

**Supplementary Table 1.** Spearman correlation coefficients between TCE air levels from personal monitoring and urinary levels of TCE and its metabolites among exposed workers

	<i>Trichloroacetic acid (TCA)</i>	<i>Total trichloroethanol (TCEOH)</i>
<i>TCE air level</i>	0.4448 <sup>a</sup>	0.6566
<i>(continuous variable)</i>	0.0001 <sup>b</sup>	0.0001
	69 <sup>c</sup>	69

<sup>a</sup>Spearman correlation coefficient; <sup>b</sup>p-value; <sup>c</sup>number of subjects

**Supplementary Table 2.** Serum microRNAs evaluated in a cross-sectional molecular epidemiology study of occupational TCE exposure in China

No.	miRNA <sup>a</sup>	Controls (n=90)		TCE-exposed (n=74)		% difference	P <sup>c</sup>	FDR <sup>d</sup>
		Mean <sup>b</sup>	SD <sup>b</sup>	Mean <sup>b</sup>	SD <sup>b</sup>			
1	miR-150-5p	176.0	75.9	147.3	63.1	-16%	0.006	0.13
2	let-7b-5p	705.0	325.2	586.6	239.3	-17%	0.008	0.13
3	miR-92a-3p	2478.1	798.7	2166.8	792.2	-13%	0.02	0.17
4	miR-122-5p	1037.7	1177.2	576.5	610.3	-44%	0.03	0.17
5	let-7g-5p	67.5	36.1	59.2	26.8	-12%	0.03	0.17
6	miR-20a-5p	649.8	249.9	573.4	222.1	-12%	0.03	0.17
7	miR-140-5p	8.7	4.5	7.6	4.7	-13%	0.04	0.19
8	miR-29b-3p	22.6	14.0	19.8	11.5	-12%	0.06	0.22
9	miR-25-3p	979.0	413.0	852.2	384.3	-13%	0.06	0.22
10	miR-22-5p	25.0	10.1	22.7	8.8	-9%	0.08	0.26
11	miR-27b-3p	281.2	81.1	263.3	63.6	-6%	0.09	0.27
12	miR-128-3p	66.6	17.6	62.3	15.6	-7%	0.11	0.30
13	mir-15a-5p	368.6	157.4	333.8	132.7	-9%	0.14	0.35
14	mir-93-5p	713.2	391.3	633.8	260.7	-11%	0.15	0.35
15	miR-30c-5p	202.5	198.7	168.8	37.7	-17%	0.18	0.40
16	miR-151a-3p	55.4	15.2	52.4	15.3	-5%	0.22	0.42
17	miR-24-3p	759.4	88.3	773.3	74.7	2%	0.23	0.42
18	miR-126-3p	273.2	66.6	283.0	63.8	4%	0.23	0.42
19	miR-181a-5p	115.7	31.3	112.7	36.8	-3%	0.27	0.47
20	miR-1260b	108.2	43.3	105.9	40.8	-2%	0.31	0.51
21	miR-16-5p	5680.5	2626.5	5276.6	2804.4	-7%	0.40	0.63
22	miR-532-5p	51.8	32.3	45.8	22.4	-12%	0.42	0.63
23	miR-221-3p	503.3	123.1	487.7	97.4	-3%	0.45	0.65
24	miR-199a-3p	142.7	58.0	137.5	49.6	-4%	0.53	0.70
25	miR-27a-3p	489.8	59.6	486.2	64.2	-1%	0.55	0.70
26	miR-361-5p	25.5	11.2	25.3	7.8	-1%	0.55	0.70
27	miR-199a-5p	114.8	34.5	122.0	38.9	6%	0.57	0.70
28	let-7d-5p	132.6	41.8	134.3	42.0	1%	0.66	0.78
29	let-7d-3p	120.3	17.5	118.7	16.8	-1%	0.71	0.78
30	miR-744-5p	62.0	19.5	63.7	18.7	3%	0.71	0.78
31	miR-423-3p	43.8	16.9	44.2	13.6	1%	0.85	0.90
32	miR-191-5p	775.3	164.9	797.3	175.8	3%	0.96	0.99
33	miR-26a-5p	529.1	220.7	523.8	105.8	-1%	0.99	0.99

