Supplemental Material

The Hypoxia-Inducible Epigenetic Regulators Jmjd1a and G9a Provide a Mechanistic Link between Angiogenesis and Tumor Growth

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Supplemental Tables

Supplemental Table S1.

Comparison of *JMJD1A* expression across 6 microarray datasets on human germ cell tumors. Meta-analysis was performed using NextBio (http://www.nextbio.com/) (Kupershmidt et al, 2010).

	NCBI GEO Accession	**Score**	**Bioset Name**	***P*-value**	**Fold Change**
1	GSE1818	53.20847	Testicular germ cell choriocarcinoma vs Normal testis	0.006	-8.71
2	GSE1818	38.30537	Testicular germ cell seminoma neoplasia vs Normal testis	0.0011	-4.78
3	GSE1818	31.8299	Testicular germ cell embryonal carcinoma vs Normal testis	0.0014	-3.62
4	GSE1818	27.31897	Testicular germ cell yolk sac tumor vs Normal testis	0.0013	-2.91
5	GSE1818	23.70376	Testicular germ cell teratoma tumor vs Normal testis	0.0012	-2.39
6	GSE3218	40.92892	Adult germ cell carcinoma - Choriocarcinoma vs Normal testis	0.0068	-4.08
7	GSE3218	36.39328	Adult germ cell carcinoma - Embryonal carcinoma vs Normal testis	5.90E-10	-4.13
8	GSE3218	34.03421	Adult germ cell carcinoma - Seminoma vs Normal testis	3.40E-08	-3.63
9	GSE3218	33.52487	Adult germ cell carcinoma - Teratoma vs Normal testis	3.80E-10	-4.07
10	GSE3218	32.11531	Adult germ cell carcinoma - Mixed germ cell tumor vs Normal testis	4.80E-10	-3.15
11	GSE3218	28.09652	Adult germ cell carcinoma - Yolk sac tumor vs Normal testis	1.40E-05	-3.15
12	GSE3921	22.20022	Yolk sac carcinoma cells vs Normal testis cells	0.0007	-3.03
13	GSE3921	9.385318	Embryonic carcinoma cells vs Normal testis cells	0.0002	-2.01
14	GSE3921	7.174898	Seminoma cells vs Normal testis cells	0.017	-1.48
15	GSE8607	31.95031	Testicular seminoma stage 3 vs Normal testis	0.0026	-4.64
16	GSE8607	23.17454	Testicular seminoma stage 1 vs Normal testis	0.0003	-3.34
17	GSE8607	21.54903	Testicular seminoma stage 2 vs Normal testis	0.0003	-3.24
18	GSE10615	24.39024	Pediatric malignant germ cell tumors - Yolk sac tumors vs Seminomas	4.40E-05	-2.11
19	GSE18155	28.49003	Seminoma tumor in adult testis vs Normal testis	3.10E-07	-3.41
20	GSE18155	17.64914	Yolk sac tumor in adult testis vs Normal testis	1.30E-05	-2.52

Supplemental Table S2.

Primers used for quantitative RT-PCR analysis of gene expression.

