GO:0006678|GO:0006679|GO:0006680|GO:0006681|GO:0006682|GO:0006683|GO:0006684|GO:0006685|GO:0006686|GO:0006687|GO:0006688|GO:0006689|GO:0006690|GO:0006691|GO:0006692|GO:0006693|GO:0006694|GO:0006695|GO:0006696|GO:0006697|GO:0006698|GO:0006699|GO:0006700|GO:0006701|GO:0006702|GO:0006703|GO:0006704|GO:0006705|GO:0006706|GO:0006707|GO:0006708|GO:0006709|GO:0006710|GO:0006711|GO:0006712|GO:0006713|GO:0006714|GO:0006715|GO:0006716|GO:0006717|GO:0006718|GO:0006719|GO:0006720|GO:0006721|GO:0006722|GO:0006723|GO:0006724|GO:0006725|GO:0006726|GO:0006727|GO:0006728|GO:0006729|GO:0006730|GO:0006731|GO:0006732|GO:0006733|GO:0006734|GO:0006735|GO:0006736|GO:0006737|GO:0006738|GO:0006739|GO:0006740|GO:0006741|GO:0006742|GO:0006743|GO:0006744|GO:0006745|GO:0006746|GO:0006747|GO:0006748|GO:0006749|GO:0006750|GO:0006751|GO:0006752|GO:0006753|GO:0006754|GO:0006755|GO:0006756|GO:0006757|GO:0006758|GO:0006759|GO:0006760|GO:0006761|GO:0006762|GO:0006763|GO:0006764|GO:0006765|GO:0006766|GO:0006767|GO:0006768|GO:0006769|GO:0006770|GO:0006771|GO:0006772|GO:0006773|GO:0006774|GO:0006775|GO:0006776|GO:0006777|GO:0006778|GO:0006779|GO:0006780|GO:0006781|GO:0006782|GO:0006783|GO:0006784|GO:0006785|GO:0006786|GO:0006787|GO:0006788|GO:0006789|GO:0006790|GO:0006791|GO:0006792|GO:0006793|GO:0006794|GO:0006795|GO:0006796|GO:0006797|GO:0006798|GO:0006799|GO:0006800|GO:0006801|GO:0006802|GO:0006803|GO:0006804|GO:0006805|GO:0006806|GO:0006807|GO:0006808|GO:0006809|GO:0006810|GO:0006811|GO:0006812|GO:0006813|GO:0006814|GO:0006815|GO:0006816|GO:0006817|GO:0006818|GO:0006819|GO:0006820|GO:0006821|GO:0006822|GO:0006823|GO:0006824|GO:0006825|GO:0006826|GO:0006827|GO:0006828|GO:0006829|GO:0006830|GO:0006831|GO:0006832|GO:0006833|GO:0006834|GO:0006835|GO:0006836|GO:0006837|GO:0006838|GO:0006839|GO:0006840|GO:0006841|GO:0006842|GO:0006843|GO:0006844|GO:0006845|GO:0006846|GO:0006847|GO:0006848|GO:0006849|GO:0006850|GO:0006851|GO:0006852|GO:0006853|GO:0006854|GO:0006855|GO:0006856|GO:0006857|GO:0006858|GO:0006859|GO:0006860|GO:0006861|GO:0006862|GO:0006863|GO:0006864|GO:0006865|GO:0006866|GO:0006867|GO:0006868|GO:0006869|GO:0006870|GO:0006871|GO:0006872|GO:0006873|GO:0006874|GO:0006875|GO:0006876|GO:0006877|GO:0006878|GO:0006879|GO:0006880|GO:0006881|GO:0006882|GO:0006883|GO:0006884|GO:0006885|GO:0006886|GO:0006887|GO:0006888|GO:0006889|GO:0006890|GO:0006891|GO:0006892|GO:0006893|GO:0006894|GO:0006895|GO:0006896|GO:0006897|GO:0006898|GO:0006899|GO:0006900|GO:0006901|GO:0006902|GO:0006903|GO:0006904|GO:0006905|GO:0006906|GO:0006907|GO:0006908|GO:0006909|GO:0006910|GO:0006911|GO:0006912|GO:0006913|GO:0006914|GO:0006915|GO:0006916|GO:0006917|GO:0006918|GO:0006919|GO:0006920|GO:0006921|GO:0006922|GO:0006923|GO:0006924|GO:0006925|GO:0006926|GO:0006927|GO:0006928|GO:0006929|GO:0006930|GO:0006931|GO:0006932|GO:0006933|GO:0006934|GO:0006935|GO:0006936|GO:0006937|GO:0006938|GO:0006939|GO:0006940|GO:0006941|GO:0006942|GO:0006943|GO:0006944|GO:0006945|GO:0006946|GO:0006947|GO:0006948|GO:0006949|GO:0006950|GO:0006951|GO:0006952|GO:0006953|GO:0006954|GO:0006955|GO:0006956|GO:0006957|GO:0006958|GO:0006959|GO:0006960|GO:0006961|GO:0006962|GO:0006963|GO:0006964|GO:0006965|GO:0006966|GO:0006967|GO:0006968|GO:0006969|GO:0006970|GO:0006971|GO:0006972|GO:0006973|GO:0006974|GO:0006975|GO:0006976|GO:0006977|GO:0006978|GO:0006979|GO:0006980|GO:0006981|GO:0006982|GO:0006983|GO:0006984|GO:0006985|GO:0006986|GO:0006987|GO:0006988|GO:0006989|GO:0006990|GO:0006991|GO:0006992|GO:0006993|GO:0006994|GO:0006995|GO:0006996|GO:0006997|GO:0006998|GO:0006999|GO:0007000|GO:0007001|GO:0007002|GO:0007003|GO:0007004|GO:0007005|GO:0007006|GO:0007007|GO:0007008|GO:0007009|GO:0007010|GO:0007011|GO:0007012|GO:0007013|GO:0007014|GO:0007015|GO:0007016|GO:0007017|GO:0007018|GO:0007019|GO:0007020|GO:0007021|GO:0007022|GO:0007023|GO:0007024|GO:0007025|GO:0007026|GO:0007027|GO:0007028|GO:0007029|GO:0007030|GO:0007031|GO:0007032|GO:0007033|GO:0007034|GO:0007035|GO:0007036|GO:0007037|GO:0007038|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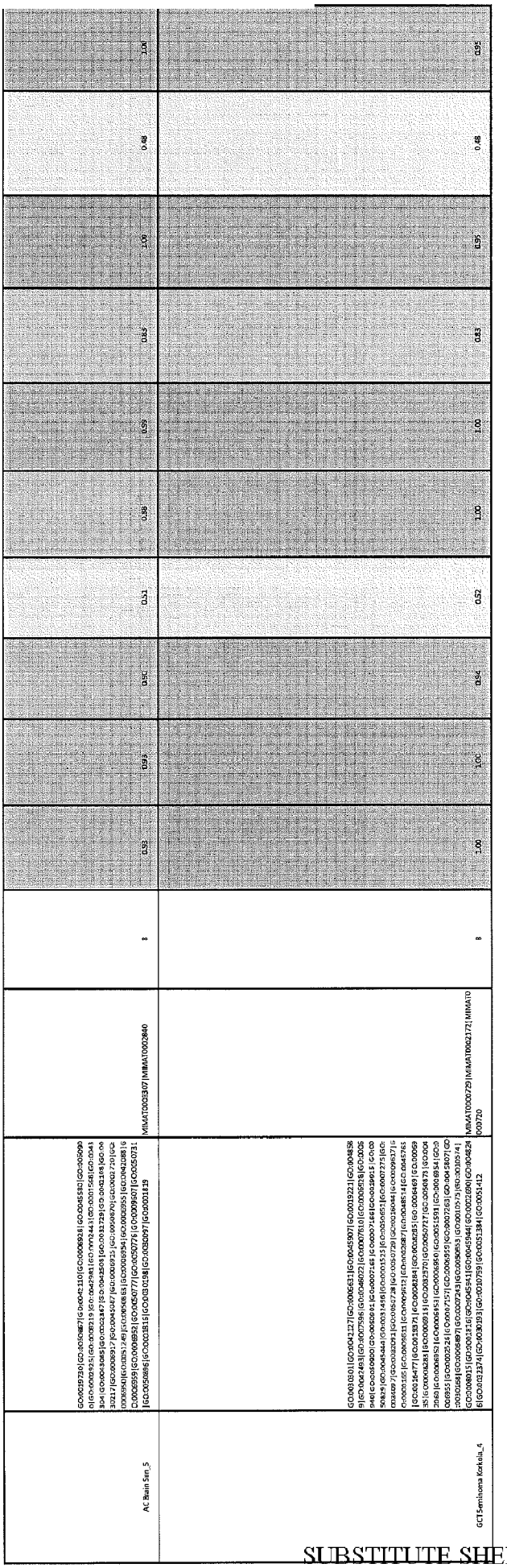

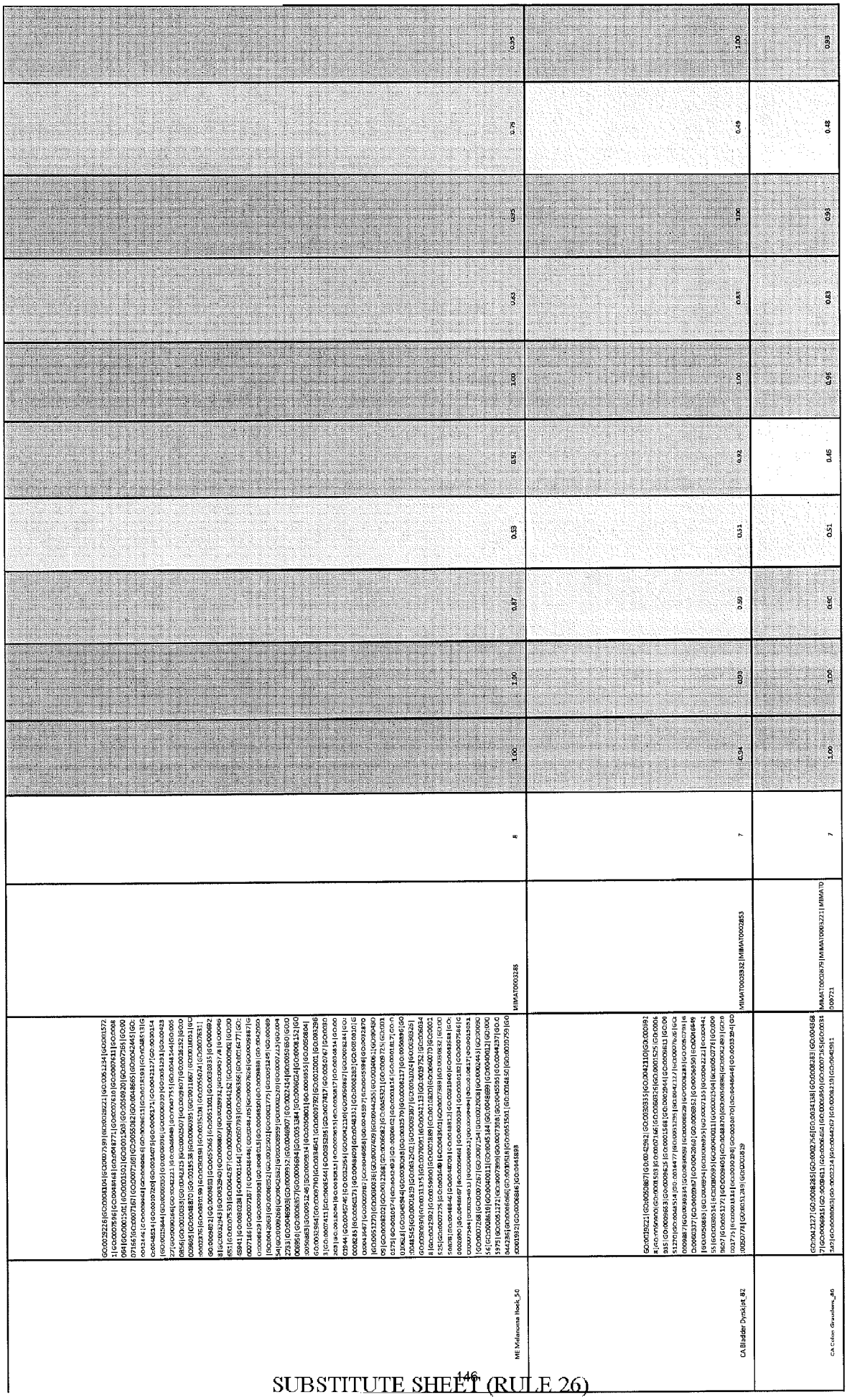

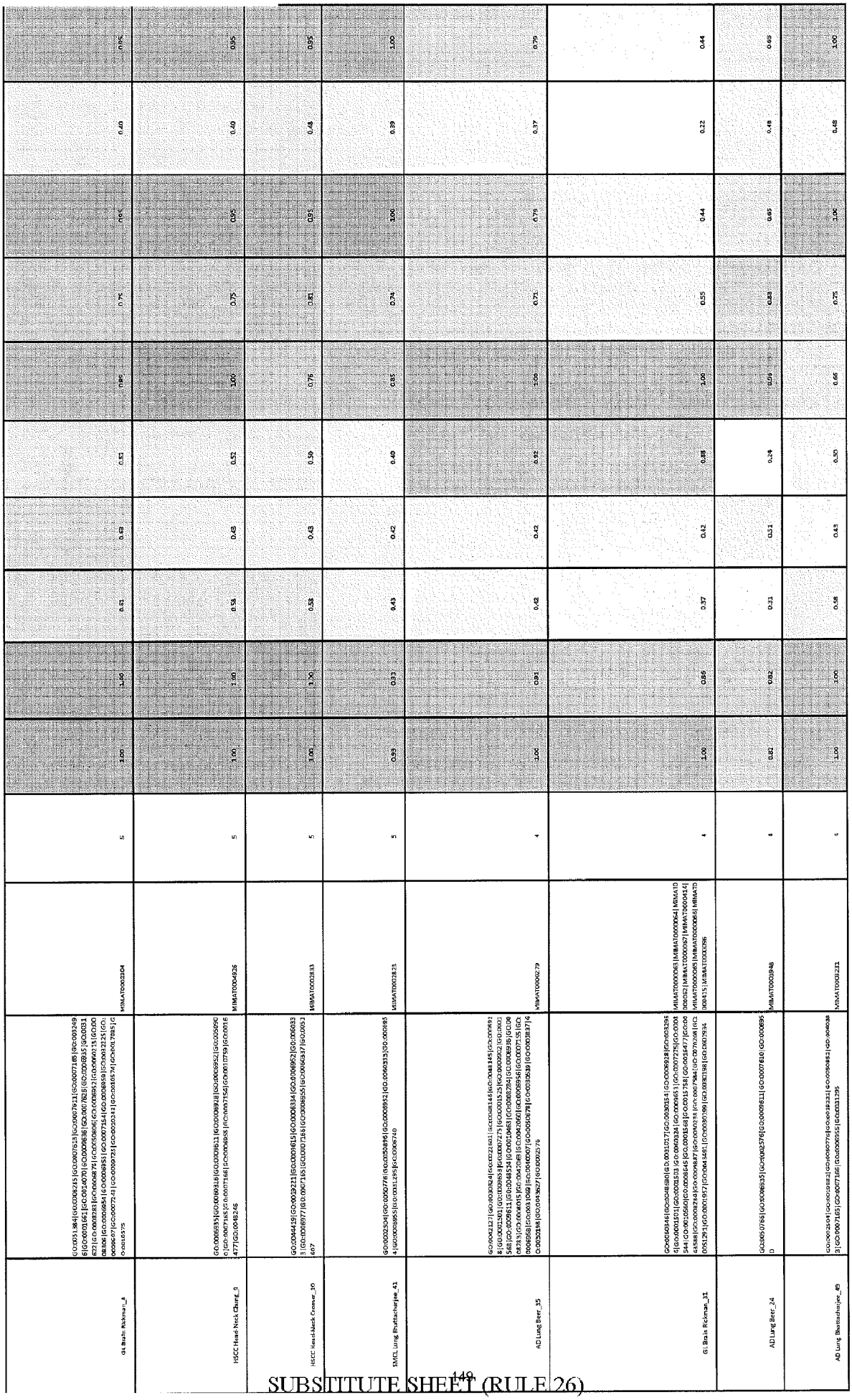

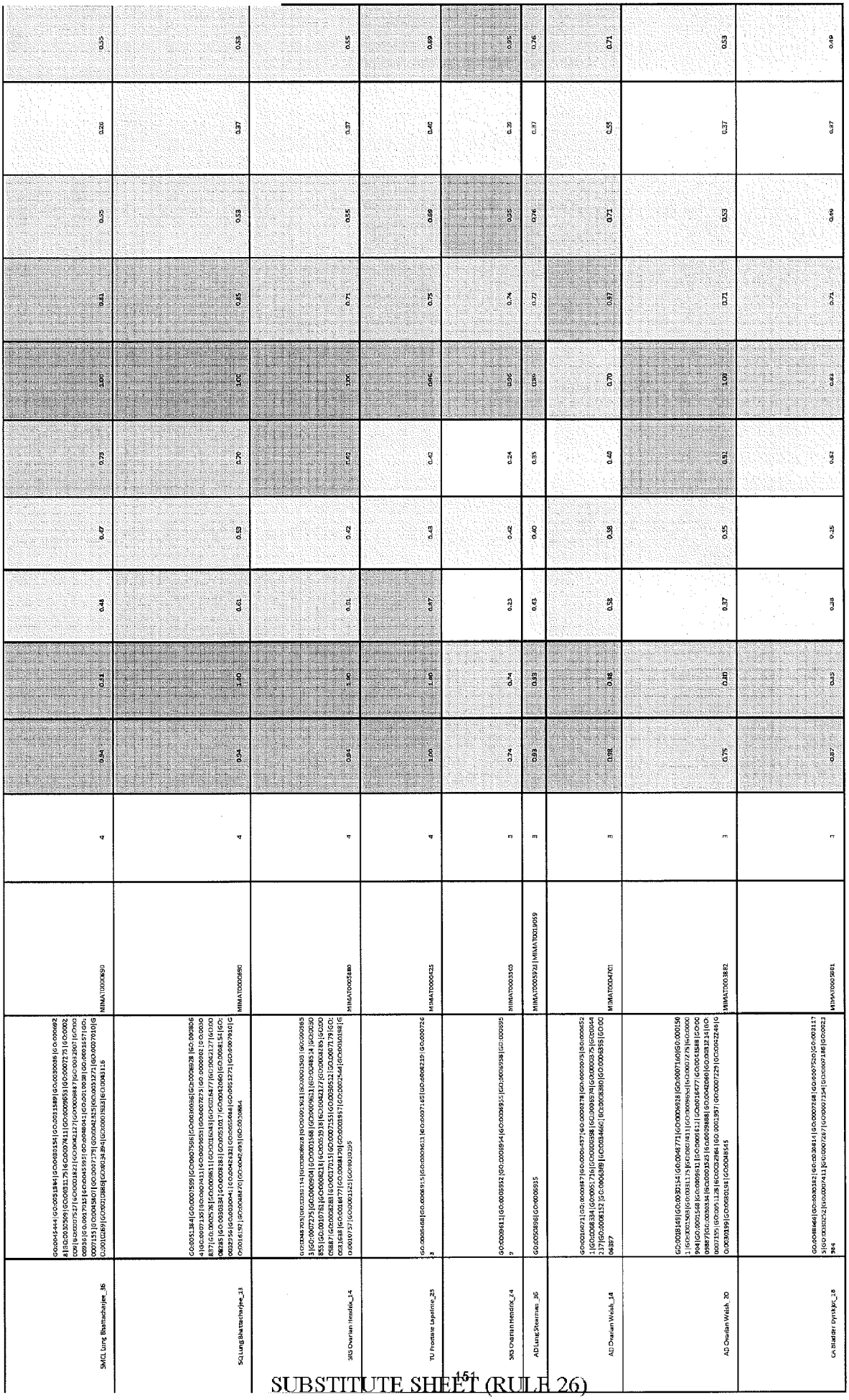

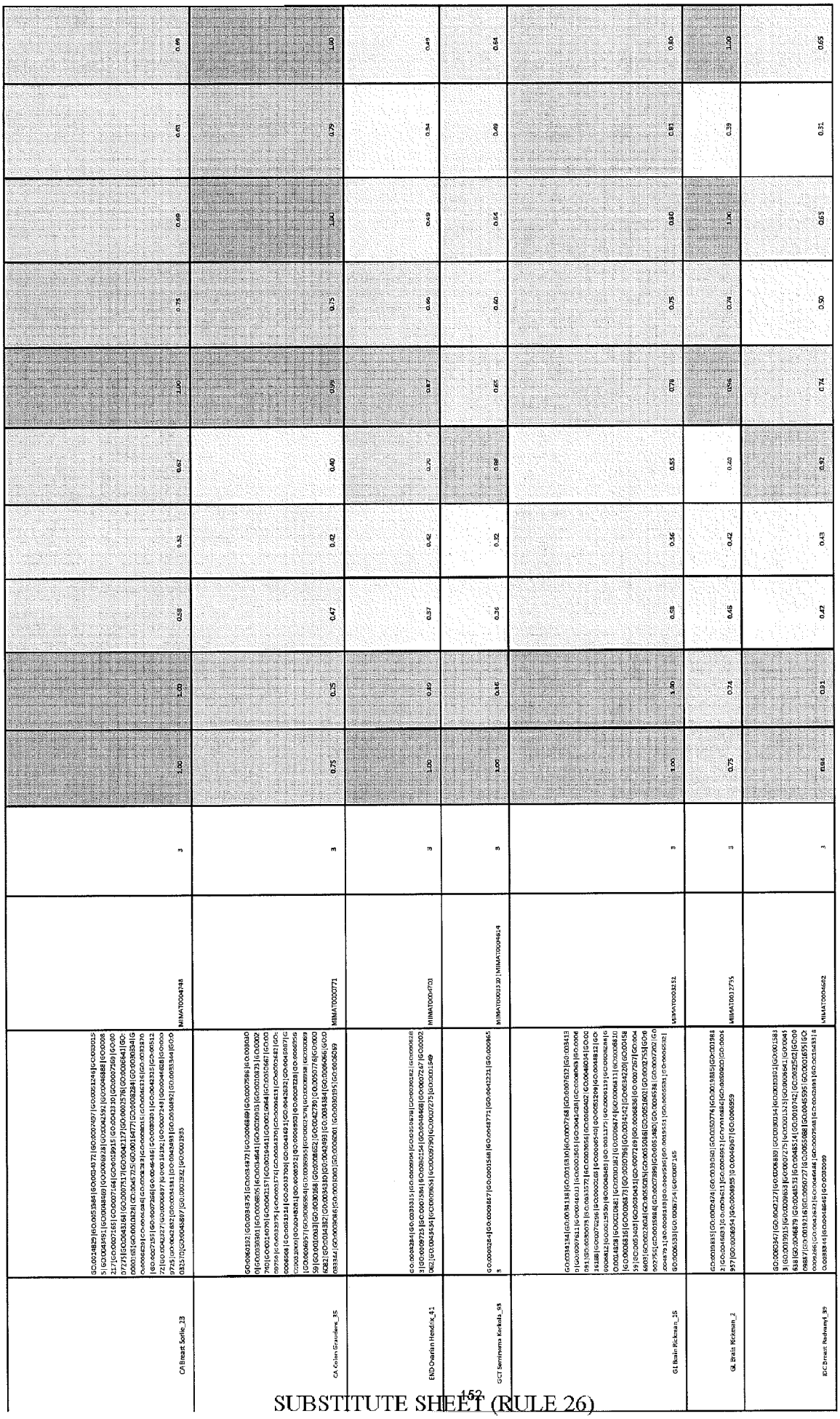

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ME Melanoma Hoek_35	GO:0007507	GO:0001568	GO:0060837	GO:0010629	GO:0006122	MIMAT0000318	MIMAT0000677	MIMAT0000682	1	0.62	0.36	0.65	0.22	0.68	0.55	0.39	0.45	0.39	0.45
AC Brain Sun_35	GO:0015079|GO:0005118|GO:0001967|GO:0004427|GO:0004449|GO:0031607|GO:0009791|GO:0001938|GO:0001968|GO:0005275|GO:0009638|GO:0006260|GO:0006335|GO:0016235|GO:0060349|GO:0000165|GO:0006397	MIMAT0003331	1	0.78	0.78	0.53	0.39	0.38	0.56	0.41	0.60	0.46	0.59
AC Brain Sun_51	GO:0000082	GO:0005110	GO:0022904	GO:0006091	GO:0006643	MIMAT0004972	1	0.47	0.30	0.23	0.04	0.04	0.30	0.47		0.23	0.61	0.23
AO Lung Beer_27	GO:0015079	GO:0006125	GO:0042254	GO:0010467	GO:0006152	GO:0022900	MIMAT0015072	MIMAT0009764	MIMAT0025793	MIMAT0005792	MIMAT0000510	1	0.70	0.70	0.46	0.33	0.21	0.53	0.76		0.53	0.81	0.53
AD Lung Beer_4	GO:0001603	GO:0000044	GO:0006511	GO:0006766	GO:0006928	MIMAT0000828	1	0.49	0.27	0.24	0.00	0.03	0.99	0.43		0.24	0.56	0.24
AD Lung Bhattacharjee_85	GO:0002576	GO:0009611	GO:0006928	GO:0006928	MIMAT0004762	MIMAT0019215	1	0.70	0.24	0.39	0.21	0.99	0.72		0.53	0.37	0.53
AD Ovarian Welsh_35	GO:0051186	GO:0006259	GO:0000160	GO:0042333	GO:0072594	GO:2001057	GO:0006691	GO:0030509	GO:0055114	MIMAT0002940	1	0.44	0.44	0.29	0.00	0.04	0.27	0.41		0.25	0.61	0.25
B-CELL Leukemia Haslinger_17	GO:0006091	GO:0022900	GO:0055114	GO:0042904	MIMAT0004801	1	0.44	0.44	0.29	0.00	0.04	0.27	0.41		0.25	0.61	0.25
CA Bladder Dyrskjot_51	GO:0006334	MIMAT0005920	2	0.30	0.30	0.06	0.34	0.00	0.25	0.81		0.06	0.00	0.06
CA Breast Richardson_38	GO:0006888	GO:0001591	GO:0030139	GO:0030198	GO:0007155	GO:0042567	MIMAT0000428	1	0.30	0.30	0.26	0.27	0.46	1.00	0.39		0.29	0.08	0.29
CA Breast Richardson_51	GO:0006334	MIMAT0005796	1	0.30	0.30	0.06	0.34	0.00	0.25	0.81		0.06	0.00	0.06
CA Colon Graudens_37	GO:0006104	GO:0006099	GO:0030496	GO:0002364	GO:0006091	GO:0006123	MIMAT0003268	MIMAT0003123	MIMAT0018444	1	0.44	0.44	0.29	0.00	0.00	0.27	0.38		0.29	0.81	0.29
CA Colon Graudens_4	GO:0006091	MIMAT0000435	1	0.44	0.44	0.29	0.00	0.00	0.27	0.38		0.29	0.81	0.29
CCC Ovarian Hendrix_11	GO:0006887	GO:0007399	GO:0048812	GO:0006928	GO:0032989	GO:0007626	MIMAT0003268	MIMAT0003270	MIMAT0018440	MIMAT0000969	MIMAT0000965	1	0.58	0.46	0.27	0.22	0.70	0.992	0.70		0.43	0.16	0.41
COPD Lung Thatcher_87	GO:0043627	GO:0007584	GO:0043369	GO:0030355	MIMAT0003829	1	0.54	0.44	0.29	0.10	0.24	0.67	0.83		0.37	0.22	0.37
END Ovarian Hendrix_82	GO:0015031	GO:0006886	GO:0007049	MIMAT0001185	MIMAT0003823	1	0.62	0.45	0.34	0.05	0.33	0.62	0.41		0.84	0.16	0.34
END Ovarian Hendrix_35	GO:0006334	MIMAT0005930	1	0.30	0.30	0.06	0.34	0.00	0.25	0.81		0.06	0.00	0.06
GCT Seminoma Korkola_106	GO:0007304	GO:0006091	GO:0006520	GO:0043773	GO:0006172	MIMAT0005788	1	0.45	0.45	0.21	0.06	0.60	0.28	0.49		0.20	0.84	0.20
GCT Seminoma Korkola_107	GO:0006837	GO:0001525	GO:0045141	GO:0043765	MIMAT0004585	MIMAT0009232	1	0.42	0.42	0.18	0.22	1.00	0.51	0.24		0.25	0.00	0.25
GCT Seminoma Korkola_45	GO:0035108|GO:0030325|GO:0030154|GO:0006348|GO:0000501|GO:0001568|GO:0007411|GO:0006483|GO:0007275|GO:0007417|GO:0021632|GO:0007389|GO:0060004|GO:0006122|GO:0048863|GO:0010845|GO:0048701|GO:0006587|GO:0048706|GO:0035821|GO:0002507|GO:0002407|GO:0031623|GO:0045892|GO:0002009|GO:0007155|GO:0050771|GO:0001648|GO:0007507|GO:0030154|GO:0007420|GO:0007599|GO:0030199|GO:0006790	MIMAT0000482	1	0.63	0.78	0.67	0.42	0.75	1.00	0.87		0.44	0.26	0.44

