

Urine biomarkers enable pancreatic cancer detection up to 2 years before diagnosis

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Supplementary Tables

Supporting Information Table S1.

Supporting Information Table S2.

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Supporting Information Table S1. Measurement of plasma Ca19-9, creatinine and the three urinary biomarkers, LYVE1, TFF1 and REG1B.

STUDY	Sample ID	Cases and matched ctrls year groups	CA19-9 U/ml	Creatinine grams/L	LYVE1 ng/ml	TFF1 ng/ml	REG1B ng/ml
SWHS	1	[0-1] case	92.87	0.20	2.764	0.026	25.693
SWHS	2	[0-1] case	18.37	1.27	43.746	1.634	232.558
SWHS	3	[0-1] case	22.07	0.28	2.017	0.580	75.220
SWHS	4	[0-1] case	9.55	1.33	7.685	0.089	78.341
SWHS	5	[0-1] case	72.71	0.82	47.486	0.797	305.248
SWHS	6	[0-1] case	18.94	1.05	47.041	2.510	79.423
SMHS	7	[0-1] case	11.70	0.62	36.581	0.487	122.770
SMHS	8	[0-1] case	17.61	1.75	48.976	2.158	685.835
SMHS	9	[0-1] case	9.35	2.52	66.727	0.995	34.625
SMHS	10	[0-1] case	12.25	0.17	0.000	0.030	0.712
SMHS	11	[0-1] case	28.19	0.25	1.347	0.405	0.384
SMHS	12	[0-1] case	7.45	1.61	97.444	3.166	147.226
SMHS	13	[0-1] case	11.26	0.59	38.462	1.232	109.407
SMHS	14	[0-1] case	15.54	0.25	1.235	0.069	1.399
SCCS	15	[0-1] case	11.16	1.92	6.273	2.073	68.741
SCCS	16	[0-1] case	40.03	0.48	4.235	0.509	4.741
SCCS	17	[0-1] case	24.00	0.85	14.552	0.891	70.575
SCCS	18	[0-1] case	37.65	2.80	19.204	3.450	53.620
SWHS	19	[0-1] ctrl	16.76	0.28	1.543	0.032	25.190
SWHS	20	[0-1] ctrl	12.10	1.24	6.204	0.182	81.461
SWHS	21	[0-1] ctrl	15.32	0.20	1.725	0.104	57.302
SWHS	22	[0-1] ctrl	8.36	0.76	3.097	0.147	22.875
SWHS	23	[0-1] ctrl	9.55	0.85	16.458	4.858	80.153
SWHS	24	[0-1] ctrl	11.32	2.63	51.285	0.811	61.328
SWHS	25	[0-1] ctrl	8.83	1.19	43.821	0.817	204.976
SWHS	26	[0-1] ctrl	11.44	1.58	12.004	0.895	56.698
SWHS	27	[0-1] ctrl	62.38	0.28	31.939	0.429	213.763
SWHS	28	[0-1] ctrl	39.69	0.68	72.532	0.378	122.497
SWHS	29	[0-1] ctrl	5.91	1.16	82.850	3.492	692.162
SWHS	30	[0-1] ctrl	23.93	1.10	23.847	0.278	58.644
SMHS	31	[0-1] ctrl	8.36	1.50	104.788	1.916	116.553
SMHS	32	[0-1] ctrl	7.36	0.45	19.989	0.165	108.854
SMHS	33	[0-1] ctrl	10.01	0.48	7.467	0.210	47.366
SMHS	34	[0-1] ctrl	11.18	0.42	1.380	0.735	24.128
SMHS	35	[0-1] ctrl	27.82	1.64	22.195	2.172	143.121
SMHS	36	[0-1] ctrl	35.87	2.35	11.901	1.127	16.103
SMHS	37	[0-1] ctrl	26.79	0.54	20.794	0.296	21.457
SMHS	38	[0-1] ctrl	34.38	0.82	70.709	0.860	142.978
SMHS	39	[0-1] ctrl	14.43	0.37	3.729	0.167	0.275
SMHS	40	[0-1] ctrl	10.19	0.90	1.427	0.040	3.647
SMHS	41	[0-1] ctrl	10.90	4.07	72.611	1.440	341.396
SMHS	42	[0-1] ctrl	48.28	2.23	68.698	1.059	147.431
SMHS	43	[0-1] ctrl	8.66	1.10	75.231	0.612	165.115
SMHS	44	[0-1] ctrl	8.55	0.45	19.139	0.778	9.825
SMHS	45	[0-1] ctrl	12.71	0.71	37.669	1.105	38.628
SMHS	46	[0-1] ctrl	9.12	0.17	0.317	0.140	2.251
SCCS	47	[0-1] ctrl	11.43	0.71	17.544	1.531	70.575
SCCS	48	[0-1] ctrl	11.01	1.58	8.781	2.186	96.509
SCCS	49	[0-1] ctrl	23.73	0.59	6.179	0.417	23.108
SCCS	50	[0-1] ctrl	10.75	0.40	9.276	0.717	14.074
SCCS	51	[0-1] ctrl	10.75	0.45	5.043	0.089	4.955
SCCS	52	[0-1] ctrl	11.70	0.88	22.758	2.050	239.526

