Supplementary Table S2: Correlation of histomorphological characteristics with clinicopathological parameters

		Overall	Histological subtype				Budding (per HPF)				Budding (per 10 HPF)				Smallest tumor cell nest (overall)					Smallest tumor cell nest (invasive margin)					Nuclear size				Stromal content				Grade			
			non-keratinizing	keratinizing	basaloid	p-value	none	<5 foci	≥5 foci	p-value	none	<15 foci	≥15 foci	p-value	single cells	1-4 cells	5-14 cells	≥15 cells	p-value	single cells	1-5 cells	5-14 cells	≥15 cells	p-value	small	medium	large	p-value	low	moderate	high	p-value	G1	G2	G3	p-value
		541 (100%)	344 (63.7%)	178 (33.0%)	18 (3.3%)		356 (65.8%)	163 (30.1%)	22 (4.1%)		356 (65.8%)	101 (18.7%)	84 (15.5%)		92 (17.1%)	166 (30.9%)	114 (21.1%)	166 (30.9%)		97 (18%)	92 (17.1%)	141 (26.2%)	208 (38.7%)		310 (57.3%)	104 (19.2%)	127 (23.5%)		152 (31.6%)	156 (32.4%)	173 (36.0%)		247 (46.7%)	239 (45.2%)	43 (8.1%)	
Age	below mean	255 (47.1%)	144 (56.5%)	102 (40.0%)	9 (3.5%)	0.004	170 (66.7%)	77 (30.2%)	8 (3.1%)	0,665	170 (66.7%)	43 (16.9%)	42 (16.5%)	0.730	47 (18.6%)	76 (30.2%)	51 (20.2%)	78 (31%)	0.645	46 (18.2%)	41 (16.2%)	67 (26.5%)	99 (39.1%)	0.837	133 (52.2%)	57 (22.4%)	65 (25.5%)	0.059	72 (31.3%)	69 (30.0%)	89 (38.7%)	0.440	116 (46.8%)	107 (43.1%)	25 (10.1%)	0.523
	above mean	286 (52.9%)	200 (70.2%)	76 (26.7%)	9 (3.2%)		186 (65.0%)	86 (30.1%)	14 (4.9%)		186 (65.0%)	58 (20.3%)	42 (14.7%)		45 (15.7%)	90 (31.5%)	63 (22%)	88 (30.8%)		51 (17.9%)	51 (17.9%)	74 (26%)	109 (38.2%)		177 (61.9%)	47 (16.4%)	62 (21.7%)		80 (31.9%)	87 (34.7%)	84 (33.5%)		131 (46.6%)	132 (47%)	18 (6.4%)	
Sex	male	442 (81.7%)	276 (62.4%)	150 (33.9%)	16 (3.6%)	0.385	297 (67.2%)	126 (28.5%)	19 (4.3%)	0.161	297 (67.2%)	78 (17.6%)	67 (15.2%)	0.158	69 (15.7%)	141 (32%)	90 (20.5%)	140 (31.8%)	0.239	75 (17.1%)	75 (17.1%)	116 (26.4%)	173 (39.4%)	0.248	258 (58.4%)	88 (19.9%)	96 (21.7%)	0.096	130 (33.3%)	128 (32.8%)	132 (33.8%)	0.033	202 (46.8%)	199 (46.2%)	30 (7.0%)	0.306
	female	99 (18.3%)	68 (69.4%)	28 (28.6%)	2 (2.0%)		59 (59.6%)	37 (37.4%)	3 (3.0%)		59 (59.6%)	23 (23.2%)	17 (17.2%)		23 (23.5%)	25 (25.5%)	24 (24.5%)	26 (26.5%)		22 (22.2%)	17 (17.2%)	25 (25.3%)	35 (35.3%)		52 (52.5%)	16 (16.2%)	31 (31.3%)		22 (24.2%)	28 (30.8%)	41 (45.1%)		45 (45.9%)	40 (40.8%)	13 (13.3%)	