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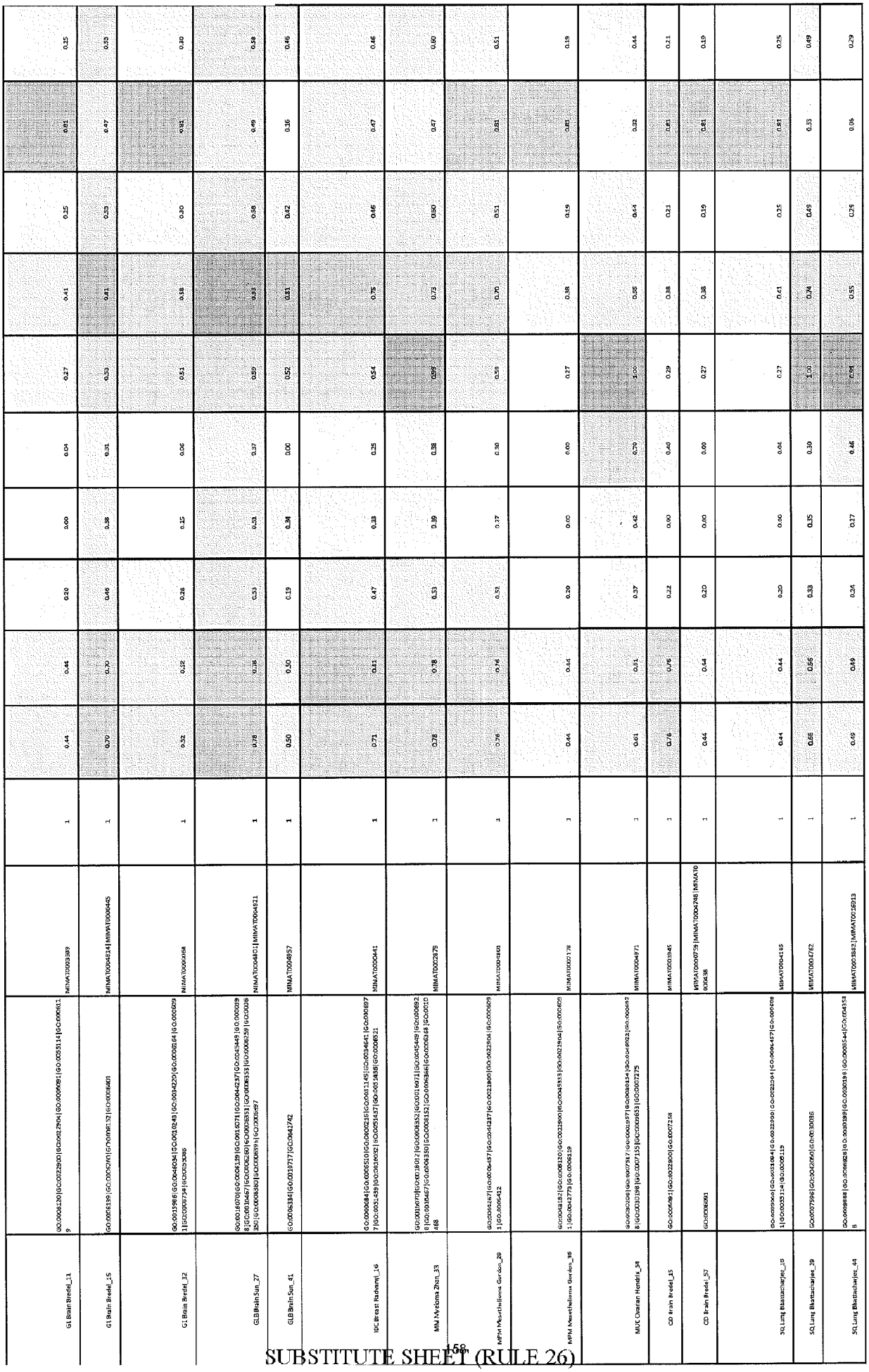

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SQ Lung Bhattacharjee_45	GO:0006334	MMAT0002830	1	0.30	0.30	0.06	0.34	0.00	0.25	0.81	0.06	0.00	0.06
SAS Ovarian Hendrix_72	GO:0006334	MMAT0003930	1	0.30	0.30	0.06	0.34	0.00	0.25	0.81	0.06	0.00	0.06
TU Prostate Lapointe_37	GO:0040022	MMAT0004925|MMAT0002841|MMAT0004956|MMAT0000232	1	0.53	0.53	0.29	0.00	0.35	0.84	0.15	0.96	0.00	0.36
TU Prostate Lapointe_7	GO:0007517|GO:0006354|GO:0044770|GO:0006355|GO:0006725|GO:0090305|GO:0045941|GO:0034654|GO:0032774|GO:0045893|GO:0045944|GO:0032786|GO:0045892	MMAT0003244	1	0.76	0.73	0.37	0.34	1.00	0.72	0.65	0.49	0.34	0.49
AC Brain Sun_34	GO:0016070	MMAT0002280	0	0.65	0.65	0.41	0.31	0.19	0.46	0.73	0.41	0.38	0.41
AD Lung Beer_20	GO:0006793|GO:0007389|GO:0048523|GO:0007167	MMAT0000724	0	0.66	0.66	0.35	0.09	0.23	0.77	0.41	0.35	0.07	0.35
CA Breast Richardson_68	GO:0034660	MMAT0003567|MMAT0003328	0	0.40	0.40	0.16	0.05	0.00	0.23	0.48	0.15	0.13	0.15
CCC Ovarian Hendrix_20	GO:0001503|GO:0001503|GO:0030277	MMAT0002817	0	0.34	0.34	0.09	0.34	0.37	0.82	0.16	0.17	0.00	0.17
CCC Ovarian Hendrix_23	GO:0044267|GO:0031012|GO:0010008|GO:0010008|GO:0010562|GO:0006641|GO:0006414|GO:0006412	MMAT0000102|MMAT0002840	0	0.64	0.64	0.40	0.21	0.27	0.47	0.54	0.40	0.38	0.40
CLL Lymphoma Alizadeh_10	GO:0044267|GO:0042110|GO:0030258	MMAT0003256|MMAT0000076	0	0.64	0.64	0.40	0.23	0.39	0.47	0.64	0.71	0.38	0.71
ENG Ovarian Hendrix_14	GO:0006339|GO:0031018|GO:0010008|GO:0010467|GO:0015986|GO:0006635|GO:0030148|GO:0006415|GO:0006414|GO:0006412	MMAT0000932|MMAT0003180	0	0.70	0.70	0.46	0.38	0.27	0.58	0.76	0.46	0.44	0.46
GLIB Brain Sun_76	GO:0006355|GO:0045799|GO:0048565|GO:0021535	MMAT0003525|MMAT0000250	0	0.74	0.74	0.50	0.35	0.33	0.42	0.67	0.55	0.32	0.55
MPM Mesothelioma Gordon_39	GO:0006104|GO:0015031|GO:0030486|GO:0030489|GO:0048285	MMAT0000746|MMAT0004804	0	0.44	0.44	0.29	0.00	0.05	0.64	0.42	0.27	0.02	0.27
PPC Prostate Shanaskaran_31	GO:0001947	MMAT0000590	0	0.11	0.11	0.00	0.00	0.51	0.35	0.00	0.00	0.00	0.00
PPC Prostate Shanaskaran_54	GO:0006536	MMAT0000450	0	0.30	0.30	0.06	0.00	0.21	0.17	0.13	0.14	0.00	0.14
SRS Ovarian Hendrix_30	GO:0006702|GO:0007548|GO:0048608|GO:0041445|GO:0006725|GO:0006585|GO:0048511|GO:0051270|GO:0006207	MMAT0003747|MMAT0001341	0	0.69	0.69	0.23	0.18	0.50	0.46	0.48	0.49	0.47	0.49
ACBrain Sun_19	GO:0006629	MMAT0002175|MMAT0000275	0	0.47	0.47	0.23	0.07	0.05	0.50	0.50	0.51	0.25	0.51
AD Lung Beer_44	GO:0007186	MMAT0003535|MMAT0002174	0	0.80	0.80	0.38	0.23	0.37	0.46	0.55	0.49	0.20	0.49
AD Lung Beer_46	GO:0007275	MMAT0000481|MMAT0004274	0	0.61	0.61	0.37	0.42	0.60	0.35	0.44	0.44	0.39	0.44
AD Lung Beer_53	GO:0042127|GO:0006979|GO:0001649|GO:0034446|GO:0006302|GO:0001946	MMAT0003323|MMAT0003246	0	0.76	0.76	0.57	0.35	0.38	0.57	0.66	0.60	0.38	0.60
AD Lung Bhattacharjee_35	GO:0006636	MMAT0000427	0	0.22	0.22	0.00	0.00	0.00	0.05	0.16	0.00	0.25	0.00
AD Lung Bhattacharjee_36	GO:0042445	MMAT0002689|MMAT0002850	0	0.47	0.47	0.23	0.18	0.09	0.11	0.27	0.21	0.06	0.21
AD Lung Bhattacharjee_50	GO:0019835	MMAT0003832|MMAT0001444	0	0.16	0.16	0.46	0.00	0.00	0.00	0.00	0.06	0.00	0.00
AD Lung Bhattacharjee_53	GO:0006116	MMAT0000440|MMAT0002869	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AD Lung Bhattacharjee_58	GO:0016072|GO:0006340	MMAT0003331	0	0.48	0.48	0.24	0.14	0.63	0.31	0.57	0.24	0.22	0.24
AD Lung Bhattacharjee_60	GO:0016072|GO:0050658|GO:0060398|GO:0000375|GO:0006380|GO:0000639|GO:0006397	MMAT0002827|MMAT0004925|MMAT0000458	0	0.61	0.61	0.27	0.17	0.05	0.44	0.59	0.27	0.24	0.27
AD Lung Bhattacharjee_68	GO:0016070|GO:0006139|GO:0051607|GO:0001671	MMAT0002858|MMAT0000078|MMAT0000418	0	0.70	0.70	0.46	0.23	0.24	0.53	0.75	0.46	0.44	0.46
AD Lung Bhattacharjee_82	GO:0007283|GO:0007276	MMAT0003827	0	0.25	0.25	0.10	0.00	0.25	0.21	0.17	0.18	0.00	0.18
AD Lung Steerman_34	GO:0007389|GO:0048912	MMAT0000078|MMAT0003150	0	0.36	0.36	0.12	0.17	0.35	0.30	0.19	0.19	0.00	0.19

AD Lung Sterman_6	GO:0007548|GO:0045778|GO:0043249|GO:0008585|GO:0001569|GO:0060050	NM_001005915	0	0.31	0.21	0.07	0.30	0.48	0.22	0.12	0.14	0.00	0.14
AD Lung Sterman_9	GO:0042053|GO:0001662	NM_001005932	0	0.22	0.22	0.00	0.00	0.00	0.00	0.11	0.03	0.39	0.03
AD Chartan Welsh_0	GO:0010033	NM_001030139 | NM_001002842	0	0.75	0.75	0.25	0.22	0.18	0.56	0.54	0.59	0.43	0.59
AD Chartan Welsh_9	GO:0016073|GO:0008360	NM_001002849	0	0.48	0.48	0.24	0.14	0.03	0.31	0.57	0.24	0.22	0.24
AD Parveen Legates_12	GO:0045777|GO:0001927|GO:0060079|GO:0002126|GO:0042733	NM_001005963 | NM_001005964 | NM_001005967 | NM_001005965 | NM_001005968 | NM_001005970 | NM_001005971 | NM_001005972 | NM_001005973 | NM_001005974 | NM_001005975 | NM_001005976 | NM_001005977 | NM_001005978 | NM_001005979 | NM_001005980 | NM_001005981 | NM_001005982 | NM_001005983 | NM_001005984 | NM_001005985 | NM_001005986 | NM_001005987 | NM_001005988 | NM_001005989 | NM_001005990 | NM_001005991 | NM_001005992 | NM_001005993 | NM_001005994 | NM_001005995 | NM_001005996	0	0.30	0.40	0.05	0.33	0.20	0.69	0.60	0.13	0.00	0.13
AD Brain Bredt_33	GO:0046330|GO:0018020	NM_001004909	0	0.72	0.55	0.09	0.26	0.37	0.57	0.58	0.48	0.24	0.48
B-CLL Leukemia Hastinger_12	GO:0016071	NM_001005890	0	0.48	0.48	0.24	0.14	0.03	0.31	0.57	0.24	0.22	0.24
B CLL Leukemia Hastinger_31	GO:0006974	NM_001005952	0	0.48	0.48	0.23	0.27	0.09	0.20	0.19	0.31	0.00	0.31
B-CLL Leukemia Hastinger_34	GO:0006952|GO:0044762|GO:0043207	NM_001002812	0	0.73	0.73	0.23	0.42	0.15	0.79	0.74	0.96	0.39	0.96
B-CLL Leukemia Hastinger_35	GO:0045449|GO:0005340	NM_001004762 | NM_001005814	0	0.78	0.78	0.53	0.35	0.37	0.48	0.75	0.68	0.88	0.68
B-CLL Leukemia Hastinger_37	GO:0051674|GO:0006468|GO:0006375|GO:0006338|GO:0006406|GO:0006959|GO:0006955	NM_001005755 | NM_001003165	0	0.48	0.48	0.24	0.14	0.03	0.38	0.57	0.24	0.22	0.24
B-CLL Leukemia Hastinger_38	GO:0016477|GO:0030334|GO:0016319|GO:0018107|GO:0018022|GO:0006913|GO:0006259|GO:0006397	NM_001005912	0	0.70	0.70	0.46	0.18	0.24	0.53	0.76	0.46	0.44	0.46
B-CLL Leukemia Hastinger_41	GO:0030218|GO:0006778	NM_001004761	0	0.35	0.35	0.11	0.25	0.24	0.37	0.39	0.34	0.00	0.34
B-CLL Leukemia Hastinger_43	GO:0051011|GO:0019915	NM_001002173	0	0.68	0.68	0.26	0.11	0.50	0.34	0.43	0.37	0.08	0.37
BPH Prostate Dhanasekaran_15	GO:0051028	NM_001003848	0	0.23	0.23	0.00	0.00	0.00	0.43	0.05	0.06	0.00	0.06
BPH Prostate Dhanasekaran_6	GO:0042327|GO:0042216|GO:0046329|GO:0043410	NM_001003318	0	0.53	0.51	0.46	0.29	0.25	0.27	0.38	0.32	0.09	0.32
BPH Prostate Dhanasekaran_8	GO:0001504|GO:0031225	NM_001004953 | NM_001005839	0	0.45	0.40	0.19	0.01	0.15	0.08	0.08	0.07	0.00	0.07
CA Bladder Dyrskjot_0	GO:0000898	NM_001003275 | NM_001003313	0	0.39	0.39	0.14	0.04	0.00	0.22	0.47	0.14	0.12	0.14
CA Bladder Dyrskjot_13	GO:0019550|GO:0031511|GO:0060632|GO:0030430|GO:0060350|GO:0060020	NM_001003285 | NM_001005812	0	0.51	0.51	0.27	0.17	0.05	0.24	0.59	0.27	0.24	0.27
CA Bladder Dyrskjot_29	GO:0030198|GO:0006249	NM_001003285	0	0.29	0.29	0.05	0.08	0.00	0.24	0.35	0.05	0.44	0.05
CA Bladder Dyrskjot_37	GO:0010467|GO:0065004	NM_001005916	0	0.61	0.61	0.36	0.24	0.22	0.44	0.66	0.44	0.38	0.44
CA Bladder Dyrskjot_39	GO:0051056|GO:0007265|GO:0007264|GO:0035023	NM_001004762	0	0.78	0.78	0.37	0.21	0.46	0.45	0.53	0.72	0.29	0.71
CA Bladder Dyrskjot_54	GO:0031032|GO:0006916	NM_001002807	0	0.30	0.30	0.06	0.09	0.21	0.17	0.59	0.14	0.00	0.14
CA Bladder Dyrskjot_64	GO:0016567	NM_001004961	0	0.46	0.46	0.23	0.03	0.00	0.29	0.46	0.21	0.39	0.21
CA Bladder Dyrskjot_79	GO:0006805	NM_001004928 | NM_001002213 | NM_001002380	0	0.63	0.61	0.08	0.07	0.03	0.31	0.39	0.33	0.38	0.33
CA Bladder Dyrskjot_9	GO:0008152	NM_001001635 | NM_001003245	0	0.70	0.70	0.46	0.26	0.31	0.53	0.69	0.53	0.47	0.53
CA Breast Richardson_13	GO:0006339	NM_001002828 | NM_001004444	0	0.26	0.26	0.09	0.05	0.17	0.39	0.37	0.07	0.25	0.07
CA Breast Richardson_23	GO:0033431	NM_001001004 | NM_001003164	0	0.25	0.15	0.01	0.00	0.02	0.24	0.00	0.08	0.00	0.08
CA Breast Richardson_65	GO:0007389|GO:0009912	NM_001005905	0	0.36	0.36	0.12	0.17	0.35	0.30	0.19	0.19	0.00	0.19
CA Breast Sorlie_16	GO:0015071|GO:0000398|GO:0000375|GO:0006368|GO:0006434|GO:0000838|GO:0006397	NM_001003244	0	0.48	0.48	0.24	0.24	0.12	0.31	0.57	0.24	0.22	0.24

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CA BreastSorlie_8	GO:0019827|GO:0033141|GO:0070044|GO:0048247|GO:0007275	MMAT0002852|MMAT0005996	0	0.61	0.32	0.38	0.42	0.60	0.64	0.46	0.44	0.29	0.44
CA Colon Grauslens_10	GO:0006892	MMAT0005572	0	0.24	0.24	0.00	0.00	0.00	0.36	0.06	0.00	0.00	0.00
CA Colon Grauslens_41	GO:0016079|GO:0042278|GO:0016192|GO:0043124|GO:0035588|GO:0051046|GO:0032988|GO:0006903|GO:0006886|GO:0006623|GO:0006629|GO:0044267|GO:0006914|GO:0006897|GO:0006412|GO:0006998|GO:0031018	MMAT0005584	0	0.70	0.70	0.49	0.33	0.21	0.53	0.73	0.53	0.47	0.53
CA Colon Grauslens_5	GO:0030325|GO:0008398|GO:0016071	MMAT0005928	0	0.46	0.46	0.34	0.34	0.69	0.31	0.57	0.24	0.22	0.24
CA Renal Higgins_4	GO:0006413	MMAT0004676	0	0.30	0.30	0.05	0.00	0.00	0.13	0.29	0.05	0.03	0.05
CCC Ovarian Hendrix_42	GO:0006307|GO:0006352	MMAT0004801	0	0.33	0.33	0.09	0.00	0.00	0.16	0.42	0.09	0.07	0.09
CLL Lymphoma Alizadeh_7	GO:0006615|GO:0006697|GO:0015221|GO:0065037	MMAT0005915	0	0.74	0.74	0.32	0.17	0.21	0.49	0.00	0.58	0.46	0.58
COID Lung Bhattacharjee_12	GO:0015031	MMAT0002816|MMAT0004779|MMAT0004975|MMAT0002881	0	0.42	0.42	0.18	0.00	0.04	0.62	0.24	0.25	0.00	0.25
COID Lung Bhattacharjee_2	GO:0016071|GO:0000245|GO:0000398|GO:0000375|GO:0006481|GO:0006415	MMAT0003323	0	0.48	0.48	0.24	0.14	0.63	0.31	0.57	0.24	0.22	0.24
COID Lung Bhattacharjee_41	GO:0042111|GO:0050818|GO:0007588	MMAT0005851	0	0.68	0.73	0.17	0.12	0.13	0.38	0.05	0.24	0.00	0.24
COID Lung Bhattacharjee_45	GO:0007389	MMAT0004864	0	0.36	0.36	0.12	0.17	0.35	0.30	0.19	0.19	0.00	0.19
COID Lung Bhattacharjee_74	GO:0016070|GO:0035071|GO:0000398|GO:0000246|GO:0050325|GO:0031047|GO:0006397|GO:0006950|GO:0006412|GO:0045449|GO:0006396|GO:0016568|GO:0006325	MMAT0004777	0	0.78	0.78	0.53	0.39	0.38	0.53	0.73	0.60	0.47	0.60
COID Lung Bhattacharjee_75	GO:0030903	MMAT0004931	0	0.25	0.31	0.15	0.06	0.35	0.00	0.20	0.00	0.00	0.00
COID Lung Bhattacharjee_84	GO:0048852	MMAT0004804	0	0.39	0.27	0.19	0.00	0.15	0.12	0.00	0.00	0.00	0.00
DLBCL Lymphoma Alizadeh_3	GO:0006310|GO:0006468	MMAT0004845	0	0.54	0.54	0.30	0.10	0.68	0.37	0.55	0.30	0.27	0.30
DLBCL Lymphoma Alizadeh_5	GO:0042403	MMAT0004524|MMAT0000238	0	0.56	0.56	0.06	0.03	0.60	0.37	0.35	0.35	0.24	0.39
DLBCL Lymphoma Alizadeh_7	GO:0016071|GO:0042493|GO:0045087|GO:0008368	MMAT0004789|MMAT0005797	0	0.66	0.66	0.42	0.31	0.75	0.48	0.73	0.47	0.38	0.47
END Ovarian Hendrix_38	GO:0000910|GO:0006139|GO:0051252|GO:0000753|GO:0031940|GO:0000431|GO:0008152|GO:0045449	MMAT0004967	0	0.78	0.78	0.53	0.39	0.37	0.53	0.76	0.58	0.47	0.58
END Ovarian Hendrix_52	GO:0006805|GO:0000594|GO:0006365	MMAT0007600	0	0.31	0.21	0.07	0.00	0.00	0.14	0.35	0.07	0.34	0.07
END Ovarian Hendrix_66	GO:0006824	MMAT0000839	0	0.09	0.09	0.00	0.00	0.00	0.00	0.21	0.00	0.49	0.00
END Ovarian Hendrix_75	GO:0006357|GO:0007610|GO:0006366	MMAT0003805	0	0.66	0.66	0.42	0.17	0.25	0.43	0.62	0.47	0.27	0.47
END Ovarian Hendrix_76	GO:0016070|GO:0006139|GO:0006350	MMAT0004936	0	0.70	0.70	0.46	0.33	0.24	0.53	0.76	0.46	0.44	0.46
END Ovarian Hendrix_8	GO:0006979|GO:0051084|GO:0033043|GO:0000060|GO:0031047|GO:0031965|GO:0006350|GO:0006364|GO:0016602|GO:0000415|GO:0006419|GO:0006412	MMAT0000682|MMAT0000432	0	0.65	0.55	0.41	0.11	0.27	0.48	0.79	0.44	0.38	0.44
GCT Seminoma Kotsos_9	GO:0032259|GO:0007399|GO:0045185|GO:0000922|GO:0007399|GO:0001701|GO:0001525|GO:0009790|GO:0009653|GO:0007275	MMAT0003903	0	0.73	0.73	0.37	0.42	0.70	0.65	0.48	0.44	0.29	0.44
GCT Seminoma Korkola_100	GO:0032200|GO:0090224	MMAT0004762	0	0.35	0.35	0.10	0.00	0.00	0.18	0.39	0.10	0.21	0.10
GCT Seminoma Korkola_109	GO:0008380|GO:0000398	MMAT0003934	0	0.45	0.45	0.21	0.10	0.60	0.28	0.53	0.20	0.18	0.20

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SRS Ovarian Hendrix_1	GO:0006338|GO:0035267|GO:0045449	MIMAT0001331|MIMAT0001599	0	0.78	0.78	0.53	0.19	0.37	0.53	0.26	0.58	0.44	0.58
SRS Ovarian Hendrix_11	GO:0070058|GO:0070988|GO:0031018	MIMAT0004801|MIMAT0000703	0	0.32	0.32	0.07	0.64	0.27	0.31	0.40	0.14	0.05	0.14
SRS Ovarian Hendrix_26	GO:0006333	MIMAT0000721	0	0.14	0.14	0.00	0.80	0.00	0.26	0.00	0.00	0.00	0.00
TU Prostate Lapointe_1	GO:0018243|GO:0018242|GO:0009100|GO:0006486	MIMAT0004805|MIMAT0000083|MIMAT0000082|MIMAT0005886	0	0.40	0.40	0.16	0.80	0.00	0.23	0.40	0.16	0.67	0.16
TU Prostate Lapointe_38	GO:0060323	MIMAT0003203|MIMAT0005791	0	0.65	0.20	0.18	0.14	0.17	0.48	0.47	0.67	0.34	0.67

Supplementary Table 9.

