

**Supplementary Table 1.** Agreement between PGMY09/11 and SPF<sub>10</sub> assays among specimens that tested human papillomavirus (HPV) positive by PGMY09/11\*

HPV type†	Control specimens (n=49)					CIS/AIS specimens (n=72)					Invasive cancer specimens (n=136)				
	PGMY09/11 vs SPF <sub>10</sub>					PGMY09/11 vs SPF <sub>10</sub>					PGMY09/11 vs SPF <sub>10</sub>				
	-/-	+/+	+/-	-/+	Disagree	-/-	+/+	+/-	-/+	Disagree	-/-	+/+	+/-	-/+	Disagree
	n	n	n	n	%	n	n	n	n	%	n	n	n	n	%
06	43	5	0	1	2.0	71	0	1	0	1.4	134	1	0	1	0.7
11	49	0	0	0	0.0	72	0	0	0	0.0	136	0	0	0	0.0
16	38	11	0	0	0.0	34	37	1	0	1.4	45	87	3	1	2.9
18	44	3	1	1	4.1	68	3	0	1	1.4	120	16	0	0	0.0
31	48	1	0	0	0.0	55	17	0	0	0.0	130	4	1	1	1.5
33	47	2	0	0	0.0	63	9	0	0	0.0	131	4	1	0	0.7
35	47	2	0	0	0.0	65	6	1	0	1.4	133	2	0	1	0.7
39	45	4	0	0	0.0	70	1	1	0	1.4	134	1	1	0	0.7
40	48	1	0	0	0.0	72	0	0	0	0.0	136	0	0	0	0.0
42	45	0	4	0	8.2	72	0	0	0	0.0	136	0	0	0	0.0
45	48	1	0	0	0.0	71	1	0	0	0.0	130	6	0	0	0.0
51	45	1	1	2	6.1	67	4	0	1	1.4	136	0	0	0	0.0
52	42	4	1	2	6.1	66	2	1	3	5.6	129	6	0	1	0.7
53	43	4	1	1	4.1	68	3	1	0	1.4	135	0	1	0	0.7
54	42	6	1	0	2.0	72	0	0	0	0.0	136	0	0	0	0.0
56	45	3	0	1	2.0	70	0	1	1	2.8	135	1	0	0	0.0
58	44	3	2	0	4.1	69	2	1	0	1.4	129	6	1	0	0.7
59	46	3	0	0	0.0	72	0	0	0	0.0	134	2	0	0	0.0
66	44	5	0	0	0.0	72	0	0	0	0.0	136	0	0	0	0.0
68/73	46	2	1	0	2.0	71	0	1	0	1.4	132	2	1	1	1.5
Any of above	1	43	5	0	10.2	0	71	1	0	1.4	1	131	2	2	2.9

\* -/- = negative for both assays; +/+ = positive for both assays; +/- = positive for PGMY09/11 and negative for SPF<sub>10</sub>; -/+ = negative for PGMY09/11 and positive for SPF<sub>10</sub>. Percent disagreement calculated as 100 times the sum of +/- and -/+ divided by sum of -/-, +/+, +/- and -/+. 68/73 = HPV68 or HPV73.

†All of the specimens tested positive for HPV by PGMY09/11, but only HPV types in common to PGMY09/11 and SPF<sub>10</sub> are shown.

**Supplementary Table 2.** Comparison of human papillomavirus (HPV) type frequency between PGMY09/11 and SPF<sub>10</sub> for 282 invasive cancer specimens\*