continue

SCCS	53	[0-1] ctrl	35.26	0.45	17.182	0.765	47.641
SCCS	54	[0-1] ctrl	9.78	0.57	1.538	0.620	7.569
SWHS	55	[1-2] case	15.04	0.96	16.438	0.170	136.323
SWHS	56	[1-2] case	9.30	0.71	9.793	0.123	46.128
SWHS	57	[1-2] case	8.95	0.82	44.168	2.107	70.373
SMHS	58	[1-2] case	11.96	0.54	1.529	0.311	8.393
SMHS	59	[1-2] case	56.49	1.47	16.517	0.351	20.123
SMHS	60	[1-2] case	22.47	1.72	103.102	1.885	530.642
SMHS	61	[1-2] case	11.32	0.90	57.257	1.311	341.770
SMHS	62	[1-2] case	26.65	0.31	1.689	0.137	5.716
SMHS	63	[1-2] case	10.80	1.36	58.992	1.869	107.716
SMHS	64	[1-2] case	37.72	0.93	12.449	0.589	13.994
SMHS	65	[1-2] case	12.38	0.23	1.823	0.164	2.346
SMHS	66	[1-2] case	7.02	0.85	17.951	0.430	13.223
SMHS	67	[1-2] case	10.42	0.99	25.380	0.637	24.168
SMHS	68	[1-2] case	7.23	1.44	14.667	1.166	62.355
SMHS	69	[1-2] case	24.45	0.68	4.134	0.253	14.779
SWHS	70	[1-2] case	8.10	1.67	48.470	0.730	26.699
SWHS	71	[1-2] case	9.59	1.33	23.278	1.899	116.177
SWHS	72	[1-2] case	8.18	0.93	5.986	0.440	6.877
SCCS	73	[1-2] case	9.78	0.74	56.187	0.815	300.845
SCCS	74	[1-2] case	49.33	0.45	13.468	1.302	12.825
SWHS	75	[1-2] ctrl	7.05	0.31	1.286	0.065	10.795
SWHS	76	[1-2] ctrl	7.55	0.40	0.000	0.024	2.339
SWHS	77	[1-2] ctrl	22.07	0.34	1.725	0.332	57.805
SWHS	78	[1-2] ctrl	8.59	0.45	3.492	0.260	13.010
SWHS	79	[1-2] ctrl	11.96	0.99	29.546	2.091	190.436
SWHS	80	[1-2] ctrl	10.04	0.76	67.843	2.104	244.181
SMHS	81	[1-2] ctrl	25.22	2.43	3.107	0.858	15.778
SMHS	82	[1-2] ctrl	9.80	0.74	13.233	0.919	62.003
SMHS	83	[1-2] ctrl	17.96	0.62	5.741	1.323	12.072
SMHS	84	[1-2] ctrl	18.66	1.07	10.013	0.780	27.048
SMHS	85	[1-2] ctrl	10.02	0.68	73.249	1.673	286.395
SMHS	86	[1-2] ctrl	22.03	1.75	78.541	1.365	235.152
SMHS	87	[1-2] ctrl	24.07	0.45	3.954	0.059	10.761
SMHS	88	[1-2] ctrl	9.23	1.61	4.868	0.346	18.037
SMHS	89	[1-2] ctrl	10.53	0.40	3.496	1.033	50.902
SMHS	90	[1-2] ctrl	15.61	0.96	24.349	0.862	64.538
SMHS	91	[1-2] ctrl	23.94	0.74	3.469	0.137	12.049
SMHS	92	[1-2] ctrl	30.86	0.42	2.917	0.492	9.805
SMHS	93	[1-2] ctrl	19.08	0.17	6.513	0.043	7.895
SMHS	94	[1-2] ctrl	9.49	0.17	3.050	0.216	20.764
SMHS	95	[1-2] ctrl	9.49	0.48	30.760	0.361	12.845
SMHS	96	[1-2] ctrl	14.26	1.64	98.251	2.337	106.489
SMHS	97	[1-2] ctrl	46.78	0.51	48.144	1.017	58.010
SMHS	98	[1-2] ctrl	7.45	1.78	41.460	0.551	4.203
SMHS	99	[1-2] ctrl	7.65	0.88	27.467	0.668	41.242
SMHS	100	[1-2] ctrl	69.37	0.76	40.096	0.417	16.711
SMHS	101	[1-2] ctrl	12.59	0.68	15.589	1.123	24.600
SMHS	102	[1-2] ctrl	14.31	0.57	5.266	0.489	7.312
SMHS	103	[1-2] ctrl	8.78	0.85	12.930	0.605	49.657
SMHS	104	[1-2] ctrl	7.76	0.82	34.398	0.911	95.563
SWHS	105	[1-2] ctrl	312.69	1.16	42.166	0.557	162.818
SWHS	106	[1-2] ctrl	11.62	1.07	61.745	0.588	149.490
SWHS	107	[1-2] ctrl	11.03	0.45	15.234	0.357	133.308
SWHS	108	[1-2] ctrl	8.10	1.19	34.752	1.244	79.109
SWHS	109	[1-2] ctrl	12.40	0.85	5.123	0.453	6.789