GO Terms Mapping to the Hallmarks of Cancer	
Self Sufficiency in Growth Signals	
GO:0009967	Positive regulation of signal transduction
GO:0030307	Positive regulation of cell growth
GO:0008284	Positive regulation of cell proliferation
GO:0045787	Positivie regulation of cell cycle
GO:0007165	Signal transduction
Insensitivity to Antigrowth Signals	
GO:0009968	Negative regulation of signal transduction
GO:0030308	Negative regulation of cell growth
GO:0008285	Negative regulation of cell proliferation
GO:0045786	Negative regulation of cell cycle
GO:0007165	Signal transduction
Evading Apoptosis	
GO:0043069	Negative regulation of apoptosis
GO:0043066	Positive regulation of anti-apoptosis
GO:0045768	Negative regualtion of programmed cell death
Limitless Replicative Potential	
GO:0001302	Replicative cell aging
GO:0032206	Positive regualtion of telomere maintenance
GO:0090398	Cellular senescence
Sustained Angiogenesis	
GO:0045765	Positive regulation of angiogenesis
GO:0045766	Regulation of angiogenesis
GO:0030949	Positive regulation of vascular endothelial growth factor receptor signaling pathway
GO:0001570	Vasculogenesis
Tissue Invasion and Metastasis	
GO:0042060	Wound healing

GO:0007162	Negative regulation of cell adhesion
GO:0033631	Cell-cell adhesion mediated by integrin
GO:0044331	Cell-cell adhesion mediated by cadherin
GO:0001837	Epithelial to mesenchymal transition
GO:0016477	Cell migration
GO:0048870	Cell motility
GO:0007155	Cell adhesion
	Genome Instability and Mutation
GO:0051276	Chromosome organization
GO:0045005	Maintenance of fidelity involved in DNA-dependent DNA replication
GO:0006281	DNA repair
	Tumor Promoting Inflammation
GO:0002419	T-cell mediated cytotoxicity directed against tumor cell target
GO:0002420	Natural killer cell mediated cytotoxicity directed against tumor cell target
GO:0002857	Positive regualtion of natural killer cell mediated immune response to tumor cell
GO:0002842	Positive regualtion of T-cell mediated immune response to tumor cell
GO:0002367	Cytokine production involved in immune response
GO:0050776	Regulation of immune response
	Reprogramming Energy Metabolism
GO:0006096	Glycolysis
GO:0071456	Cellular response to hypoxia
	Evading Immune Detection
GO:0002837	Regulation of immune response to tumor cell
GO:0002418	Immune response to tumor cells
GO:0002367	Cytokine production involved in immune response
GO:0050776	Regulation of immune response

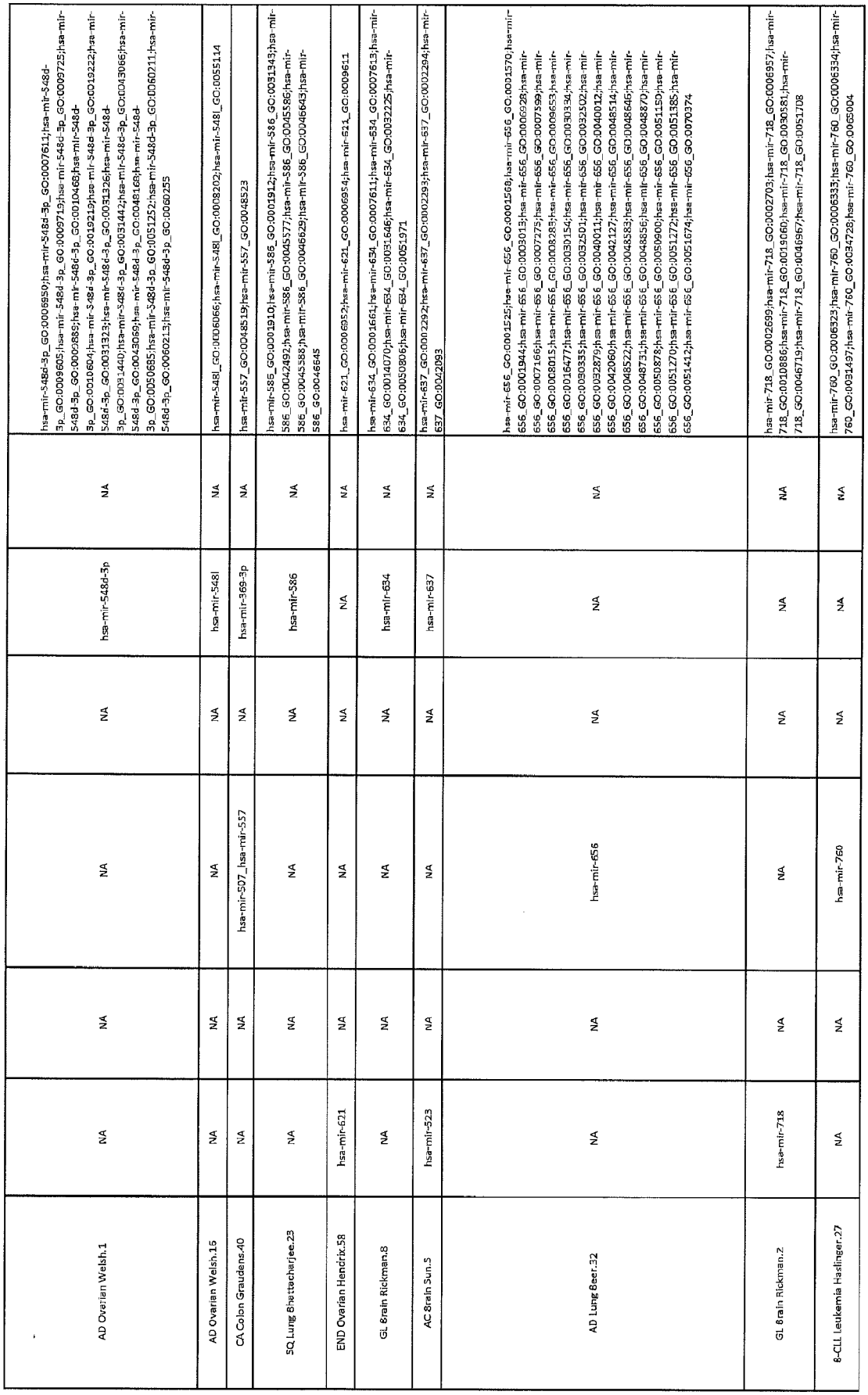
Supplementary Table 10.

Co-Expression Signature	mRvestigator miRNA	mRvestigator Validation	PITA miRNA	PITA Validation	TargetScan miRNA	TargetScan Validation	GO and miRNA Overlap
GL Brain Rickman.31	NA	NA	hsa-let-7e_hsa-let-7f_hsa-let-7g_hsa-let-7a_hsa-let-7b_hsa-let-7d_hsa-let-7i_hsa-mir-98_hsa-let-7c	dysregulated	NA	NA	hsa-let-7c_GO:0001501;hsa-let-7c_GO:0001503;hsa-let-7c_GO:0001934;hsa-let-7c_GO:0001944;hsa-let-7c_GO:0001957;hsa-let-7c_GO:0005979;hsa-let-7c_GO:0006928;hsa-let-7c_GO:0007275;hsa-let-7c_GO:0007530;hsa-let-7c_GO:0008284;hsa-let-7c_GO:0008544;hsa-let-7c_GO:0008645;hsa-let-7c_GO:0009653;hsa-let-7c_GO:0009887;hsa-let-7c_GO:0009888;hsa-let-7c_GO:0015749;hsa-let-7c_GO:0015758;hsa-let-7c_GO:0016477;hsa-let-7c_GO:0030154;hsa-let-7c_GO:0030198;hsa-let-7c_GO:0030199;hsa-let-7c_GO:0030238;hsa-let-7c_GO:0031017;hsa-let-7c_GO:0032501;hsa-let-7c_GO:0032502;hsa-let-7c_GO:0032879;hsa-let-7c_GO:0032885;hsa-let-7c_GO:0032963;hsa-let-7a_GO:0032964;hsa-let-7c_GO:0033273;hsa-let-7c_GO:0043062;hsa-let-7c_GO:0043491;hsa-let-7c_GO:0043588;hsa-let-7c_GO:0044236;hsa-let-7c_GO:0044259;hsa-let-7c_GO:0048468;hsa-let-7c_GO:0048513;hsa-let-7c_GO:0048731;hsa-let-7c_GO:0048856;hsa-let-7c_GO:0048869;hsa-let-7c_GO:0051291;hsa-let-7c_GO:0060324;hsa-let-7c_GO:0060343;hsa-let-7c_GO:0060346;hsa-let-7c_GO:0065008;hsa-let-7c_GO:0070208
8-CLL Leukemia Haslinger.9	NA	NA	NA	NA	hsa-mir-1245b-5p_hsa-mir-1245	NA	hsa-mir-1245_GO:0042035;hsa-mir-1245_GO:0042089;hsa-mir-1245_GO:0042107;hsa-mir-1245_GO:0042108;hsa-mir-1245_GO:0045086
SRS Ovarian Hendrix.14	NA	NA	NA	NA	hsa-mir-1290	NA	hsa-mir-1290_GO:0030193;hsa-mir-1290_GO:0050818;hsa-mir-1290_GO:0051917;hsa-mir-1290_GO:0051918
IDC Breast Radvanyi.24	NA	NA	NA	NA	hsa-mir-1291	NA	hsa-mir-1291_GO:0001775;hsa-mir-1291_GO:0002252;hsa-mir-1291_GO:0002694;hsa-mir-1291_GO:0002696;hsa-mir-1291_GO:0002831;hsa-mir-1291_GO:0006950;hsa-mir-1291_GO:0007596;hsa-mir-1291_GO:0007599;hsa-mir-1291_GO:0009615;hsa-mir-1291_GO:0019932;hsa-mir-1291_GO:0031294;hsa-mir-1291_GO:0031295;hsa-mir-1291_GO:0050688;hsa-mir-1291_GO:0050690;hsa-mir-1291_GO:0050817;hsa-mir-1291_GO:0050848;hsa-mir-1291_GO:0050849;hsa-mir-1291_GO:0050863;hsa-mir-1291_GO:0050865;hsa-mir-1291_GO:0050867;hsa-mir-1291_GO:0050870;hsa-mir-1291_GO:0050878;hsa-mir-1291_GO:0051249;hsa-mir-1291_GO:0051251;hsa-mir-1291_GO:0051346;hsa-mir-1291_GO:0051707
TU Prostate Lapointe.37	NA	NA	hsa-mir-199b-3p_hsa-mir-199a-3p	causal	hsa-mir-509-3p_hsa-mir-509-3-5p	NA	hsa-mir-199a-3p_GO:0040012
AD Ovarian Welsh.26	NA	NA	hsa-mir-210	NA	NA	NA	hsa-mir-210_GO:0002521;hsa-mir-210_GO:0006917;hsa-mir-210_GO:0006928;hsa-mir-210_GO:0012502;hsa-mir-210_GO:0016477;hsa-mir-210_GO:0032943;hsa-mir-210_GO:0032944;hsa-mir-210_GO:0040012;hsa-mir-210_GO:0040017;hsa-mir-210_GO:0043065;hsa-mir-210_GO:0043068;hsa-mir-210_GO:0045321;hsa-mir-210_GO:0045672;hsa-mir-210_GO:0048518;hsa-mir-210_GO:0048870;hsa-mir-210_GO:0050789;hsa-mir-210_GO:0050794;hsa-mir-210_GO:0051674;hsa-mir-210_GO:0065007
AD Lung Beer.35	NA	NA	hsa-mir-222	causal	NA	NA	hsa-mir-222_GO:0007155;hsa-mir-222_GO:0022610;hsa-mir-222_GO:0030029
AD Lung Bhattacharjee.41	NA	NA	NA	NA	hsa-mir-296-5p	NA	hsa-mir-296-5p_GO:0003007;hsa-mir-296-5p_GO:0006928;hsa-mir-296-5p_GO:0009653;hsa-mir-296-5p_GO:0016043;hsa-mir-296-5p_GO:0016477;hsa-mir-296-5p_GO:0040011;hsa-mir-296-5p_GO:0048518;hsa-mir-296-5p_GO:0048870;hsa-mir-296-5p_GO:0051674

SMCL Lung Bhattacharjee.36	NA	NA	NA	NA	hsa-mir-296-5p	NA	hsa-mir-296-5p_GO:0007517;hsa-mir-296-5p_GO:0009653;hsa-mir-296-5p_GO:0009887;hsa-mir-296-5p_GO:0010269;hsa-mir-296-5p_GO:0010562;hsa-mir-296-5p_GO:0030509;hsa-mir-296-5p_GO:0031960;hsa-mir-296-5p_GO:0042127;hsa-mir-296-5p_GO:0045937;hsa-mir-296-5p_GO:0051384
SQ Lung Bhattacharjee.13	NA	NA	NA	NA	hsa-mir-296-5p	NA	hsa-mir-296-5p_GO:0010884;hsa-mir-296-5p_GO:0016043;hsa-mir-296-5p_GO:0032879
AD Lung Bhattacharjee.59	NA	NA	hsa-mir-29b_hsa-mir-29c_hsa-mir-29a	causal	NA	NA	hsa-mir-29a_GO:0000904;hsa-mir-29a_GO:0001501;hsa-mir-29a_GO:0001568;hsa-mir-29a_GO:0001944;hsa-mir-29a_GO:0007229;hsa-mir-29a_GO:0007275;hsa-mir-29a_GO:0007409;hsa-mir-29a_GO:0007411;hsa-mir-29a_GO:0009611;hsa-mir-29a_GO:0009653;hsa-mir-29a_GO:0016477;hsa-mir-29a_GO:0022008;hsa-mir-29a_GO:0030199;hsa-mir-29a_GO:0032501;hsa-mir-29a_GO:0032502;hsa-mir-29a_GO:0032990;hsa-mir-29a_GO:0042060;hsa-mir-29a_GO:0048667;hsa-mir-29a_GO:0048812;hsa-mir-29a_GO:0048858
END Ovarian Hendrix.6	NA	NA	hsa-mir-29b_hsa-mir-29c_hsa-mir-29a	dysregulated	hsa-mir-890	NA	hsa-mir-29a_GO:0001501;hsa-mir-29a_GO:0001568;hsa-mir-29a_GO:0001944;hsa-mir-29a_GO:0007167;hsa-mir-29a_GO:0007178;hsa-mir-29a_GO:0007179;hsa-mir-29a_GO:0007275;hsa-mir-29a_GO:0009653;hsa-mir-29a_GO:0030154;hsa-mir-29a_GO:0030198;hsa-mir-29a_GO:0030199;hsa-mir-29a_GO:0032501;hsa-mir-29a_GO:0032502;hsa-mir-29a_GO:0043062;hsa-mir-29a_GO:0048513;hsa-mir-29a_GO:0048731;hsa-mir-29a_GO:0048856;hsa-mir-29a_GO:0051674
CCC Ovarian Hendrix.11	hsa-mir-638	NA	hsa-mir-29b_hsa-mir-29c_hsa-mir-29a	dysregulated	hsa-mir-602	NA	hsa-mir-29a_GO:0007409;hsa-mir-29a_GO:0007411;hsa-mir-29a_GO:0009887;hsa-mir-29a_GO:0030196;hsa-mir-29a_GO:0031175;hsa-mir-29a_GO:0032990;hsa-mir-29a_GO:0048513;hsa-mir-29a_GO:0048667;hsa-mir-29a_GO:0048812;hsa-mir-29a_GO:0048858
AD Lung Beer.31	hsa-mir-29b_hsa-mir-29c_hsa-mir-29a	causal	hsa-mir-29b_hsa-mir-29c_hsa-mir-29a	causal	hsa-mir-29b	causal	hsa-mir-29b_GO:0009404;hsa-mir-29b_GO:0030199;hsa-mir-29b_GO:0032963;hsa-mir-29b_GO:0032964;hsa-mir-29b_GO:0044236;hsa-mir-29b_GO:0044259
CA Colon Graudens.35	NA	NA	hsa-mir-325	NA	NA	NA	hsa-mir-325_GO:0006520;hsa-mir-325_GO:0051186

SMCL Lung Bhattacharjee.61	NA	NA	NA	NA	hsa-mir-331-3p	NA	hsa-mir-331-3p_GO:0000902;hsa-mir-331-3p_GO:0000904;hsa-mir-331-3p_GO:0001775;hsa-mir-331-3p_GO:0002376;hsa-mir-331-3p_GO:0002520;hsa-mir-331-3p_GO:0002682;hsa-mir-331-3p_GO:0002684;hsa-mir-331-3p_GO:0002694;hsa-mir-331-3p_GO:0001895;hsa-mir-331-3p_GO:0002696;hsa-mir-331-3p_GO:0006454;hsa-mir-331-3p_GO:0006468;hsa-mir-331-3p_GO:0006935;hsa-mir-331-3p_GO:0007154;hsa-mir-331-3p_GO:0007155;hsa-mir-331-3p_GO:0007166;hsa-mir-331-3p_GO:0007167;hsa-mir-331-3p_GO:0007169;hsa-mir-331-3p_GO:0007264;hsa-mir-331-3p_GO:0007265;hsa-mir-331-3p_GO:0007267;hsa-mir-331-3p_GO:0007266;hsa-mir-331-3p_GO:0007399;hsa-mir-331-3p_GO:0007507;hsa-mir-331-3p_GO:0007596;hsa-mir-331-3p_GO:0007599;hsa-mir-331-3p_GO:0009605;hsa-mir-331-3p_GO:0009653;hsa-mir-331-3p_GO:0009719;hsa-mir-331-3p_GO:0009725;hsa-mir-331-3p_GO:0009887;hsa-mir-331-3p_GO:0010518;hsa-mir-331-3p_GO:0010863;hsa-mir-331-3p_GO:0016310;hsa-mir-331-3p_GO:0019226;hsa-mir-331-3p_GO:0021700;hsa-mir-331-3p_GO:0022008;hsa-mir-331-3p_GO:0022610;hsa-mir-331-3p_GO:0030029;hsa-mir-331-3p_GO:0030097;hsa-mir-331-3p_GO:0030154;hsa-mir-331-3p_GO:0030182;hsa-mir-331-3p_GO:0030323;hsa-mir-331-3p_GO:0030324;hsa-mir-331-3p_GO:0031100;hsa-mir-331-3p_GO:0032989;hsa-mir-331-3p_GO:0042060;hsa-mir-331-3p_GO:0042110;hsa-mir-331-3p_GO:0044230;hsa-mir-331-3p_GO:0044342;hsa-mir-331-3p_GO:0044434;hsa-mir-331-3p_GO:0045321;hsa-mir-331-3p_GO:0046578;hsa-mir-331-3p_GO:0046649;hsa-mir-331-3p_GO:0048458;hsa-mir-331-3p_GO:0048534;hsa-mir-331-3p_GO:0048699;hsa-mir-331-3p_GO:0048731;hsa-mir-331-3p_GO:0048869;hsa-mir-331-3p_GO:0050817;hsa-mir-331-3p_GO:0050863;hsa-mir-331-3p_GO:0050866;hsa-mir-331-3p_GO:0050867;hsa-mir-331-3p_GO:0050870;hsa-mir-331-3p_GO:0050878;hsa-mir-331-3p_GO:0051249;hsa-mir-331-3p_GO:0051251
COID Lung Bhattacharjee.24	NA	NA	NA	NA	hsa-mir-342-5p	NA	hsa-mir-342-5p_GO:0007584;hsa-mir-342-5p_GO:0009991;hsa-mir-342-5p_GO:0010269;hsa-mir-342-5p_GO:0030198;hsa-mir-342-5p_GO:0031667;hsa-mir-342-5p_GO:0031960;hsa-mir-342-5p_GO:0043062;hsa-mir-342-5p_GO:0050900;hsa-mir-342-5p_GO:0051384
AD Lung Stearman.19	NA	NA	NA	NA	hsa-mir-370	NA	hsa-mir-370_GO:0001570
GCT Seminoma Korkola.4	NA	NA	NA	NA	hsa-mir-376a_hsa-mir-376b_hsa-mir-376c	NA	hsa-mir-376c_GO:0007157;hsa-mir-376c_GO:0007166;hsa-mir-376c_GO:0009605;hsa-mir-376c_GO:0016477;hsa-mir-376c_GO:0030595;hsa-mir-376c_GO:0032102;hsa-mir-376c_GO:0032501;hsa-mir-376c_GO:0032879;hsa-mir-376c_GO:0040011;hsa-mir-376c_GO:0040012;hsa-mir-376c_GO:0045123;hsa-mir-376c_GO:0048870;hsa-mir-376c_GO:0050900;hsa-mir-376c_GO:0050901;hsa-mir-376c_GO:0051270;hsa-mir-376c_GO:0051674
CA Breast Sorlie.23	NA	NA	NA	NA	hsa-mir-423-5p	NA	hsa-mir-423-5p_GO:0000165;hsa-mir-423-5p_GO:0006928;hsa-mir-423-5p_GO:0007165;hsa-mir-423-5p_GO:0007166;hsa-mir-423-5p_GO:0007167;hsa-mir-423-5p_GO:0007169;hsa-mir-423-5p_GO:0007243;hsa-mir-423-5p_GO:0007266;hsa-mir-423-5p_GO:0008283;hsa-mir-423-5p_GO:0008284;hsa-mir-423-5p_GO:0016043;hsa-mir-423-5p_GO:0016192;hsa-mir-423-5p_GO:0030334;hsa-mir-423-5p_GO:0032570;hsa-mir-423-5p_GO:0032879;hsa-mir-423-5p_GO:0040011;hsa-mir-423-5p_GO:0040012;hsa-mir-423-5p_GO:0042127;hsa-mir-423-5p_GO:0043491;hsa-mir-423-5p_GO:0045807;hsa-mir-423-5p_GO:0048518;hsa-mir-423-5p_GO:0048522;hsa-mir-423-5p_GO:0048583;hsa-mir-423-5p_GO:0051050;hsa-mir-423-5p_GO:0051270;hsa-mir-423-5p_GO:0051272;hsa-mir-423-5p_GO:0065007