HPV type	PGMY09/11 HPV positive (n=136)				PGMY09/11 HPV negative (n=136)			Beta-globin negative (n=10)		
	PGMY09/11		SPF <sub>10</sub>		SPF <sub>10</sub>			SPF <sub>10</sub>		
	n	%	n	%	n	%	% †	n	%	% †
06	1	0.7	2	1.5	0	0.0	0.0	0	0.0	0.0
11	0	0.0	0	0.0	0	0.0	0.0	0	0.0	0.0
16	90	66.2	88	64.7	36	26.5	55.4	4	40.0	50.0
18	16	11.8	16	11.8	9	6.6	13.8	2	20.0	25.0
31	5	3.7	5	3.7	2	1.5	3.1	0	0.0	0.0
33	5	3.7	4	2.9	1	0.7	1.5	0	0.0	0.0
35	2	1.5	3	2.2	3	2.2	4.6	0	0.0	0.0
39	2	1.5	1	0.7	5	3.7	7.7	0	0.0	0.0
40	0	0.0	0	0.0	0	0.0	0.0	0	0.0	0.0
42	0	0.0	0	0.0	0	0.0	0.0	0	0.0	0.0
45	6	4.4	6	4.4	6	4.4	9.2	1	10.0	12.5
51	0	0.0	0	0.0	5	3.7	7.7	0	0.0	0.0
52	6	4.4	7	5.1	2	1.5	3.1	0	0.0	0.0
53	1	0.7	0	0.0	0	0.0	0.0	0	0.0	0.0
54	0	0.0	0	0.0	1	0.7	1.5	0	0.0	0.0
56	1	0.7	1	0.7	1	0.7	1.5	1	10.0	12.5
58	7	5.1	6	4.4	0	0.0	0.0	0	0.0	0.0
59	2	1.5	2	1.5	0	0.0	0.0	0	0.0	0.0
66	0	0.0	0	0.0	0	0.0	0.0	0	0.0	0.0
68/73	3	2.2	3	2.2	2	1.5	3.1	0	0.0	0.0
Any of above	133	97.8	133	97.8	65	47.8	100.0	8	80.0	100.0

\* 68/73 = HPV68 or HPV73.

† Percentage of SPF<sub>10</sub> HPV positives.

**Supplementary Table 3.** Human papillomavirus (HPV) frequencies using pooled results of PGMY09/11 and SPF<sub>10</sub> including additional 11 non-carcinogenic HPV types\*

HPV type	Control subjects (n=4007)				CIS/AIS case subjects (n=1213)				Invasive cancer case subjects (n=808)			
	All infections		Single infection		All infections		Single infection		All infections		Single infection	
	n	%	n	%	n	%	n	%	n	%	n	%
06	80	2.0	24	0.7	12	1.0	1	0.1	4	0.5	2	0.3
11	18	0.4	4	0.1	14	1.2	1	0.1	1	0.1	0	0.0
16	297	7.4	102	3.1	683	56.3	545	54.6	430	53.2	396	53.1
18	91	2.3	27	0.8	72	5.9	41	4.1	106	13.1	91	12.2
26	7	0.2	0	0.0	4	0.3	3	0.3	1	0.1	0	0.0
31	117	2.9	33	1.0	153	12.6	110	11.0	35	4.3	24	3.2
33	37	0.9	8	0.2	97	8.0	64	6.4	32	4.0	23	3.1
35	39	1.0	11	0.3	42	3.5	29	2.9	14	1.7	11	1.5
39	132	3.3	45	1.4	20	1.6	6	0.6	22	2.7	15	2.0
40	23	0.6	3	0.1	1	0.1	0	0.0	0	0.0	0	0.0
42	48	1.2	14	0.4	3	0.2	0	0.0	1	0.1	0	0.0
45	90	2.2	18	0.5	37	3.1	19	1.9	49	6.1	39	5.2
51	120	3.0	37	1.1	59	4.9	28	2.8	9	1.1	7	0.9
52	118	2.9	41	1.2	64	5.3	29	2.9	24	3.0	15	2.0
53	197	4.9	59	1.8	28	2.3	9	0.9	9	1.1	4	0.5
54	140	3.5	51	1.5	3	0.2	1	0.1	2	0.2	1	0.1
55	45	1.1	11	0.3	5	0.4	0	0.0	1	0.1	0	0.0
56	96	2.4	30	0.9	20	1.6	6	0.6	9	1.1	7	0.9
57	1	0.0	1	0.0	1	0.1	0	0.0	0	0.0	0	0.0
58	100	2.5	25	0.8	66	5.4	49	4.9	20	2.5	13	1.7
59	84	2.1	22	0.7	17	1.4	3	0.3	15	1.9	14	1.9
61	124	3.1	35	1.1	3	0.2	0	0.0	0	0.0	0	0.0
62	158	3.9	58	1.7	0	0.0	0	0.0	0	0.0	0	0.0
64	4	0.1	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0
66	91	2.3	14	0.4	13	1.1	3	0.3	2	0.2	2	0.3
67	20	0.5	5	0.2	0	0.0	0	0.0	0	0.0	0	0.0
68/73	86	2.1	23	0.7	27	2.2	8	0.8	13	1.6	8	1.1
69	8	0.2	4	0.1	0	0.0	0	0.0	0	0.0	0	0.0
70	90	2.2	33	1.0%	1	0.1	0	0.0	1	0.1	0	0.0
71	7	0.2	3	0.1	0	0.0	0	0.0	0	0.0	0	0.0
72	33	0.8	17	0.5	0	0.0	0	0.0	0	0.0	0	0.0