continue

SWHS	110	[1-2] ctrl	26.25	0.42	20.696	0.643	111.460
SCCS	111	[1-2] ctrl	16.69	0.71	6.821	0.602	24.728
SCCS	112	[1-2] ctrl	18.07	1.19	43.820	2.409	34.322
SCCS	113	[1-2] ctrl	9.24	1.78	14.689	1.188	35.882
SCCS	114	[1-2] ctrl	23.60	1.33	56.756	0.860	19.063
SWHS	115	[2-3] case	8.29	1.33	24.784	0.230	66.261
SWHS	116	[2-3] case	6.82	0.20	0.211	0.120	6.366
SWHS	117	[2-3] case	11.84	0.51	0.508	0.055	8.379
SWHS	118	[2-3] case	22.07	0.62	46.857	0.782	131.290
SWHS	119	[2-3] case	13.38	0.68	9.027	0.603	37.500
SMHS	120	[2-3] case	12.60	1.50	64.657	1.328	75.000
SMHS	121	[2-3] case	8.13	0.17	0.380	0.025	5.398
SMHS	122	[2-3] case	33.64	1.58	55.810	1.918	103.142
SMHS	123	[2-3] case	10.39	0.17	0.327	0.033	5.644
SMHS	124	[2-3] case	19.48	1.53	18.332	0.443	16.489
SMHS	125	[2-3] case	29.85	0.25	0.495	0.105	0.000
SMHS	126	[2-3] case	20.43	1.64	49.605	0.759	116.681
SMHS	127	[2-3] case	13.94	2.06	44.108	0.948	56.173
SMHS	128	[2-3] case	54.26	1.33	57.040	1.129	125.881
SMHS	129	[2-3] case	9.12	0.82	21.231	1.099	38.724
SCCS	130	[2-3] case	31.32	0.54	8.206	0.364	33.018
SCCS	131	[2-3] case	14.06	1.81	12.661	0.175	6.898
SCCS	132	[2-3] case	15.32	0.82	26.469	1.740	19.063
SCCS	133	[2-3] case	31.06	0.88	23.110	1.470	11.882
SCCS	134	[2-3] case	17.25	0.17	3.204	0.432	63.073
SCCS	135	[2-3] case	15.04	0.17	3.297	0.145	3.946
SWHS	136	[2-3] ctrl	7.12	0.42	0.487	0.165	1.534
SWHS	137	[2-3] ctrl	8.84	0.28	10.093	0.516	106.426
SWHS	138	[2-3] ctrl	39.28	1.56	5.357	0.095	2.239
SWHS	139	[2-3] ctrl	7.92	1.72	30.985	0.245	106.225
SWHS	140	[2-3] ctrl	10.04	0.68	18.854	1.767	98.775
SWHS	141	[2-3] ctrl	10.16	0.85	10.913	0.404	37.672
SWHS	142	[2-3] ctrl	22.35	0.28	5.320	0.084	50.960
SWHS	143	[2-3] ctrl	9.30	0.65	18.501	0.862	156.053
SWHS	144	[2-3] ctrl	15.86	0.68	10.550	0.255	43.059
SWHS	145	[2-3] ctrl	5.96	0.62	44.600	0.951	186.184
SMHS	146	[2-3] ctrl	7.79	0.51	30.444	0.462	13.458
SMHS	147	[2-3] ctrl	15.74	0.88	21.099	0.593	42.160
SMHS	148	[2-3] ctrl	13.96	1.07	34.324	1.432	26.134
SMHS	149	[2-3] ctrl	8.13	0.62	10.124	2.105	233.201
SMHS	150	[2-3] ctrl	16.94	1.89	57.050	2.134	118.915
SMHS	151	[2-3] ctrl	15.74	0.31	4.009	0.098	9.516
SMHS	152	[2-3] ctrl	15.48	0.23	6.569	0.461	14.868
SMHS	153	[2-3] ctrl	22.63	0.45	55.780	0.368	119.604
SMHS	154	[2-3] ctrl	8.84	1.81	61.433	0.092	85.707
SMHS	155	[2-3] ctrl	46.48	0.17	3.493	0.108	8.295
SMHS	156	[2-3] ctrl	11.58	1.67	11.451	1.463	48.094
SMHS	157	[2-3] ctrl	28.84	1.07	29.578	1.461	6.564
SMHS	158	[2-3] ctrl	11.50	0.37	0.942	0.096	0.384
SMHS	159	[2-3] ctrl	9.83	1.87	14.156	1.252	18.389
SMHS	160	[2-3] ctrl	8.66	1.36	27.961	0.502	100.740
SMHS	161	[2-3] ctrl	33.80	0.88	22.395	0.360	16.124
SMHS	162	[2-3] ctrl	10.30	1.64	38.834	0.871	84.571
SMHS	163	[2-3] ctrl	9.47	1.33	18.410	0.535	153.989
SMHS	164	[2-3] ctrl	14.43	0.37	17.380	0.445	81.437
SMHS	165	[2-3] ctrl	43.19	0.20	2.809	0.148	21.844
SCCS	166	[2-3] ctrl	12.40	0.62	5.410	0.588	13.383

