

Supporting Information

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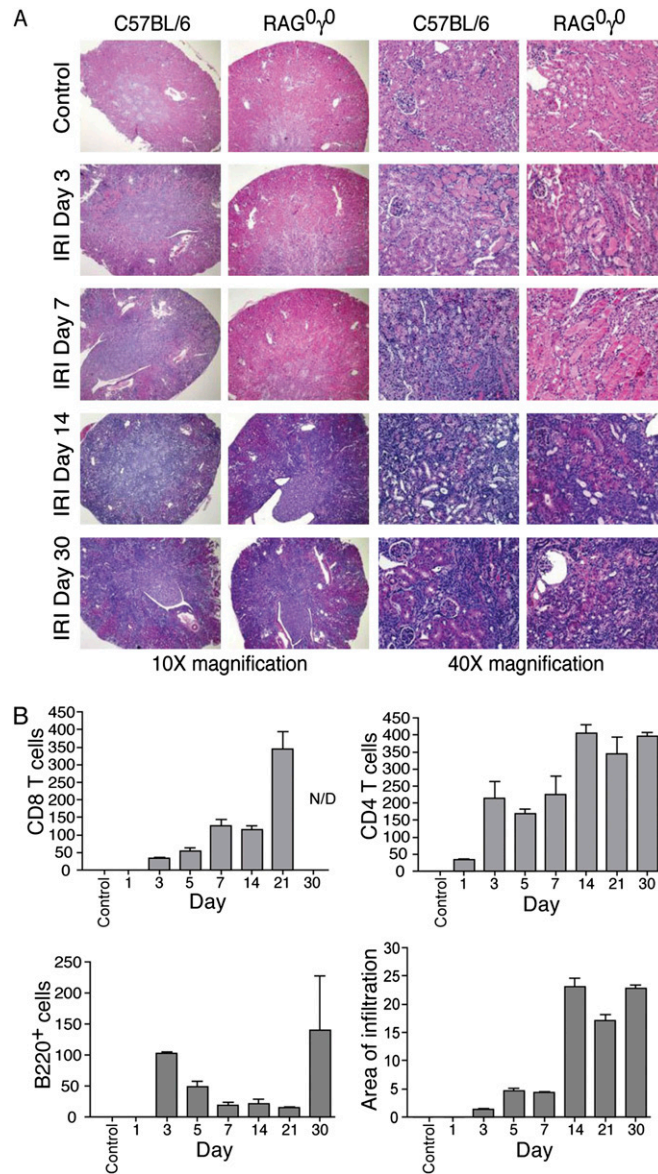


Fig. S1. Characterization of renal IRI in C57BL/6J and R₀/C₀ mice. (A) H&E-stained sections used for miRNA expression analysis. Images are representative of three independent experiments. (B) Quantitation of lymphocytic infiltration in C57BL/6J kidneys following IRI.