HSCC Head-Neck Chung.1	hsa-mir-29b_hsa-mir-29c_hsa-mir-29a	dysregulated	hsa-mir-767-5p	NA	hsa-mir-450b-5p	NA	hsa-mir-450b-5p_GO:0001503;hsa-mir-450b-5p_GO:0001934;hsa-mir-450b-5p_GO:0030154;hsa-mir-450b-5p_GO:0030510;hsa-mir-450b-5p_GO:0030514;hsa-mir-450b-5p_GO:0033138;hsa-mir-450b-5p_GO:0048869
CA Breast Richardson.55	NA	NA	hsa-mir-130b_hsa-mir-301a_hsa-mir-301b_hsa-mir-130a_hsa-mir-454	NA	hsa-mir-544_hsa-mir-548b	NA	hsa-mir-454_GO:0001701;hsa-mir-454_GO:0009653;hsa-mir-454_GO:0009790;hsa-mir-454_GO:0048514
MM Myeloma Zhan.33	NA	NA	NA	NA	hsa-mir-507	NA	hsa-mir-507_GO:0006350;hsa-mir-507_GO:0010556;hsa-mir-507_GO:0031326;hsa-mir-507_GO:0044237;hsa-mir-507_GO:0044238;hsa-mir-507_GO:0045449
CA Bladder Dyrskjot.82	NA	NA	hsa-mir-519d	NA	hsa-mir-656	NA	hsa-mir-519d_GO:0030514;hsa-mir-519d_GO:0046831;hsa-mir-519d_GO:0048518;hsa-mir-519d_GO:0048583;hsa-mir-519d_GO:0050789;hsa-mir-519d_GO:0065007
ME Melanoma Hoek.50	NA	NA	hsa-mir-548c-3p	NA	NA	NA	hsa-mir-548c-3p_GO:0000902;hsa-mir-548c-3p_GO:0000904;hsa-mir-548c-3p_GO:0001525;hsa-mir-548c-3p_GO:0001568;hsa-mir-548c-3p_GO:0001944;hsa-mir-548c-3p_GO:0006357;hsa-mir-548c-3p_GO:0006366;hsa-mir-548c-3p_GO:0006464;hsa-mir-548c-3p_GO:0006886;hsa-mir-548c-3p_GO:0006913;hsa-mir-548c-3p_GO:0006928;hsa-mir-548c-3p_GO:0007154;hsa-mir-548c-3p_GO:0007167;hsa-mir-548c-3p_GO:0007169;hsa-mir-548c-3p_GO:0007275;hsa-mir-548c-3p_GO:0007389;hsa-mir-548c-3p_GO:0007399;hsa-mir-548c-3p_GO:0007409;hsa-mir-548c-3p_GO:0007411;hsa-mir-548c-3p_GO:0007417;hsa-mir-548c-3p_GO:0007611;hsa-mir-548c-3p_GO:0008104;hsa-mir-548c-3p_GO:0008283;hsa-mir-548c-3p_GO:0008285;hsa-mir-548c-3p_GO:0009653;hsa-mir-548c-3p_GO:0009790;hsa-mir-548c-3p_GO:0009887;hsa-mir-548c-3p_GO:0009888;hsa-mir-548c-3p_GO:0009891;hsa-mir-548c-3p_GO:0009895;hsa-mir-548c-3p_GO:0009987;hsa-mir-548c-3p_GO:0010001;hsa-mir-548c-3p_GO:0010557;hsa-mir-548c-3p_GO:0010604;hsa-mir-548c-3p_GO:0010628;hsa-mir-548c-3p_GO:0014812;hsa-mir-548c-3p_GO:0015031;hsa-mir-548c-3p_GO:0016477;hsa-mir-548c-3p_GO:0019538;hsa-mir-548c-3p_GO:0022008;hsa-mir-548c-3p_GO:0030154;hsa-mir-548c-3p_GO:0030182;hsa-mir-548c-3p_GO:0030326;hsa-mir-548c-3p_GO:0030334;hsa-mir-548c-3p_GO:0031325;hsa-mir-548c-3p_GO:0031328;hsa-mir-548c-3p_GO:0032501;hsa-mir-548c-3p_GO:0032502;hsa-mir-548c-3p_GO:0032990;hsa-mir-548c-3p_GO:0043036;hsa-mir-548c-3p_GO:0034613;hsa-mir-548c-3p_GO:0035107;hsa-mir-548c-3p_GO:0035108;hsa-mir-548c-3p_GO:0035113;hsa-mir-548c-3p_GO:0035295;hsa-mir-548c-3p_GO:0040011;hsa-mir-548c-3p_GO:0040012;hsa-mir-548c-3p_GO:0042063;hsa-mir-548c-3p_GO:0042127;hsa-mir-548c-3p_GO:0042733;hsa-mir-548c-3p_GO:0043412;hsa-mir-548c-3p_GO:0044238;hsa-mir-548c-3p_GO:0044267;hsa-mir-548c-3p_GO:0045184;hsa-mir-548c-3p_GO:0045595;hsa-mir-548c-3p_GO:0045596;hsa-mir-548c-3p_GO:0045597;hsa-mir-548c-3p_GO:0045778;hsa-mir-548c-3p_GO:0045893;hsa-mir-548c-3p_GO:0045935;hsa-mir-548c-3p_GO:0045941;hsa-mir-548c-3p_GO:0045944;hsa-mir-548c-3p_GO:0046907;hsa-mir-548c-3p_GO:0048468;hsa-mir-548c-3p_GO:0048513;hsa-mir-548c-3p_GO:0048514;hsa-mir-548c-3p_GO:0048518;hsa-mir-548c-3p_GO:0048519;hsa-mir-548c-3p_GO:0048522;hsa-mir-548c-3p_GO:0048523;hsa-mir-548c-3p_GO:0048598;hsa-mir-548c-3p_GO:0048646;hsa-mir-548c-3p_GO:0048667;hsa-mir-548c-3p_GO:0048699;hsa-mir-548c-3p_GO:0048705;hsa-mir-548c-3p_GO:0048731;hsa-mir-548c-3p_GO:0048736;hsa-mir-548c-3p_GO:0048812;hsa-mir-548c-3p_GO:0048846;hsa-mir-548c-3p_GO:0048856;hsa-mir-548c-3p_GO:0048858;hsa-mir-548c-3p_GO:0048869;hsa-mir-548c-3p_GO:0048870;hsa-mir-548c-3p_GO:0050789;hsa-mir-548c-3p_GO:0050794;hsa-mir-548c-3p_GO:0051093;hsa-mir-548c-3p_GO:0051094;hsa-mir-548c-3p_GO:0051101;hsa-mir-548c-3p_GO:0051169;hsa-mir-548c-3p_GO:0051239;hsa-mir-548c-3p_GO:0051254;hsa-mir-548c-3p_GO:0051270;hsa-mir-548c-3p_GO:0051641;hsa-mir-548c-3p_GO:0051649;hsa-mir-548c-3p_GO:0051674;hsa-mir-548c-3p_GO:0060070;hsa-mir-548c-3p_GO:0060178;hsa-mir-548c-3p_GO:0060284;hsa-mir-548c-3p_GO:0065007



AD Ovarian Welsh.16	NA	NA	NA	NA	hsa-mir-548l	NA
CA Colon Graudens.40	NA	NA	hsa-mir-507_hsa-mir-557	NA	hsa-mir-369-3p	NA
SQ Lung Bhattacharjee.23	NA	NA	NA	NA	hsa-mir-586	NA
END Ovarian Hendrix.58	hsa-mir-621	NA	NA	NA	NA	NA
GL Brain Rickman.8	NA	NA	NA	NA	hsa-mir-634	NA
AC Brain Sun.5	hsa-mir-523	NA	NA	NA	hsa-mir-637	NA
AD Lung Beer.32	NA	NA	hsa-mir-656	NA	NA	NA
GL Brain Rickman.2	hsa-mir-718	NA	NA	NA	NA	NA
B-CLL Leukemia Haslinger.27	NA	NA	hsa-mir-760	NA	NA	NA

AD Ovarian Welsh.20	NA	NA	hsa-mir-767-5p	NA	NA	NA		hsa-mir-767-5p_GO:0000902;hsa-mir-767-5p_GO:0000904;hsa-mir-767-5p_GO:0001501;hsa-mir-767-5p_GO:0001944;hsa-mir-767-5p_GO:0007229;hsa-mir-767-5p_GO:0007409;hsa-mir-767-5p_GO:0007411;hsa-mir-767-5p_GO:0009605;hsa-mir-767-5p_GO:0009888;hsa-mir-767-5p_GO:0016043;hsa-mir-767-5p_GO:0022008;hsa-mir-767-5p_GO:0030030;hsa-mir-767-5p_GO:0030198;hsa-mir-767-5p_GO:0030199;hsa-mir-767-5p_GO:0031175;hsa-mir-767-5p_GO:0032501;hsa-mir-767-5p_GO:0032989;hsa-mir-767-5p_GO:0032990;hsa-mir-767-5p_GO:0040011;hsa-mir-767-5p_GO:0042246;hsa-mir-767-5p_GO:0043062;hsa-mir-767-5p_GO:0043588;hsa-mir-767-5p_GO:0048468;hsa-mir-767-5p_GO:0048556;hsa-mir-767-5p_GO:0048667;hsa-mir-767-5p_GO:0048731;hsa-mir-767-5p_GO:0048812;hsa-mir-767-5p_GO:0048856;hsa-mir-767-5p_GO:0048858
SQ Lung Bhattacharjee.44	hsa-mir-4285	NA	hsa-mir-767-5p	NA	NA	NA		hsa-mir-767-5p_GO:0008544;hsa-mir-767-5p_GO:0009888;hsa-mir-767-5p_GO:0030198;hsa-mir-767-5p_GO:0030199;hsa-mir-767-5p_GO:0043062;hsa-mir-767-5p_GO:0043588
COID Lung Bhattacharjee.92	NA	NA	NA	NA	hsa-mir-920	NA		hsa-mir-920_GO:0007154;hsa-mir-920_GO:0030336;hsa-mir-920_GO:0050865;hsa-mir-920_GO:0051271
END Ovarian Hendrix.22	NA	NA	hsa-mir-15b_hsa-mir-15a_hsa-mir-16_hsa-mir-497_hsa-mir-195	dysregulated	hsa-mir-944	NA		hsa-mir-944_GO:0010817

Supplementary Table 11.

miRNA	Gene Ontology (GO)		Co-Expression Cluster				
	ID	Term	Tissue	Dataset	Number	Full Cancer Name	PubMed ID
hsa-miR-9	GO:0034641	Cellular nitrogen compound metabolic process	Breast	IDC Breast Radvanyi	16	Invasive Ductal Carcinoma (Radvanyi et al., 2005)	16043716
			Lung	AD Lung Beer	11	Adenocarcinoma (Beer et al., 2002)	12118244
hsa-miR-23a/b	GO:0016071	mRNA metabolic process	Lung	AD Lung Bhattacharjee	69	Adenocarcinoma (Bhattacharjee et al., 2001)	11707567
			Myeloma	MM Myeloma Zhan	43	Multiple Myeloma (Zhan et al., 2002)	11861292
hsa-miR-29a/b/c	GO:0006928	Cellular component movement	Head & Neck	HSCC Head-Neck Chung	1	Head-Neck Squamous Cell Carcinoma (Chung et al., 2004)	15144956
	GO:0030198	Extracellular matrix organization	Lung	AD Lung Beer	31	Adenocarcinoma (Beer et al., 2002)	12118244
			Lung	AD Lung Bhattacharjee	59	Adenocarcinoma (Bhattacharjee et al., 2001)	11707567
			Ovarian	CCC Ovarian HENDrix	11	Clear Cell Carcinoma (HENDrix et al., 2006)	16452189
			Ovarian	END Ovarian HENDrix	6	ENDometrioid Adenocarcinoma (HENDrix et al., 2006)	16452189
hsa-miR-130a	GO:0009611	Response to wounding	Breast	CA Breast Richardson	55	Carcinoma (Richardson et al., 2006)	16873279
			Prostate	TU Prostate Lapointe	25	Primary Tumor (Lapointe et al., 2004)	14711987
hsa-miR-183	GO:0001501	Skeletal system development	Myeloma	MM Myeloma Zhan	21	Multiple Myeloma (Zhan et al., 2002)	11861292
	GO:0001503	Ossification	Germ Cell	GCT Seminoma Korkola	45	Germ Cell Tumor (Korkola et al., 2006)	16424014
	GO:0060348	Bone development					
hsa-miR-296-5p	GO:0006928	Cellular component movement	Germ Cell	GCT Seminoma Korkola	69	Germ Cell Tumor (Korkola et al., 2006)	16424014
	GO:0007155	Cell adhesion	Lung	AD Lung Bhattacharjee	41	Adenocarcinoma (Bhattacharjee et al., 2001)	11707567
	GO:0009653	Anatomical structure morphogenesis	Lung	SMCL Lung Bhattacharjee	36	Small Cell Lung Cancer (Bhattacharjee et al., 2001)	11707567
	GO:0030036	Actin cytoskeleton organization	Lung	SQ Lung Bhattacharjee	13	Squamous Cell Lung Carcinoma (Bhattacharjee et al., 2001)	11707567
	GO:0042127	Regulation of cell proliferation					
	GO:0051384	Response to glucocorticoid stimulus					
hsa-miR-338-5p	GO:0000075	Cell cycle checkpoint	Germ Cell	GCT Seminoma Korkola	88	Germ Cell Tumor (Korkola et al., 2006)	16424014
	GO:0000278	Mitotic cell cycle	Lung	AD Lung Bhattacharjee	0	Adenocarcinoma (Bhattacharjee et al., 2001)	11707567
	GO:0006974	Response to DNA damage stimulus	Mesothelioma	MPM Mesothelioma Gordon	44	Malignant Mesothelioma (Gordon et al., 2005)	15920167
	GO:0008152	Metabolic process	Ovarian	AD Ovarian Welsh	14	Adenocarcinoma (Welsh et al., 2001)	11158614
hsa-miR-369-5p	GO:0008152	Metabolic process	Brain	GBM Brain Liang	18	Glioblastoma Multiforme (Liang et al., 2005)	15827123
	GO:0019538	Protein metabolic process	Prostate	TU Prostate Lapointe	40	Primary Tumor (Lapointe et al., 2004)	14711987
	GO:0009987	Cellular process					
	GO:0044237	Cellular metabolic process					
hsa-miR-487b	GO:0031018	Endocrine pancreas development	Ovarian	END Ovarian HENDrix	18	ENDometrioid Adenocarcinoma (HENDrix et al., 2006)	16452189
	GO:0019083	Viral transcription	Renal	RCCC Renal Lenburg	2	Clear Cell Renal Cell Carcinoma (Lenburg et al., 2003)	14561932
	GO:0019058	Viral infectious cycle					
	GO:0006415	Translational termination					
	GO:0006414	Translational elongation					
hsa-miR-495	GO:0006397	mRNA processing	Head & Neck	HSCC Head-Neck Cromer	25	Head-Neck Squamous Cell Carcinoma (Cromer et al., 2004)	14676830
	GO:0016071	mRNA metabolic process	Lung	AD Lung Bhattacharjee	60	Adenocarcinoma (Bhattacharjee et al., 2001)	11707567
			Myeloma	MM Myeloma Zhan	17	Multiple Myeloma (Zhan et al., 2002)	11861292
hsa-miR-548c-3p	GO:0008152	Metabolic process	Bladder	CA Bladder Dyrskjot	9	Bladder Carcinoma (Dyrskjot et al., 2004)	15173019
	GO:0010467	Gene expression	Bladder	CA Bladder Dyrskjot	13	Bladder Carcinoma (Dyrskjot et al., 2004)	15173019
	GO:0016070	RNA metabolic process	Bladder	CA Bladder Dyrskjot	29	Bladder Carcinoma (Dyrskjot et al., 2004)	15173019
			Brain	GLB Brain Sun	50	Glioblastoma (Sun et al., 2006)	16616334
			Brain	OD Brain Bredel	11	OligoENDroglioma (Bredel et al., 2005)	16249338
			Brain	ODGL Brain Sun	50	OligoENDroglioma (Sun et al., 2006)	16616334
			Breast	CA Breast Sorlie	12	Carcinoma (Sorlie et al., 2001)	11553815
			Germ Cell	GCT Seminoma Korkola	95	Germ Cell Tumor (Korkola et al., 2006)	16424014
			Leukemia	B-CLL Leukemia Haslinger	62	Chronic Lymphocytic Leukemia (Haslinger et al., 2004)	15459216
			Lung	AD Lung Beer	6	Adenocarcinoma (Beer et al., 2002)	12118244
			Lung	AD Lung Bhattacharjee	30	Adenocarcinoma (Bhattacharjee et al., 2001)	11707567
			Melanoma	ME Melanoma Hoek	50	Cutaneous melanoma (Hoek et al., 2006)	16627748
			Mesothelioma	MPM Mesothelioma Gordon	68	Malignant Mesothelioma (Gordon et al., 2005)	15920167
			Myeloma	MM Myeloma Zhan	3	Multiple Myeloma (Zhan et al., 2002)	11861292
hsa-miR-548n	GO:0010467	Gene expression	Bladder	CA Bladder Dyrskjot	37	Bladder Carcinoma (Dyrskjot et al., 2004)	15173019
			Germ Cell	GCT Seminoma Korkola	40	Germ Cell Tumor (Korkola et al., 2006)	16424014
			Germ Cell	GCT Seminoma Korkola	112	Germ Cell Tumor (Korkola et al., 2006)	16424014
			Lung	SMCL Lung Bhattacharjee	22	Small Cell Lung Cancer (Bhattacharjee et al., 2001)	11707567
			Lung	SQ Lung Bhattacharjee	12	Squamous Cell Lung Carcinoma (Bhattacharjee et al., 2001)	11707567
			Melanoma	ML Melanoma Talantov	3	Melanoma (Talantov et al., 2005)	16625504
hsa-miR-590-3p	GO:0044237	Cellular metabolic process	Leukemia	B-CLL Leukemia Haslinger	17	Chronic Lymphocytic Leukemia (Haslinger et al., 2004)	15459216
			Bladder	CA Bladder Dyrskjot	64	Bladder Carcinoma (Dyrskjot et al., 2004)	15173019
			Ovarian	CCC Ovarian HENDrix	42	Clear Cell Carcinoma (HENDrix et al., 2006)	16452189
			Germ Cell	GCT Seminoma Korkola	112	Germ Cell Tumor (Korkola et al., 2006)	16424014
			Brain	GLB Brain Sun	27	Glioblastoma (Sun et al., 2006)	16616334
			Head & Neck	HSCC Head-Neck Chung	6	Head-Neck Squamous Cell Carcinoma (Chung et al., 2004)	15144956
			Myeloma	MM Myeloma Zhan	3	Multiple Myeloma (Zhan et al., 2002)	11861292
			Mesothelioma	MPM Mesothelioma Gordon	16	Malignant Mesothelioma (Gordon et al., 2005)	15920167
			Mesothelioma	MPM Mesothelioma Gordon	28	Malignant Mesothelioma (Gordon et al., 2005)	15920167
			Prostate	TU Prostate Lapointe	1	Primary Tumor (Lapointe et al., 2004)	14711987
hsa-miR-607	GO:0000398	Nuclear mRNA splicing, via spliceosome	Bladder	CA Bladder Dyrskjot	0	Bladder Carcinoma (Dyrskjot et al., 2004)	15173019
			Lung	SQ Lung Bhattacharjee	22	Squamous Cell Lung Carcinoma (Bhattacharjee et al., 2001)	11707567
hsa-miR-656	GO:0001525	Angiogenesis	Bladder	CA Bladder Dyrskjot	82	Bladder Carcinoma (Dyrskjot et al., 2004)	15173019
	GO:0001568	Blood vessel development	Lung	AD Lung Beer	32	Adenocarcinoma (Beer et al., 2002)	12118244
	GO:0001816	Cytokine production					
	GO:0006928	Cellular component movement					
	GO:0006935	Chemotaxis					
	GO:0006952	Defense response					
	GO:0006954	Inflammatory response					
	GO:0006955	Immune response					
	GO:0007166	Cell surface receptor linked signaling pathway					
	GO:0008283	Cell proliferation					
	GO:0009611	Response to wounding					
	GO:0009653	Anatomical structure morphogenesis					
	GO:0009887	Organ morphogenesis					
	GO:0016477	Cell migration					
	GO:0030334	Regulation of cell migration					
	GO:0030335	Positive regulation of cell migration					
	GO:0042060	Wound healing					
	GO:0042127	Regulation of cell proliferation					
	GO:0048514	Blood vessel morphogenesis					
	GO:0048870	Cell motility					
	GO:0050900	Leukocyte migration					
	GO:0051272	Positive regulation of cellular component movement					
hsa-miR-760	GO:0006334	Nucleosome assembly	Brain	GLB Brain Sun	43	Glioblastoma (Sun et al., 2006)	16616334
			Leukemia	B-CLL Leukemia Haslinger	27	Chronic Lymphocytic Leukemia (Haslinger et al., 2004)	15459216
			Lung	AD Lung Bhattacharjee	42	Adenocarcinoma (Bhattacharjee et al., 2001)	11707567
			Myeloma	MM Myeloma Zhan	29	Multiple Myeloma (Zhan et al., 2002)	11861292
hsa-miR-767-5p	GO:0006928	Cellular component movement	Head & Neck	HSCC Head-Neck Chung	1	Head-Neck Squamous Cell Carcinoma (Chung et al., 2004)	15144956
	GO:0030198	Extracellular matrix organization	Lung	SQ Lung Bhattacharjee	18	Squamous Cell Lung Carcinoma (Bhattacharjee et al., 2001)	11707567
	GO:0030199	Collagen fibril organization	Lung	SQ Lung Bhattacharjee	44	Squamous Cell Lung Carcinoma (Bhattacharjee et al., 2001)	11707567
			Ovarian	AD Ovarian Welsh	20	Adenocarcinoma (Welsh et al., 2001)	11158614
hsa-miR-890	GO:0001568	Blood vessel development	Lung	COID Lung Bhattacharjee	36	Carcinoid (Bhattacharjee et al., 2001)	11707567
	GO:0001822	Kidney development	Ovarian	END Ovarian HENDrix	6	ENDometrioid Adenocarcinoma (HENDrix et al., 2006)	16452189
	GO:0007155	Cell adhesion					
	GO:0007275	Multicellular organismal development					
	GO:0017015	Regulation of transforming growth factor beta receptor signaling pathway					
hsa-miR-939	GO:0007267	Cell-cell signaling	Brain	AC Brain Sun	44	Astrocytoma (Sun et al., 2006)	16616334
	GO:0007268	Synaptic transmission	Brain	ODGL Brain Sun	2	OligoENDroglioma (Sun et al., 2006)	16616334
	GO:0050877	Neurological system process					
hsa-miR-944	GO:0003676	Nucleic acid binding	Ovarian	END Ovarian HENDrix	38	ENDometrioid Adenocarcinoma (HENDrix et al., 2006)	16452189
	GO:0006139	Nucleobase, nucleoside, nucleotide and nucleic acid metabolic process	Ovarian	MUC Ovarian HENDrix	15	Mucinous Adenocarcinoma (HENDrix et al., 2006)	16452189
	GO:0010467	Gene expression					
hsa-miR-1207-5p	GO:0006370	mRNA capping	Brain	GL Brain Rickman	9	Glioma (Rickman et al., 2001)	11559565
			Lung	SMCL Lung Bhattacharjee	34	Small Cell Lung Cancer (Bhattacharjee et al., 2001)	11707567
hsa-miR-1275	GO:0007186	G-protein coupled receptor protein signaling pathway	Brain	GLB Brain Sun	29	Glioblastoma (Sun et al., 2006)	16616334
	GO:0007267	Cell-cell signaling	Lung	AD Lung Beer	48	Adenocarcinoma (Beer et al., 2002)	12118244
hsa-miR-1276	GO:0006334	Nucleosome assembly	Bladder	CA Bladder Dyrskjot	51	Bladder Carcinoma (Dyrskjot et al., 2004)	15173019
			Ovarian	END Ovarian HENDrix	35	ENDometrioid Adenocarcinoma (HENDrix et al., 2006)	16452189
			Ovarian	SRS Ovarian HENDrix	72	Serous Adenocarcinoma (HENDrix et al., 2006)	16452189
hsa-miR-1293	GO:0007154	Cell communication	Bladder	CA Bladder Dyrskjot	18	Bladder Carcinoma (Dyrskjot et al., 2004)	15173019
			Breast	IDC Breast Radvanyi	24	Invasive Ductal Carcinoma (Radvanyi et al., 2005)	16043716

Supplementary Table 12.

Gene	Forward Primer	Reverse Primer	PCR Fragment Size	Chr	Start	Stop	miRNA Binding Site in Amplicon
COL3A1	TCCATATGTGTTCCTCTTGTTCT SEQ ID NO: 318	TTATGGGTGTCTGTAAGGAAAAA SEQ ID NO: 319	912	2	189584785	189585696	Y
COL4A1	CCTGACTCAGCTAATGTGCAGAA SEQ ID NO: 320	GCAGCTTGTGCAGTAAGTTTCTT SEQ ID NO: 321	1366	13	109599362	109600565	Y
COL4A2	GGCCATTTTGGTGCTTATTC SEQ ID NO: 322	CAGAACCAAGTTTTATTTTGTAGTCG SEQ ID NO: 323	805	13	109962559	109963363	Y
COL5A2	CAATGAGCACCACCATCAAT SEQ ID NO: 324	TTGGAAGTCAAACAAAACTCACA SEQ ID NO: 325	2000	2	189604886	189607040	Y
COL10A1	TCTAAATCTTGTGCTAGAAAAAGCA SEQ ID NO: 326	CTTTGAACAATGAAAAGCCTTG SEQ ID NO: 327	1107	6	116546778	116547928	Y
FBN1	TCACCATCCAGAGACGAAATA SEQ ID NO: 328	CAAAGTGATTTTGGCTGAGTAAA SEQ ID NO: 329	2593	15	46487885	46490477	Y
LOX	ATAAATCAGTGCCTGGTGTTCTG SEQ ID NO: 330	ATGAGAATGCAAAGAGGAACA SEQ ID NO: 331	3450	5	121426789	121430336	Y
MMP2	CCTCTCCACTGCCTTCGATA SEQ ID NO: 332	CCTCGAACAGATGCCACAAT SEQ ID NO: 333	1017	16	54096882	54097898	Y
PDGFRB	TTTCTGCTCCTGACGTGTTG SEQ ID NO: 334	TGAGTGAGAAGCACCAGGTTT SEQ ID NO: 335	1797	5	149473597	149475393	Y
SERPINH1	CTCAGGGTGCACACAGGAT SEQ ID NO: 336	CACGCTCCAACAAAATGTCA SEQ ID NO: 337	712	11	74960780	74961491	Y
SPARC	CTCTTTAACCCTCCCCTTCG SEQ ID NO: 338	GAGGGGAAATGACATCTGGA SEQ ID NO: 339	2039	15	151021258	151023296	Y

Recombinant PCR Primers

MMP2_recomb_F GCCACACTTCAGGCTCTTCTC (SEQ ID NO: 340)

MMP2_bubble_del_R GAGAAGAGCCTGAAGTGTGGCcgaaaaaGGGCAGCCCAAAGCAGGGCTG (SEQ ID NO: 341)

SPARC_recomb_del_F CATAGATTTAAGTGAATACATTAACatgcggtAAAATGAAAATTCTAACCC (SEQ ID NO: 342)

SPARC_recomb_del_R TGTATTCACTTAAATCTATGTatcgcatTTGTCTCCAGGCAGAACAAC (SEQ ID NO: 343)

Claims

We claim:

1. A method of calculating a risk score for developing cancer comprising (a) obtaining inputs about an individual comprising the level of biomarkers in at least one biological sample from said individual and (b) calculating a cancer risk score from said inputs, wherein said biomarkers comprise one or more miRNA biomarkers selected from Figures 12, 13 and 14.