continue

SCCS	167	[2-3] ctrl	11.01	0.59	2.089	0.290	9.095
SCCS	168	[2-3] ctrl	26.99	1.10	57.229	0.563	27.811
SCCS	169	[2-3] ctrl	12.35	1.56	18.299	1.706	50.634
SCCS	170	[2-3] ctrl	31.32	1.13	2.492	0.546	4.844
SCCS	171	[2-3] ctrl	13.23	0.93	28.508	1.311	36.086
SCCS	172	[2-3] ctrl	15.86	0.68	21.161	1.203	7.947
SCCS	173	[2-3] ctrl	103.86	0.42	19.036	0.542	19.168
SCCS	174	[2-3] ctrl	47.14	1.22	58.924	3.318	65.760
SCCS	175	[2-3] ctrl	14.89	1.19	43.479	4.399	745.393
SCCS	176	[2-3] ctrl	9.38	1.95	19.991	2.613	53.957
SCCS	177	[2-3] ctrl	15.86	1.72	11.286	2.257	20.853
SWHS	178	[3-4] case	11.06	0.82	25.543	0.667	53.275
SWHS	179	[3-4] case	11.57	0.34	4.879	0.572	7.236
SMHS	180	[3-4] case	21.78	0.17	0.236	0.073	1.854
SMHS	181	[3-4] case	39.45	0.62	3.859	0.256	35.973
SMHS	182	[3-4] case	23.55	0.96	23.476	1.254	26.446
SMHS	183	[3-4] case	24.07	1.41	12.708	0.260	7.609
SMHS	184	[3-4] case	7.97	0.71	4.156	0.083	2.048
SMHS	185	[3-4] case	10.13	0.76	10.709	0.409	17.735
SMHS	186	[3-4] case	23.03	0.62	10.276	0.233	15.111
SMHS	187	[3-4] case	13.73	1.53	25.765	0.442	93.744
SMHS	188	[3-4] case	10.26	1.05	76.100	0.801	112.658
SMHS	189	[3-4] case	15.20	1.24	41.175	0.285	20.926
SMHS	190	[3-4] case	21.42	1.67	33.058	1.137	33.967
SMHS	191	[3-4] case	27.59	0.23	10.240	0.342	3.141
SMHS	192	[3-4] case	16.76	1.44	38.487	1.700	14.691
SMHS	193	[3-4] case	6.72	0.79	11.702	1.361	53.516
SMHS	194	[3-4] case	9.01	0.17	0.106	0.004	1.118
SWHS	195	[3-4] case	8.21	1.16	26.549	0.867	25.957
SWHS	196	[3-4] case	8.44	0.62	9.660	0.650	94.906
SCCS	197	[3-4] case	8.58	1.61	5.820	0.665	169.583
SCCS	198	[3-4] case	17.86	0.54	38.136	2.498	68.124
SCCS	199	[3-4] case	16.42	0.25	18.283	1.359	124.394
SCCS	200	[3-4] case	9.38	0.54	34.581	3.536	145.117
SWHS	201	[3-4] ctrl	9.68	0.90	32.872	0.193	128.572
SWHS	202	[3-4] ctrl	15.05	0.51	2.558	0.062	31.330
SWHS	203	[3-4] ctrl	35.42	0.28	18.164	0.239	6.165
SWHS	204	[3-4] ctrl	11.44	1.33	16.795	0.308	23.547
SMHS	205	[3-4] ctrl	9.80	1.87	50.505	1.259	110.550
SMHS	206	[3-4] ctrl	11.57	1.89	53.462	1.169	184.875
SMHS	207	[3-4] ctrl	7.73	0.48	0.705	0.731	1.587
SMHS	208	[3-4] ctrl	22.76	1.22	16.718	1.515	39.382
SMHS	209	[3-4] ctrl	14.66	0.23	7.711	0.110	78.364
SMHS	210	[3-4] ctrl	6.01	1.22	39.391	2.508	57.985
SMHS	211	[3-4] ctrl	12.92	0.59	12.468	0.257	12.496
SMHS	212	[3-4] ctrl	10.66	1.87	17.022	0.434	53.095
SMHS	213	[3-4] ctrl	10.01	1.24	33.057	0.694	136.012
SMHS	214	[3-4] ctrl	10.13	0.42	1.864	0.078	7.609
SMHS	215	[3-4] ctrl	11.05	1.27	47.877	0.203	95.811
SMHS	216	[3-4] ctrl	9.49	0.37	26.343	0.237	36.251
SMHS	217	[3-4] ctrl	10.92	2.09	53.751	0.785	70.925
SMHS	218	[3-4] ctrl	9.49	0.82	26.874	0.632	93.516
SMHS	219	[3-4] ctrl	12.25	1.13	28.006	0.167	69.148
SMHS	220	[3-4] ctrl	6.01	0.90	10.241	0.327	22.223
SMHS	221	[3-4] ctrl	13.86	0.85	26.396	0.616	38.840
SMHS	222	[3-4] ctrl	9.61	0.90	27.680	0.604	72.221
SMHS	223	[3-4] ctrl	8.22	0.76	17.298	1.175	24.282

