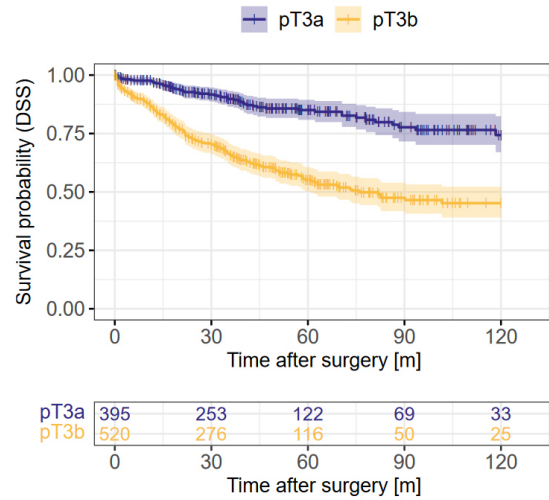
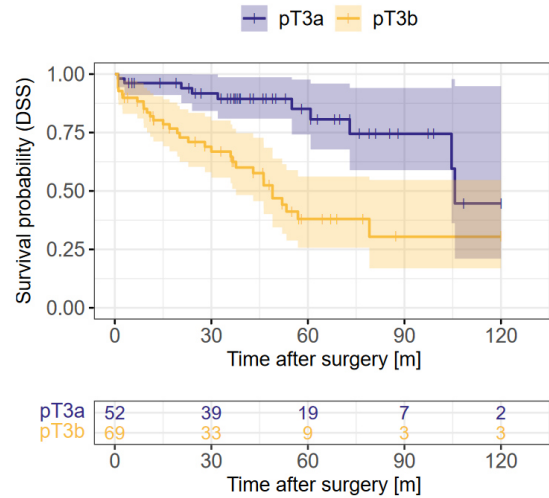


# Supplementary Figure 1

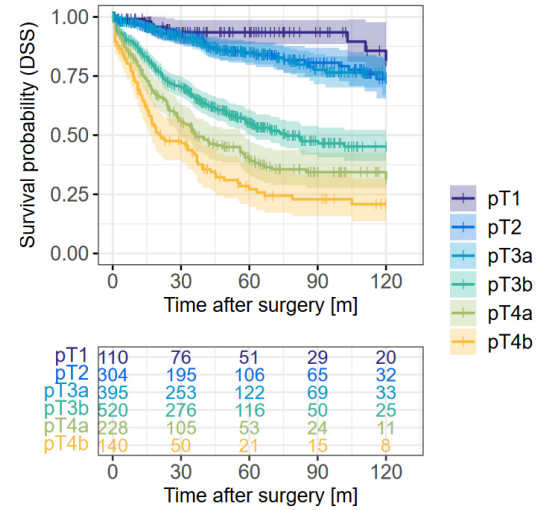
**A - All cohorts, pT3 only, Colon (n=915, p<0.001)**



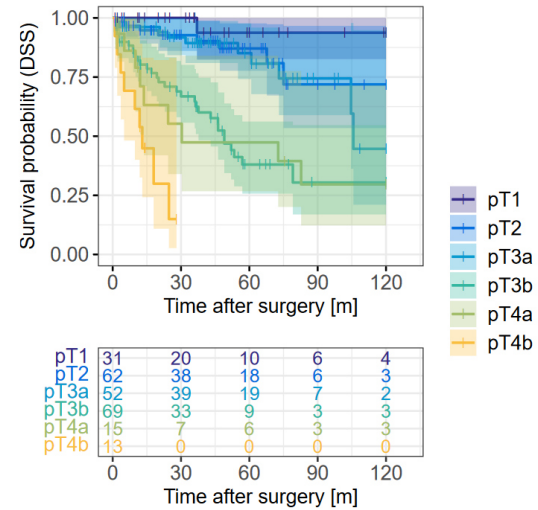
**B - All cohorts, pT3 only, Rectum (n=121, p<0.001)**