<sup>a</sup>Of the 40 evaluated miRNAs, 7 miRNAs (i.e., miR-28-3p, miR-363-3p, miR-181c-5p, miR-181b-5p, miR-195-5p, miR-32-5p, and miR-183-5p) with a CV  $\geq$ 40% were excluded from statistical analyses; <sup>b</sup>Signals in arbitrary units (A.U.); <sup>c</sup>Estimated by multiple linear regression models adjusted for age, sex, smoking, alcohol use, and recent infection with each log-transformed miRNA level as dependent variable.; <sup>d</sup> false discovery rate; values <0.20 were considered noteworthy.

**Supplementary Table 3.** Pairwise Spearman correlation coefficients for the seven miRNAs that showed significant difference between workers exposed to TCE and unexposed controls

	<i>miR-150-5p</i>	<i>let-7b-5p</i>	<i>miR-92a-3p</i>	<i>miR-122-5p</i>	<i>let-7g-5p</i>	<i>miR-20a-5p</i>	<i>miR-140-5p</i>	
<i>Exposed (n=74)</i>	<i>miR-150-5p</i>	0.2369 0.04	0.2576 0.03	0.1209 0.30	0.0888 0.45	0.2062 0.08	0.0885 0.45	
	<i>let-7b-5p</i>		0.8469 <0.0001	0.0778 0.51	0.3498 0.0002	0.8389 <0.0001	0.2624 0.02	
	<i>miR-92a-3p</i>			0.1549 0.19	0.1152 0.33	0.7274 <0.0001	0.1575 0.18	
	<i>miR-122-5p</i>				0.0170 0.89	0.0270 0.82	-0.0575 0.63	
	<i>let-7g-5p</i>					0.5196 <0.001	0.5613 <0.0001	
	<i>miR-20a-5p</i>						0.3468 0.003	
	<i>miR-140-5p</i>							
	<i>miR-150-5p</i>	<i>let-7b-5p</i>	<i>miR-92a-3p</i>	<i>miR-122-5p</i>	<i>let-7g-5p</i>	<i>miR-20a-5p</i>	<i>miR-140-5p</i>	
<i>Controls (n=90)</i>	<i>miR-150-5p</i>		0.3827 0.0002	0.3568 0.0006	0.770 0.47	0.0996 0.35	0.2618 0.01	0.0759 0.48
	<i>let-7b-5p</i>			0.6240 <0.0001	0.2834 0.0007	0.3554 0.0006	0.6690 <0.0001	0.2644 0.01
	<i>miR-92a-3p</i>				0.2299 0.03	-0.0599 0.60	0.5086 <0.0001	-0.0043 0.97
	<i>miR-122-5p</i>					0.1802 0.09	0.3218 0.002	-0.0095 0.93
	<i>let-7g-5p</i>						0.4243 <0.0001	0.4361 <0.0001
	<i>miR-20a-5p</i>							0.3837 0.0002
	<i>miR-140-5p</i>							

Note: Colors represent range of correlation coefficients: No color ( $|r| < 0.15$ ), Blue ( $0.15 \leq |r| < 0.3$ ), Yellow ( $0.3 \leq |r| < 0.5$ ), and Red ( $0.5 \leq |r|$ ).

**Supplementary Table 4.** Correlations between selected miRNAs (mir-150-5p, let-7b-5p and let-7g-5p) and immune markers previously reported in the cross-sectional molecular epidemiology study of occupational TCE exposure in China