continue

SMHS	224	[3-4] ctrl	69.57	0.68	6.987	0.033	0.384
SMHS	225	[3-4] ctrl	31.77	1.10	14.886	1.085	3.596
SMHS	226	[3-4] ctrl	7.76	2.32	65.897	1.864	39.825
SMHS	227	[3-4] ctrl	37.34	1.58	92.279	2.659	382.510
SMHS	228	[3-4] ctrl	22.02	1.10	38.041	0.706	119.292
SMHS	229	[3-4] ctrl	8.21	1.61	42.351	3.082	134.718
SMHS	230	[3-4] ctrl	7.02	0.54	4.769	0.883	29.363
SMHS	231	[3-4] ctrl	8.32	1.92	55.830	1.736	231.876
SMHS	232	[3-4] ctrl	11.98	1.39	65.045	1.600	318.197
SMHS	233	[3-4] ctrl	12.47	0.17	1.289	0.131	4.917
SMHS	234	[3-4] ctrl	16.52	0.76	33.155	1.234	71.378
SWHS	235	[3-4] ctrl	9.01	1.24	12.515	0.528	111.460
SWHS	236	[3-4] ctrl	7.76	1.58	37.355	1.525	112.045
SWHS	237	[3-4] ctrl	11.43	1.44	18.092	0.656	32.072
SWHS	238	[3-4] ctrl	7.41	0.65	15.310	0.188	79.987
SCCS	239	[3-4] ctrl	9.24	0.54	10.418	0.617	16.985
SCCS	240	[3-4] ctrl	29.13	1.87	67.431	2.831	290.621
SCCS	241	[3-4] ctrl	8.55	2.06	5.232	0.467	9.226
SCCS	242	[3-4] ctrl	7.55	0.54	11.009	0.454	6.116
SCCS	243	[3-4] ctrl	20.37	1.78	117.313	3.205	63.348
SCCS	244	[3-4] ctrl	9.11	2.88	100.121	3.695	164.868
SCCS	245	[3-4] ctrl	31.95	0.17	2.283	0.450	21.811
SCCS	246	[3-4] ctrl	46.90	0.68	34.744	2.000	15.219
SWHS	247	[4-5] case	17.26	0.51	9.276	0.065	47.638
SWHS	248	[4-5] case	6.95	1.07	20.537	0.213	148.604
SWHS	249	[4-5] case	17.68	0.54	15.648	0.173	18.063
SMHS	250	[4-5] case	29.09	0.59	56.340	2.504	737.340
SMHS	251	[4-5] case	8.98	0.51	55.311	2.308	298.871
SMHS	252	[4-5] case	11.32	1.36	81.368	1.936	703.571
SMHS	253	[4-5] case	18.28	0.82	7.847	1.004	17.004
SMHS	254	[4-5] case	18.54	0.96	75.342	1.017	52.160
SMHS	255	[4-5] case	7.34	1.75	40.531	1.362	84.891
SMHS	256	[4-5] case	9.70	0.96	14.742	0.397	36.766
SWHS	257	[4-5] case	11.62	1.44	19.414	0.876	59.352
SCCS	258	[4-5] case	10.60	0.79	32.140	0.448	67.743
SCCS	259	[4-5] case	26.37	0.23	1.854	0.163	9.791
SCCS	260	[4-5] case	13.64	0.62	17.929	0.458	35.707
SCCS	261	[4-5] case	7.29	0.42	9.949	0.891	34.485
SCCS	262	[4-5] case	9.38	0.48	4.235	0.348	18.589
SCCS	263	[4-5] case	12.35	0.76	0.847	0.454	3.861
SWHS	264	[4-5] ctrl	10.80	1.56	77.719	1.086	161.388
SWHS	265	[4-5] ctrl	12.36	0.45	0.593	0.162	1.232
SWHS	266	[4-5] ctrl	26.68	0.82	37.039	0.230	119.714
SWHS	267	[4-5] ctrl	8.59	1.05	15.672	0.675	74.515
SWHS	268	[4-5] ctrl	13.83	0.54	28.715	0.556	29.720
SWHS	269	[4-5] ctrl	22.35	0.40	2.927	1.230	9.542
SMHS	270	[4-5] ctrl	11.18	0.51	2.830	0.159	3.297
SMHS	271	[4-5] ctrl	31.49	1.13	103.841	1.544	645.582
SMHS	272	[4-5] ctrl	9.10	1.16	45.385	2.657	147.280
SMHS	273	[4-5] ctrl	8.09	1.44	34.200	2.320	45.151
SMHS	274	[4-5] ctrl	12.38	1.05	14.145	0.421	21.033
SMHS	275	[4-5] ctrl	18.68	0.31	2.264	0.164	12.049
SMHS	276	[4-5] ctrl	9.49	1.67	18.819	0.857	148.730
SMHS	277	[4-5] ctrl	8.47	0.62	7.943	1.418	23.845
SMHS	278	[4-5] ctrl	18.54	0.76	19.627	1.871	31.184
SMHS	279	[4-5] ctrl	6.39	0.48	8.460	0.714	17.630
SMHS	280	[4-5] ctrl	7.23	1.02	19.873	2.165	13.867

continue

SMHS	281	[4-5] ctrl	9.83	0.57	33.174	1.227	110.398
SMHS	282	[4-5] ctrl	29.27	0.90	68.150	0.208	86.667
SMHS	283	[4-5] ctrl	19.83	0.34	5.655	0.240	35.955
SWHS	284	[4-5] ctrl	22.75	0.65	6.666	0.101	12.855
SWHS	285	[4-5] ctrl	10.66	1.33	45.285	1.402	89.007
SCCS	286	[4-5] ctrl	11.57	0.79	9.519	0.418	27.324
SCCS	287	[4-5] ctrl	12.40	0.31	32.823	1.012	76.841
SCCS	288	[4-5] ctrl	5.96	0.96	43.679	1.456	57.845
SCCS	289	[4-5] ctrl	18.07	0.31	3.426	0.105	19.072
SCCS	290	[4-5] ctrl	10.88	0.51	10.892	0.874	41.169
SCCS	291	[4-5] ctrl	12.67	0.17	0.113	0.089	12.178
SCCS	292	[4-5] ctrl	14.48	0.82	58.180	1.182	38.070
SCCS	293	[4-5] ctrl	14.48	0.45	8.888	0.875	26.268
SCCS	294	[4-5] ctrl	11.29	0.28	0.129	0.345	1.558
SCCS	295	[4-5] ctrl	13.23	1.22	15.833	0.832	86.133
SCCS	296	[4-5] ctrl	6.53	0.42	15.051	1.903	28.279
SCCS	297	[4-5] ctrl	7.12	1.22	52.368	3.708	110.605

Supporting Information Table S2. Statistical differences in controls between SCCS and SM/WHS cohorts.