**C - All cohorts, Colon (n=1697, p<0.001)**



**D - All cohorts, Rectum (n=242, p<0.001)**



Supplementary Table 1		Overall n (%)	Mean overall survival (SE) [months]	<i>p</i> -value	Mean disease specific survival (SE) [months]	<i>p</i> -value	Mean disease free survival (SE) [months]	<i>p</i> -value
Age	below median	471 (49.5%)	85.87 (2.2)	<b>&lt;0.001</b>	90.60 (2.2)	<b>0.04</b>	80.89 (2.4)	<b>0.76</b>
	above median	479 (50.5%)	72.29 (2.3)		84.06 (2.4)		83.50 (2.5)	
Sex	male	543 (57.2%)	77.79 (2.1)	<b>0.32</b>	88.04 (2.1)	<b>0.69</b>	82.85 (2.3)	<b>0.44</b>
	female	407 (42.8%)	81.05 (2.5)		86.58 (2.5)		80.95 (2.8)	
pT	1	79 (8.3%)	97.68 (4.8)	<b>&lt;0.001</b>	115.54 (2.9)	<b>&lt;0.001</b>	111.58 (3.7)	<b>&lt;0.001</b>
	2	187 (19.7%)	93.33 (3.2)		103.92 (2.8)		99.92 (3.1)	
	3	487 (51.3%)	80.13 (2.2)		88.23 (2.2)		81.04 (2.4)	
	4a	126 (13.3%)	61.58 (4.5)		63.72 (4.6)		53.70 (4.8)	
	4b	71 (7.5%)	46.66 (5.8)		53.65 (6.4)		53.93 (7.0)	
pN	0	529 (55.7%)	89.76 (2.0)	<b>&lt;0.001</b>	101.78 (1.8)	<b>&lt;0.001</b>	100.42 (2.0)	<b>&lt;0.001</b>
	1	264 (27.8%)	75.59 (3.1)		80.50 (3.1)		71.97 (3.4)	
	2	157 (16.5%)	49.57 (4.0)		52.45 (4.1)		40.55 (4.0)	
pM	0	809 (85.2%)	86.69 (1.7)	<b>&lt;0.001</b>	96.38 (1.6)	<b>&lt;0.001</b>	91.63 (1.8)	<b>&lt;0.001</b>
	1	141 (14.8%)	39.46 (3.5)		41.42 (3.7)		33.63 (3.6)	
UICC Stage	1	212 (22.3%)	97.09 (2.9)	<b>&lt;0.001</b>	111.65 (2.0)	<b>&lt;0.001</b>	110.02 (2.4)	<b>&lt;0.001</b>
	2	300 (31.6%)	86.61 (2.8)		97.15 (2.6)		94.74 (2.8)	
	3	293 (30.8%)	80.01 (2.9)		85.82 (2.9)		74.24 (3.2)	
	4	145 (15.3%)	38.71 (3.4)		40.65 (3.6)		32.79 (3.6)	
WHO grade	low-grade	645 (67.9%)	86.11 (1.9)	<b>&lt;0.001</b>	94.84 (1.8)	<b>&lt;0.001</b>	90.06 (2.0)	<b>&lt;0.001</b>
	high-grade	305 (32.1%)	65.01 (2.9)		72.22 (3.0)		66.53 (3.2)	
Resection margin	R0	883 (92.9%)	82.83 (1.6)	<b>&lt;0.001</b>	91.83 (1.6)	<b>&lt;0.001</b>	87.07 (1.8)	<b>&lt;0.001</b>
	R1	40 (4.2%)	41.82 (7.5)		43.37 (7.8)		31.44 (6.9)	
	R2	27 (2.8%)	22.13 (3.3)		22.13 (3.3)		21.87 (4.0)	
Tumour localisation	Coecum	137 (14.4%)	76.59 (4.3)	<b>0.55</b>	86.69 (4.3)	<b>0.61</b>	83.61 (4.5)	<b>0.83</b>
	Ascendens	240 (25.3%)	79.00 (3.3)		88.04 (3.3)		80.01 (3.5)	
	Transversum	75 (7.9%)	74.14 (6.1)		85.09 (6.1)		84.33 (6.3)	
	Descendens	89 (9.4%)	74.75 (4.3)		80.65 (5.3)		78.09 (5.6)	
	Sigmoid	305 (32.1%)	83.89 (2.8)		90.73 (2.8)		84.00 (3.0)	
	Rectum	104 (10.9%)	76.97 (4.8)		85.14 (4.8)		78.05 (5.4)	

Supplementary Table 2		Overall n (%)	Mean overall survival (SE) [months]	<i>p</i> -value	Mean disease specific survival (SE) [months]	<i>p</i> -value	Mean disease free survival (SE) [months]	<i>p</i> -value
Age	below median	263 (48.5%)	100.51 (5.2)	<b>0.001</b>	102.82 (5.1)	<b>0.01</b>	84.91 (4.5)	<b>0.10</b>
	above median	279 (51.2%)	80.05 (4.1)		84.46 (3.8)		75.07 (4.5)	
Sex	male	289 (53.3%)	88.84 (5.4)	<b>0.31</b>	94.47 (5.5)	<b>0.68</b>	77.71 (4.4)	<b>0.43</b>
	female	253 (46.7%)	89.01 (4.0)		89.72 (4.0)		79.51 (5.8)	
pT	1	52 (9.6%)	107.79 (9.1)	<b>&lt;0.001</b>	117.04 (6.9)	<b>&lt;0.001</b>	107.45 (5.1)	<b>&lt;0.001</b>
	2	121 (22.3%)	90.02 (6.1)		95.91 (5.9)		86.62 (6.8)	
	3	309 (57.0%)	74.41 (2.5)		74.92 (2.5)		73.98 (6.2)	
	4a	43 (7.9%)	58.25 (7.9)		59.91 (8.0)		50.76 (7.7)	
	4b	17 (3.1%)	32.67 (6.2)		34.67 (6.3)		16.15 (3.4)	
pN	0	328 (60.5%)	103.73 (4.7)	<b>&lt;0.001</b>	109.66 (4.4)	<b>&lt;0.001</b>	96.62 (3.6)	<b>&lt;0.001</b>
	1	136 (25.1%)	87.27 (5.4)		87.95 (5.4)		74.31 (5.8)	
	2	78 (14.4%)	38.56 (4.7)		39.18 (4.7)		29.56 (3.5)	
pM	0	485 (89.5%)	97.41 (4.4)	<b>&lt;0.001</b>	101.42 (4.4)	<b>&lt;0.001</b>	85.17 (3.7)	<b>&lt;0.001</b>
	1	57 (10.5%)	39.64 (5.6)		40.68 (5.7)		24.96 (3.3)	
UICC Stage	1	135 (24.9%)	107.66 (7.6)	<b>&lt;0.001</b>	122.63 (3.6)	<b>&lt;0.001</b>	109.74 (3.4)	<b>&lt;0.001</b>
	2	182 (33.6%)	77.69 (2.9)		78.54 (2.9)		74.46 (3.0)	
	3	168 (31.0%)	79.75 (5.2)		80.26 (5.2)		66.66 (5.1)	
	4	57 (10.5%)	39.64 (5.6)		40.68 (5.7)		24.96 (3.3)	
WHO grade	low-grade	388 (71.6%)	100.54 (4.3)	<b>0.02</b>	106.03 (4.1)	<b>0.002</b>	81.38 (4.7)	<b>0.10</b>
	high-grade	154 (28.4%)	77.31 (5.2)		77.31 (5.2)		73.09 (5.2)	
Resection margin	R0	523 (96.5%)	93.28 (4.5)	<b>0.01</b>	97.05 (4.5)	<b>0.001</b>	79.83 (3.7)	<b>&lt;0.001</b>
	R1	17 (3.1%)	61.63 (14.2)		61.63 (14.2)		52.86 (14.4)	
	R2	2 (0.4)	20.00 (3.5)		20.00 (3.5)		19.50 (4.5)	
Tumour localisation	Coecum	75 (13.8%)	59.05 (3.7)	<b>0.20</b>	62.68 (3.4)	<b>0.33</b>	53.38 (3.4)	<b>0.28</b>
	Ascendens	148 (27.3%)	87.70 (5.0)		93.21 (4.0)		83.65 (4.4)	
	Transversum	48 (8.9%)	83.27 (8.6)		83.27 (8.6)		71.15 (8.1)	
	Descendens	74 (13.7%)	108.88 (6.6)		108.88 (6.6)		86.61 (7.5)	
	Sigma	92 (17.0%)	61.01 (4.9)		63.97 (4.9)		55.53 (4.4)	
	Rectum	105 (19.4%)	86.65 (7.7)		87.55 (7.8)		80.77 (7.4)	