	<i>Exposed</i>			<i>Controls</i>			<i>Total</i>		
	<i>miR-150-5p</i>	<i>let-7b-5p</i>	<i>let-7g-5p</i>	<i>miR-150-5p</i>	<i>let-7b-5p</i>	<i>let-7g-5p</i>	<i>miR-150-5p</i>	<i>let-7b-5p</i>	<i>let-7g-5p</i>
<i>WBC</i>	0.1703 <sup>a</sup>	0.0249	0.0216	0.0406	-0.0715	-0.1361	0.1009	-0.0183	-0.0500
	0.15 <sup>b</sup>	0.83	0.86	0.70	0.50	0.20	0.20	0.82	0.53
	74 <sup>c</sup>	74	74	90	90	90	164	164	164
<i>Granulocytes</i>	0.0772	0.0657	-0.0003	-0.0637	-0.0687	-0.1392	-0.0274	-0.0351	-0.0750
	0.51	0.58	0.99	0.55	0.52	0.19	0.73	0.66	0.34
	74	74	74	90	90	90	164	164	164
<i>Monocytes</i>	0.1668	0.0708	0.1167	0.0323	0.0249	-0.0182	0.0813	0.0457	0.0355
	0.16	0.55	0.32	0.76	0.82	0.86	0.30	0.56	0.65
	74	74	74	90	90	90	164	164	164
<i>Lymphocytes</i>	0.1970	-0.1229	0.0191	0.2275	-0.0665	-0.0694	0.2480	-0.0377	-0.0043
	0.09	0.30	0.87	0.03	0.53	0.52	0.001	0.63	0.96
	74	74	74	90	90	90	164	164	164
<i>T-cells</i>	0.1115	-0.1530	0.1029	0.2485	-0.0766	-0.0344	0.2139	-0.0702	0.0207
	0.34	0.19	0.38	0.02	0.47	0.75	0.006	0.37	0.79
	74	74	74	90	90	90	164	164	164
<i>CD4 T-cells</i>	0.1654	-0.2145	0.1311	0.2913	-0.0378	-0.0260	0.2584	-0.0868	0.0406
	0.16	0.07	0.27	0.01	0.73	0.80	0.001	0.27	0.61
	74	74	74	90	90	90	164	164	164
<i>CD8 T-cells</i>	0.1291	-0.0303	0.1347	0.1672	-0.0350	-0.0260	0.1791	-0.0038	0.0619
	0.27	0.80	0.25	0.12	0.77	0.81	0.02	0.96	0.43
	74	74	74	90	90	90	164	164	164
<i>B-cells</i>	0.1834	-0.1739	-0.2107	0.2234	0.0369	0.0107	0.2281	-0.0069	-0.0696
	0.12	0.14	0.07	0.03	0.73	0.92	0.003	0.93	0.38
	74	74	74	90	90	90	164	164	164
<i>NK cells</i>	0.1949	0.1148	-0.0188	0.0705	-0.0357	-0.0769	0.1622	0.0712	-0.0260
	0.10	0.33	0.87	0.51	0.74	0.47	0.04	0.37	0.74
	74	74	74	90	90	90	164	164	164
<i>CD27</i>	0.2481	-0.0845	0.0060	0.0716	0.1521	-0.0005	0.2156	0.1608	0.0341
	0.03	0.48	0.96	0.50	0.15	0.99	0.006	0.04	0.67
	73	73	73	90	90	90	163	163	163
<i>CD30</i>	-0.0348	0.0172	0.0524	0.0941	0.1030	0.0653	0.1376	0.1304	0.0698
	0.77	0.88	0.66	0.38	0.33	0.54	0.08	0.10	0.37
	74	74	74	90	90	90	164	164	164
<i>IgG</i>	0.1447	0.0990	-0.0152	-0.0592	0.0292	-0.1520	0.1257	0.1282	-0.0642
	0.22	0.40	0.90	0.70	0.85	0.32	0.17	0.16	0.49
	74	74	74	45	45	45	119	119	119
<i>IgM</i>	0.0413	0.0043	-0.1091	-0.3185	-0.2432	-0.2698	-0.0304	-0.0252	-0.1042
	0.73	0.97	0.35	0.03	0.11	0.07	0.74	0.79	0.26
	74	74	74	45	45	45	119	119	119

<sup>a</sup>Spearman correlation coefficient; <sup>b</sup>p-value; <sup>c</sup>number of subjects

**Note:** Colors represent range of correlation coefficients: No color ( $|r| < 0.15$ ), Blue ( $0.15 \leq |r| < 0.3$ ), Yellow ( $0.3 \leq |r| < 0.5$ ), and Red ( $0.5 \leq |r|$ ).