	SCCS control (n=44)	SMHS control (n=104)	SWHS control (n=50)	P
Age, Median (IQR) (years)	57 (51-62)	66.97 (57.23-71.91)	64.91 (58.19-67.31)	<0.001
CA19-9, Median (IQR)	14.35 (9.68-28.33)	10.36 (8.53-15.49)	11.23 (9.32-15.73)	0.018
Creatinine, Median (IQR)	1.16 (0.56-1.67)	0.82 (0.47-1.19)	0.66 (0.42-1.03)	0.017
LYVE1 R&D, Median (IQR)	18.13 (9.56-41.97)	18.17 (6.64-34.34)	10.32 (3.68-29.34)	0.081
TFF1 R&D, Median (IQR)	1.11 (0.45-1.93)	0.63 (0.35-1.02)	0.39 (0.2-0.89)	0.008
REG1B Sino, Median (IQR)	20.89 (7.85-51.46)	46.26 (16.04-95.07)	53.83 (13.56-104.36)	0.035
Diabetes at Enrolment				
Diabetes ≤3 years	4 (9.1%)	3 (2.9%)	0 (0%)	<0.001
Diabetes >3 years	10 (22.7%)	4 (3.8%)	4 (8%)	
No diabetes	30 (68.2%)	97 (93.3%)	46 (92%)	
Familial cancer				
1 st degree	23 (52.3%)	30 (28.8%)	14 (28%)	0.017
No FC	21 (47.7%)	74 (71.2%)	36 (72%)	
Smoking				
Current	17 (39.5%)	47 (45.2%)	2 (4%)	<0.001
Former	15 (34.9%)	16 (15.4%)	1 (2%)	
Never	11 (25.6%)	41 (39.4%)	47 (94%)	
Unknown	0	0	1	
Drinking				
Heavy	6 (15.4%)	5 (4.9%)	0 (0%)	<0.001
Moderate	16 (41%)	30 (29.1%)	1 (2%)	
Never	17 (43.6%)	68 (66%)	48 (98%)	
Unknown	5	1	1	
BMI Enrollment, Median (IQR)	29.7 (26.2-34.1)	23.8 (21.4-25.9)	24.2 (21.9-26.8)	<0.001
BMI Peak, Median (IQR)	31.8 (27.9-37.5)	23.8 (21.8-25.9)	24.4 (22.2-27.8)	<0.001
Hypertension				
Yes	27 (61.4%)	36 (34.6%)	22 (44%)	0.011
No	17 (38.6%)	68 (65.4%)	28 (56%)	
Asthma				
No	36 (81.8%)	102 (98.1%)	50 (100%)	<0.001
Yes	8 (18.2%)	2 (1.9%)	0 (0%)	
Education				
Less than High School	13 (29.5%)	54 (51.9%)	34 (68%)	0.005
High school	17 (38.6%)	32 (30.8%)	9 (18%)	
Vocational training/ some college	9 (20.5%)	6 (5.8%)	4 (8%)	
College graduate	5 (11.4%)	12 (11.5%)	3 (6%)	

IQR, Interquartile Range; FC, familial cancer

Supporting Information Table S3. Distribution of possible confounders by four groups for each urinary biomarker. Group 1: Controls with biomarker $\geq$ upper quartiles of controls; Group 2: Cases with biomarker $\geq$ upper quartiles of controls; Group 3: Controls with biomarker $<$ upper quartiles of controls; Group 4: Cases with biomarker $<$ upper quartiles of controls.

(A) LYVE1

Groups		Group 1 n (%)	Group 2 n (%)	Group 3 n (%)	Group 4 n (%)	P
N in each group		38 (ctrls)	28 (cases)	116 (ctrls)	49 (cases)	
Fast sample	≥ 8 h	3 (7.9)	7 (25.0)	19 (16.4)	5 (10.2)	0.18
Comorbidity ^a	≥ 1	12 (31.6)	10 (35.7)	36 (31.0)	18 (36.7)	0.89
Comorbidity ^a	0	26 (68.4)	18 (64.3)	80 (69.0)	31 (63.3)	
	1	5 (13.2)	3 (10.7)	19 (16.4)	7 (14.3)	
	2	5 (13.2)	3 (10.7)	12 (10.3)	4 (8.2)	
	3	1 (2.6)	2 (7.1)	3 (2.6)	4 (8.2)	
	4	1 (2.6)	1 (3.6)	1 (0.9)	1 (2.0)	
	≥ 5	0	1 (3.6)	1 (0.9)	2 (4.1)	
Sample collection	afternoon	22 (57.9)	14 (50.0)	66 (56.9)	30 (61.2)	0.81
NSAID used ^b	yes	3 (7.9)	2 (7.1)	21 (18.1)	5 (10.2)	
Antibiotics ^b	yes	0 (0.0)	1 (3.6)	10 (8.6)	4 (8.1)	
Hormone ^b	yes	2 (5.3)	3 (10.7)	2 (1.7)	0 (0.0)	
Anti-hypertension ^b	yes	6 (15.8)	4 (14.3)	20 (17.2)	10 (20.4)	
Gender	male	25 (65.8)	23 (82.1)	79 (68.1)	29 (59.2)	0.23

(B) TFF1

Groups		Group 1 n (%)	Group 2 n (%)	Group 3 n (%)	Group 4 n (%)	P
N in each group		38	22	116	55	
Fast sample	≥ 8 h	8 (21.0)	5 (22.7)	14 (12.1)	7 (12.7)	0.37
Comorbidity ^a	≥ 1	12 (31.6)	7 (31.8)	36 (31.0)	21 (38.2)	0.82
Comorbidity ^a	0	26 (68.4)	15 (68.2)	80 (69.0)	34 (61.8)	
	1	5 (13.2)	3 (13.6)	19 (16.4)	7 (12.7)	
	2	6 (15.8)	1 (4.5)	11 (9.5)	6 (10.9)	
	3	1 (2.6)	1 (4.5)	3 (2.6)	5 (9.1)	
	4	0	1 (4.5)	2 (1.7)	1 (1.8)	
	≥ 5	0	1 (4.5)	1 (0.9)	2 (3.6)	
Sample collection	afternoon	21 (55.3)	13 (59.1)	67 (57.8)	31 (56.4)	0.99
NSAID used ^b	yes	4 (10.5)	1 (4.5)	20 (17.2)	6 (10.9)	
Antibiotics ^b	yes	0	1 (4.5)	10 (8.6)	4 (7.3)	
Hormone ^b	yes	1 (2.6)	2 (9.1)	3 (2.6)	1 (1.8)	
Anti-hypertension ^b	yes	5 (13.2)	2 (9.1)	21 (18.1)	12 (21.8)	
Gender	male	25 (65.8)	15 (68.2)	79 (68.1)	37 (67.3)	0.99