Supplementary Table 3		Overall n (%)	Mean overall survival (SE)		Mean disease specific survival (SE)		Mean disease free survival (SE)	
			[months]	<i>p</i> -value	[months]	<i>p</i> -value	[months]	<i>p</i> -value
Age	below median	221 (49.4%)	49.05 (3.2)	<b>0.001</b>	57.71 (3.9)	<b>0.33</b>	53.35 (3.8)	<b>0.51</b>
	above median	226 (50.6%)	34.92 (2.4)		49.30 (3.4)		47.02 (3.3)	
Sex	male	239 (53.5%)	41.19 (2.8)	<b>0.62</b>	54.55 (3.9)	<b>0.71</b>	49.49 (3.6)	<b>0.48</b>
	female	208 (46.5%)	42.22 (2.7)		52.28 (3.3)		50.63 (3.4)	
pT	1	10 (2.2%)	47.12 (13.7)	<b>&lt;0.001</b>	88.20 (11.4)	<b>&lt;0.001</b>	88.20 (11.4)	<b>&lt;0.001</b>
	2	58 (13.0%)	56.89 (5.0)		79.39 (5.0)		75.93 (5.3)	
	3	240 (53.7%)	45.65 (3.0)		58.22 (4.0)		55.77 (4.0)	
	4a	74 (16.6%)	35.72 (4.5)		38.25 (4.7)		33.42 (4.2)	
	4b	65 (14.5%)	24.46 (3.9)		28.06 (4.6)		28.93 (4.5)	
pN	0	225 (50.3%)	48.45 (3.0)	<b>0.001</b>	72.41 (4.3)	<b>&lt;0.001</b>	68.81 (4.2)	<b>&lt;0.001</b>
	1	113 (25.3%)	38.34 (3.5)		44.70 (4.1)		41.63 (4.0)	
	2	109 (24.4%)	32.86 (4.0)		35.63 (4.5)		31.08 (4.1)	
pM	0	340 (76.1%)	48.61 (2.5)	<b>&lt;0.001</b>	69.75 (3.5)	<b>&lt;0.001</b>	67.24 (3.5)	<b>&lt;0.001</b>
	1	107 (23.9%)	23.12 (2.6)		24.13 (2.7)		21.09 (2.3)	
UICC Stage	1	54 (12.1%)	55.16 (5.2)	<b>&lt;0.001</b>	80.00 (5.1)	<b>&lt;0.001</b>	78.12 (5.2)	<b>&lt;0.001</b>
	2	156 (34.9%)	49.41 (3.9)		69.68 (5.3)		66.72 (5.2)	
	3	130 (29.1%)	46.77 (4.4)		59.78 (5.4)		57.53 (5.5)	
	4	107 (23.9%)	23.00 (2.5)		23.99 (2.6)		20.96 (2.2)	
WHO grade	low-grade	337 (75.4%)	44.24 (2.4)	<b>0.02</b>	58.45 (3.4)	<b>0.03</b>	54.78 (3.2)	<b>0.02</b>
	high-grade	110 (24.6%)	33.92 (3.4)		41.68 (4.0)		38.94 (3.9)	
Resection margin	R0	391 (87.5%)	45.29 (2.3)	<b>&lt;0.001</b>	61.97 (3.3)	<b>&lt;0.001</b>	58.93 (3.3)	<b>&lt;0.001</b>
	R1	26 (5.8%)	17.56 (3.9)		17.56 (3.9)		16.50 (3.5)	
	R2	30 (6.7%)	24.47 (4.4)		25.40 (4.4)		25.63 (4.3)	
Tumour localisation	Coecum	81 (18.1%)	40.98 (5.2)	<b>0.02</b>	57.24 (6.2)	<b>0.18</b>	52.52 (6.2)	<b>0.04</b>
	Ascendens	135 (30.2%)	49.74 (4.2)		75.64 (4.7)		61.00 (5.2)	
	Transversum	81 (18.1%)	36.92 (3.9)		65.89 (7.0)		46.41 (5.0)	
	Descendens	54 (12.1%)	41.58 (5.8)		59.98 (9.8)		42.81 (6.7)	
	Sigmoid	63 (14.1%)	43.62 (5.7)		61.88 (7.7)		50.42 (6.7)	
	Rectum	33 (7.4%)	26.19 (4.8)		34.65 (9.3)		32.63 (6.5)	