pT	1	94 (17.4%)	55 (59.1%)	36 (38.7%)	2 (2.2%)	0.389	72 (76.6%)	20 (21.3%)	2 (2.1%)	0.002	72 (76.6%)	14 (14.9%)	8 (8.5%)	0.002	9 (9.6%)	29 (30.9%)	18 (19.1%)	38 (40.4%)	0.037	13 (13.8%)	10 (10.6%)	24 (25.6%)	47 (50%)	0.005	62 (66.0%)	16 (17.0%)	16 (17.0%)	0.201	34 (40.5%)	22 (26.2%)	28 (33.3%)	0.212	51 (55.4%)	38 (41.3%)	3 (3.3%)	0.026
	2	336 (62.1%)	214 (63.7%)	110 (32.7%)	12 (3.6%)		222 (66.1%)	100 (29.8%)	14 (4.2%)		222 (66.1%)	59 (17.6%)	55 (16.4%)		63 (18.9%)	101 (30.3%)	72 (21.7%)	97 (29.1%)		61 (18.3%)	53 (15.9%)	94 (28.2%)	125 (37.5%)		187 (55.7%)	65 (19.3%)	84 (25.0%)		93 (31.2%)	93 (31.2%)	112 (37.6%)		153 (46.2%)	146 (44.1%)	32 (9.7%)	
	3	92 (17.0%)	62 (67.4%)	27 (29.3%)	3 (3.3%)		52 (56.5%)	34 (37.0%)	6 (6.5%)		52 (56.5%)	23 (25.0%)	17 (18.5%)		16 (17.4%)	28 (30.4%)	20 (21.8%)	28 (30.4%)		21 (22.8%)	22 (23.9%)	18 (19.6%)	31 (33.7%)		50 (54.3%)	19 (20.7%)	23 (25.0%)		21 (25.6%)	35 (42.7%)	26 (31.7%)		38 (43.2%)	44 (50%)	6 (6.8%)	
	4	19 (3.5%)	13 (68.4%)	5 (26.3%)	1 (5.3%)		10 (52.6%)	9 (47.4%)	0 (0.0%)		10 (52.6%)	5 (26.3%)	4 (21.1%)		4 (21.1%)	8 (42.1%)	4 (21.1%)	3 (15.7%)		2 (10.5%)	7 (36.8%)	5 (26.3%)	5 (26.3%)		11 (57.9%)	4 (21.1%)	4 (21.1%)		4 (23.5%)	6 (35.3%)	7 (41.2%)		5 (27.8%)	11 (61.1%)	2 (11.1%)	
pN	0	260 (48.6%)	169 (65.3%)	80 (30.9%)	10 (3.9%)	0.804	183 (70.4%)	67 (25.8%)	10 (3.8%)	0.315	183 (70.4%)	46 (17.7%)	31 (11.9%)	0.297	41 (15.8%)	66 (25.5%)	58 (22.4%)	94 (36.3%)	0.042	42 (16.2%)	35 (13.5%)	67 (25.9%)	115 (44.4%)	0.171	149 (57.3%)	49 (18.8%)	62 (23.8%)	0.636	88 (37.8%)	68 (29.2%)	77 (33.0%)	0.043	136 (53.3%)	103 (40.4%)	16 (6.3%)	0.056
	1	172 (32.1%)	102 (59.3%)	64 (37.2%)	6 (3.5%)		101 (58.7%)	62 (36.0%)	(5.2%)		101 (58.7%)	32 (18.6%)	39 (22.7%)		33 (19.2%)	59 (34.3%)	37 (21.5%)	43 (25%)		39 (22.7%)	33 (19.2%)	47 (27.3%)	53 (30.8%)		98 (57.0%)	29 (16.9%)	45 (26.2%)		40 (25.6%)	58 (37.2%)	58 (37.2%)		68 (40.3%)	81 (47.9%)	20 (11.8%)	
	2	102 (19.1%)	68 (66.7%)	32 (31.4%)	2 (2.0%)		69 (67.6%)	31 (30.4%)	2 (2.0%)		69 (67.6%)	21 (20.6%)	12 (11.8%)		15 (15%)	39 (39%)	18 (18%)	28 (28%)		13 (13%)	23 (23%)	25 (25%)	39 (39%)		61 (59.8%)	23 (22.5%)	18 (17.6%)		23 (26.7%)	27 (31.4%)	36 (41.9%)		41 (41.8%)	52 (53.1%)	5 (5.1%)	
	3	1 (0.2%)	1 (100%)	0 (0%)	0 (0%)		1 (100%)	0 (0%)	0 (0%)		1 (100%)	0 (0%)	0 (0%)		0 (0%)	0 (0%)	1 (100%)	0 (0%)		0 (0%)	0 (0%)	1 (100%)	0 (0%)		1 (100%)	0 (0%)	0 (0%)		1 (100%)	0 (0%)	0 (0%)		1 (100%)	0 (0%)	0 (0%)	