2. A method of evaluating risk for developing cancer comprising (a) obtaining biomarker measurement data, wherein the biomarker measurement data is representative of measurements of biomarkers in at least one biological sample from an individual and (b) evaluating risk for developing cancer based on an output from a model, wherein the model is executed based on an input of the biomarker measurement data, wherein the biomarkers comprise one or more biomarkers selected from Figures 12, 13 and 14.

3. A method of evaluating risk for developing cancer comprising (a) obtaining biomarker measurements from at least one biological sample from an individual who is a subject that has not been previously diagnosed as having cancer, (b) comparing the biomarker measurement to normal control levels and (c) evaluating the risk for the individual developing a cancer from the comparison; wherein the biomarkers comprise one or more biomarkers selected from Figures 12, 13 and 14.

4. A method of evaluating risk for developing cancer comprising (a) obtaining biomarker measurement data, wherein the biomarker measurement data is representative of measurements of biomarkers in at least one biological sample from an individual and (b) evaluating risk for developing cancer based on an output from a model, wherein the model is executed based on an input of the biomarker measurement data; wherein said biomarkers the biomarkers comprise one or more biomarkers selected from Figures 12, 13 and 14.

5. A method of calculating a risk score for cancer progression comprising (a) obtaining inputs about an individual suffering from cancer comprising the level of biomarkers in at least one biological sample from said individual; and (b) calculating a cancer risk score from said inputs, wherein said biomarkers comprise one or more biomarkers selected from Figures 12, 13 and 14.

6. The method of claim 1, 2, 3, 4, or 5 further comprising advising the individual of the individual's risk of developing cancer or risk of cancer progression

7. A method of ranking or grouping a population of individuals according to cancer risk comprising (a) obtaining a cancer risk score for individuals comprised within said population, wherein said cancer risk score is calculated according to claim 1 and (b) ranking individuals within the population relative to the remaining individuals in the population or dividing the population into at least two groups, based on factors comprising said obtained cancer risk scores.

8. A diagnostic test system comprising (a) means for obtaining test results comprising levels of biomarkers in at least one biological sample; (b) means for collecting and tracking test results for one or more individual biological samples; (c) means for calculating an cancer risk score from inputs, wherein said inputs comprise measured levels of biomarkers, and further wherein said measured levels of biomarkers comprise the levels of one or more biomarkers selected from Figures 12, 13 and 14; and (d) means for reporting said cancer risk score.

9. A diagnostic test system comprising (a) means for obtaining test results data representing levels of multiple biomarkers in at least one biological sample, (b) means for collecting and tracking test results data for one or more individual biological samples (c) means for computing a cancer risk score from biomarker measurement data, wherein said biomarker measurement data is representative of measured levels of biomarkers, and further wherein said

measured levels of biomarkers comprise the levels of a panel of one or more biomarkers selected from Figures 12, 13 and 14, and (d) means for reporting said index value.

10. A medical diagnostic test system for evaluating risk for developing a cancer or risk for cancer progression comprising (a) a data collection tool adapted to collect biomarker measurement data representative of measurements of one or more biomarkers in at least one biological sample from an individual, (b) an analysis tool comprising a statistical analysis engine adapted to generate a representation of a correlation between a risk for developing a cancer and measurements of the biomarkers, wherein the representation of the correlation is adapted to be executed to generate a result and (c) an index computation tool adapted to analyze the result to determine the individual's risk for developing a cancer or for cancer progression, and represent the result as a cancer risk score; wherein said one or more biomarkers are selected from Figures 12, 13 and 14.

11. A computer readable medium having computer executable instructions for evaluating risk for developing a cancer, the computer readable medium comprising (a) a routine, stored on the computer readable medium and adapted to be executed by a processor, to store biomarker measurement data representing a panel of one or more biomarkers and (b) a routine stored on the computer readable medium and adapted to be executed by a processor to analyze the biomarker measurement data to evaluate a risk for developing a cancer or for risk of cancer progression; wherein said biomarkers are one or more biomarkers selected from Figures 12, 13 and 14.

12. A kit comprising reagents for measuring a panel of one or more miRNA biomarkers selected from Figures 12, 13 and 14, wherein the reagents are primers for reverse transcription of miRNA into DNA, primers for amplification of the DNA, or both primers for reverse transcription of miRNA in the panel and primers for amplification of the reverse transcribed DNA.

13. A kit comprising reagents for detecting a panel of one or more miRNA biomarkers selected from Figures 12, 13 and 14, wherein the reagents hybridize to miRNA in the panel.

14. A system for diagnosing susceptibility to cancer in a human subject, the system comprising:

(a) at least one processor;

(b) at least one computer-readable medium;

(c) a susceptibility database operatively coupled to a computer-readable medium of the system and containing information associating measurements of one or more biomarkers selected from Figures 12, 13 and 14 and cancer in a population of humans;

(d) a measurement tool that receives an input about the human subject and generates information from the input about one or more biomarkers selected from Figures 12, 13 and 14 from the human subject; and

(e) an analysis tool (routine) that:

(i) is operatively coupled to the susceptibility database and the measurement tool,

(ii) is stored on a computer-readable medium of the system,

(iii) is adapted to be executed on a processor of the system, to compare the information about the human subject with the information about the population in the susceptibility database and generate a conclusion with respect to susceptibility to cancer in the human subject.

15. A system for diagnosing cancer in a human subject, the system comprising:

(a) at least one processor;

(b) at least one computer-readable medium;

(c) a susceptibility database operatively coupled to a computer-readable medium of the system and containing information associating measurements of biomarkers selected from Figures 12, 13 and 14 and cancer in a population of humans;

(d) a measurement tool that receives an input about the human subject and generates information from the input about one or more biomarkers selected from Figures 12, 13 and 14 from the human subject; and

(e) an analysis tool (routine) that:

(i) is operatively coupled to the susceptibility database and the measurement tool,

(ii) is stored on a computer-readable medium of the system,

(iii) is adapted to be executed on a processor of the system, to compare the information about the human subject with the information about the population in the susceptibility database and generate a conclusion with respect to the presence of cancer in the human subject.

16. The system according to claim 14 or 15, wherein the input about the human subject is a biological sample from the human subject, and wherein the measurement tool comprises a tool to measure one or more biomarkers selected from Figures 12, 13 and 14 in the biological sample, thereby generating biomarker measurements from a human subject.

17. The system of claim 16 wherein the biomarkers are measured by polymerase chain reaction or hybridization to a microarray.

18. The system of claim 14 or 15 further comprising a communication tool operatively coupled to the analysis tool, stored on a computer-readable medium of the system and adapted to be executed on a processor of the system to generate a communication for the human subject, or a medical practitioner for the subject, containing the conclusion with respect to cancer for the subject.

19. The system according to claim 18, wherein the communication tool is operatively connected to the analysis tool or routine and comprises a routine stored on a computer-readable medium of the system and adapted to be executed on a processor of the system, to:

generate a communication containing the conclusion; and

transmit the communication to the subject or the medical practitioner, or enable the subject or medical practitioner to access the communication.

20. The system of claim 14, 15, 18 or 19 further comprising:

a medical protocol database operatively connected to a computer-readable medium of the system and containing information correlating the conclusion and medical protocols for human subjects at risk for or suffering from cancer; and

a medical protocol tool (or routine), operatively connected to the medical protocol database and the analysis tool or routine, stored on a computer-readable medium of the system, and adapted to be executed on a processor of the system, to compare the conclusion from the analysis routine with respect to cancer for the subject and the medical protocol database, and generate a protocol report with respect to the probability that one or more medical protocols in the database will:

reduce susceptibility to cancer; or

delay onset of cancer;

increase the likelihood of detecting cancer at an early stage to facilitate early treatment; or

treat the cancer.

21. The system according to claim 20, wherein the communication tool is operatively connected to the medical protocol tool or routine, and generates a communication that further includes the protocol report.

22. A method for the prophylactic treatment of a individual at risk for a cancer comprising (a) obtaining a cancer risk score for an individual based on one or more biomarkers selected from Figures 12, 13 and 14 and (b) generating prescription treatment data representing

a prescription for a treatment regimen to delay or prevent the onset of cancer in the individual identified by the cancer risk score as being at elevated risk for cancer.

23. A method for the therapeutic treatment of a individual suffering from a cancer comprising (a) obtaining a cancer diagnosis based on one or more miRNA biomarkers selected from Figures 12, 13 and 14 and (b) generating prescription treatment data representing a prescription for a treatment regimen to treat the cancer in the individual identified by the cancer risk score as being at elevated risk for cancer.

24. The method of claim 22 or 23 wherein the treatment regimen comprises the standard of care for the cancer.

25. The method of claim 22, 23 or 24 wherein the treatment regimen comprises administering a drug that increases the amount of the one or more miRNAs selected from Figures 12, 13 and 14.

26. The method of claim 22, 23 or 24 wherein the treatment regimen comprises administering a drug to inhibit the one or more miRNAs or decrease the amount of the one or more miRNAs selected from Figures 12, 13 and 14.

27. The method of claim 22, 23, 24, 25 or 26 further comprising (c) treating the individual according to the treatment regimen.

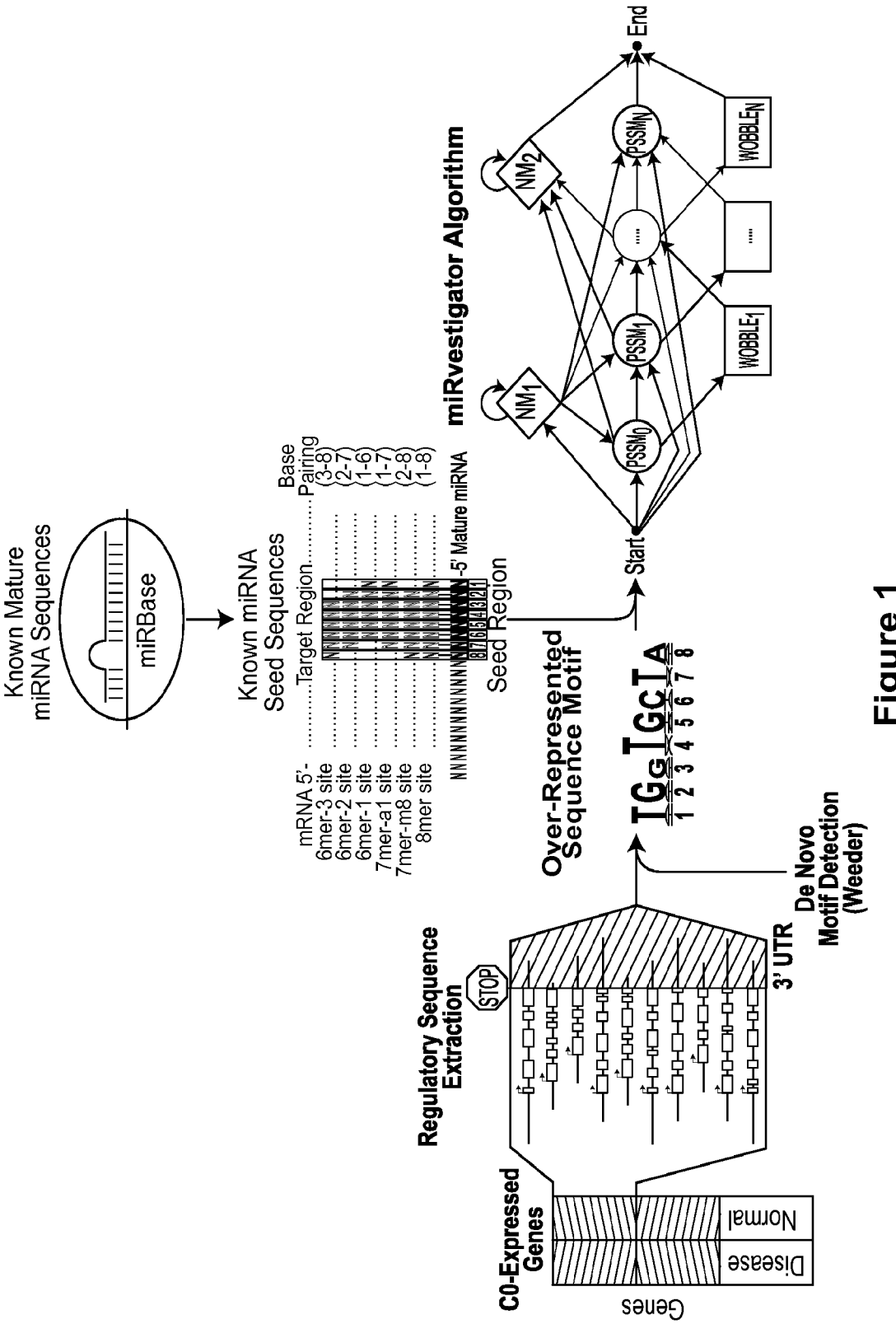

Known Mature miRNA Sequences
miRBase
Known miRNA Seed Sequences
Target Region
Base Pairing
mRNA 5'-
6mer-3 site (3-8)
6mer-2 site (2-7)
6mer-1 site (1-6)
7mer-a1 site (1-7)
7mer-m8 site (2-8)
8mer site (1-8)
5' Mature miRNA
Seed Region
miRvestigator Algorithm
Start
End
NM1
NM2
PSSM0
PSSM1
PSSMN
WOBBLE1
WOBBLEN
Over-Represented Sequence Motif
TGGTGCTA
1 2 3 4 5 6 7 8
De Novo Motif Detection (Weeder)
Regulatory Sequence Extraction
STOP
3' UTR
C0-Expressed Genes
Disease
Normal
Genes

Figure 1

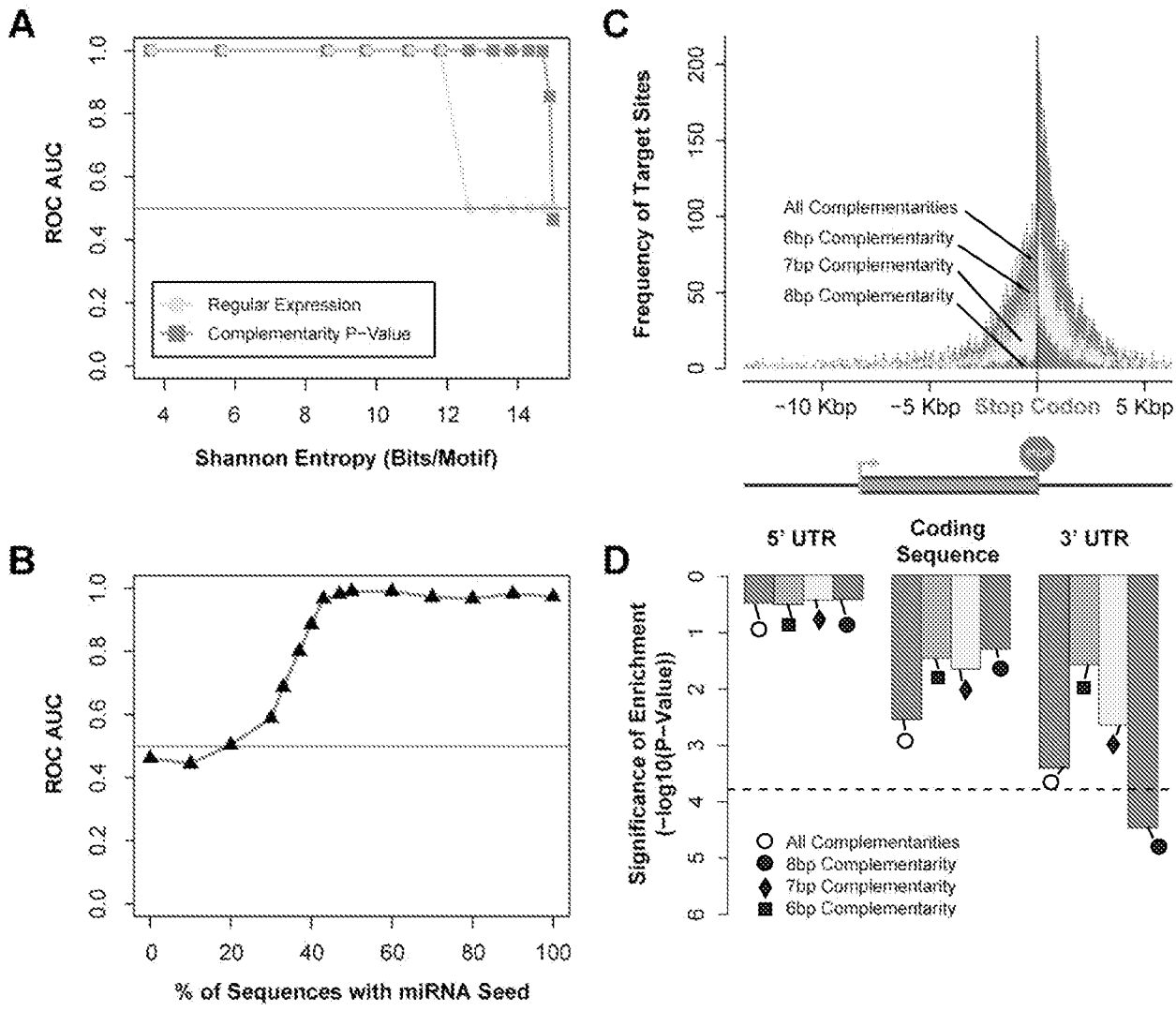
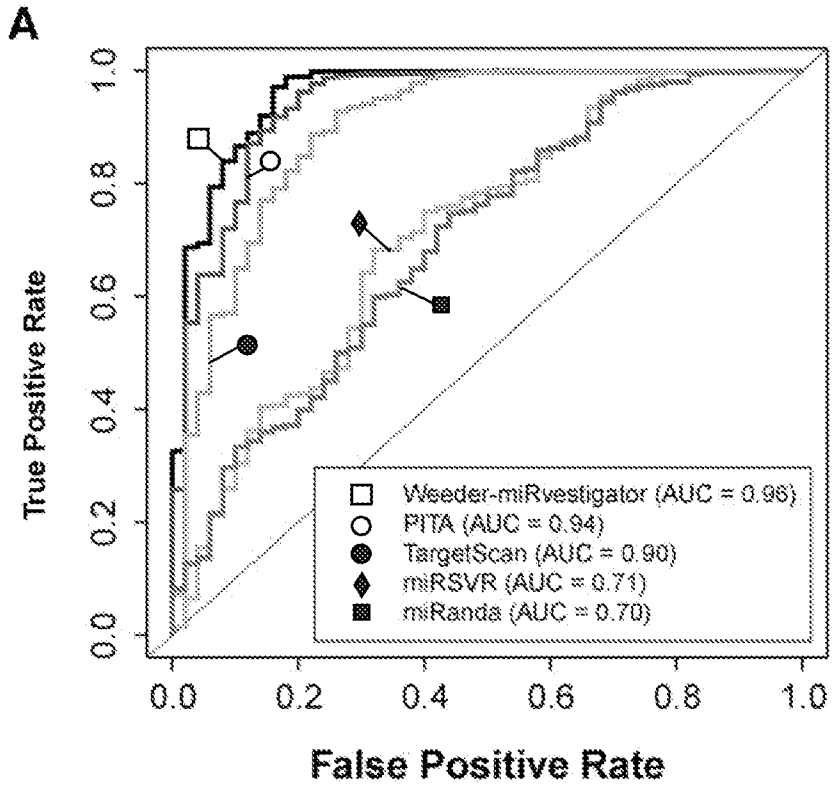
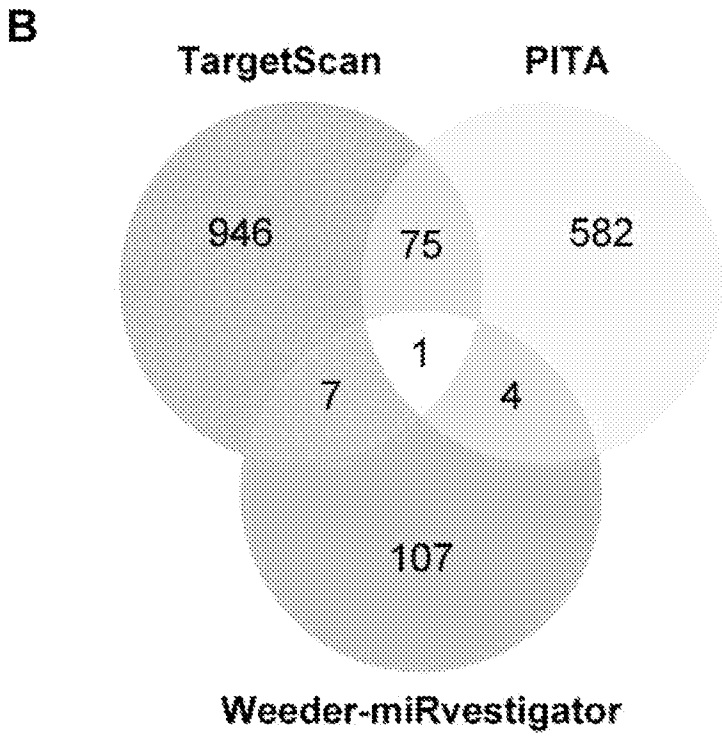

A
ROC AUC
0.0
0.2
0.4
0.6
0.8
1.0
Regular Expression
Complementarity P-Value
4
6
8
10
12
14
Shannon Entropy (Bits/Motif)
B
ROC AUC
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
100
% of Sequences with miRNA Seed
C
Frequency of Target Sites
0
50
100
150
200
All Complementarities
6bp Complementarity
7bp Complementarity
8bp Complementarity
-10 Kbp
-5 Kbp
Stop Codon
5 Kbp
D
5' UTR
Coding Sequence
3' UTR
Significance of Enrichment (-log10(P-Value))
0
1
2
3
4
5
6
All Complementarities
8bp Complementarity
7bp Complementarity
6bp Complementarity

Fig. 2

Fig. 3


A
True Positive Rate
False Positive Rate
0.0
0.2
0.4
0.6
0.8
1.0
Weeder-miRvestigator (AUC = 0.96)
PITA (AUC = 0.94)
TargetScan (AUC = 0.90)
miRSVR (AUC = 0.71)
miRanda (AUC = 0.70)


B
TargetScan
PITA
946
75
582
1
7
4
107
Weeder-miRvestigator

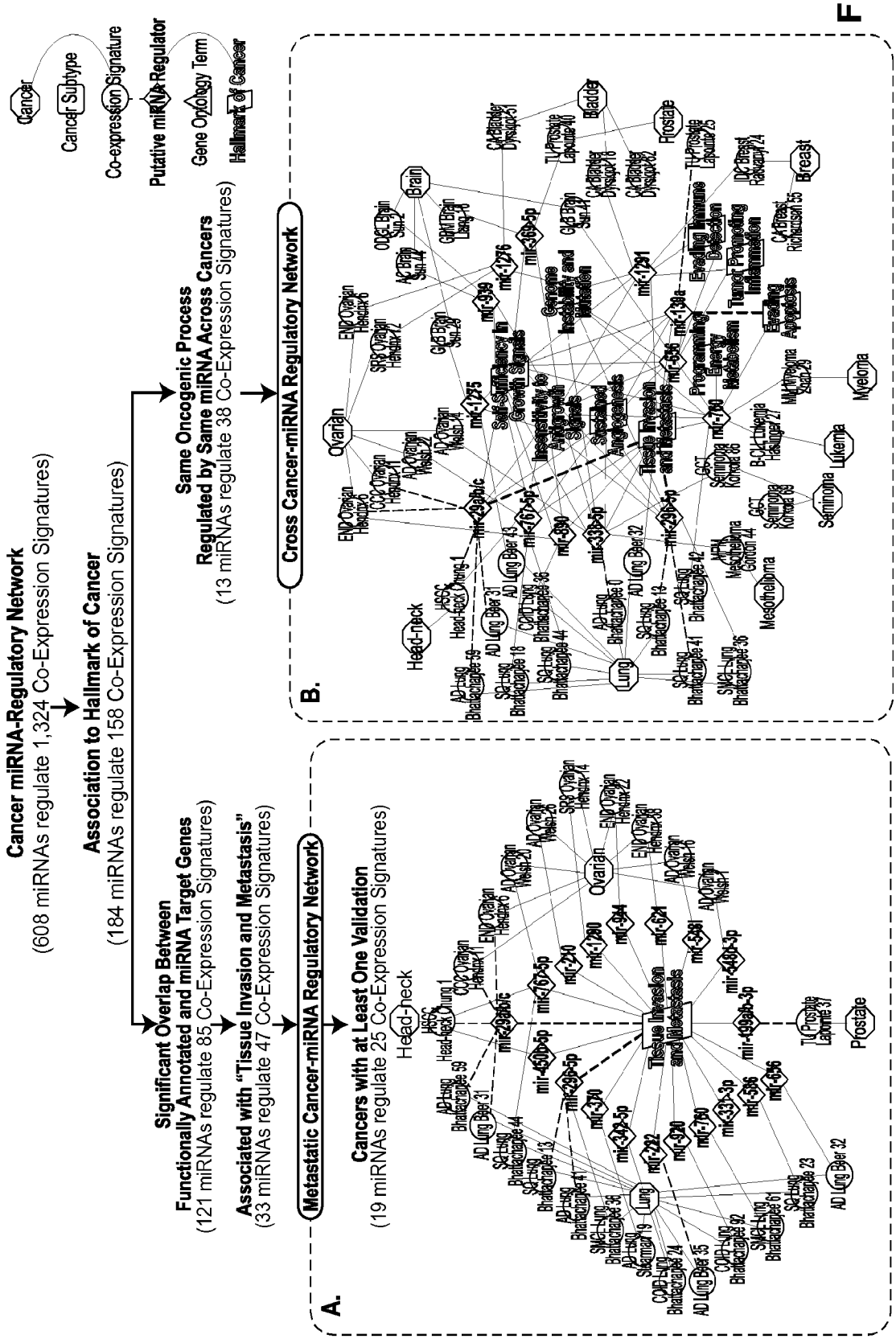

Cancer miRNA-Regulatory Network
(608 miRNAs regulate 1,324 Co-Expression Signatures)
Association to Hallmark of Cancer
(184 miRNAs regulate 158 Co-Expression Signatures)
Significant Overlap Between Functionally Annotated and miRNA Target Genes
(121 miRNAs regulate 85 Co-Expression Signatures)
Associated with "Tissue Invasion and Metastasis"
(33 miRNAs regulate 47 Co-Expression Signatures)
Metastatic Cancer-miRNA Regulatory Network
Cancers with at Least One Validation
(19 miRNAs regulate 25 Co-Expression Signatures)
Head-neck
Prostate
A.
Same Oncogenic Process
Regulated by Same miRNA Across Cancers
(13 miRNAs regulate 38 Co-Expression Signatures)
Cross Cancer-miRNA Regulatory Network
B.
Cancer
Cancer Subtype
Co-expression Signature
Putative miRNA Regulator
Gene Ontology Term
Hallmark of Cancer