(C) REG1B

Groups		Group 1 n (%)	Group 2 n (%)	Group 3 n (%)	Group 4 n (%)	P
N in each group		45	25	109	52	
Fast sample	≥ 8 h	7 (15.6)	7 (28.0)	15 (13.8)	5 (9.6)	0.20
Comorbidity ^a	≥ 1	15 (33.3)	10 (40.0)	33 (30.3)	18 (34.6)	0.81
Comorbidity ^a	0	30 (66.7)	15 (60.0)	76 (69.7)	34 (65.4)	
	1	8 (17.8)	4 (16.0)	16 (14.7)	6 (11.5)	
	2	6 (13.3)	1 (4.0)	11 (10.1)	6 (11.5)	
	3	0	3 (12.0)	4 (3.7)	3 (5.8)	
	4	1 (2.2)	1 (4.0)	1 (0.9)	1 (1.9)	
	≥ 5	0	1 (4.0)	1 (0.9)	2 (3.8)	
Sample collection	afternoon	23 (51.1)	13 (52.0)	65 (59.6)	31 (59.6)	0.72
NSAID used ^b	yes	3 (6.7)	1 (4.0)	21 (19.3)	6 (11.5)	
Antibiotics ^b	yes	1 (2.2)	0	9 (8.3)	5 (9.6)	
Hormone ^b	yes	2 (4.4)	1 (4.0)	2 (1.8)	2 (3.8)	
Anti-hypertension ^b	yes	5 (11.1)	3 (12.0)	21 (19.3)	11 (21.1)	
Gender	male	29 (64.4)	16 (64.0)	75 (68.8)	36 (69.2)	0.92

^a Comorbidities include coronary heart disease (CHD) or acute myocardial infarction (AMI), diabetes, cancer, stroke, hepatitis, chronic pulmonary disease and gastrointestinal ulcer disease.

^b Used within a week before sample collection.

Supporting Information Table S4. Covariate analysis.

(A) Shanghai cohorts

	LYVE1 median (IQR)			REG1B median (IQR)			TFF1 median (IQR)		
	Cases	Controls	P	Cases	Controls	P	Cases	Controls	P
Diabetes									
Yes	30.1 (14.7-51.3)	19 (7.8-44.2)	0.536	79.2 (38.7-132.6)	90 (51.8-160)	0.979	0.72 (0.37-1.21)	0.67 (0.48-1)	0.936
No	19.8 (12.3-43)	19.5 (8.8-33.2)	0.468	65 (28.2-133.7)	51.7 (25-104.4)	0.274	0.89 (0.42-1.47)	0.73 (0.41-1.33)	0.468
Familial cancer									
1 st degree	27.4 (16.7-53.6)	21.3 (8.5-33)	0.046	79.9 (38.4-174.6)	54.2 (31.4-106)	0.241	0.77 (0.37-2)	0.64 (0.45-1.06)	0.575
No FC	18.2 (10.8-36.6)	19.4 (8.9-33.4)	0.974	61.3 (28.2-118.8)	55.9 (24-114.3)	0.456	0.89 (0.45-1.4)	0.77 (0.37-1.48)	0.913
Smoking									
Current/ Former	19.8 (8.3-43.2)	23.4 (10.2-34.4)	0.736	43.1 (17.7-117)	58.8 (29.6-114)	0.319	0.81 (0.44-1.39)	0.72 (0.44-1.14)	0.62
Never	20.6 (13.8-44.8)	17.8 (7.2-31.4)	0.076	70.6 (54.3-138.9)	47.4 (23.9-105)	0.015	0.81 (0.34-1.43)	0.72 (0.36-1.4)	0.785
Drinking in men									
Heavy/ Moderate	36.4 (10.5-54.4)	25.7 (10.2-42.6)	0.693	39.4 (21-177.9)	61.2 (39-127.1)	0.461	1.05 (0.44-2.07)	0.74 (0.37-1.52)	0.309
Never	23.3 (12.2-46)	21.3 (9.9-30.8)	0.237	63.4 (28.6-106.9)	46.1 (22.2-91.9)	0.052	0.77 (0.46-1.29)	0.74 (0.44-1.18)	0.705
Drinking in women									
Heavy/ Moderate				73 Never, 1 Moderate, 1 Unknown					
Never									
Hypertension									
Yes	17.5 (6.9-36.6)	21.6 (8.7-44)	0.534	58.6 (21.9-94.1)	62.4 (23.5-137)	0.723	0.63 (0.23-1.25)	0.73 (0.4-1.68)	0.174
No	23.6 (14.1-44.8)	19.4 (9.1-30.9)	0.046	70.9 (33.5-142)	50 (28.9-99.8)	0.065	0.97 (0.53-1.51)	0.72 (0.41-1.18)	0.075
Asthma									
Yes	17.1 (15.5-17.9)	38.3 (35.2-41.3)	0.2	128.5 (89.1-135.2)	133.2 (78.8-188)	1	0.17 (0.15-0.18)	0.85 (0.61-1.1)	0.2
No	22.1 (12.2-43.6)	19.4 (8.8-33)	0.2	65 (29.6-131.5)	54.7 (25.1-109)	0.272	0.87 (0.45-1.45)	0.72 (0.41-1.29)	0.313

IQR, Inter Quartile Range; FC, familial cancer.