Gene	Forward	Reverse
Adm	GACAACGCACCCCTTTATCAG	GCGAGTGAACCCAATAACATCA
Aire	CAATCTCCGCTGCAAATCCT	CCTATGTAGAACAGGGTCGTGACTAG
Cdc42ep2	GCGCTCCTCAAGCTTCTCAA	TGGAGAGCTGGAGGCAGAAA
Dnajc5g	CGCAACCCAGCGACTATCTAG	TGCAAGGCCAGTTTCCTGTAG
G9a (*Ehmt2*)	CCACGCATTGCCTTCTTCA	AGAATCGGTCACCGTAGTCAAAG
Hmox1	ACTAGCCCAGTCCGGTGATG	TTCAAGGCCTCAGACAAATCCT
Ifi47	GTGGGCTGCAGTGAGAAACA	GAAGGCTGAGATGAACTGATCCA
Igfbp4	GCAACTTCCACCCCAAACAGT	CCTGTCTTCCGATCCACACA
Jmjd1a 201	TCTCTCTCAGTGTCCAGCTTTGAA	CGTGAGCACCATGGTTTCC
Jmjd1a	CCAGGAGAAGACTTCAGAGACATG	GGTGTACTCAGGCAGTGGAATG
Klf4	GCGGGAAGGGAGAAGACACT	TCGCTTCATGTGAGAGAGTTCCT
Liph	GGCTTAGAGGCAAGTATGTTTACCA	GGACACCTGCCCATTGTAGGT
Nanog	GGTTGAAGACTAGCAATGGTCTGA	GGATAGCTGCAATGGATGCTG
Notch4	GAGGACCTGGTTGAAGAATTGATC	TGCAGTTTTTCCCCTTTTATCC
Npy	GAAAACGCCCCCAGAACAA	AAGTCGGGAGAACAAGTTTCATTT
Oct4	ACCTTCAGGAGATATGCAAATCG	TTCTCAATGCTAGTTCGCTTTCTCT
Oct4 Ex3-4	AGCCGACAACAATGAGAACCT	AGACTCCACCTCACACGGT
Rab27a	CGGGAACTTGCCGAGAAGTA	TCTCAATCGCGTGGCTTATG
Robo4	CCAGGGAAGCTGACTGTGTCTT	TCGGGTCAGGGAGAGATCAC
Sox2	ACTGCCCCTGTCGCACAT	TTCCCTTGTATCTCTTTGAAAATCTCT
Stc2	ACAGGAGCTCGCAGCAGAA	TGACCAAACAGTGCTGGATCTC
Ubc2	AGGAGGCTGATGAAGGAGCTT GA	TGGTTTGAATGGATACTCTGCTGGA
Vegf-a	TACCTCCACCATGCCAAGTG	TCATGGGACTTCTGCTCTCCTT
Ywhaz	CGTTGTAGGAGCCCGTAGGTCAT	TCTGGTTGCGAAGCATTGGG
Zap70	CCTGAGATGTATGCACTTATGAGTGA	CGTTGTTCCACAGTCAGGAAGTC

Supplemental Table S3.

Primers used for Q-PCR analysis of chromatin immunoprecipitation (ChIP) enrichments.

Target Loci	Forward	Reverse
Igfbp4-a	CATGCCCCAGAGGTAGAACTG	AGGCGCTCTAGGAGATATTTATATGG
Igfbp4-b	GGTGCCTTTCTCCCTCCAA	TTAGGCCACCTCCCACTTTCT
Igfbp4-c	GCCACCGCTTCCAAACTG	CCGCTACAACATCTGAAAGTCCTT
Igfbp4-d	CCCTGCAACTTAGTTCCCATTC	TGCCACGTACCTCCCTTCTC
Igfbp4-e	CCTCTGACAGCCAGGCTCTCT	AGCATCCGGACTGCAACAA
Igfbp4-f	TGGCAAGCTATGGCCAATG	CGATCCTGCAAGGCTGGTA
Notch4-a	GGGACTGCTCACACAGGATATTC	CTTGTGCATTTCCTGTCTGTTCTT
Notch4-b	AGCAGGAGCATCAGGAGTTCA	CAGTAGGATCTGCCTGCTAGGAA
Notch4-c	ACACGTTGCTGCTCCTTTGA	GGAAGGGCAGGTCTTAGACAGA
Notch4-d	CAGGTTTGTGCCTGGTGCTA	CTTCAGAACCAGCTGGCTTCTC
Notch4-e	GCCAAACCCATCTGGAAGAG	GGCTCGCAGGAGCACTGT
Notch4-f	GGCAGAGGCAGGAGCATCT	TTTTTGACGCAGGGTCTCTCTAC
Robo4-a	CACCAGACCCCTAAAGTAGAAAACTT	TCCAGTACTACGATTGTCTCATTTCC
Robo4-b	GGGAGAAGGGTCAGCTGTGTT	CTGAGCTTCAGCGGAAAAGC
Robo4-c	TTGGACCAGAGATAGACACTTGCT	AGGGCTTACAGGCCAAGAAAG
Robo4-d	CTCTGCTGCTGCTTTTCATCA	TTGTCCTGCTGGCTTTGGAT
Robo4-e	GGCCAACCACCTCCCACTAT	TCCCATCCGGCAAAAGGTA
Robo4-f	TGTATGGCCACCAACAATGC	CAGAGTTCTCTCCTGAGCCCTTAT
Mlh1-a	TGGACCACAACGGCTTACG	CACTGTTTCGAGTTGCCACAA
Mlh1-b	TTGGGACTCACGGCCTTCT	CCACGACCCACACTTTAAGGA
Mlh1-c	CAGGCTCCACCACCAGGTAT	TGACGCCCAAGAGGATTAGG

Supplemental Reference

Kupershmidt I, Su QJ, Grewal A, Sundaresh S, Halperin I, Flynn J, Shekar M, Wang H, Park J, Cui W et al (2010) Ontology-based meta-analysis of global collections of high-throughput public data. PLoS One 5