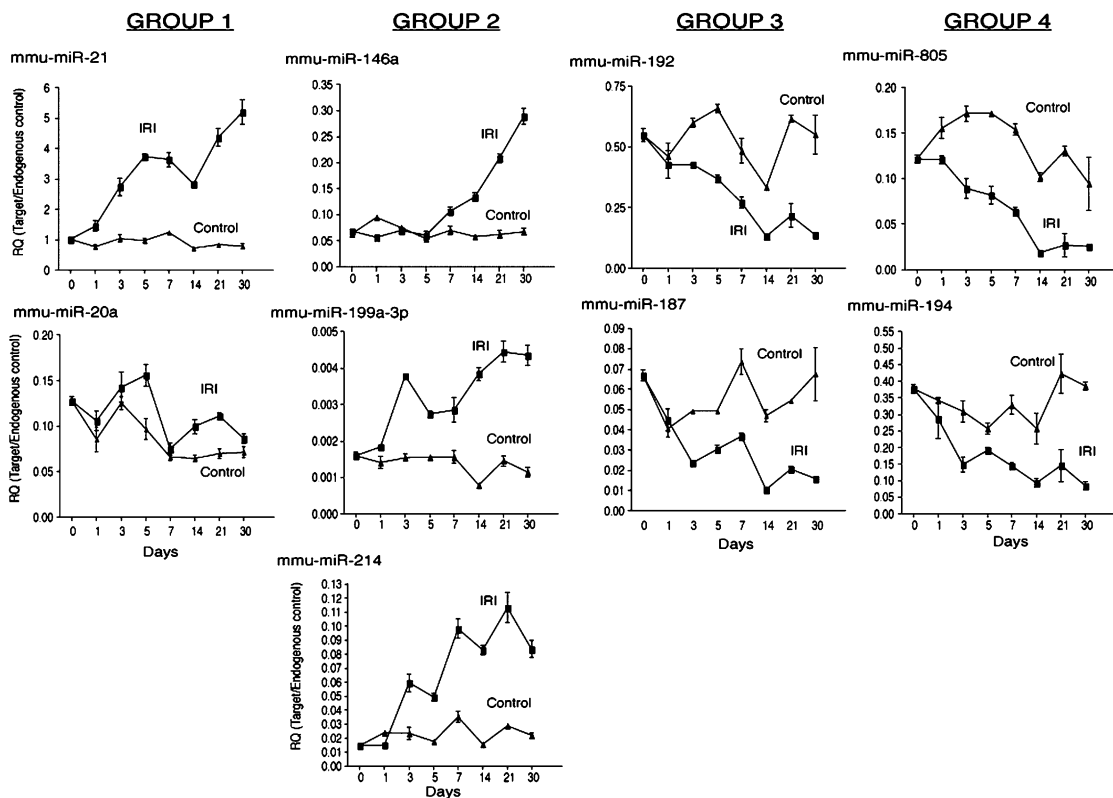


Fig. S2. Real-time PCR analysis in C57BL/6J mice following IRI. The expression of miR-21, miR-20a, miR-146a, miR-199a-3p, miR-214, miR-192, miR-187, miR-805, and miR-194 were analyzed over a 30-d time course by real-time PCR. Experiments were performed with different samples than those used in the miRNA microarray from Fig. 1.