Supplementary Table 4		Overall n (%)	Mean overall survival (SE)	p-value	Mean disease specific survival (SE)	p-value	Mean disease free survival (SE)	p-value
			[months]		[months]		[months]	
All pT3 Tumors	pT3a	198 (40.7%)	94.73 (3.0)	<b>&lt;0.001</b>	106.70 (2.5)	<b>&lt;0.001</b>	100.08 (3.1)	<b>&lt;0.001</b>
	pT3b	289 (59.3%)	69.66 (3.0)		75.22 (3.1)		67.39 (3.3)	
WHO grade: low-grade subcohort	pT3a	142 (43.4%)	95.49 (3.5)	<b>0.003</b>	108.19 (2.8)	<b>&lt;0.001</b>	101.32 (3.5)	<b>&lt;0.001</b>
	pT3b	185 (56.6%)	78.20 (3.7)		83.99 (3.7)		75.59 (4.1)	
WHO grade: high-grade subcohort	pT3a	56 (35.0%)	92.60 (5.8)	<b>&lt;0.001</b>	102.89 (5.0)	<b>&lt;0.001</b>	97.02 (6.1)	<b>&lt;0.001</b>
	pT3b	104 (65.0%)	54.46 (4.9)		59.39 (5.2)		52.88 (5.3)	
pN0 subcohort	pT3a	132 (54.3%)	97.79 (3.4)	<b>&lt;0.001</b>	109.27 (2.7)	<b>&lt;0.001</b>	105.13 (3.3)	<b>0.008</b>
	pT3b	111 (45.7%)	76.07 (4.8)		86.60 (4.9)		88.97 (5.0)	
pN1/2 subcohort	pT3a	66 (27.0%)	88.82 (5.8)	<b>0.003</b>	101.47 (5.1)	<b>&lt;0.001</b>	89.92 (6.2)	<b>&lt;0.001</b>
	pT3b	178 (73.0%)	65.40 (3.9)		68.53 (4.0)		55.51 (4.0)	
pM0	pT3a	187 (44.5%)	98.19 (2.9)	<b>&lt;0.001</b>	111.20 (2.1)	<b>&lt;0.001</b>	104.36 (2.9)	<b>&lt;0.001</b>
	pT3b	233 (55.5%)	75.08 (3.4)		82.15 (3.4)		74.76 (3.7)	
pM1	pT3a	11 (16.4%)	37.04 (7.6)	<b>0.827</b>	37.04 (7.6)	<b>0.827</b>	29.67 (8.2)	<b>0.956</b>
	pT3b	56 (83.6%)	48.74 (6.3)		49.58 (6.4)		39.36 (6.3)	

Supplementary Table 5		Overall n (%)	Mean overall survival (SE) [months]	p-value	Mean disease specific survival (SE) [months]	p-value	Mean disease free survival (SE) [months]	p-value
All pT3 Tumors	pT3a	153 (49.5%)	80.09 (3.2)	<b>0.002</b>	80.61 (3.2)	<b>0.001</b>	87.09 (8.0)	<b>&lt;0.001</b>
	pT3b	156 (50.5%)	69.17 (3.5)		69.67 (3.5)		55.08 (3.3)	
WHO grade: low-grade subcohort	pT3a	111 (50.9%)	81.05 (3.4)	<b>0.008</b>	81.79 (3.4)	<b>0.007</b>	87.79 (8.3)	<b>&lt;0.001</b>
	pT3b	107 (49.1%)	71.06 (4.1)		71.88 (4.1)		54.79 (4.0)	
WHO grade: high-grade subcohort	pT3a	42 (46.2%)	68.12 (6.8)	<b>0.177</b>	68.12 (6.8)	<b>0.177</b>	66.28 (6.8)	<b>0.045</b>
	pT3b	49 (53.8%)	57.61 (4.0)		57.61 (4.0)		51.31 (4.1)	
pN0 subcohort	pT3a	99 (56.6%)	82.56 (3.5)	<b>0.096</b>	83.40 (3.5)	<b>0.089</b>	79.84 (3.7)	<b>0.034</b>
	pT3b	76 (43.4%)	74.20 (3.6)		75.20 (3.5)		68.44 (3.9)	
pN1/2 subcohort	pT3a	54 (40.3%)	73.82 (5.8)	<b>0.031</b>	73.82 (5.8)	<b>0.031</b>	82.23 (10.0)	<b>&lt;0.001</b>
	pT3b	80 (59.7%)	58.24 (5.9)		58.24 (5.9)		34.79 (2.6)	
pM0	pT3a	146 (50.7%)	81.03 (3.2)	<b>0.002</b>	81.59 (3.1)	<b>0.001</b>	89.31 (8.1)	<b>&lt;0.001</b>
	pT3b	142 (49.3%)	67.00 (3.4)		67.50 (3.4)		56.62 (3.4)	
pM1	pT3a	7 (33.3%)	24.86 (5.5)	<b>0.879</b>	24.86 (5.5)	<b>0.879</b>	15.86 (4.5)	<b>0.388</b>
	pT3b	14 (66.7%)	56.06 (12.1)		56.06 (12.1)		33.11 (7.7)	