(B) SCCS cohort

	LYVE1 median (IQR)			REG1B median (IQR)			TFF1 median (IQR)		
	Cases	Controls	P	Cases	Controls	P	Cases	Controls	P
Diabetes									
Yes	27.6 (26.3-33.9)	23 (13.5-37.3)	0.688	13.7 (6.1-47.4)	19.6 (4.2-56.4)	0.975	0.6 (0.46-1.62)	1.02 (0.35-1.66)	0.781
No	29.9 (18.8-64)	15.7 (7.7-36.4)	0.117	26.8 (19.2-126.2)	22.8 (11-48)	0.339	1.23 (0.75-2.89)	0.79 (0.51-1.39)	0.222
Familial cancer									
1 st degree	28.3 (15.9-65.7)	13.5 (6-30.9)	0.141	47.2 (17.7-161.8)	16.9 (4.4-37.2)	0.062	1.83 (1.14-3.1)	0.71 (0.47-1.37)	0.013
No FC	29.2 (26.8-33.2)	23.3 (11.7-42.7)	0.884	22 (8-36.9)	32 (12.1-67.3)	0.268	0.51 (0.17-0.79)	1.09 (0.65-1.55)	0.065
Smoking									
Current/ Former	29.2 (19-56.1)	20.5 (6.8-36.9)	0.133	25 (14.6-103.1)	25 (9.1-54.7)	0.489	1.3 (0.54-2.4)	1.1 (0.6-1.6)	0.464
Never	30.1 (20-35.1)	19.8 (11.8-39.3)	1	26.6 (11.4-41.6)	20.3 (10.9-55.3)	0.95	0.57 (0.42-0.87)	0.68 (0.47-1.36)	0.753
Drinking									
Heavy/ Moderate	30.2 (22.6-64.1)	15.7 (8.8-35.6)	0.166	66.1 (18.2-191.2)	30.4 (13.5-79.7)	0.375	1.23 (0.67-2.3)	1.19 (0.72-1.51)	0.836
Never	29.4 (21.2-37)	20.5 (5.1-38.2)	0.431	23.2 (16.1-35.6)	15.6 (4.5-35.6)	0.516	0.7 (0.43-1.8)	0.51 (0.42-1.29)	0.609

Hypertension									
Yes	30.2 8.6-36.2)	21.1 10.9-42.8)	0.856	26.8 9.4-68.6)	20.3 (7.2-47.2)	0.42	0.6 (0.43-1.81)	0.71 (0.49-1.49)	0.604
No	28.4 (27-47)	12 (6.6-31.1)	0.089	23.2 15.3-148.6)	27.7 (10.8-83.9)	0.664	1.67 (1.11-4.2)	1.09 (0.48-1.41)	0.099
Asthma									
Yes	30.8 27.6-32.3)	10.9 5.7-13.5)	0.002	23.2 (13.7-39.7)	30.6 (4.2-84.7)	0.943	0.55 (0.48-1.37)	0.68 (0.43-1.15)	0.724
No	28.4 (10.3-64)	23 (8.2-42.7)	0.657	26.8 (13.5-113.7)	20.3 (10.6-50.1)	0.369	1.23 (0.6-2.5)	1.02 (0.51-1.58)	0.503

IQR, Inter Quartile Range; FC, familial cancer.

Supporting Information Table S5. Variable comparison by categories in pooled cases and controls.

Categories	Controls (n=198)	Cases 0-1 year (n=18)	P	Cases 0-2 years (n=38)	P	Cases 0-5 years (n=99)	P
Diabetes at Enrolment							
Diabetes	25 (12.63%)	4 (22.22%)	0.434	8 (21.05%)	0.264	23 (23.23%)	0.03
No diabetes	173 (87.37%)	14 (77.78%)		30 (78.95%)		76 (76.77%)	
Familial cancer							
1st degree family	67 (33.84%)	6 (33.33%)	1	11(28.95%)	0.69	34 (34.34%)	1
No familial cancer	131 (66.16%)	12 (66.67%)		27(71.05%)		65 (65.66%)	
Smoking							
Current	66 (33.5%)	7 (38.89%)	0.812	15(39.47%)	0.604	41 (41.41%)	0.167
Former	32 (16.24%)	2 (11.11%)		4(10.53%)		9 (9.09%)	
Never	99 (50.25%)	9 (50%)		19(50.00%)		49 (49.49%)	
Unknown	1						
Drinking							
Heavy	11 (5.76%)	3 (16.67%)	0.185	3(8.33%)	0.193	7 (7.45%)	0.54
Moderate	47 (24.61%)	3 (16.67%)		4(11.11%)		18 (19.15%)	
Never	133 (69.63%)	12 (66.67%)		29(80.56%)		69 (73.4%)	
Unknown	7			2		5	
BMI at Enrolment							
Median (IQR)	24.85 (22.18-27.73)	22.02 (19.27-25.68)	0.027	23.38 (21-25.9)	0.04	23.74 (21.58-26.88)	0.112
Hypertension							
Yes	85 (42.93%)	10 (55.56%)	0.432	15(39.47%)	0.829	43 (43.43%)	1
No	113 (57.07%)	8 (44.44%)		23(60.53%)		56 (56.57%)	
Asthma							
No	188 (94.95%)	16 (88.89%)	0.591	35(92.11%)	0.752	91 (91.92%)	0.439
Yes	10 (5.05%)	2 (11.11%)		3(7.89%)		8 (8.08%)	
Education							
Less than high school	101 (51.01%)	9 (50%)	0.94	21(55.26%)	0.796	46 (46.46%)	0.427
High school	58 (29.29%)	6 (33.33%)		9(23.68%)		28 (28.28%)	
Vocational training/ some college	19 (9.6%)	1 (5.56%)		5(13.16%)		16 (16.16%)	
College graduate	20 (10.1%)	2 (11.11%)		3(7.89%)		9 (9.09%)	
IQR, Interquartile Range							

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