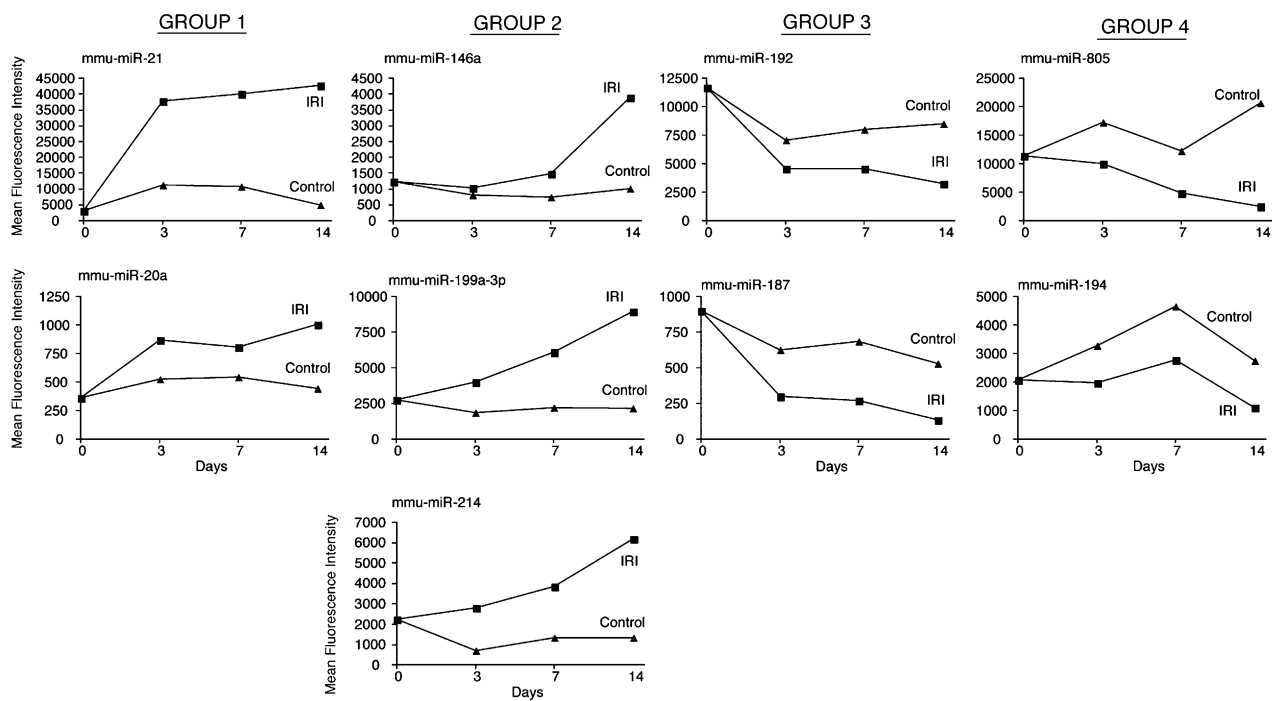


Fig. S3. miRNA microarray analysis in C57BL/6J mice following IRI. The expression of miR-21, miR-20a, miR-146a, miR-199a-3p, miR-214, miR-192, miR-187, miR-805, and miR-194 were analyzed over a 14-d time course by miRNA microarray in a second set of C57BL/6J mice.