**Supplementary Table 5.** Associations between demographic characteristics and the seven miRNAs that showed significant differences between workers exposed to TCE and unexposed controls

		<i>miR-150-5p</i>	<i>let-7b-5p</i>	<i>miR-92a-3p</i>	<i>miR-122-5p</i>	<i>let-7g-5p</i>	<i>miR-20a-5p</i>	<i>miR-140-5p</i>	
<i>Exposed (n=74)</i>	<b>Age</b>	-0.0009 <sup>a</sup>	-0.0247	0.1684	0.3480	-0.1705	-0.0509	-0.1003	
		0.99 <sup>b</sup>	0.83	0.15	0.002	0.15	0.67	0.40	
	<b>BMI</b>	-0.0073	-0.0914	-0.0069	0.2323	-0.0333	-0.0740	0.1367	
		0.95	0.44	0.95	0.05	0.78	0.53	0.25	
	<b>Sex</b>	Female	151.9 (55.1) <sup>c</sup>	491.8 (246.8)	1786.6 (819.3)	385.5 (322.5)	54.5 (27.5)	531.7 (298.5)	7.4 (4.0)
		Male	145.5 (66.4) <sup>c</sup>	624.2 (227.7)	2317.4 (735.7)	652.1 (679.9)	61.1 (26.6)	589.9 (184.4)	7.7 (5.0)
	<b>Current smoking</b>	No	148.1 (48.0)	531.6 (206.9)	1998.2 (721.9)	511.8 (44.6)	55.8 (27.3)	546.3 (232.5)	7.7 (4.4)
		Yes	146.1 (79.5)	658.9 (262.0)	2387.9 (836.4)	661.4 (779.2)	63.7 (25.9)	608.9 (205.8)	7.6 (5.2)
	<b>Current alcohol use</b>	No	147.4 (58.0)	539.8 (235.0)	2006.8 (748.3)	559.6 (624.1)	58.4 (27.0)	547.4 (230.1)	7.66 (5.17)
		Yes	147.1 (73.9)	684.2 (222.2)	2500.0 (792.0)	611.6 (592.1)	60.9 (26.9)	627.3 (198.1)	7.55 (3.70)
<b>Recent infection</b>	No	133.2 (50.1)	554.7 (226.5)	2091.6 (779.4)	606.5 (647.8)	58.6 (25.2)	542.8 (191.7)	7.8 (4.8)	
	Yes	202.5 (79.1)	712.5 (254.3)	2462.2 (798.9)	458.3 (430.0)	61.9 (33.1)	693.5 (292.5)	7.0 (4.6)	
		0.0002	0.01	0.07	0.33	0.83	0.05	0.49	
		<i>mR-150-5p</i>	<i>let-7b-5p</i>	<i>miR-92a-3p</i>	<i>miR-122-5p</i>	<i>let-7g-5p</i>	<i>miR-20a-5p</i>	<i>miR-140-5p</i>	
<i>Controls (n=90)</i>	<b>Age</b>	0.0128	-0.0205	0.2363	0.270	-0.2034	0.1194	-0.1631	
		0.90	0.85	0.02	0.01	0.05	0.26	0.12	
	<b>BMI</b>	-0.1083	0.0038	0.1838	0.2307	-0.1591	0.0841	-0.1731	
		0.31	0.97	0.08	0.03	0.13	0.43	0.10	
	<b>Sex</b>	Female	148.7 (54.0)	620.1 (228.3)	2239.8 (595.6)	840.1 (1181.0)	58.3 (18.0)	607.3 (118.3)	8.3 (4.3)
		Male	184.3 (80.0)	730.9 (346.6)	2550.6 (841.3)	1097.9 (1178.1)	70.3 (39.7)	662.7 (277.3)	8.9 (4.6)
	<b>Current smoking</b>	No	175.1 (64.9)	702.5 (328.7)	2440.0 (779.2)	1050.5 (1240.9)	62.6 (30.2)	660.7 (253.2)	8.4 (4.4)
		Yes	177.2 (91.1)	708.8 (324.5)	2535.3 (834.9)	1018.6 (1091.6)	74.7 (43.0)	633.4 (247.5)	9.2 (4.7)
	<b>Current alcohol use</b>	No	180.6 (82.5)	708.0 (351.5)	2490.0 (811.3)	1052.9 (1221.8)	66.5 (37.5)	658.3 (267.7)	9.0 (4.5)
		Yes	169.3 (66.0)	700.7 (288.0)	2461.1 (791.0)	1016.1 (1126.5)	68.9 (34.6)	637.5 (225.0)	8.4 (4.6)
<b>Recent infection</b>	No	175.9 (76.7)	713.1 (347.7)	2505.3 (842.1)	945.1 (1118.5)	66.1 (35.7)	644.9 (249.9)	8.83 (4.35)	
	Yes	176.2 (75.3)	678.4 (241.7)	2388.9 (645.4)	1342.1 (1336.6)	72.1 (38.0)	665.8 (255.5)	8.46 (5.10)	
		0.99	0.74	0.81	0.14	0.38	0.83	0.61	