Supplementary Table 6		Overall n (%)	Mean overall survival (SE) [months]	p-value	Mean disease specific survival (SE) [months]	p-value	Mean disease free survival (SE) [months]	p-value
All pT3 Tumors	pT3a	96 (40.0%)	57.45 (5.2)	<b>0.001</b>	81.27 (6.5)	<b>&lt;0.001</b>	77.94 (6.5)	<b>&lt;0.001</b>
	pT3b	144 (60.0%)	36.23 (3.0)		40.79 (3.4)		37.90 (3.5)	
WHO grade: low-grade subcohort	pT3a	82 (42.1%)	58.95 (5.6)	<b>0.001</b>	81.40 (6.8)	<b>&lt;0.001</b>	78.41 (6.8)	<b>&lt;0.001</b>
	pT3b	113 (57.9%)	36.22 (3.4)		41.40 (4.0)		38.00 (4.0)	
WHO grade: high-grade subcohort	pT3a	14 (31.1%)	39.10 (4.6)	<b>0.255</b>	45.55 (3.8)	<b>0.032</b>	42.63 (4.3)	<b>0.032</b>
	pT3b	31 (68.9%)	34.65 (5.7)		39.13 (6.4)		35.96 (6.6)	
pN0 subcohort	pT3a	61 (48.8%)	53.65 (6.1)	<b>0.393</b>	81.68 (7.0)	<b>0.008</b>	77.42 (7.0)	<b>0.034</b>
	pT3b	64 (51.2%)	44.74 (4.7)		52.43 (5.6)		53.0 (6.0)	
pN1/2 subcohort	pT3a	35 (30.4%)	64.71 (9.2)	<b>&lt;0.001</b>	74.09 (9.7)	<b>&lt;0.001</b>	70.33 (10.3)	<b>&lt;0.001</b>
	pT3b	80 (69.6%)	29.96 (3.5)		31.75 (3.7)		26.04 (3.4)	
pM0	pT3a	88 (44.9%)	61.35 (5.7)	<b>0.012</b>	90.31 (6.8)	<b>&lt;0.001</b>	86.56 (6.7)	<b>&lt;0.001</b>
	pT3b	108 (55.1%)	42.08 (3.7)		49.23 (4.4)		49.18 (4.6)	
pM1	pT3a	8 (18.2%)	28.38 (8.6)	<b>0.418</b>	28.38 (8.6)	<b>0.418</b>	26.88 (8.4)	<b>0.175</b>
	pT3b	36 (81.8%)	21.72 (3.3)		21.72 (3.3)		16.56 (2.7)	

<b>Supplementary Table 7</b>	<b>HR (DSS)</b>	<b>lower CI (95%)</b>	<b>upper CI (95%)</b>	<b>p-value</b>
<b>revised pT3</b>				<b>&lt;0.001</b>
<i>pT3a</i>	1.00			
<i>pT3b</i>	2.78	1.76	4.40	
<b>Gender</b>				<b>0.119</b>
<i>male</i>	1.00			
<i>female</i>	0.75	0.52	1.10	
<b>WHO-grade</b>				<b>0.016</b>
<i>Low grade</i>	1.00			
<i>High grade</i>	1.54	1.10	2.18	
<b>pN</b>				<b>0.104</b>
<i>N0</i>	1.00			
<i>N1</i>	1.07	0.70	1.64	
<i>N2</i>	1.51	0.92	2.48	
<b>pM</b>				<b>&lt;0.001</b>
<i>M0</i>	1.00			
<i>M1</i>	2.42	1.57	3.71	
<b>Resection margin</b>				<b>0.137</b>
<i>R0</i>	1.00			
<i>R1</i>	1.30	0.58	2.91	
<i>R2</i>	1.78	0.83	3.82	
<b>Age group</b>				<b>0.074</b>
<i>Below median</i>	1.00			
<i>Median and above</i>	1.38	0.97	1.95	



Supplementary Table 8		HR (DSS)	lower CI (95%)	upper CI (95%)	p-value
revised pT3	<i>pT3a</i>	1.00			<b>0.017</b>
	<i>pT3b</i>	2.28	1.16	4.48	
Gender	<i>male</i>	1.00			<b>0.331</b>
	<i>female</i>	0.73	0.39	1.37	
WHO-grade	<i>Low grade</i>	1.00			<b>0.859</b>
	<i>High grade</i>	0.95	0.51	1.76	
pN	<i>N0</i>	1.00			<b>&lt;0.001</b>
	<i>N1</i>	1.40	0.64	3.09	
	<i>N2</i>	3.90	1.93	7.89	
pM	<i>M0</i>	1.00			<b>0.036</b>
	<i>M1</i>	2.75	1.07	7.11	
Resection margin	<i>R0</i>	1.00			<b>0.195</b>
	<i>R1</i>	0.85	0.19	3.76	
	<i>R2</i>	4.62	0.46	46.78	
Age group	<i>Below median</i>	1.00			<b>0.001</b>
	<i>Median and above</i>	3.46	1.69	7.07	

Supplementary Table 9	HR (DSS)	lower CI (95%)	upper CI (95%)	p-value
<b>revised pT3</b>				<b>&lt;0.001</b>
<i>T3a</i>	1.00			
<i>T3b</i>	2.62	1.60	4.28	
<b>Gender</b>				<b>0.779</b>
<i>female</i>	1.00			
<i>male</i>	1.06	0.71	1.59	
<b>WHO-grade</b>				<b>0.786</b>
<i>Low grade</i>	1.00			
<i>High grade</i>	0.93	0.56	1.55	
<b>pN</b>				<b>0.151</b>
<i>N1</i>	1.00			
<i>N2</i>	1.13	0.66	1.94	
<i>N3</i>	1.58	0.85	2.94	
<b>pM</b>				<b>0.002</b>
<i>M0</i>	1.00			
<i>M1</i>	2.73	1.44	5.20	
<b>Resection margin</b>				<b>0.364</b>
<i>R0</i>	1.00			
<i>R1</i>	1.51	0.62	3.69	
<i>R2</i>	1.20	0.53	2.71	
<b>Age group</b>				<b>0.002</b>
<i>Below median</i>	1.00			
<i>Median and above</i>	1.93	1.27	2.91	