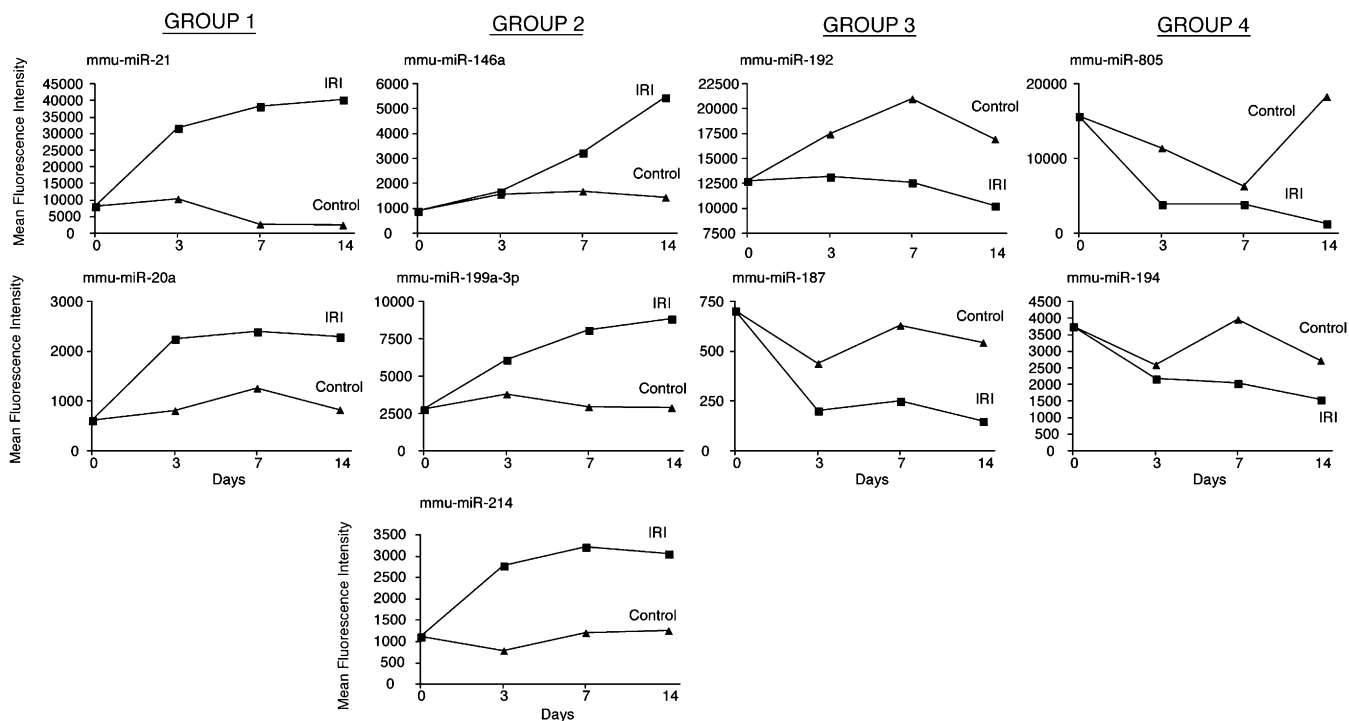


Fig. 54. miRNA microarray analysis in R_0/C_{T_0} mice following IRI. The expression of miR-21, miR-20a, miR-146a, miR-199a-3p, miR-214, miR-192, miR-187, miR-805, and miR-194 were analyzed over a 14-d time course by miRNA microarray in R^0/C_{T^0} mice. Experiments were performed with different samples than those used in Fig. 2 for real-time PCR analysis.