pM	0	536 (99.1%)	342 (63.9%)	176 (32.9%)	17 (3.2%)	0.094	353 (65.9%)	161 (30.0%)	22 (4.1%)	0.799	353 (65.9%)	100 (18.7%)	83 (15.5%)	0.778	91 (17.1%)	164 (30.7%)	114 (21.4%)	164 (30.8%)	0.905	96 (18%)	91 (17.1%)	140 (26.3%)	206 (38.6%)	0.912	306 (57.1%)	104 (19.4%)	126 (23.5%)	0.481	151 (31.7%)	154 (32.4%)	171 (35.9%)	0.669	245 (46.8%)	236 (45%)	43 (8.2%)	0.959
	1	5 (0.9%)	2 (40.0%)	2 (40.0%)	1 (20.0%)		3 (60.0%)	2 (40.0%)	0 (0.0%)		3 (60.0%)	1 (20.0%)	1 (20.0%)		1 (20%)	2 (40%)	0 (0%)	2 (40%)		1 (20%)	1 (20%)	1 (20%)	2 (40%)		4 (80.0%)	0 (0.0%)	1 (20.0%)		1 (20.0%)	2 (40.0%)	2 (40.0%)		2 (40%)	3 (60%)	0 (0%)	
Stage	1	191 (35.3%)	130 (68.4%)	54 (28.4%)	6 (3.2%)	0.842	131 (68.6%)	52 (27.2%)	8 (4.2%)	0.481	131 (68.6%)	34 (17.8%)	26 (13.6%)	0.470	30 (15.8%)	53 (27.9%)	42 (22.1%)	65 (34.2%)	0.222	34 (17.8%)	25 (13.1%)	53 (27.7%)	79 (41.4%)	0.271	104 (54.5%)	36 (18.8%)	51 (26.7%)	0.391	68 (39.3%)	46 (26.6%)	59 (34.1%)	0.082	97 (51.3%)	78 (41.3%)	14 (7.4%)	0.310
	2	198 (36.6%)	109 (55.1%)	81 (40.9%)	8 (4.0%)		126 (63.6%)	62 (31.4%)	10 (5.1%)		126 (63.6%)	35 (17.7%)	37 (18.7%)		39 (19.7%)	58 (29.3%)	42 (21.2%)	59 (29.8%)		38 (19.3%)	35 (17.8%)	46 (23.4%)	78 (39.5%)		120 (60.6%)	36 (18.2%)	42 (21.2%)		50 (28.6%)	59 (33.7%)	66 (37.7%)		88 (45.1%)	86 (44.1%)	21 (10.8%)	
	3	147 (27.2%)	103 (70.1%)	41 (27.9%)	3 (2.0%)		96 (65.3%)	47 (32.0%)	4 (2.7%)		96 (65.3%)	31 (21.1%)	20 (13.6%)		22 (15.2%)	53 (36.6%)	30 (20.7%)	40 (27.5%)		24 (16.6%)	31 (21.4%)	41 (28.2%)	49 (33.8%)		82 (55.8%)	32 (21.8%)	33 (22.4%)		33 (25.8%)	49 (38.3%)	46 (35.9%)		60 (42.9%)	72 (51.4%)	8 (5.7%)	
	4	5 (0.9%)	2 (40%)	2 (40%)	1 (20%)		3 (60%)	2 (40%)	0 (0%)		3 (60%)	1 (20%)	1 (20%)		1 (20%)	2 (40%)	0 (0%)	2 (40%)		1 (20%)	1 (20%)	1 (20%)	2 (40%)		4 (80%)	0 (0%)	1 (20%)		1 (100%)	0 (0%)	0 (0%)		2 (40%)	3 (60%)	0 (0%)	
Ki-67	mean	47.89	46.99	48.28	63,09	0,021	48.16	47.69	45.11	0.833	48.16	49.59	44.71	0.359	47.69	47.01	46.99	49.50	0.764	46.86	46.78	46.20	50.09	0.413	48.05	49.20	46.41	0.663	52,26	45,18	45,67	0.014	48.87	47.78	46.13	0.746
	SD	23.39	23.73	22.81	17,05		23.98	23.13	14.91		23.98	23.55	20.44		23.79	21.78	23.29	24.81		22.51	22.08	23.39	24.40		23.13	24.60	23.10		24,40	23,66	22,08		24.86	22.17	21.39	