Supplementary Table 10		Overall n (%)	Mean overall survival (SE) [months]	p-value	Mean disease specific survival (SE) [months]	p-value	Mean disease free survival (SE) [months]	p-value
revised pT classification	pT1	79 (8.3%)	97.68 (4.8)	<b>&lt;0.001</b>	115.54 (2.9)	<b>&lt;0.001</b>	111.58 (3.7)	<b>&lt;0.001</b>
	pT2	187 (19.7%)	93.33 (3.2)		103.92 (2.8)		99.92 (3.1)	
	pT3a	198 (20.9%)	94.73 (3.0)		106.70 (2.5)		100.08 (3.1)	
	pT3b	289 (30.4%)	69.66 (3.0)		75.22 (3.1)		67.39 (3.3)	
	pT4a	126 (13.3%)	61.58 (4.5)		63.72 (4.6)		53.70 (4.8)	
	pT4b	71 (7.5%)	46.66 (5.8)		53.65 (6.4)		53.93 (7.0)	
	WHO grade: low-grade subcohort	pT1	66 (10.2%)		100.80 (5.1)		<b>&lt;0.001</b>	
pT2		148 (22.9%)	95.31 (3.6)	105.23 (3.0)	99.90 (3.5)			
pT3a		142 (22.0%)	95.49 (3.5)	108.19 (2.8)	101.32 (3.5)			
pT3b		185 (28.7%)	78.20 (3.7)	83.99 (3.7)	75.59 (4.1)			
pT4a		68 (10.5%)	72.34 (6.2)	74.43 (6.3)	63.46 (6.6)			
pT4b		36 (5.6%)	49.12 (7.9)	57.30 (9.0)	63.28 (10.2)			
WHO grade: high-grade subcohort		pT1	13 (4.3%)	82.77 (13.1)	<b>&lt;0.001</b>	110.63 (8.9)		<b>&lt;0.001</b>
	pT2	39 (12.8%)	86.50 (7.3)	99.54 (6.4)		99.79 (6.9)		
	pT3a	56 (18.4%)	92.60 (5.8)	102.89 (5.0)		97.02 (6.1)		
	pT3b	104 (34.1%)	54.46 (4.9)	59.39 (5.2)		52.88 (5.3)		
	pT4a	58 (19.0%)	48.61 (6.0)	50.79 (6.3)		42.63 (6.5)		
	pT4b	35 (11.5%)	43.70 (8.4)	49.65 (9.2)		44.22 (9.4)		
	pN0 subcohort	pT1	73 (13.8%)	97.16 (5.1)		<b>&lt;0.001</b>	115.18 (3.1)	
pT2		142 (26.8%)	96.76 (3.5)	109.37 (2.6)	106.64 (3.0)			
pT3a		132 (25.0%)	97.79 (3.4)	109.27 (2.7)	105.13 (3.3)			
pT3b		111 (21.0%)	76.07 (4.8)	86.60 (4.9)	88.97 (5.0)			
pT4a		48 (9.1%)	75.03 (7.6)	79.43 (7.7)	71.87 (8.0)			
pT4b		23 (4.3%)	62.07 (10.3)	80.58 (11.6)	73.88 (12.4)			
pN1/2 subcohort		pT1	6 (1.4%)	101.61 (16.8)	<b>&lt;0.001</b>		114.37 (4.6)	<b>&lt;0.001</b>
	pT2	45 (10.7%)	82.17 (7.6)	86.03 (7.4)		78.07 (8.1)		
	pT3a	66 (15.7%)	88.82 (5.8)	101.47 (5.1)		89.92 (6.2)		
	pT3b	178 (42.3%)	65.40 (3.9)	68.53 (4.0)		55.51 (4.0)		
	pT4a	78 (18.5%)	52.84 (5.3)	53.66 (5.4)		42.85 (5.6)		
	pT4b	48 (11.4%)	39.16 (6.6)	42.05 (7.1)		44.89 (8.1)		
	pM0	pT1	79 (9.8%)	97.68 (4.8)		<b>&lt;0.001</b>	115.54 (2.9)	
pT2		179 (22.1%)	95.18 (3.2)	106.40 (2.6)	102.26 (3.1)			
pT3a		187 (23.1%)	98.19 (2.9)	111.20 (2.1)	104.36 (2.9)			
pT3b		233 (28.8%)	75.08 (3.4)	82.15 (3.4)	74.78 (3.7)			
pT4a		82 (10.1%)	78.05 (5.6)	80.73 (5.6)	71.04 (6.1)			
pT4b		49 (6.1%)	58.75 (7.4)	64.63 (7.9)	62.03 (8.3)			
pM1		pT1	0 (0.0%)	-	<b>0.029</b>		-	<b>0.158</b>
	pT2	8 (5.7%)	49.08 (15.0)	49.08 (15.0)		47.28 (16.0)		
	pT3a	11 (7.8%)	37.04 (7.6)	37.04 (7.6)		29.67 (8.2)		
	pT3b	56 (39.7%)	48.74 (6.3)	49.58 (6.4)		39.36 (6.3)		
	pT4a	44 (31.2%)	29.74 (3.7)	30.34 (3.8)		20.75 (3.2)		
	pT4b	22 (15.6%)	21.19 (5.2)	26.94 (7.3)		28.85 (8.6)		