Table S1. Statistical analysis of miRNAs in mice undergoing IRI

Reporter name	P value	Day 1 Mean	Day 3 Mean	Day 5 Mean	Day 7 Mean	Day 14 Mean	Day 21 Mean	Day 30 Mean
mmu-miR-709	0.00E+00	1,109	22,293	18,378	26,202	28,674	28,414	21,547
mmu-miR-23a	0.00E+00	7,163	6,895	6,681	9,968	8,786	13,241	10,734
mmu-miR-805	0.00E+00	11,063	7,580	7,457	3,484	1,714	3,403	1,928
mmu-miR-98	0.00E+00	7,250	6,276	8,064	1,616	3,930	4,436	5,446
mmu-miR-30b	0.00E+00	8,362	5,913	4,649	6,933	5,170	6,222	5,838
mmu-miR-199a-3p	0.00E+00	1,437	2,641	2,699	4,141	5,987	4,791	7,465
mmu-miR-125b-5p	0.00E+00	2,791	2,677	2,632	3,752	3,405	4,389	5,637
mmu-miR-192	0.00E+00	5,893	3,192	4,548	3,301	2,159	2,899	1,406
mmu-miR-146a	0.00E+00	416	637	596	908	2,369	2,168	4,449
mmu-miR-145	0.00E+00	2,013	1,324	1,863	1,840	1,875	4,741	2,595
mmu-miR-196a	0.00E+00	4,691	2,758	3,607	1,379	2,540	2,062	2,567
mmu-miR-214	0.00E+00	437	1,759	1,879	2,408	3,899	3,206	1,872
mmu-miR-195	0.00E+00	4,193	2,508	2,366	2,139	2,789	2,748	3,106
mmu-miR-200a	0.00E+00	3,967	1,454	2,355	710	833	581	631
mmu-miR-762	0.00E+00	408	2,100	1,830	1,635	2,567	2,623	1,605
mmu-miR-429	0.00E+00	2,754	1,430	1,499	1,154	898	607	607
mmu-miR-320	0.00E+00	957	1,262	1,492	1,191	1,326	1,325	1,239
mmu-miR-689	0.00E+00	109	709	544	431	2,176	1,825	784
mmu-miR-151-5p	0.00E+00	725	1,344	1,010	1,577	1,422	1,356	1,336
mmu-miR-155	0.00E+00	1,905	1,125	1,887	456	940	655	1,304
mmu-miR-705	0.00E+00	698	1,258	1,035	593	1,384	1,869	901
mmu-miR-1224	0.00E+00	247	811	941	757	1,490	1,823	360
mmu-miR-423—5p	0.00E+00	306	726	556	800	682	593	525
mmu-miR-194	0.00E+00	1,520	1,195	1,457	1,655	664	633	579
mmu-miR-29c	0.00E+00	1,539	1,053	521	782	542	382	459
mmu-miR-25	0.00E+00	909	984	1,052	1,557	1,330	930	1,184
mmu-miR-150	0.00E+00	221	326	208	417	581	630	1,142
mmu-miR-30e	0.00E+00	1,271	761	788	712	418	421	407
mmu-miR-146b	0.00E+00	49	71	108	173	780	558	895
mmu-miR-218	0.00E+00	976	498	163	363	591	526	377
mmu-miR-99b	0.00E+00	310	505	475	723	400	621	602
mmu-miR-181a	0.00E+00	265	229	289	297	378	473	683
mmu-miR-451	0.00E+00	753	178	130	210	54	53	104
mmu-miR-132	0.00E+00	211	394	263	448	608	631	393
mmu-miR-720	0.00E+00	626	259	480	355	158	563	302
mmu-miR-574-5p	0.00E+00	119	313	290	260	355	453	152
mmu-miR-92b	0.00E+00	387	332	340	532	319	272	447
mmu-miR-23b	1.11E-16	9,193	8,386	8,000	11,620	10,335	14,869	12,211
mmu-miR-27b	1.11E-16	2,622	2,905	1,931	3,553	3,955	2,950	4,046
mmu-miR-185	1.11E-16	703	669	773	572	338	430	415
mmu-miR-26b	3.33E-16	16,436	12,378	12,069	10,258	13,249	13,599	13,697
mmu-miR-690	4.44E-16	674	1,651	865	1,500	696	582	980
mmu-miR-22	5.55E-16	396	426	501	456	223	205	322
mmu-miR-203	1.44E-15	1,135	466	336	305	456	579	340
mmu-miR-125a-5p	1.78E-15	4,636	4,583	3,447	7,090	5,139	6,045	6,789
mmu-miR-103	5.55E-15	1,440	920	1,239	781	709	847	1,022
mmu-miR-107	9.66E-15	1,411	858	1,174	696	643	771	929
mmu-miR-378	1.02E-14	540	333	513	323	205	243	259
mmu-miR-27a	2.38E-14	2,077	2,082	1,530	2,977	2,456	2,040	2,554
mmu-miR-30c	3.76E-14	9,500	8,434	6,296	10,965	6,776	7,972	7,504
mmu-miR-15a	8.64E-14	1,912	1,153	957	1,224	1,299	922	692
mmu-miR-191	2.12E-13	1,882	1,819	2,531	2,660	1,661	1,965	2,286
mmu-miR-92a	3.36E-12	1,278	1,210	1,159	1,577	1,073	904	1,395
mmu-miR-20a	3.44E-12	492	539	650	466	570	343	344
mmu-miR-126-3p	4.80E-12	10,719	8,909	6,266	8,602	8,024	7,362	5,440
mmu-miR-222	6.54E-12	762	833	777	612	522	485	673
mmu-miR-143	9.12E-12	1,270	1,391	1,405	1,633	1,468	1,326	2,085
mmu-miR-30a	1.52E-11	2,819	1,936	2,316	2,419	1,718	1,982	1,780
mmu-miR-200b	1.80E-11	10,060	7,121	7,187	6,967	6,826	5,446	4,618
mmu-miR-24	2.63E-11	1,858	2,296	2,600	3,055	2,742	2,163	3,553
mmu-miR-221	3.79E-11	566	631	824	476	692	535	726
mmu-miR-29a	1.09E-10	4,608	3,888	3,095	4,840	3,200	2,691	3,198

Table S1. Cont.