<sup>a</sup> Spearman correlation coefficients presented for miRNAs and continuous co-variates (age, BMI); <sup>b</sup> p-value for Spearman correlation coefficient; <sup>c</sup> mean (standard deviation); <sup>d</sup> p-value calculated from Wilcoxon Rank Sum Test for categorical co-variates (sex, current smoking, current alcohol use, and recent infection).

**Note:** Colors represent range of correlation coefficients or p-value calculated from Wilcoxon Rank Sum Test: No color ( $|r| < 0.15$  or Wilcoxon p-value  $> 0.05$ ), Blue ( $0.15 \leq |r| < 0.3$ ), Yellow ( $0.3 \leq |r| < 0.5$ ), Red ( $0.5 \leq |r|$ ), and Orange (Wilcoxon p-value  $< 0.05$ ).

**Supplementary Table 6. Comparison of the levels of miR-150-5p and let-7b-5p between controls and low exposure group with different cut-point**

Variable	Controls (n=90)	TCE-exposed group (<5 ppm) (n=23)			(<10 ppm) (n=35)			(<20 ppm) (n=53)			(<30 ppm) (n=59)			(<40 ppm) (n=67)		
	<b>Mean (SD)<sup>a</sup></b>	<b>Mean (SD)</b>	<b>% diff</b>	<b><i>P</i><sup>b</sup></b>	<b>Mean (SD)<sup>a</sup></b>	<b>% diff</b>	<b><i>P</i><sup>b</sup></b>	<b>Mean (SD)<sup>a</sup></b>	<b>% diff</b>	<b><i>P</i><sup>b</sup></b>	<b>Mean (SD)<sup>a</sup></b>	<b>% diff</b>	<b><i>P</i><sup>b</sup></b>	<b>Mean (SD)<sup>a</sup></b>	<b>% diff</b>	<b><i>P</i><sup>b</sup></b>
has-miR-150-5p	176.0 (75.9)	156.5 (60.5)	-11%	0.36	154.1 (58.5)	-12%	0.20	149.7 (57.9)	-15%	0.06	<b>149.4 (56.3)</b>	<b>-15%</b>	<b>0.04</b>	<b>145.8 (55.9)</b>	<b>-17%</b>	<b>0.008</b>
let-7b-5p	705.0 (325.2)	619.5 (249.8)	-12%	0.29	<b>580.8 (228.2)</b>	<b>-18%</b>	<b>0.04</b>	<b>589.7 (256.4)</b>	<b>-16%</b>	<b>0.04</b>	<b>585.0 (247.4)</b>	<b>-17%</b>	<b>0.02</b>	<b>583.3 (283.3)</b>	<b>-17%</b>	<b>0.01</b>

<sup>a</sup>Signals in arbitrary unit (A.U.); <sup>b</sup> Estimated by multiple linear regression models adjusted for age, sex, smoking, alcohol use, and recent infection with each log-transformed miRNA level as dependent variable.