Supplementary Table 11		Overall n (%)	Mean overall survival (SE) [months]	p-value	Mean disease specific survival (SE) [months]	p-value	Mean disease free survival (SE) [months]	p-value
revised pT classification				<b>&lt;0.001</b>		<b>&lt;0.001</b>		<b>&lt;0.001</b>
	pT1	52 (9.6%)	107.79 (9.1)		117.04 (6.9)		107.45 (5.1)	
	pT2	121 (22.3%)	90.02 (6.1)		95.91 (5.9)		86.62 (6.8)	
	pT3a	153 (28.2%)	80.09 (3.2)		80.61 (3.2)		87.09 (8.0)	
	pT3b	156 (28.8%)	69.17 (3.5)		69.67 (3.5)		55.08 (3.3)	
	pT4a	43 (7.9%)	55.87 (7.6)		57.37 (7.7)		47.91 (7.8)	
	pT4b	17 (3.1%)	34.88 (6.7)		37.65 (6.7)		30.42 (7.0)	
WHO grade: low-grade subcohort				<b>&lt;0.001</b>		<b>&lt;0.001</b>		<b>&lt;0.001</b>
	pT1	44 (11.3%)	105.03 (9.1)		116.97 (3.0)		114.03 (4.1)	
	pT2	95 (24.5%)	87.22 (6.6)		94.21 (6.4)		82.41 (7.4)	
	pT3a	111 (28.6%)	81.05 (3.4)		81.79 (3.4)		87.79 (8.3)	
	pT3b	107 (27.6%)	71.06 (4.1)		71.88 (4.1)		54.79 (4.0)	
	pT4a	22 (5.7%)	54.94 (8.5)		57.88 (8.6)		47.02 (8.6)	
	pT4b	9 (2.3%)	32.00 (6.1)		35.87 (5.7)		21.31 (5.1)	
WHO grade: high-grade subcohort				<b>&lt;0.001</b>		<b>&lt;0.001</b>		<b>&lt;0.001</b>
	pT1	8 (5.2%)	89.46 (15.7)		89.46 (15.7)		87.46 (16.87)	
	pT2	26 (16.9%)	63.38 (3.1)		63.38 (3.1)		63.24 (3.2)	
	pT3a	42 (27.3%)	68.12 (6.8)		68.12 (6.8)		66.28 (6.8)	
	pT3b	49 (31.8%)	57.61 (4.0)		57.61 (4.0)		51.31 (4.1)	
	pT4a	21 (13.6%)	48.17 (8.7)		48.17 (8.7)		40.66 (9.9)	
	pT4b	8 (5.2%)	34.25 (8.5)		34.25 (8.5)		35.05 (10.0)	
pN0 subcohort				<b>0.085</b>		<b>0.009</b>		<b>&lt;0.001</b>
	pT1	44 (13.4%)	102.37 (9.2)		113.96 (4.2)		111.30 (4.8)	
	pT2	92 (28.0%)	93.55 (6.9)		104.29 (3.9)		102.68 (4.2)	
	pT3a	99 (30.2%)	82.55 (3.5)		83.40 (3.5)		79.84 (3.7)	
	pT3b	76 (23.2%)	74.20 (3.6)		75.20 (3.5)		68.44 (3.9)	
	pT4a	11 (3.4%)	56.43 (5.6)		56.43 (5.6)		45.32 (8.9)	
	pT4b	6 (1.8%)	51.67 (3.8)		51.67 (3.8)		47.33 (8.6)	
pN1/2 subcohort				<b>&lt;0.001</b>		<b>&lt;0.001</b>		<b>&lt;0.001</b>
	pT1	8 (3.7%)	98.43 (16.5)		98.43 (16.5)		98.43 (16.5)	
	pT2	29 (13.6%)	72.47 (7.2)		72.47 (7.2)		57.81 (6.4)	
	pT3a	54 (25.2%)	73.82 (5.8)		73.82 (5.8)		82.23 (10.0)	
	pT3b	80 (37.4%)	58.24 (5.9)		58.24 (5.9)		34.79 (2.6)	
	pT4a	32 (15.0%)	50.61 (8.8)		52.64 (9.0)		43.60 (8.68)	
	pT4b	11 (5.1%)	18.33 (6.0)		21.16 (6.4)		18.53 (6.0)	
pM0				<b>0.002</b>		<b>&lt;0.001</b>		<b>&lt;0.001</b>
	pT1	51 (10.5%)	110.07 (9.0)		112.00 (4.2)		109.73 (4.7)	
	pT2	117 (24.1%)	89.30 (6.7)		95.39 (6.7)		88.06 (6.9)	
	pT3a	146 (30.1%)	81.03 (3.2)		81.59 (3.1)		89.31 (8.1)	
	pT3b	142 (29.3%)	67.00 (3.4)		67.50 (3.4)		56.62 (3.4)	
	pT4a	24 (4.9%)	71.03 (9.7)		71.07 (9.7)		69.79 (10.8)	
	pT4b	5 (1.0%)	37.00 (7.2)		45.00 (0.0)		21.87 (6.9)	
pM1				<b>0.326</b>		<b>0.372</b>		<b>0.592</b>
	pT1	1 (1.8%)	23.00 (0.0)		23.00 (0.0)		23.00 (0.0)	
	pT2	4 (7.0%)	56.33 (15.2)		56.33 (15.24)		21.38 (3.7)	
	pT3a	7 (12.3%)	24.86 (5.5)		24.86 (5.5)		15.86 (4.5)	
	pT3b	14 (24.6%)	56.06 (12.1)		56.06 (12.1)		33.11 (7.7)	
	pT4a	19 (33.3%)	25.89 (5.2)		27.65 (5.6)		17.28 (3.9)	
	pT4b	12 (21.1%)	30.70 (8.3)		29.22 (7.5)		30.97 (8.3)	