Reporter name	P value	Day 1 Mean	Day 3 Mean	Day 5 Mean	Day 7 Mean	Day 14 Mean	Day 21 Mean	Day 30 Mean
mmu-miR-21	1.55E-10	19,453	33,009	30,524	34,893	37,621	26,089	23,919
mmu-let-7b	1.97E-10	26,294	29,194	33,299	23,445	23,907	21,606	26,554
mmu-miR-15b	4.63E-10	3,050	4,706	3,150	3,904	3,977	2,654	2,836
mmu-miR-152	8.98E-10	412	336	321	303	484	413	545
mmu-let-7a	1.38E-09	36,092	38,557	43,822	31,361	32,859	29,552	34,676
mmu-miR-10a	1.87E-09	6,677	7,029	5,847	9,648	9,466	9,099	7,513
mmu-let-7c	2.09E-09	27,942	32,467	36,364	26,886	26,328	24,226	28,830
mmu-let-7e	2.38E-09	19,187	20,552	23,369	12,856	16,427	16,349	17,749
mmu-let-7d	5.01E-09	28,282	32,261	36,546	25,863	26,045	23,969	27,740
mmu-miR-10b	1.01E-08	8,950	9,373	7,069	11,054	11,770	11,474	9,974
mmu-miR-361	3.05E-08	851	978	932	985	1,121	917	1,083
mmu-miR-200c	3.41E-08	2,305	2,376	1,768	2,061	2,360	1,985	1,615
mmu-miR-674	1.71E-07	204	258	441	249	259	235	296
mmu-let-7i	2.62E-05	9,154	8,906	10,390	8,975	11,846	9,538	11,113
mmu-miR-30d	4.89E-05	2,156	1,502	1,747	1,663	1,380	1,636	1,614
mmu-miR-93	1.69E-04	168	159	365	334	226	159	172
mmu-miR-16	1.18E-03	8,383	6,226	6,795	7,869	7,613	6,583	6,689
mmu-miR-26a	8.10E-02	20,476	19,434	20,148	20,569	21,205	21,355	21,275
mmu-let-7g	9.20E-02	15,219	14,422	14,551	13,388	14,488	12,921	13,349

Genome-wide miRNA expression profiling using μ Paraflo microfluidic biochip array technology was conducted on RNA prepared from kidneys at the indicated timepoints following induction of IRI. Based on genome-wide miRNA expression profiling of 570 miRNAs present in miRBase 10.0, significant changes were detected in the expression of 81 miRNAs in IRI samples over the time course (ANOVA, $P < 0.01$). Only miRs achieving a signal intensity ≥ 200 over the time course were considered for analysis.