Figure 4

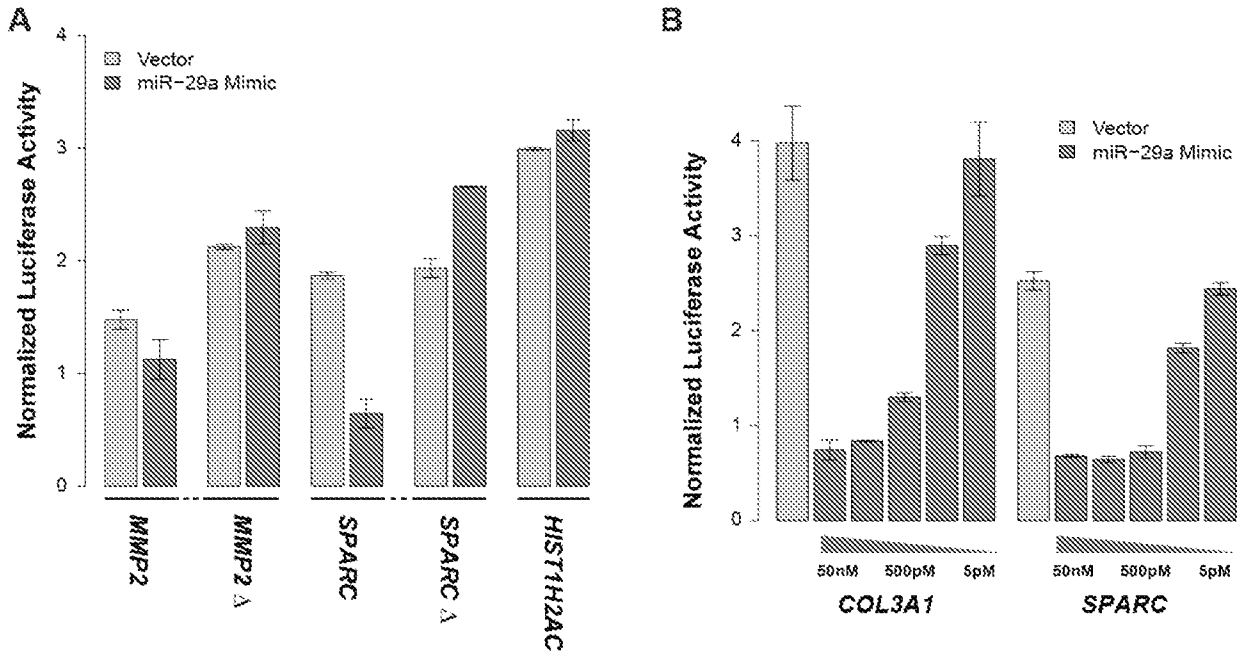

A
Normalized Luciferase Activity
0
1
2
3
4
Vector
miR-29a Mimic
MMP2
MMP2 Δ
SPARC
SPARC Δ
HIST1H2AC
B
Normalized Luciferase Activity
0
1
2
3
4
Vector
miR-29a Mimic
50nM
500pM
5pM
50nM
500pM
5pM
COL3A1
SPARC

Fig. 5

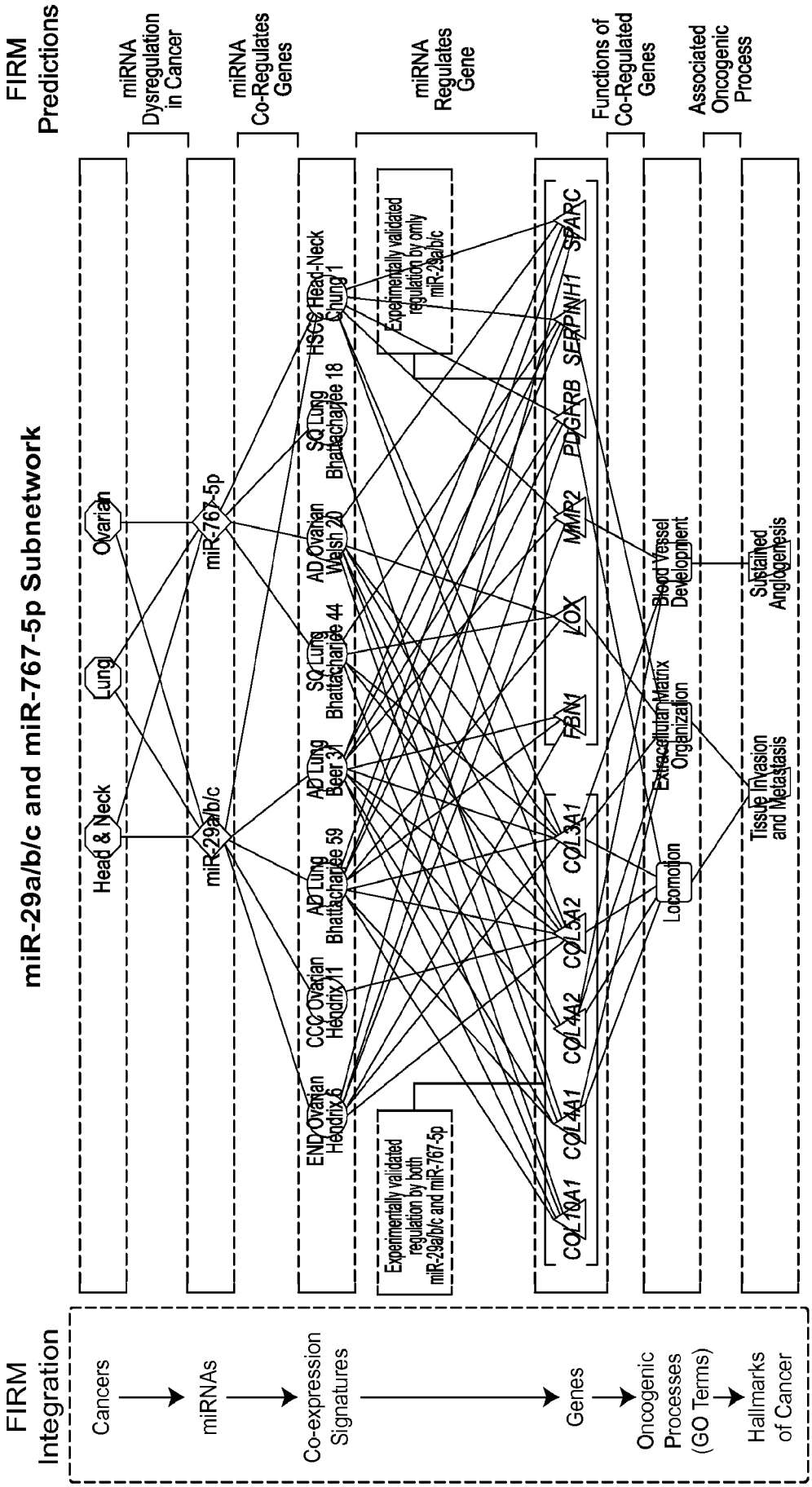

FIRM Predictions
miRNA Dysregulation in Cancer
miRNA Co-Regulates Genes
miRNA Regulates Gene
Functions of Co-Regulated Genes
Associated Oncogenic Process
miR-29a/b/c and miR-767-5p Subnetwork
Ovarian
Lung
Head & Neck
miR-767-5p
miR-29a/b/c
HSC Head-Neck Chung 1
SQ Lung Bhattacharjee 18
AD Ovarian Welsh 20
SQ Lung Bhattacharjee 44
AD Lung Beer 31
AD Lung Bhattacharjee 59
CCC Ovarian Hendrix 11
END Ovarian Hendrix 6
Experimentally validated regulation by only miR-29a/b/c
Experimentally validated regulation by both miR-29a/b/c and miR-767-5p
SPARC
SERPINH1
PDGFRB
MMP2
LOX
FBN1
COL3A1
COL5A2
COL4A2
COL4A1
COL10A1
Blood Vessel Development
Extracellular Matrix Organization
Locomotion
Sustained Angiogenesis
Tissue Invasion and Metastasis
FIRM Integration
Cancers
miRNAs
Co-expression Signatures
Genes
Oncogenic Processes (GO Terms)
Hallmarks of Cancer

Figure 6

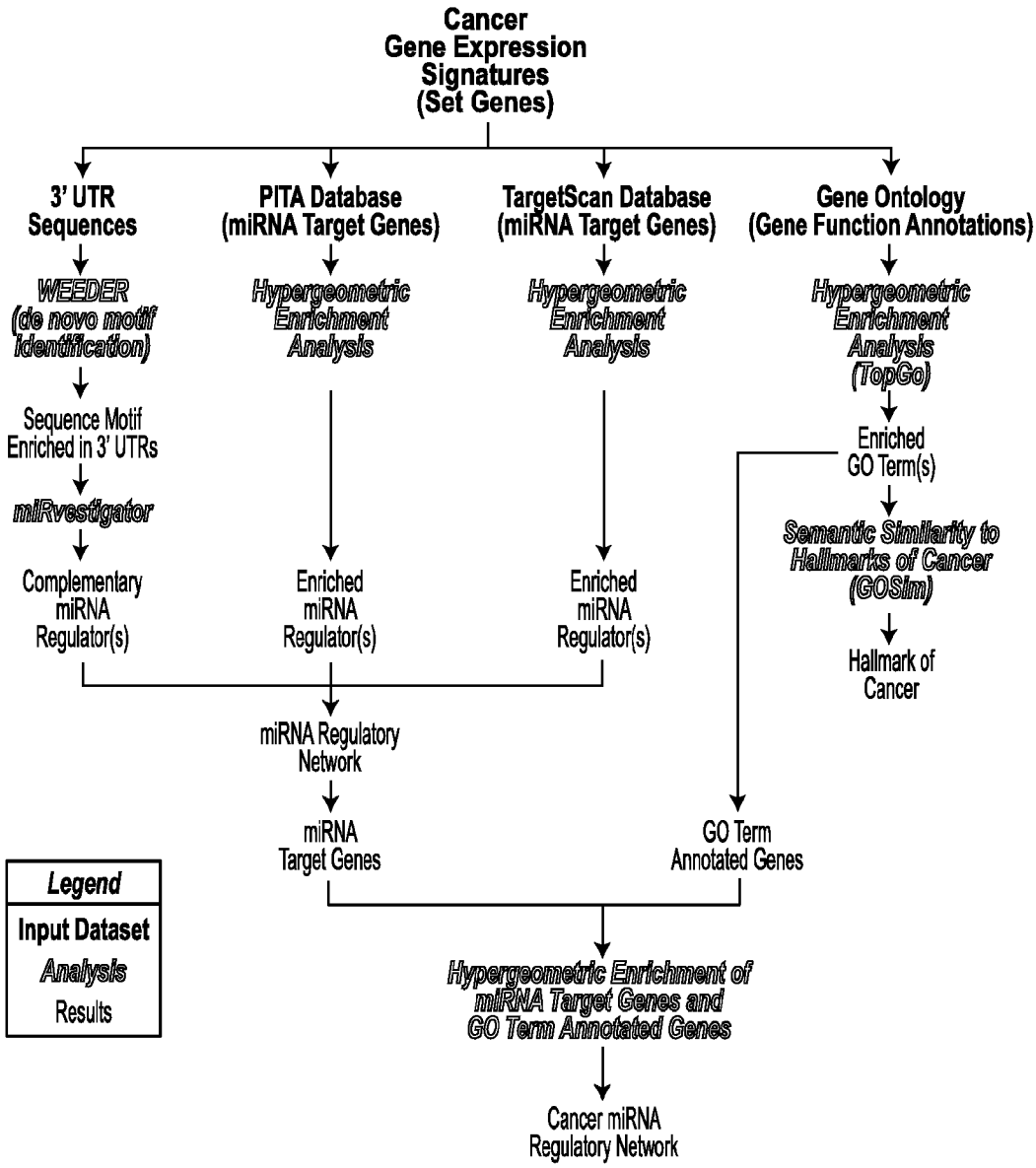

Cancer
Gene Expression
Signatures
(Set Genes)
3' UTR
Sequences
PITA Database
(miRNA Target Genes)
TargetScan Database
(miRNA Target Genes)
Gene Ontology
(Gene Function Annotations)
WEEDER
(de novo motif
identification)
Hypergeometric
Enrichment
Analysis
Hypergeometric
Enrichment
Analysis
Hypergeometric
Enrichment
Analysis
(TopGo)
Sequence Motif
Enriched in 3' UTRs
miRvestigator
Enriched
GO Term(s)
Semantic Similarity to
Hallmarks of Cancer
(GOSim)
Complementary
miRNA
Regulator(s)
Enriched
miRNA
Regulator(s)
Enriched
miRNA
Regulator(s)
Hallmark of
Cancer
miRNA Regulatory
Network
miRNA
Target Genes
GO Term
Annotated Genes
Legend
Input Dataset
Analysis
Results
Hypergeometric Enrichment of
miRNA Target Genes and
GO Term Annotated Genes
Cancer miRNA
Regulatory Network

Figure 7

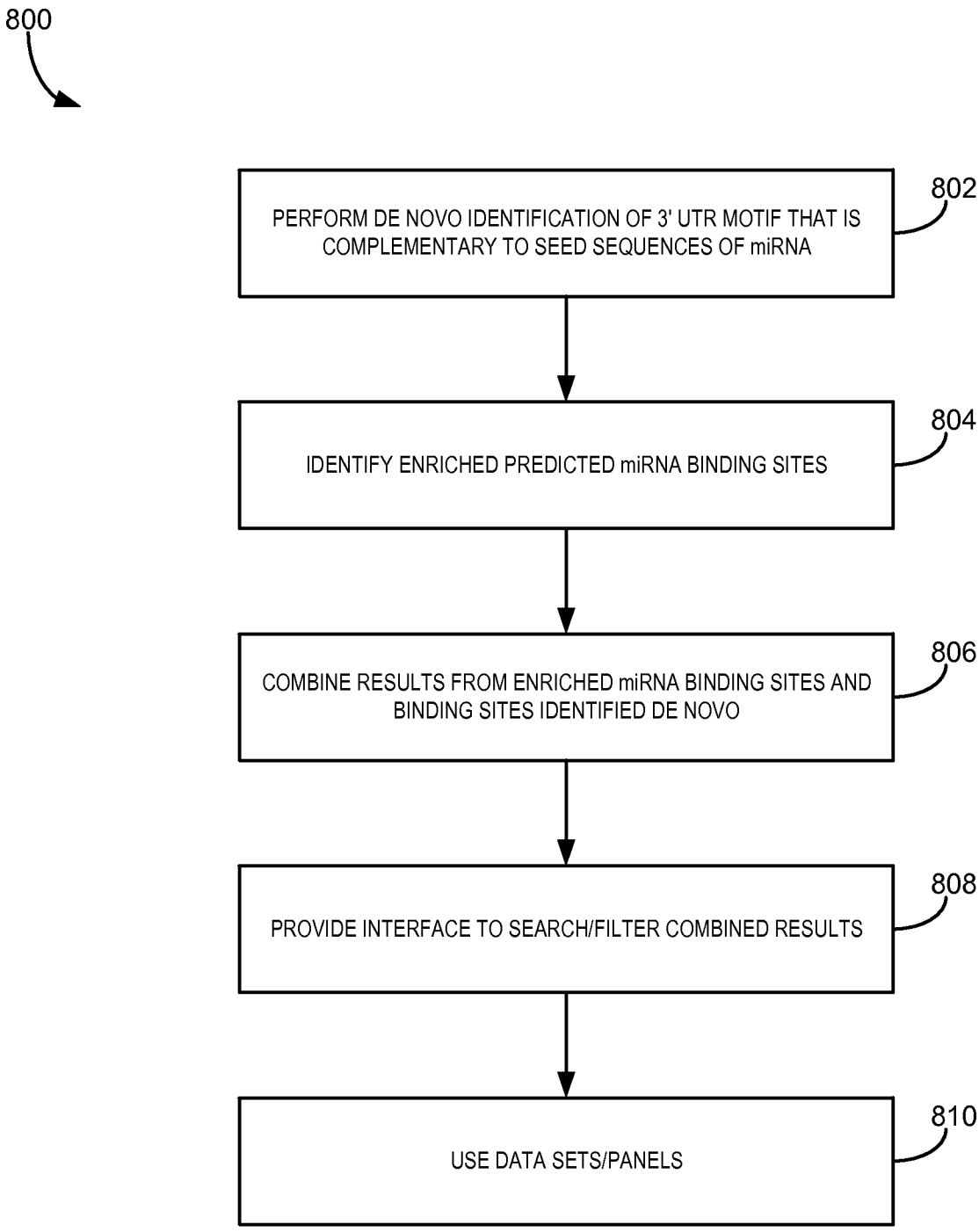

800
PERFORM DE NOVO IDENTIFICATION OF 3' UTR MOTIF THAT IS COMPLEMENTARY TO SEED SEQUENCES OF miRNA
802
IDENTIFY ENRICHED PREDICTED miRNA BINDING SITES
804
COMBINE RESULTS FROM ENRICHED miRNA BINDING SITES AND BINDING SITES IDENTIFIED DE NOVO
806
PROVIDE INTERFACE TO SEARCH/FILTER COMBINED RESULTS
808
USE DATA SETS/PANELS
810

FIG. 8

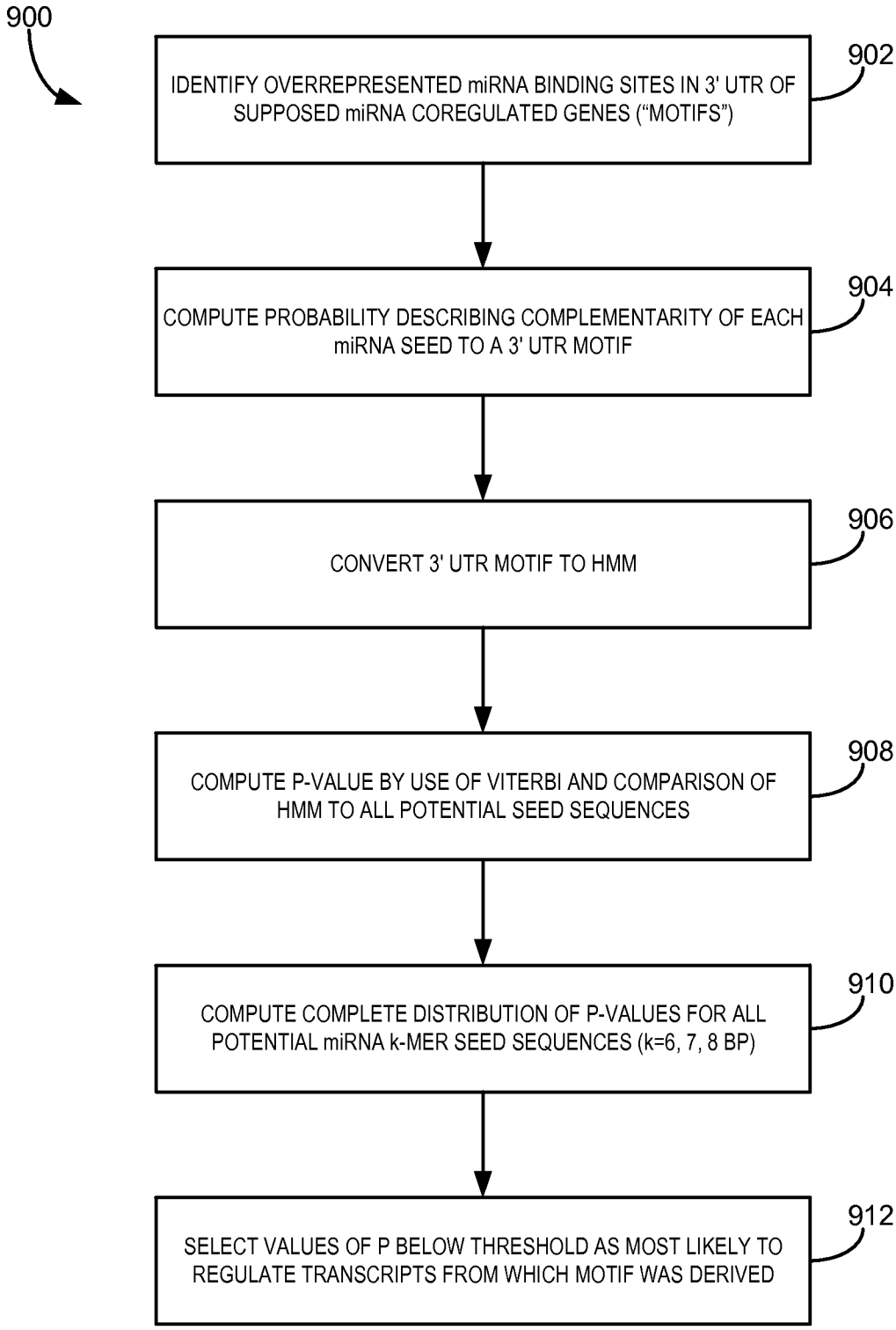

900
IDENTIFY OVERREPRESENTED miRNA BINDING SITES IN 3' UTR OF SUPPOSED miRNA COREGULATED GENES ("MOTIFS")
902
COMPUTE PROBABILITY DESCRIBING COMPLEMENTARITY OF EACH miRNA SEED TO A 3' UTR MOTIF
904
CONVERT 3' UTR MOTIF TO HMM
906
COMPUTE P-VALUE BY USE OF VITERBI AND COMPARISON OF HMM TO ALL POTENTIAL SEED SEQUENCES
908
COMPUTE COMPLETE DISTRIBUTION OF P-VALUES FOR ALL POTENTIAL miRNA k-MER SEED SEQUENCES (k=6, 7, 8 BP)
910
SELECT VALUES OF P BELOW THRESHOLD AS MOST LIKELY TO REGULATE TRANSCRIPTS FROM WHICH MOTIF WAS DERIVED
912

