

**Supplementary Table 4.** 15 prostate cancer-related miRNAs affect a number of pathways that are reported to be involved in cancer progression

KEGG pathway	p-value	#genes	#miRNAs	selected miRNA for pathway analysis
				hsa-miR-26b-5p, hsa-miR-29c-5p, hsa-miR-30c-5p, hsa-miR-141-5p, hsa-miR-148a-5p, hsa-miR-19a-5p, hsa-miR-19b-2-5p, hsa-miR-26a-5p, hsa-miR-454-5p, hsa-miR-30a-5p, hsa-miR-20a-5p, hsa-miR-17-5p, hsa-Let-7a-5p, hsa-miR-24-1-5p, hsa-miR-24-2-5p.
TGF-beta signaling pathway	8.96E-20	34	9	
PI3K-Akt signaling pathway	1.56E-18	103	14	
Colorectal cancer	6.41E-17	28	10	
Chronic myeloid leukemia	4.14E-16	31	12	
Wnt signaling pathway	1.28E-14	56	13	
Axon guidance	1.99E-13	49	9	
Pathways in cancer	3.06E-13	97	13	
Prostate cancer	8.22E-13	33	14	
Ubiquitin mediated proteolysis	1.54E-10	46	13	
MAPK signaling pathway	2.40E-10	74	14	
Focal adhesion	7.33E-10	60	13	
Endometrial cancer	1.72E-09	20	10	
Melanoma	4.83E-09	26	14	
Cell cycle	9.32E-09	44	11	
Hepatitis B	1.44E-08	46	14	
Neurotrophin signaling pathway	1.52E-08	40	13	
Transcriptional misregulation in cancer	5.53E-08	56	11	
Small cell lung cancer	1.45E-07	28	12	
Circadian rhythm	2.98E-07	13	10	
ABC transporters	3.12E-07	17	13	
ErbB signaling pathway	4.07E-07	31	12	
Dopaminergic synapse	7.90E-07	40	13	
Arrhythmogenic right ventricular cardiomyopathy (ARVC)	1.01E-06	26	8	
Regulation of actin cytoskeleton	1.72E-06	59	11	
Pancreatic cancer	2.08E-06	25	12	
Amyotrophic lateral sclerosis (ALS)	2.98E-06	18	11	
Long-term potentiation	3.55E-06	23	11	
Viral carcinogenesis	4.36E-06	55	13	
HTLV-I infection	4.73E-06	69	14	
mRNA surveillance pathway	6.99E-06	28	11	
Non-small cell lung cancer	1.04E-05	18	12	
B cell receptor signaling pathway	1.64E-05	24	12	
Adherens junction	1.74E-05	29	9	
T cell receptor signaling pathway	1.91E-05	32	10	
Insulin signaling pathway	2.62E-05	38	14	
mTOR signaling pathway	2.93E-05	21	12	

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KEGG pathway	p-value	#genes	#miRNAs	selected miRNA for pathway analysis
Glioma	3.58E-05	24	14	
Type II diabetes mellitus	5.09E-05	16	12	
Glycosaminoglycan biosynthesis - chondroitin sulfate	0.0001108	7	4	
RNA transport	0.0001528	42	13	
p53 signaling pathway	0.0001896	22	12	
Glycosaminoglycan biosynthesis - keratan sulfate	0.0005339	7	6	
Endocytosis	0.0006552	51	13	
Bladder cancer	0.0009251	14	10	
Measles	0.0009902	37	12	
Acute myeloid leukemia	0.0009922	17	10	
Basal cell carcinoma	0.0010905	17	8	
Basal transcription factors	0.0014776	14	8	
Thyroid cancer	0.0015492	11	7	
Regulation of autophagy	0.0015492	11	12	
Amoebiasis	0.0018687	29	10	
Notch signaling pathway	0.003742	14	8	
Tight junction	0.0060606	36	12	
Jak-STAT signaling pathway	0.0079725	37	12	
Nicotine addiction	0.0084052	14	11	
VEGF signaling pathway	0.00938	18	10	
Lysine degradation	0.0107364	15	9	
Shigellosis	0.0113875	18	10	
Protein processing in endoplasmic reticulum	0.0113875	41	13	
HIF-1 signaling pathway	0.0138476	28	12	
Gap junction	0.018278	21	11	
Protein digestion and absorption	0.024117	22	11	
Hypertrophic cardiomyopathy (HCM)	0.0260089	21	10	
Aldosterone-regulated sodium reabsorption	0.0268421	11	9	
Chagas disease (American trypanosomiasis)	0.0275653	26	13	
Apoptosis	0.0284463	24	10	
RNA degradation	0.0294114	19	13	
Adipocytokine signaling pathway	0.0294114	18	13	
Renal cell carcinoma	0.0295251	20	12	
Bacterial invasion of epithelial cells	0.0300757	19	11	
Calcium signaling pathway	0.0332195	42	14	
Retrograde endocannabinoid signaling	0.0359523	29	13	
Maturity onset diabetes of the young	0.0451849	8	7	