Table S2. Statistical analysis of miRNAs in sham controls

Reporter name	P value	Day 1	Day 3	Day 5	Day 7	Day 14	Day 21	Day 30
		Mean	Mean	Mean	Mean	Mean	Mean	Mean
mmu-miR-709	0.00E+00	17,677	12,406	22,950	17,998	25,764	26,733	50,611
mmu-miR-26a	0.00E+00	21,995	22,608	19,444	23,117	20,004	17,423	11,973
mmu-miR-805	0.00E+00	15,836	13,565	12,817	9,151	16,507	17,307	20,212
mmu-miR-23b	0.00E+00	7,636	8,073	9,092	10,185	17,314	15,108	10,825
mmu-miR-26b	0.00E+00	15,596	14,393	8,208	9,436	12,570	10,993	6,639
mmu-miR-30c	0.00E+00	7,190	10,585	12,939	14,121	9,565	11,985	5,115
mmu-miR-23a	0.00E+00	5,039	6,071	6,777	7,251	13,989	12,213	8,257
mmu-miR-126-3p	0.00E+00	6,408	9,445	7,976	10,811	9,735	6,526	4,514
mmu-miR-10b	0.00E+00	8,124	10,044	8,106	10,656	7,139	7,168	3,914
mmu-miR-21	0.00E+00	4,287	8,829	4,587	8,360	3,644	3,359	2,959
mmu-miR-145	0.00E+00	876	1,148	1,991	1,686	4,587	5,688	8,748
mmu-miR-125a-5p	0.00E+00	4,880	4,543	8,399	5,977	2,952	3,425	1,896
mmu-miR-10a	0.00E+00	5,730	7,477	5,853	7,773	4,749	5,016	2,819
mmu-miR-30b	0.00E+00	5,359	6,746	7,362	5,739	4,949	6,076	3,216
mmu-miR-98	0.00E+00	5,668	6,285	5,494	1,168	3,980	4,486	6,020
mmu-miR-29a	0.00E+00	2,709	4,819	4,399	6,806	4,315	4,067	4,306
mmu-miR-762	0.00E+00	736	1,185	6,314	567	2,027	2,698	1,665
mmu-miR-125b-5p	0.00E+00	2,753	2,545	5,647	2,883	2,074	2,164	2,375
mmu-miR-24	0.00E+00	2,200	2,194	1,957	3,488	2,425	2,605	3,205
mmu-miR-320	0.00E+00	2,488	1,270	1,043	1,513	1,732	1,951	2,956
mmu-miR-200a	0.00E+00	5,594	4,081	1,332	1,542	1,986	1,865	2,597
mmu-miR-191	0.00E+00	3,513	1,909	2,467	2,943	1,754	2,000	2,289
mmu-miR-195	0.00E+00	3,878	2,847	2,059	1,773	1,812	1,520	1,303
mmu-miR-143	0.00E+00	1,601	1,505	1,257	2,330	1,605	1,461	1,687
mmu-miR-122	0.00E+00	19	19	12	21	22	20	3,571
mmu-miR-103	0.00E+00	1,523	1,277	943	1,241	1,593	1,666	1,996
mmu-miR-705	0.00E+00	2,020	799	1,769	290	1,576	2,347	2,787
mmu-miR-107	0.00E+00	1,474	1,244	920	1,108	1,567	1,595	1,777
mmu-miR-690	0.00E+00	1,682	1,222	371	964	1,012	338	2,318
mmu-miR-214	0.00E+00	552	412	656	811	825	1,912	2,404
mmu-miR-378	0.00E+00	1,065	437	327	411	566	476	542
mmu-miR-1224	0.00E+00	1,082	829	2,390	330	1,353	2,013	484
mmu-miR-27a	0.00E+00	1,222	1,947	1,161	1,940	1,630	1,312	662
mmu-miR-185	0.00E+00	918	771	672	915	776	766	855
mmu-miR-720	0.00E+00	553	387	466	661	1,171	808	1,521
mmu-miR-467b*	0.00E+00	329	50	1,878	38	65	37	211
mmu-miR-15a	0.00E+00	829	1,564	661	842	612	445	227
mmu-miR-15b	0.00E+00	1,315	1,504	1,470	1,828	1,325	1,279	1,233
mmu-miR-151-5p	0.00E+00	607	1,036	1,033	1,762	1,027	979	624
mmu-miR-689	0.00E+00	757	430	1,522	65	1,530	823	139
mmu-miR-29c	0.00E+00	394	1,533	640	1,171	954	805	455
mmu-miR-423-5p	0.00E+00	636	435	442	987	646	1,105	930
mmu-miR-199a-3p	0.00E+00	887	1,199	500	1,441	1,373	1,182	1,180
mmu-miR-466f-3p	0.00E+00	1,357	60	980	25	85	81	198
mmu-miR-467a*	0.00E+00	121	20	1,179	21	31	29	66
mmu-miR-574-5p	0.00E+00	1,110	88	383	37	133	157	226
mmu-miR-92a	0.00E+00	543	770	1,001	1,013	767	826	938
mmu-miR-451	0.00E+00	197	204	232	406	308	324	882
mmu-miR-30a*	0.00E+00	262	519	408	538	307	207	148
mmu-miR-455	0.00E+00	366	284	946	385	282	400	498
mmu-miR-203	0.00E+00	358	781	368	401	777	657	426
mmu-miR-22	0.00E+00	406	532	685	843	559	400	580
mmu-miR-99b	0.00E+00	401	431	667	768	389	571	407
mmu-miR-466g	0.00E+00	740	27	333	18	36	37	50
mmu-miR-574-3p	0.00E+00	752	57	280	25	62	73	97
mmu-miR-486	0.00E+00	116	111	180	400	238	405	662
mmu-miR-155	0.00E+00	616	529	209	138	358	323	410
mmu-miR-218	0.00E+00	102	537	137	372	264	173	40
mmu-miR-30e	1.11E-16	810	1,379	746	1,222	935	701	600
mmu-let-7c	6.66E-16	36,954	31,674	35,443	37,526	36,985	36,603	47,340
mmu-miR-25	2.89E-15	262	531	507	716	443	547	407
mmu-miR-222	7.33E-15	889	733	547	843	763	955	808