FIG. 9

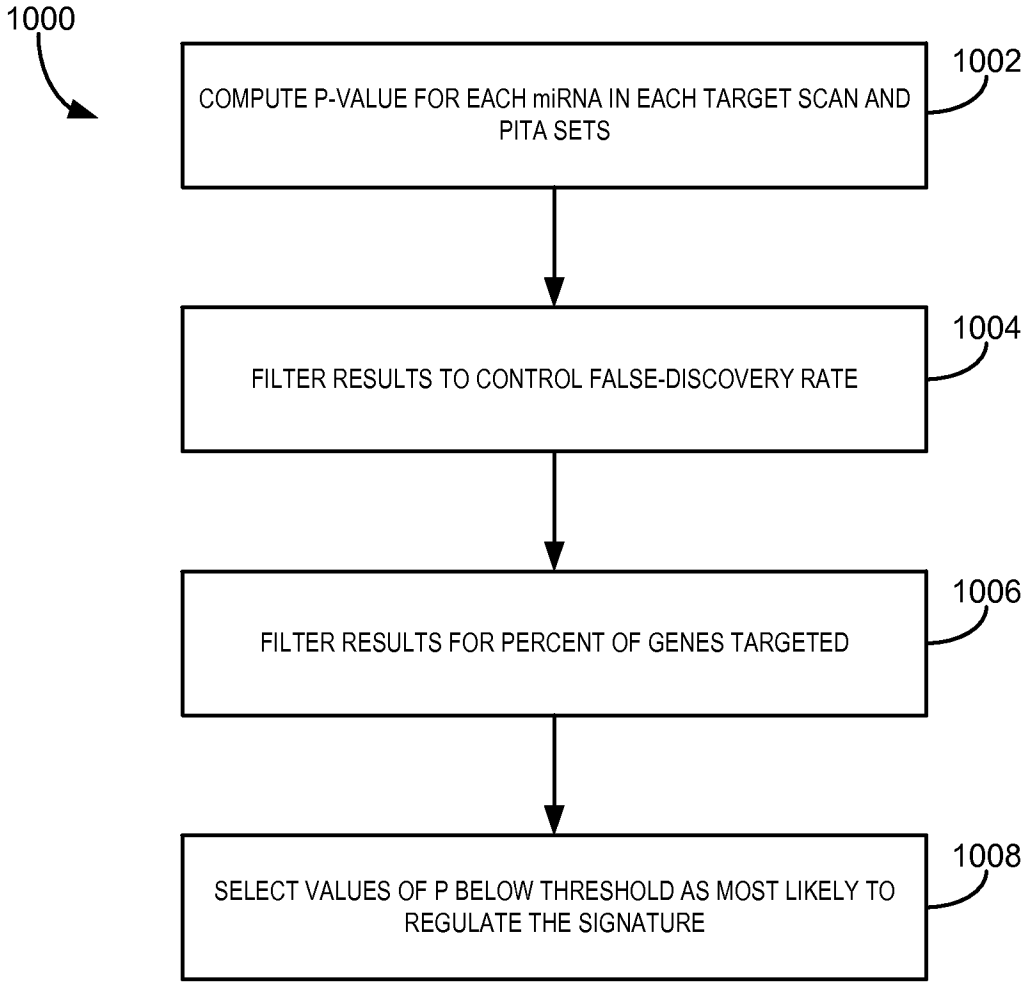

1000
COMPUTE P-VALUE FOR EACH miRNA IN EACH TARGET SCAN AND PITA SETS
1002
FILTER RESULTS TO CONTROL FALSE-DISCOVERY RATE
1004
FILTER RESULTS FOR PERCENT OF GENES TARGETED
1006
SELECT VALUES OF P BELOW THRESHOLD AS MOST LIKELY TO REGULATE THE SIGNATURE
1008

FIG. 10

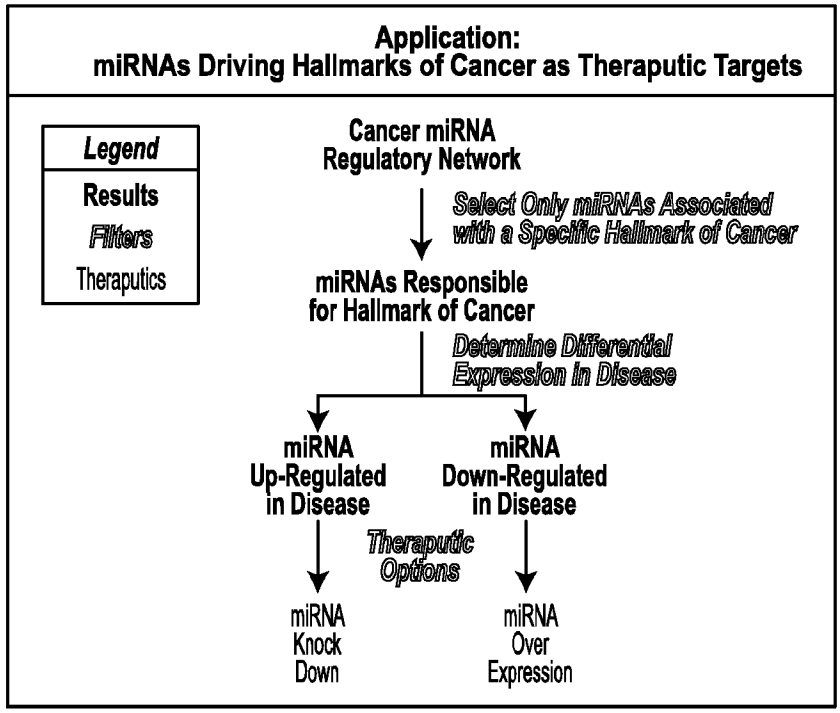

Application:
miRNAs Driving Hallmarks of Cancer as Theraputic Targets
Legend
Results
Filters
Theraputics
Cancer miRNA
Regulatory Network
Select Only miRNAs Associated
with a Specific Hallmark of Cancer
miRNAs Responsible
for Hallmark of Cancer
Determine Differential
Expression in Disease
miRNA
Up-Regulated
in Disease
miRNA
Down-Regulated
in Disease
Theraputic
Options
miRNA
Knock
Down
miRNA
Over
Expression

Figure 11

Figure 12

Hallmark of Cancer	Number of miRNAs	miRNAs	miRBase 17 Accession	miRBase 17 Sequence	SEQ ID NO
Cross Cancer miRNA Regulatory Network	13	hsa-mir-29a	MIMAT0000086	UAGCACCAUCUGAAAUCGGUUA	1
		hsa-mir-29b	MIMAT0000100	UAGCACCAUUUGAAAUCAGUGUU	2
		hsa-mir-29c	MIMAT0000681	UAGCACCAUUUGAAAUCGGUUA	3
		hsa-miR-767-5p	MIMAT0003882	UGCACCAUGGUUGUCUGAGCAUG	4
		hsa-miR-890	MIMAT0004912	UACUUGGAAAGGCAUCAGUUG	5
		hsa-miR-338-5p	MIMAT0004701	AACAAUAUCCUGGUGCUGAGUG	6
		hsa-miR-369-5p	MIMAT0001621	AGAUCGACCGUGUUAUAUUCGC	7
		hsa-miR-760	MIMAT0004957	CGGCUCUGGGUCUGUGGGGA	8
		hsa-miR-656	MIMAT0003332	AAUAUUAUACAGUCAACCUCU	9
		hsa-miR-130a	MIMAT0000425	CAGUGCAAUGUUAAAAGGGCAU	10
		hsa-miR-1291	MIMAT0005881	UGGCCCUGACUGAAGACCAGCAGU	11
		hsa-miR-369-5p	MIMAT0001621	AGAUCGACCGUGUUAUAUUCGC	12
		hsa-miR-1276	MIMAT0005930	UAAAGAGCCCUGUGGAGACA	13
		hsa-miR-939	MIMAT0004982	UGGGGAGCUGAGGCUCUGGGGGUG	14
		hsa-miR-1275	MIMAT0005929	GUGGGGGAGAGGCUGUC	15

Hallmark of Cancer	Number of miRNAs	miRNAs	miRBase 17 Accession	miRBase 17 Sequence	SEQ ID NO
Metastatic Cancer-miRNA Regulatory Network	34	hsa-let-7c	MIMAT0000064	UGAGGUAGUAGGUUGUAUGGUU	16
		hsa-mir-29a	MIMAT0000086	UAGCACCAUCUGAAAUCGGUUA	17
		hsa-mir-29b	MIMAT0000100	UAGCACCAUUUGAAAUCAGUGUU	18
		hsa-mir-199a-3p	MIMAT0000232	ACAGUAGUCUGCACAUUGGUUA	19
		hsa-mir-210	MIMAT0000267	CUGUGCGUGUGACAGCGGCUGA	20
		hsa-mir-222	MIMAT0000279	AGCUACAUCUGGCUACUGGGU	21
		hsa-mir-296-5p	MIMAT0000690	AGGGCCCCCCCUCAAUCCUGU	22
		hsa-mir-325	MIMAT0000771	CCUAGUAGGUGUCCAGUAAGUGU	23
		hsa-mir-331-3p	MIMAT0000760	GCCCCUGGGCCUAUCCUAGAA	24
		hsa-mir-342-5p	MIMAT0004694	AGGGGUGCUAUCUGUGAUUGA	25
		hsa-mir-370	MIMAT0000722	GCCUGCUGGGGUGGAACCUGGU	26
		hsa-mir-376c	MIMAT0000720	AACAUAGAGGAAAUUCCACGU	27
		hsa-mir-423-5p	MIMAT0004748	UGAGGGGCAGAGAGCGAGACUUU	28
		hsa-mir-450b-5p	MIMAT0004909	UUUUGCAAUAUGUUCCUGAAUA	29
		hsa-mir-454	MIMAT0003885	UAGUGCAAUAUUGCUUAUAGGGU	30
		hsa-mir-507	MIMAT0002879	UUUUGCACCUUUUGGAGUGAA	31
		hsa-mir-519d	MIMAT0002853	CAAAGUGCCUCCCUUUAGAGUG	32
		hsa-mir-548c-3p	MIMAT0003285	CAAAAAUCUCAAUUACUUUUGC	33
		hsa-mir-548d-3p	MIMAT0003323	CAAAAACCACAGUUUCUUUUGC	34
		hsa-mir-548l	MIMAT0005889	AAAAGUAUUUGCGGGUUUUGUC	35
		hsa-mir-557	MIMAT0003221	GUUUGCACGGGUGGGCCUUGUCU	36
		hsa-mir-586	MIMAT0003252	UAUGCAUUGUAUUUUUAGGUCC	37
		hsa-mir-621	MIMAT0003290	GGCUAGCAACAGCGCUUACCU	38
		hsa-mir-634	MIMAT0003304	AACCAGCACCCCAACUUUGGAC	39
		hsa-mir-637	MIMAT0003307	ACUGGGGGCUUUCGGGCUCUGCGU	40
		hsa-mir-656	MIMAT0003332	AAUAUUAUACAGUCAACCUCU	41
		hsa-mir-718	MIMAT0012735	CUUCCGCCCCGCCGGGCGUCG	42
		hsa-mir-760	MIMAT0004957	CGGCUCUGGGUCUGUGGGGA	43
		hsa-mir-767-5p	MIMAT0003882	UGCACCAUGGUUGUCUGAGCAUG	44
		hsa-mir-920	MIMAT0004970	GGGGAGCUGUGGAAGCAGUA	45
		hsa-mir-944	MIMAT0004987	AAAUUAUUGUACAUCGGAUGAG	46
		hsa-mir-1245	MIMAT0005897	AAGUGAUCUAAAGGCCUACAU	47
		hsa-mir-1290	MIMAT0005880	UGGAUUUUUGGAUCAGGGA	48
		hsa-mir-1291	MIMAT0005881	UGGCCCUGACUGAAGACCAGCAGU	49

Figure 14

Hallmark of Cancer	Tissue	Cancer Type	miRNAs	miRBase 17 Accession	miRBase 17 Sequence	SEQ ID NO
Evading Apoptosis	Bladder	Carcinoma	hsa-mir-548d-3p	MIMAT0003323	CAAAAACCACAGUUUCUUUUGC	50
	Brain	Astrocytoma	hsa-mir-637	MIMAT0003307	ACUGGGGGCUUUCGGGCUCUGCGU	51
	Colon	Carcinoma	hsa-mir-557	MIMAT0003221	GUUUGCACGGGUGGGCCUUGUCU	52
	Leukemia	Chronic Lymphocytic Leukemia	hsa-mir-760	MIMAT0004957	CGGCUCUGGGUCUGUGGGGA	53
	Lung	Carcinoid	hsa-mir-342-5p	MIMAT0004694	AGGGGUGCUAUCUGUGAUUGA	54
	Lung	Small Cell Lung Cancer	hsa-mir-331-3p	MIMAT0000760	GCCCCUGGGCCUAUCCUAGAA	55
	Lung	Squamous Cell Lung Carcinoma	hsa-mir-607	MIMAT0003275	GUUCAAAUCCAGAUCUAUAAC	56
	Melanoma	Melanoma	hsa-mir-548c-3p	MIMAT0003285	CAAAAAUCUCAAUUACUUUUGC	57
	Myeloma	Multiple Myeloma	hsa-mir-760	MIMAT0004957	CGGCUCUGGGUCUGUGGGGA	58
	Ovarian	Adenocarcinoma	hsa-mir-210	MIMAT0000267	CUGUGCGUGUGACAGCGGCUGA	59
	Ovarian	Adenocarcinoma	hsa-mir-548d-3p	MIMAT0003323	CAAAAACCACAGUUUCUUUUGC	60
	Ovarian	Adenocarcinoma	hsa-mir-548l	MIMAT0005889	AAAAGUAUUUGCGGGUUUUGUC	61
	Seminoma	Germ Cell Tumor	hsa-mir-376c	MIMAT0000720	AACAUAGAGGAAAUUCCACGU	62

Hallmark of Cancer	Tissue	Cancer Type	miRNAs	miRBase 17 Accession	miRBase 17 Sequence	SEQ ID NO
Evading Immune Detection	Bladder	Carcinoma	hsa-mir-519d	MIMAT0002853	CAAAGUGCCUCCCUUUAGAGUG	63
	Brain	Astrocytoma	hsa-mir-637	MIMAT0003307	ACUGGGGGCUUUCGGGCUCUGCGU	64
	Brain	Glioma	hsa-mir-634	MIMAT0003304	AACCAGCACCCCAACUUUGGAC	65
	Brain	Glioma	hsa-mir-718	MIMAT0012735	CUUCCGCCCCGCCGGGCGUCG	66
	Breast	Carcinoma	hsa-mir-640	MIMAT0003310	AUGAUCCAGGAACCUGCCUCU	67
	Breast	Invasive Ductal Carcinoma	hsa-mir-1291	MIMAT0005881	UGGCCCUGACUGAAGACCAGCAGU	68
	Colon	Carcinoma	hsa-mir-325	MIMAT0000771	CCUAGUAGGUGUCCAGUAAGUGU	69
	Colon	Carcinoma	hsa-mir-557	MIMAT0003221	GUUUGCACGGGUGGGCCUUGUCU	70
	Leukemia	Chronic Lymphocytic Leukemia	hsa-mir-1245	MIMAT0005897	AAGUGAUCUAAAGGCCUACAU	71
	Lung	Adenocarcinoma	hsa-mir-567	MIMAT0003231	AGUAUGUUCUUCCAGGACAGAAC	72
	Lung	Adenocarcinoma	hsa-mir-656	MIMAT0003332	AAUAUUAUACAGUCAACCUCU	73
	Lung	Carcinoid	hsa-mir-342-5p	MIMAT0004694	AGGGGUGCUAUCUGUGAUUGA	74
	Lung	Carcinoid	hsa-mir-920	MIMAT0004970	GGGGAGCUGUGGAAGCAGUA	75
	Lung	Small Cell Lung Cancer	hsa-mir-331-3p	MIMAT0000760	GCCCCUGGGCCUAUCCUAGAA	76
	Lung	Squamous Cell Lung Carcinoma	hsa-mir-586	MIMAT0003252	UAUGCAUUGUAUUUUUAGGUCC	77
	Melanoma	Melanoma	hsa-mir-548c-3p	MIMAT0003285	CAAAAAUCUCAAUUACUUUUGC	78
	Mesothelioma	Malignant Mesothelioma	hsa-mir-526b	MIMAT0002835	CUCUUGAGGGAAGCACUUUCUGU	79
	Ovarian	Adenocarcinoma	hsa-mir-210	MIMAT0000267	CUGUGCGUGUGACAGCGGCUGA	80
	Ovarian	Endometrial	hsa-mir-621	MIMAT0003290	GGCUAGCAACAGCGCUUACCU	81
	Seminoma	Germ Cell Tumor	hsa-mir-34a	MIMAT0000255	UGGCAGUGUCUUAGCUGGUUGU	82
	Seminoma	Germ Cell Tumor	hsa-mir-376c	MIMAT0000720	AACAUAGAGGAAAUUCCACGU	83

Hallmark of Cancer	Tissue	Cancer Type	miRNAs	miRBase 17 Accession	miRBase 17 Sequence	SEQ ID NO
Genome Instability and Mutation	Bladder	Carcinoma	hsa-mir-1276	MIMAT0005930	UAAAGAGCCCUGUGGAGACA	84
	Bladder	Carcinoma	hsa-mir-519d	MIMAT0002853	CAAAGUGCCUCCCUUUAGAGUG	85
	Brain	Astrocytoma	hsa-mir-637	MIMAT0003307	ACUGGGGGGCUUUCGGGCUCUGCGU	86
	Brain	Astrocytoma	hsa-mir-655	MIMAT0003331	AUAAUACAUGGUUAACCUCUUU	87
	Brain	Glioblastoma	hsa-mir-760	MIMAT0004957	CGGCUCUGGGUCUGUGGGGA	88
	Breast	Invasive Ductal Carcinoma	hsa-mir-1291	MIMAT0005881	UGGCCCUGACUGAAGACCAGCAGU	89
	Colon	Carcinoma	hsa-mir-557	MIMAT0003221	GUUUGCACGGGUGGGCCUUGUCU	90
	Colon	Carcinoma	hsa-mir-96	MIMAT0000095	UUUGGCACUAGCACAUUUUUGCU	91
	Head-Neck	Head-Neck Squamous Cell Carcinoma	hsa-mir-1264	MIMAT0005791	CAAGUCUUAUUUGAGCACCUGUU	92
	Leukemia	Chronic Lymphocytic Leukemia	hsa-mir-1245	MIMAT0005897	AAGUGAUCUAAAGGCCUACAU	93
	Leukemia	Chronic Lymphocytic Leukemia	hsa-mir-760	MIMAT0004957	CGGCUCUGGGUCUGUGGGGA	94
	Lung	Adenocarcinoma	hsa-mir-296-5p	MIMAT0000690	AGGGCCCCCCCUCAAUCCUGU	95
	Lung	Adenocarcinoma	hsa-mir-338-5p	MIMAT0004701	AACAAUAUCCUGGUGCUGAGUG	96
	Lung	Adenocarcinoma	hsa-mir-370	MIMAT0000722	GCCUGCUGGGGUGGAACCUGGU	97
	Lung	Adenocarcinoma	hsa-mir-760	MIMAT0004957	CGGCUCUGGGUCUGUGGGGA	98
	Lung	Carcinoid	hsa-mir-342-5p	MIMAT0004694	AGGGGUGCUAUCUGUGAUUGA	99
	Lung	Carcinoid	hsa-mir-920	MIMAT0004970	GGGGAGCUGUGGAAGCAGUA	100
	Lung	Small Cell Lung Cancer	hsa-mir-101	MIMAT0000099	UACAGUACUGUGAUAACUGAA	101
	Lung	Small Cell Lung Cancer	hsa-mir-212	MIMAT0000269	UAACAGUCUCCAGUCACGGCC	102
	Lung	Small Cell Lung Cancer	hsa-mir-296-5p	MIMAT0000690	AGGGCCCCCCCUCAAUCCUGU	103
	Lung	Small Cell Lung Cancer	hsa-mir-331-3p	MIMAT0000760	GCCCCUGGGCCUAUCCUAGAA	104
	Lung	Squamous Cell Lung Carcinoma	hsa-mir-296-5p	MIMAT0000690	AGGGCCCCCCCUCAAUCCUGU	105
	Lung	Squamous Cell Lung Carcinoma	hsa-mir-607	MIMAT0003275	GUUCAAAUCCAGAUCUAUAAC	106
	Lung	Squamous Cell Lung Carcinoma	hsa-mir-654-5p	MIMAT0003330	UGGUGGGCCGCAGAACAUGUGC	107
	Melanoma	Melanoma	hsa-mir-548c-3p	MIMAT0003285	CAAAAAUCUCAAUUACUUUUUGCC	108
	Myeloma	Multiple Myeloma	hsa-mir-760	MIMAT0004957	CGGCUCUGGGUCUGUGGGGA	109
	Ovarian	Adenocarcinoma	hsa-mir-548d-3p	MIMAT0003323	CAAAAACCACAGUUUCCUUUUGC	110
	Ovarian	Adenocarcinoma	hsa-mir-548l	MIMAT0005889	AAAAGUAUUUGCGCGUUUUUGUC	111
	Ovarian	Clear Cell Carcinoma	hsa-mir-127-5p	MIMAT0004604	CUGAAGCUCAGAGGGCUCUGAU	112
	Ovarian	Endometrial	hsa-mir-1276	MIMAT0005930	UAAAGAGCCCUGUGGAGACA	113
	Ovarian	Endometrial	hsa-mir-621	MIMAT0003290	GGCUAGCAACAGCGCUUACCU	114
	Ovarian	Serous Adenocarcinoma	hsa-mir-1276	MIMAT0005930	UAAAGAGCCCUGUGGAGACA	115
	Prostate	Primary Tumor	hsa-mir-25	MIMAT0000081	CAUUGCACUUGUCUCGGUCUGA	116
	Seminoma	Germ Cell Tumor	hsa-mir-376c	MIMAT0000720	AACAUAGAGGAAAUUCCACGU	117

Figure 14 (continued)

Hallmark of Cancer	Tissue	Cancer Type	miRNAs	miRBase 17 Accession	miRBase 17 Sequence	SEQ ID NO
Insensitivity to Antigrowth Signals	Bladder	Carcinoma	hsa-mir-519d	MIMAT0002853	CAAAGUGCCUCCCUUUAGAGUG	118
	Bladder	Carcinoma	hsa-mir-548d-3p	MIMAT0003323	CAAAAACCACAGUUUCUUUUGC	119
	Brain	Astrocytoma	hsa-mir-185	MIMAT0000455	UGGAGAGAAAGGCAGUUCCUGA	120
	Brain	Astrocytoma	hsa-mir-637	MIMAT0003307	ACUGGGGGCUUUCGGGCUCUGCGU	121
	Brain	Glioblastoma	hsa-mir-1275	MIMAT0005929	GUGGGGGAGAGGCUGUC	122
	Brain	Glioblastoma	hsa-mir-423-5p	MIMAT0004748	UGAGGGGCAGAGAGCGAGACUUU	123
	Brain	Glioblastoma Multiforme	hsa-mir-369-5p	MIMAT0001621	AGAUCGACCGUGUUAUAUUCGC	124
	Brain	Glioma	hsa-let-7c	MIMAT0000064	UGAGGUAGUAGGUUGUAUGGUU	125
	Brain	Glioma	hsa-mir-340	MIMAT0004692	UUAUAAAGCAAUGAGACUGAUU	126
	Brain	Glioma	hsa-mir-342-5p	MIMAT0004694	AGGGGUGCUAUCUGUGAUUGA	127
	Brain	Glioma	hsa-mir-586	MIMAT0003252	UAUGCAUUGUAUUUUUAGGUCC	128
	Brain	Glioma	hsa-mir-634	MIMAT0003304	AACCAGCACCCCAACUUUGGAC	129
	Brain	Oligodendroglioma	hsa-mir-153	MIMAT0000439	UUGCAUAGUCACAAAAGUGAUC	130
	Brain	Oligodendroglioma	hsa-mir-939	MIMAT0004982	UGGCGAGCUGAGGCUCUGGGGUG	131
	Breast	Carcinoma	hsa-mir-423-5p	MIMAT0004748	UGAGGGGCAGAGAGCGAGACUUU	132
	Breast	Carcinoma	hsa-mir-640	MIMAT0003310	AUGAUCCAGGAACCUGCCUCU	133
	Breast	Invasive Ductal Carcinoma	hsa-mir-125a-3p	MIMAT0004602	ACAGGUGAGGUUCUUGGGAGCC	134
	Breast	Invasive Ductal Carcinoma	hsa-mir-1291	MIMAT0005881	UGGCCCUGACUGAAGACCAGCAGU	135
	Breast	Invasive Ductal Carcinoma	hsa-mir-802	MIMAT0004185	CAGUAACAAAGAUUCAUCCUUGU	136
	Breast	Invasive Ductal Carcinoma	hsa-mir-9	MIMAT0000441	UCUUUGGUUAUCUAGCUGUAUGA	137
	Colon	Carcinoma	hsa-mir-557	MIMAT0003221	GUUUGCACGGGUGGGCCUUGUCU	138
	Head-Neck	Head-Neck Squamous Cell Carcinoma	hsa-mir-1264	MIMAT0005791	CAAGUCUUAUUUGAGCACCUGUU	139
	Head-Neck	Head-Neck Squamous Cell Carcinoma	hsa-mir-450b-5p	MIMAT0004909	UUUUGCAAUAUGUUCCUGAAUA	140
	Head-Neck	Head-Neck Squamous Cell Carcinoma	hsa-mir-615-3p	MIMAT0003283	UCCGAGCCUGGGUCUCCCUCUU	141
	Leukemia	Chronic Lymphocytic Leukemia	hsa-mir-1245	MIMAT0005897	AAGUGAUCUAAAGGCCUACAU	142
	Leukemia	Chronic Lymphocytic Leukemia	hsa-mir-548c-3p	MIMAT0003285	CAAAAAUCUCAAUUACUUUUGC	143
	Leukemia	Chronic Lymphocytic Leukemia	hsa-mir-760	MIMAT0004957	CGGCUCUGGGUCUGUGGGGA	144
	Lung	Adenocarcinoma	hsa-mir-1275	MIMAT0005929	GUGGGGGAGAGGCUGUC	145
	Lung	Adenocarcinoma	hsa-mir-1292	MIMAT0005943	UGGGAACGGGUUCCGGCAGACGCUG	146
	Lung	Adenocarcinoma	hsa-mir-222	MIMAT0000279	AGCUACAUCUGGCUACUGGGU	147
	Lung	Adenocarcinoma	hsa-mir-296-5p	MIMAT0000690	AGGGCCCCCCCUCAAUCCUGU	148
	Lung	Adenocarcinoma	hsa-mir-338-5p	MIMAT0004701	AACAAUAUCCUGGUGCUGAGUG	149
	Lung	Adenocarcinoma	hsa-mir-370	MIMAT0000722	GCCUGCUGGGGUGGAACCUGGU	150
	Lung	Adenocarcinoma	hsa-mir-548k	MIMAT0005882	AAAAGUACUUGCGGAUUUUGCU	151
	Lung	Adenocarcinoma	hsa-mir-567	MIMAT0003231	AGUAUGUUCUUCCAGGACAGAAC	152
	Lung	Adenocarcinoma	hsa-mir-607	MIMAT0003275	GUUCAAAUCCAGAUCUAUAAC	153
	Lung	Adenocarcinoma	hsa-mir-656	MIMAT0003332	AAUAUUAUACAGUCAACCUCU	154
	Lung	Carcinoid	hsa-mir-342-5p	MIMAT0004694	AGGGGUGCUAUCUGUGAUUGA	155
	Lung	Carcinoid	hsa-mir-920	MIMAT0004970	GGGGAGCUGUGGAAGCAGUA	156
	Lung	Small Cell Lung Cancer	hsa-mir-101	MIMAT0000099	UACAGUACUGUGAUAACUGAA	157
	Lung	Small Cell Lung Cancer	hsa-mir-212	MIMAT0000269	UAACAGUCUCCAGUCACGGCC	158
	Lung	Small Cell Lung Cancer	hsa-mir-296-5p	MIMAT0000690	AGGGCCCCCCCUCAAUCCUGU	159
	Lung	Small Cell Lung Cancer	hsa-mir-331-3p	MIMAT0000760	GCCCCUGGGCCUAUCCUAGAA	160