**Supplementary Table 3.** Human papillomavirus (HPV) frequencies using pooled results of PGMY09/11 and SPF<sub>10</sub> including additional 11 non-carcinogenic HPV types\*

HPV type	Control subjects (n=4007)				CIS/AIS case subjects (n=1213)				Invasive cancer case subjects (n=808)			
	All infections		Single infection		All infections		Single infection		All infections		Single infection	
	n	%	n	%	n	%	n	%	n	%	n	%
81	68	1.7	20	0.6	1	0.1	0	0.0	0	0.0	0	0.0
82	23	0.6	5	0.2	14	1.2	6	0.6	0	0.0	0	0.0
82 var (IS39)	8	0.2	3	0.1	0	0.0	0	0.0	0	0.0	0	0.0
83	61	1.5	20	0.6	2	0.2	0	0.0	0	0.0	0	0.0
84	82	2.0	23	0.7	6	0.5	2	0.2	4	0.5	1	0.1
89	69	1.7	20	0.6	0	0.0	0	0.0	0	0.0	0	0.0
Any of the above	1537	38.4	850	25.6	1178	97.1	964	96.6	735	91.0	673	90.2

\*CIS/AIS =carcinoma in situ or adenocarcinoma in situ; HPV genotypes 34, 43, and 74 are detected by the SPF<sub>10</sub> assay but were not detected in any specimen. HPV 44 was detected in a single CIS/AIS specimen. 68/73 = HPV68 or HPV73; Var = variant

**Supplementary Table 4.** Relative risks for CIS/AIS and invasive cervical cancer diagnosed 1995–2000 expressed as the percentage risk relative to human papillomavirus (HPV)16\*

HPV type	Control subjects (n=4007)		CIS/AIS case subjects (n=649)		Invasive cancer case subjects (n=226)		CIS/AIS		Invasive cancer	
	N	%	N	%	N	%	RR (%)	(95% CI)	RR (%)	(95% CI)
16	297	7.4	350	53.9	114	50.4	100	(referent)	100	(referent)
06	80	2.0	6	0.9	1	0.4	1	( 0 to 3)	0	( 0 to 3)
11	18	0.4	5	0.8	1	0.4	10	( 3 to 36)	3	( 0 to 34)
18	91	2.3	41	6.3	29	12.8	11	( 6 to 19)	58	(32 to 103)
31	117	2.9	85	13.1	10	4.4	43	(29 to 64)	7	( 3 to 16)
33	37	0.9	47	7.2	9	4.0	93	(53 to 164)	83	(32 to 215)
35	39	1.0	28	4.3	7	3.1	63	(34 to 117)	56	(21 to 147)
39	132	3.3	11	1.7	11	4.9	1	( 0 to 2)	8	( 3 to 18)
40†	23	0.6	1	0.2	0	0.0	1	( 0 to 5)	-	-
42†	48	1.2	3	0.5	0	0.0	1	( 0 to 3)	-	-
45	90	2.2	17	2.6	11	4.9	4	(2 to 9)	14	( 6 to 34)
51	120	3.0	37	5.7	3	1.3	10	(5 to 17)	2	( 0 to 7)
52	118	2.9	35	5.4	7	3.1	10	(5 to 17)	5	( 2 to 15)
53	197	4.9	16	2.5	4	1.8	1	( 0 to 2)	1	( 0 to 3)
54†	140	3.5	3	0.5	0	0.0	0	( 0 to 1)	-	-
56	96	2.4	9	1.4	4	1.8	2	( 1 to 6)	6	( 2 to 18)
58	100	2.5	43	6.6	3	1.3	16	( 9 to 27)	1	( 0 to 4)
59	84	2.1	10	1.5	7	3.1	3	( 1 to 7)	10	( 4 to 29)
66†	91	2.3	11	1.7	0	0.0	2	( 1 to 5)	-	-
68/73	86	2.1	18	2.8	6	2.7	5	( 2 to 11)	9	( 3 to 26)
All other types	646	16.1	16	2.5	1	0.4	0	( 0 to 0)	0	( 0 to 0)
PCR negative	2470	61.6	19	2.9	19	8.4	0	( 0 to 0)	0	( 0 to 0)

\* CIS/AIS =carcinoma in situ or adenocarcinoma in situ; RR = relative risk; 68/73 = HPV68 or HPV73; - = not applicable.

† Not found in invasive cancer and was not included in the logistic regression model.