Table S2. Cont.

Reporter name	P value	Day 1	Day 3	Day 5	Day 7	Day 14	Day 21	Day 30
		Mean	Mean	Mean	Mean	Mean	Mean	Mean
mmu-let-7b	5.11E-14	36,380	29,218	32,994	32,780	34,324	36,108	44,812
mmu-miR-361	5.34E-14	815	875	665	980	895	919	682
mmu-let-7a	1.21E-13	36,983	35,479	37,263	39,649	39,457	36,942	46,022
mmu-let-7e	1.36E-13	20,795	18,531	17,797	10,134	16,269	19,496	20,166
mmu-miR-194	1.75E-13	1,388	1,967	1,824	2,895	1,656	1,542	1,671
mmu-miR-429	3.36E-13	2,419	2,271	1,432	1,416	1,463	1,275	1,518
mmu-miR-196a	8.46E-13	3,135	3,244	1,953	1,312	2,871	3,576	3,050
mmu-miR-221	1.63E-12	555	621	401	469	752	668	719
mmu-miR-27b	2.10E-12	2,460	3,473	2,470	3,561	3,273	2,610	2,470
mmu-miR-200b	1.02E-11	10,050	10,665	8,001	7,422	7,277	8,619	6,696
mmu-miR-16	7.01E-11	7,114	7,328	7,138	6,841	5,520	5,609	5,206
mmu-let-7i	7.52E-11	7,614	7,074	5,422	4,997	5,238	4,591	6,608
mmu-miR-674	9.41E-11	252	204	145	343	211	267	360
mmu-let-7d	1.60E-10	34,213	31,011	33,243	32,501	34,288	34,006	42,463
mmu-miR-192	3.00E-10	7,150	5,440	4,343	6,282	6,484	5,558	5,119
mmu-miR-30a	9.73E-09	2,471	3,021	2,464	3,406	2,939	2,740	2,536
mmu-miR-146a	8.88E-08	463	486	365	473	612	426	374
mmu-miR-93	6.39E-07	118	135	197	301	121	138	136
mmu-miR-200c	1.98E-06	1,949	2,555	1,961	2,077	1,879	2,179	1,820
mmu-miR-152	3.88E-06	383	419	227	328	350	227	238
mmu-let-7g	5.16E-06	14,865	16,141	13,150	16,149	15,653	13,224	12,632
mmu-miR-30d	1.50E-05	2,038	2,037	1,843	2,212	2,393	2,362	2,759

Genome-wide miRNA expression profiling using μ Parafluo microfluidic biochip array technology was conducted on RNA prepared from kidneys at the indicated time points following sham surgery. Based on genome-wide miRNA expression profiling of 570 miRNAs present in miRBase 10.0, significant changes were detected in the expression of 84 miRNAs in IRI samples over the time course (ANOVA $P < 0.01$). Only miRs achieving a signal intensity ≥ 200 over the time course were considered for analysis.