Lung	Squamous Cell Lung Carcinoma	hsa-mir-296-5p	MIMAT0000690	AGGGCCCCCCCUCAAUCCUGU	161
Melanoma	Melanoma	hsa-mir-548c-3p	MIMAT0003285	CAAAAAUCUCAAUUACUUUUUGC	162
Mesothelioma	Malignant Mesothelioma	hsa-mir-526b	MIMAT0002835	CUCUUGAGGGAAGCACUUUCUGU	163
Myeloma	Multiple Myeloma	hsa-mir-28-5p	MIMAT0000085	AAGGAGCUCACAGUCUAUUGAG	164
Myeloma	Multiple Myeloma	hsa-mir-760	MIMAT0004957	CGGCUCUGGGUCUGUGGGGA	165
Ovarian	Adenocarcinoma	hsa-mir-1207-5p	MIMAT0005871	UGGCAGGGAGGCUGGGAGGGG	166
Ovarian	Adenocarcinoma	hsa-mir-210	MIMAT0000267	CUGUGCGUGUGACAGCGGCUGA	167
Ovarian	Adenocarcinoma	hsa-mir-548d-3p	MIMAT0003323	CAAAAACCACAGUUUCUUUUGC	168
Ovarian	Adenocarcinoma	hsa-mir-548l	MIMAT0005889	AAAAGUAUUGCGGGUUUUGUC	169
Ovarian	Adenocarcinoma	hsa-mir-767-5p	MIMAT0003882	UGCACCAUGGUUGUCUGAGCAUG	170
Ovarian	Clear Cell Carcinoma	hsa-mir-127-5p	MIMAT0004604	CUGAAGCUCAGAGGGCUCUGAU	171
Ovarian	Endometrial	hsa-mir-29a	MIMAT0000086	UAGCACCAUCUGAAAUCGGUUA	172
Ovarian	Endometrial	hsa-mir-621	MIMAT0003290	GGCUAGCAACAGCGCUUACCU	173
Ovarian	Endometrial	hsa-mir-802	MIMAT0004185	CAGUAACAAAGAUUCAUCCUUGU	174
Ovarian	Serous Adenocarcinoma	hsa-mir-1290	MIMAT0005880	UGGAUUUUUGGAUCAGGGA	175
Prostate	Primary Tumor	hsa-mir-25	MIMAT0000081	CAUUGCACUUGUCUCGGUCUGA	176
Seminoma	Germ Cell Tumor	hsa-mir-34a	MIMAT0000255	UGGCAGUGUCUUAGCUGGUUGU	177
Seminoma	Germ Cell Tumor	hsa-mir-376c	MIMAT0000720	AACAUAGAGGAAAUUCCACGU	178
Seminoma	Germ Cell Tumor	hsa-mir-708	MIMAT0004926	AAGGAGCUUACAAUCUAGCUGGG	179

Figure 14 (continued)

Hallmark of Cancer	Tissue	Cancer Type	miRNAs	miRBase 17 Accession	miRBase 17 Sequence	SEQ ID NO
Limitless Replicative Potential	Lung	Carcinoid	hsa-mir-342-5p	MIMAT0004694	AGGGGUGCUAUCUGUGAUUGA	180
	Lung	Small Cell Lung Cancer	hsa-mir-331-3p	MIMAT0000760	GCCCCUGGGCCUAUCCUAGAA	181

Figure 14 (continued)

Hallmark of Cancer	Tissue	Cancer Type	miRNAs	miRBase 17 Accession	miRBase 17 Sequence	SEQ ID NO
Reprogramming Energy Metabolism	Brain	Glioma	hsa-mir-586	MIMAT0003252	UAUGCAUUGUAUUUUUAGGUCC	182
	Brain	Oligodendroglioma	hsa-mir-765	MIMAT0003945	UGGAGGAGAAGGAAGGUGAUG	183
	Lung	Adenocarcinoma	hsa-mir-320e	MIMAT0015072	AAAGCUGGGUUGAGAAGG	184
	Lung	Adenocarcinoma	hsa-mir-760	MIMAT0004957	CGGCUCUGGGUCUGUGGGGA	185
	Ovarian	Adenocarcinoma	hsa-mir-548l	MIMAT0005889	AAAAGUAUUUGCGGGUUUUGUC	186

Figure 14 (continued)

Hallmark of Cancer	Tissue	Cancer Type	miRNAs	miRBase 17 Accession	miRBase 17 Sequence	SEQ ID NO
Self Sufficiency in Growth Signals	Bladder	Carcinoma	hsa-mir-519d	MIMAT0002853	CAAAGUGCCUCCCUUUAGAGUG	187
	Brain	Astrocytoma	hsa-mir-185	MIMAT0000455	UGGAGAGAAAGGCAGUUCCUGA	188
	Brain	Astrocytoma	hsa-mir-637	MIMAT0003307	ACUGGGGGCUUUCCGGCUCUGCGU	189
	Brain	Glioblastoma	hsa-mir-1275	MIMAT0005929	GUGGGGGAGAGGCUGUC	190
	Brain	Glioblastoma	hsa-mir-423-5p	MIMAT0004748	UGAGGGGCAGAGAGCGAGACUUU	191
	Brain	Glioblastoma Multiforme	hsa-mir-369-5p	MIMAT0001621	AGAUCGACCGUGUUAUAUUCGC	192
	Brain	Glioma	hsa-let-7c	MIMAT0000064	UGAGGUAGUAGGUUGUAUGGUU	193
	Brain	Glioma	hsa-mir-340	MIMAT0004692	UUAUAAAGCAAUGAGACUGAUU	194
	Brain	Glioma	hsa-mir-342-5p	MIMAT0004694	AGGGGUGCUAUCUGUGAUUGA	195
	Brain	Glioma	hsa-mir-586	MIMAT0003252	UAUGCAUUGUAUUUUUAGGUCC	196
	Brain	Glioma	hsa-mir-634	MIMAT0003304	AACCAGCACCCCAACUUUGGAC	197
	Brain	Oligodendroglioma	hsa-mir-153	MIMAT0000439	UUGCAUAGUCACAAAAGUGAUC	198
	Brain	Oligodendroglioma	hsa-mir-939	MIMAT0004982	UGGGGAGCUGAGGCUCUGGGGGUG	199
	Breast	Carcinoma	hsa-mir-423-5p	MIMAT0004748	UGAGGGGCAGAGAGCGAGACUUU	200
	Breast	Carcinoma	hsa-mir-640	MIMAT0003310	AUGAUCCAGGAACCUGCCUCU	201
	Breast	Invasive Ductal Carcinoma	hsa-mir-125a-3p	MIMAT0004602	ACAGGUGAGGUUCUUGGGAGCC	202
	Breast	Invasive Ductal Carcinoma	hsa-mir-1291	MIMAT0005881	UGGCCCUGACUGAAGACCAGCAGU	203
	Breast	Invasive Ductal Carcinoma	hsa-mir-802	MIMAT0004185	CAGUAACAAAGAUUCAUCCUUGU	204
	Colon	Carcinoma	hsa-mir-557	MIMAT0003221	GUUUGCACGGGUGGGCCUUGUCU	205
	Head-Neck	Head-Neck Squamous Cell Carcinoma	hsa-mir-450b-5p	MIMAT0004909	UUUUGCAAUAUGUUCCUGAAUA	206
	Head-Neck	Head-Neck Squamous Cell Carcinoma	hsa-mir-615-3p	MIMAT0003283	UCCGAGCCUGGGUCUCCCUCUU	207
	Leukemia	Chronic Lymphocytic Leukemia	hsa-mir-1245	MIMAT0005897	AAGUGAUCUAAAGGCCUACAU	208
	Leukemia	Chronic Lymphocytic Leukemia	hsa-mir-548c-3p	MIMAT0003285	CAAAAAUCUCAAUUACUUUUGC	209
	Leukemia	Chronic Lymphocytic Leukemia	hsa-mir-760	MIMAT0004957	CGGCUCUGGGUCUGUGGGGA	210
	Lung	Adenocarcinoma	hsa-mir-1275	MIMAT0005929	GUGGGGGAGAGGCUGUC	211
	Lung	Adenocarcinoma	hsa-mir-1292	MIMAT0005943	UGGGAACGGGUUCCGGCAGACGCUG	212
	Lung	Adenocarcinoma	hsa-mir-222	MIMAT0000279	AGCUACAUCUGGCUACUGGGU	213
	Lung	Adenocarcinoma	hsa-mir-296-5p	MIMAT0000690	AGGGCCCCCCCUCAAUCCUGU	214
	Lung	Adenocarcinoma	hsa-mir-370	MIMAT0000722	GCCUGCUGGGGUGGAACCUGGU	215
	Lung	Adenocarcinoma	hsa-mir-548k	MIMAT0005882	AAAAGUACUUGCGGAUUUUGCU	216
	Lung	Adenocarcinoma	hsa-mir-567	MIMAT0003231	AGUAUGUUCUUCCAGGACAGAAC	217
	Lung	Adenocarcinoma	hsa-mir-607	MIMAT0003275	GUUCAAAUCCAGAUCUAUAAC	218
	Lung	Adenocarcinoma	hsa-mir-656	MIMAT0003332	AAUAUUAUACAGUCAACCUCU	219
	Lung	Carcinoid	hsa-mir-342-5p	MIMAT0004694	AGGGGUGCUAUCUGUGAUUGA	220
	Lung	Carcinoid	hsa-mir-920	MIMAT0004970	GGGGAGCUGUGGAAGCAGUA	221
	Lung	Small Cell Lung Cancer	hsa-mir-296-5p	MIMAT0000690	AGGGCCCCCCCUCAAUCCUGU	222
	Lung	Small Cell Lung Cancer	hsa-mir-331-3p	MIMAT0000760	GCCCCUGGGCCUAUCCUAGAA	223
	Lung	Squamous Cell Lung Carcinoma	hsa-mir-296-5p	MIMAT0000690	AGGGCCCCCCCUCAAUCCUGU	224
	Melanoma	Melanoma	hsa-mir-548c-3p	MIMAT0003285	CAAAAAUCUCAAUUACUUUUGC	225
	Mesothelioma	Malignant Mesothelioma	hsa-mir-526b	MIMAT0002835	CUCUUGAGGGAAGCACUUUCUGU	226
	Myeloma	Multiple Myeloma	hsa-mir-28-5p	MIMAT0000085	AAGGAGCUCACAGUCUAUUGAG	227
	Myeloma	Multiple Myeloma	hsa-mir-760	MIMAT0004957	CGGCUCUGGGUCUGUGGGGA	228

	Ovarian	Adenocarcinoma	hsa-mir-1207-5p	MIMAT0005871	UGGCAGGGAGGCUGGGAGGGG	229
	Ovarian	Adenocarcinoma	hsa-mir-210	MIMAT0000267	CUGUGCGUGUGACAGCGGCUGA	230
	Ovarian	Adenocarcinoma	hsa-mir-548d-3p	MIMAT0003323	CAAAACCACAGUUUCUUUUUGC	231
	Ovarian	Adenocarcinoma	hsa-mir-548l	MIMAT0005889	AAAAGUAUUUGCGGGUUUUGUC	232
	Ovarian	Endometrial	hsa-mir-29a	MIMAT0000086	UAGCACCAUCUGAAAUCGGUUA	233
	Ovarian	Endometrial	hsa-mir-621	MIMAT0003290	GGCUAGCAACAGCGCUUACCU	234
	Ovarian	Serous Adenocarcinoma	hsa-mir-1290	MIMAT0005880	UGGAUUUUUGGAUCAGGGA	235
	Seminoma	Germ Cell Tumor	hsa-mir-34a	MIMAT0000255	UGGCAGUGUCUUAGCUGGUUGU	236
	Seminoma	Germ Cell Tumor	hsa-mir-376c	MIMAT0000720	AACAUAGAGGAAAUUCCACGU	237
	Seminoma	Germ Cell Tumor	hsa-mir-708	MIMAT0004926	AAGGAGCUUACAAUCUAGCUGGG	238

Figure 14 (continued)

Hallmark of Cancer	Tissue	Cancer Type	miRNAs	miRBase 17 Accession	miRBase 17 Sequence	SEQ ID NO
Sustained Angiogenesis	Bladder	Carcinoma	hsa-mir-519d	MIMAT0002853	CAAAGUGCCUCCCUUUAGAGUG	239
	Brain	Astrocytoma	hsa-mir-637	MIMAT0003307	ACUGGGGGCUUUCGGGCUCUGCGU	240
	Brain	Glioma	hsa-let-7c	MIMAT0000064	UGAGGUAGUAGGUUGUAUGGUU	241
	Breast	Carcinoma	hsa-mir-454	MIMAT0003885	UAGUGCAAUAUUGCUUAUAGGGU	242
	Breast	Invasive Ductal Carcinoma	hsa-mir-125a-3p	MIMAT0004602	ACAGGUGAGGUUCUUGGGAGCC	243
	Head-Neck	Head-Neck Squamous Cell Carcinoma	hsa-mir-450b-5p	MIMAT0004909	UUUUGCAAUAUGUUCCUGAAUA	244
	Lung	Adenocarcinoma	hsa-mir-222	MIMAT0000279	AGCUACAUCUGGCUACUGGGU	245
	Lung	Adenocarcinoma	hsa-mir-296-5p	MIMAT0000690	AGGGCCCCCCCUCAAUCCUGU	246
	Lung	Adenocarcinoma	hsa-mir-29a	MIMAT0000086	UAGCACCAUCUGAAAUCGGUUA	247
	Lung	Adenocarcinoma	hsa-mir-29b	MIMAT0000100	UAGCACCAUUUGAAAUCAGUGUU	248
	Lung	Adenocarcinoma	hsa-mir-370	MIMAT0000722	GCCUGCUGGGGUGGAACCUGGU	249
	Lung	Adenocarcinoma	hsa-mir-656	MIMAT0003332	AAUAUUAUACAGUCAACCUCU	250
	Lung	Carcinoid	hsa-mir-342-5p	MIMAT0004694	AGGGGUGCUAUCUGUGAUUGA	251
	Lung	Carcinoid	hsa-mir-920	MIMAT0004970	GGGGAGCUGUGGAAGCAGUA	252
	Lung	Small Cell Lung Cancer	hsa-mir-331-3p	MIMAT0000760	GCCCCUGGGCCUAUCCUAGAA	253
	Melanoma	Melanoma	hsa-mir-200a	MIMAT0000682	UAACACUGUCUGGUAACGAUGU	254
	Melanoma	Melanoma	hsa-mir-548c-3p	MIMAT0003285	CAAAAAUCUCAAUUACUUUUGC	255
	Ovarian	Adenocarcinoma	hsa-mir-767-5p	MIMAT0003882	UGCACCAUGGUUGUCUGAGCAUG	256
	Ovarian	Endometrial	hsa-mir-29a	MIMAT0000086	UAGCACCAUCUGAAAUCGGUUA	257
	Ovarian	Serous Adenocarcinoma	hsa-mir-1290	MIMAT0005880	UGGAUUUUUGGAUCAGGGA	258
	Prostate	Primary Tumor	hsa-mir-579	MIMAT0003244	UUCAUUUGGUAUAAACCGCGAUU	259
	Seminoma	Germ Cell Tumor	hsa-mir-376c	MIMAT0000720	AACAUAGAGGAAAUUCCACGU	260

Figure 14 (continued)

Hallmark of Cancer	Tissue	Cancer Type	miRNAs	miRBase 17 Accession	miRBase 17 Sequence	SEQ ID NO
Tissue Invasion and Metastasis	Bladder	Carcinoma	hsa-mir-519d	MIMAT0002853	CAAAGUGCCUCCCUUUAGAGUG	261
	Brain	Astrocytoma	hsa-mir-637	MIMAT0003307	ACUGGGGGCUUUCGGGCUCUGCGU	262
	Brain	Glioma	hsa-let-7c	MIMAT0000064	UGAGGUAGUAGGUUGUAUGGUU	263
	Brain	Glioma	hsa-mir-634	MIMAT0003304	AACCAGCACCCCAACUUUGGAC	264
	Brain	Glioma	hsa-mir-718	MIMAT0012735	CUUCCGCCCCGCCGGGCGUCG	265
	Breast	Carcinoma	hsa-mir-423-5p	MIMAT0004748	UGAGGGGCAGAGAGCGAGACUUU	266
	Breast	Carcinoma	hsa-mir-454	MIMAT0003885	UAGUGCAAUAUUGCUUAUAGGGU	267
	Breast	Invasive Ductal Carcinoma	hsa-mir-1291	MIMAT0005881	UGGCCCUGACUGAAGACCAGCAGU	268
	Colon	Carcinoma	hsa-mir-325	MIMAT0000771	CCUAGUAGGUGUCCAGUAAGUGU	269
	Colon	Carcinoma	hsa-mir-557	MIMAT0003221	GUUUGCACGGGUGGGCCUUGUCU	270
	Head-Neck	Head-Neck Squamous Cell Carcinoma	hsa-mir-450b-5p	MIMAT0004909	UUUUGCAAUAUGUUCCUGAAUA	271
	Leukemia	Chronic Lymphocytic Leukemia	hsa-mir-1245	MIMAT0005897	AAGUGAUCUAAAGGCCUACAU	272
	Leukemia	Chronic Lymphocytic Leukemia	hsa-mir-760	MIMAT0004957	CGGCUCUGGGUCUGUGGGGA	273
	Lung	Adenocarcinoma	hsa-mir-222	MIMAT0000279	AGCUACAUCUGGCUACUGGGU	274
	Lung	Adenocarcinoma	hsa-mir-296-5p	MIMAT0000690	AGGGCCCCCCCUCAAUCCUGU	275
	Lung	Adenocarcinoma	hsa-mir-29a	MIMAT0000086	UAGCACCAUCUGAAAUCGGUUA	276
	Lung	Adenocarcinoma	hsa-mir-29b	MIMAT0000100	UAGCACCAUUUGAAAUCAGUGUU	277
	Lung	Adenocarcinoma	hsa-mir-370	MIMAT0000722	GCCUGCUGGGGUGGAACCUGGU	278
	Lung	Adenocarcinoma	hsa-mir-656	MIMAT0003332	AAUAUUAUACAGUCAACCUCU	279
	Lung	Carcinoid	hsa-mir-342-5p	MIMAT0004694	AGGGGUGCUAUCUGUGAUUGA	280
	Lung	Carcinoid	hsa-mir-920	MIMAT0004970	GGGGAGCUGUGGAAGCAGUA	281
	Lung	Small Cell Lung Cancer	hsa-mir-296-5p	MIMAT0000690	AGGGCCCCCCCUCAAUCCUGU	282
	Lung	Small Cell Lung Cancer	hsa-mir-331-3p	MIMAT0000760	GCCCCUGGGCCUAUCCUAGAA	283
	Lung	Squamous Cell Lung Carcinoma	hsa-mir-296-5p	MIMAT0000690	AGGGCCCCCCCUCAAUCCUGU	284
	Lung	Squamous Cell Lung Carcinoma	hsa-mir-586	MIMAT0003252	UAUGCAUUGUAUUUUUAGGUCC	285
	Lung	Squamous Cell Lung Carcinoma	hsa-mir-767-5p	MIMAT0003882	UGCACCAUGGUUGUCUGAGCAUG	286
	Melanoma	Melanoma	hsa-mir-548c-3p	MIMAT0003285	CAAAAAUCUCAAUUACUUUUGC	287
	Ovarian	Adenocarcinoma	hsa-mir-210	MIMAT0000267	CUGUGCGUGUGACAGCGGCUGA	288
	Ovarian	Adenocarcinoma	hsa-mir-548d-3p	MIMAT0003323	CAAAAACCACAGUUUCUUUUGC	289
	Ovarian	Adenocarcinoma	hsa-mir-548l	MIMAT0005889	AAAAGUAUUUGCGGGUUUUGUC	290
	Ovarian	Adenocarcinoma	hsa-mir-767-5p	MIMAT0003882	UGCACCAUGGUUGUCUGAGCAUG	291
	Ovarian	Clear Cell Carcinoma	hsa-mir-29a	MIMAT0000086	UAGCACCAUCUGAAAUCGGUUA	292
	Ovarian	Endometrial	hsa-mir-29a	MIMAT0000086	UAGCACCAUCUGAAAUCGGUUA	293
	Ovarian	Endometrial	hsa-mir-621	MIMAT0003290	GGCUAGCAACAGCGCUUACCU	294
	Ovarian	Serous Adenocarcinoma	hsa-mir-1290	MIMAT0005880	UGGAUUUUUGGAUCAGGGA	295
	Seminoma	Germ Cell Tumor	hsa-mir-376c	MIMAT0000720	AACAUAGAGGAAAUUCCACGU	296

Figure 14 (continued)

Hallmark of Cancer	Tissue	Cancer Type	miRNAs	miRBase 17 Accession	miRBase 17 Sequence	SEQ ID NO
Tumor Promoting Inflammation	Bladder	Carcinoma	hsa-mir-519d	MIMAT0002853	CAAAGUGCCUCCCUUUAGAGUG	297
	Brain	Astrocytoma	hsa-mir-637	MIMAT0003307	ACUGGGGGCUUUCGGGCUCUGCGU	298
	Brain	Glioma	hsa-mir-634	MIMAT0003304	AACCAGCACCCCAACUUUGGAC	299
	Brain	Glioma	hsa-mir-718	MIMAT0012735	CUUCCGCCCCGCCGGGCGUCG	300
	Breast	Carcinoma	hsa-mir-640	MIMAT0003310	AUGAUCCAGGAACCUGCCUCU	301
	Breast	Invasive Ductal Carcinoma	hsa-mir-1291	MIMAT0005881	UGGCCCUGACUGAAGACCAGCAGU	302
	Colon	Carcinoma	hsa-mir-325	MIMAT0000771	CCUAGUAGGUGUCCAGUAAGUGU	303
	Colon	Carcinoma	hsa-mir-557	MIMAT0003221	GUUUGCACGGGUGGGCCUUGUCU	304
	Leukemia	Chronic Lymphocytic Leukemia	hsa-mir-1245	MIMAT0005897	AAGUGAUCUAAAGGCCUACAU	305
	Lung	Adenocarcinoma	hsa-mir-567	MIMAT0003231	AGUAUGUUCUUCCAGGACAGAAC	306
	Lung	Adenocarcinoma	hsa-mir-656	MIMAT0003332	AAUAUUAUACAGUCAACCUCU	307
	Lung	Carcinoid	hsa-mir-342-5p	MIMAT0004694	AGGGGUGCUAUCUGUGAUUGA	308
	Lung	Carcinoid	hsa-mir-920	MIMAT0004970	GGGGAGCUGUGGAAGCAGUA	309
	Lung	Small Cell Lung Cancer	hsa-mir-331-3p	MIMAT0000760	GCCCCUGGGCCUAUCCUAGAA	310
	Lung	Squamous Cell Lung Carcinoma	hsa-mir-586	MIMAT0003252	UAUGCAUUGUAUUUUUAGGUCC	311
	Melanoma	Melanoma	hsa-mir-548c-3p	MIMAT0003285	CAAAAAUCUCAAUUACUUUUGC	312
	Mesothelioma	Malignant Mesothelioma	hsa-mir-526b	MIMAT0002835	CUCUUGAGGGAAGCACUUUCUGU	313
	Ovarian	Adenocarcinoma	hsa-mir-210	MIMAT0000267	CUGUGCGUGUGACAGCGGCUGA	314
	Ovarian	Endometrial	hsa-mir-621	MIMAT0003290	GGCUAGCAACAGCGCUUACCU	315
	Seminoma	Germ Cell Tumor	hsa-mir-34a	MIMAT0000255	UGGCAGUGUCUUAGCUGGUUGU	316
	Seminoma	Germ Cell Tumor	hsa-mir-376c	MIMAT0000720	AACAUAGAGGAAAUUCCACGU	317

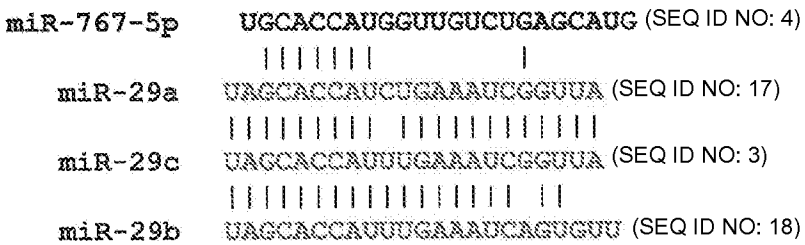

miR-767-5p UGCACCAUGGUUGUCUGAGCAUG (SEQ ID NO: 4)
miR-29a UAGCACCAUCUGAAAUCGGUUA (SEQ ID NO: 17)
miR-29c UAGCACCAUUUGAAAUCGGUUA (SEQ ID NO: 3)
miR-29b UAGCACCAUUUGAAAUCAGUGUU (SEQ ID NO: 18)

Fig. 15