Supplementary Table 12		Overall n (%)	Mean overall survival (SE)	p-value	Mean disease specific survival (SE)	p-value	Mean disease free survival (SE)	p-value
			[months]		[months]		[months]	
revised pT classification	pT1	10 (2.2%)	47.12 (13.7)	<b>&lt;0.001</b>	88.20 (11.4)	<b>&lt;0.001</b>	88.20 (11.4)	<b>&lt;0.001</b>
	pT2	58 (13.0%)	56.89 (5.0)		79.39 (5.0)		75.93 (5.3)	
	pT3a	96 (21.5%)	57.45 (5.2)		81.27 (6.5)		77.94 (6.5)	
	pT3b	144 (32.2%)	36.23 (3.0)		40.79 (3.4)		37.90 (3.5)	
	pT4a	74 (16.6%)	35.72 (4.5)		38.25 (4.7)		33.42 (4.2)	
	pT4b	65 (14.5%)	24.46 (3.9)		28.06 (4.6)		28.93 (4.5)	
	WHO grade: low-grade subcohort	pT1	10 (3.0%)		47.12 (13.7)		<b>&lt;0.001</b>	
pT2		51 (15.1%)	57.58 (5.4)	75.85 (5.6)	73.94 (5.7)			
pT3a		82 (24.3%)	58.95 (5.6)	81.40 (6.8)	78.41 (6.8)			
pT3b		113 (33.5%)	36.22 (3.4)	41.40 (4.0)	38.00 (4.0)			
pT4a		42 (12.5%)	34.10 (5.8)	35.08 (5.8)	32.86 (5.2)			
pT4b		39 (11.6%)	28.75 (5.6)	32.20 (6.0)	33.46 (6.1)			
WHO grade: high-grade subcohort		pT1	0 (0.0%)	-	<b>0.005</b>	-		<b>&lt;0.001</b>
	pT2	7 (6.4%)	50.43 (9.9)	120.00 (0.0)		120.00 (0.0)		
	pT3a	14 (12.7%)	39.10 (4.6)	45.55 (3.8)		42.63 (4.3)		
	pT3b	31 (28.2%)	34.65 (5.7)	39.13 (6.4)		35.96 (6.6)		
	pT4a	32 (29.1%)	37.06 (6.9)	41.61 (7.3)		34.24 (6.9)		
	pT4b	26 (23.6%)	18.42 (4.8)	20.47 (5.4)		21.51 (5.4)		
	pN0 subcohort	pT1	8 (3.6%)	30.41 (8.3)		<b>0.024</b>	52.33 (6.3)	
pT2		49 (21.8%)	57.95 (5.5)	79.00 (5.4)	77.0 (5.6)			
pT3a		61 (27.1%)	53.65 (6.1)	81.68 (7.0)	77.42 (7.0)			
pT3b		64 (28.4%)	44.74 (4.7)	52.43 (5.6)	53.03 (6.0)			
pT4a		27 (12.0%)	45.39 (8.3)	47.32 (8.1)	37.64 (7.7)			
pT4b		16 (7.1%)	21.38 (7.6)	26.08 (8.6)	33.27 (8.8)			
pN1/2 subcohort		pT1	2 (0.9%)	82.00 (19.0)	<b>&lt;0.001</b>		101.00 (0.0)	<b>&lt;0.001</b>
	pT2	9 (4.1%)	48.75 (11.7)	54.33 (9.9)		54.33 (9.9)		
	pT3a	35 (15.8%)	64.71 (9.2)	74.09 (9.7)		70.33 (10.3)		
	pT3b	80 (36.0%)	29.96 (3.5)	31.75 (3.7)		26.04 (3.4)		
	pT4a	47 (21.2%)	29.87 (4.9)	32.44 (5.2)		30.16 (4.7)		
	pT4b	49 (22.1%)	25.23 (4.3)	27.92 (5.0)		27.48 (5.1)		
	pM0	pT1	10 (2.9%)	47.12 (13.7)		<b>&lt;0.001</b>	88.20 (11.4)	
pT2		57 (16.8%)	56.76 (5.0)	79.25 (5.0)	77.24 (5.2)			
pT3a		88 (25.9%)	61.35 (5.7)	90.31 (6.8)	86.56 (6.7)			
pT3b		108 (31.8%)	42.08 (3.7)	49.23 (4.4)	49.18 (4.6)			
pT4a		41 (12.1%)	46.15 (6.6)	47.40 (6.5)	40.55 (6.3)			
pT4b		36 (10.6%)	27.17 (5.6)	34.34 (7.2)	35.31 (7.3)			
pM1		pT1	0 (0.0%)	-	<b>0.923</b>		-	<b>0.886</b>
	pT2	1 (0.9%)	12.00 (0.0)	12.00 (0.0)		1.00 (0.00)		
	pT3a	8 (7.5%)	28.38 (8.6)	28.38 (8.6)		26.88 (8.4)		
	pT3b	36 (33.6%)	21.72 (3.3)	21.72 (3.3)		16.56 (2.7)		
	pT4a	33 (30.8%)	24.34 (5.3)	27.70 (5.9)		25.80 (5.2)		
	pT4b	29 (27.1%)	20.42 (4.9)	21.15 (5.1)		21.67 (4.7)		

<b>Supplementary Table 13</b>	<b>HR (DSS)</b>	<b>lower CI (95%)</b>	<b>upper CI (95%)</b>	<b>p-value</b>
<b>revised pT classification</b>				<b>&lt;0.001</b>
<i>pT1</i>	1.00			
<i>pT2</i>	2.61	0.92	7.45	
<i>pT3a</i>	2.07	0.72	5.87	
<i>pT3b</i>	5.25	1.90	14.50	
<i>pT4a</i>	6.46	2.30	18.15	
<i>pT4b</i>	9.33	3.26	26.69	
<b>Gender</b>				<b>0.345</b>
<i>male</i>	1.00			
<i>female</i>	0.89	0.7	1.14	
<b>WHO-grade</b>				<b>0.058</b>
<i>Low grade</i>	1.00			
<i>High grade</i>	1.28	0.99	1.64	
<b>pN</b>				<b>&lt;0.001</b>
<i>pN0</i>	1.00			
<i>pN1</i>	1.33	0.98	1.81	
<i>pN2</i>	1.96	1.38	2.78	
<b>pM</b>				<b>&lt;0.001</b>
<i>pM0</i>	1.00			
<i>pM1</i>	2.56	1.89	3.46	
<b>Resection margin</b>				<b>0.019</b>
R0	1.00			
R1	1.56	1.02	2.39	
R2	1.74	1.09	2.76	
<b>Age group</b>				<b>0.001</b>
<i>Below median</i>	1.00			
<i>Median and above</i>	1.54	1.21	1.96	

<b>Supplementary Table 14</b>	<b>HR (DSS)</b>	<b>lower CI (95%)</b>	<b>upper CI (95%)</b>	<b>p-value</b>
<b>revised pT classification</b>				<b>0.008</b>
<i>pT1</i>	1.00			
<i>pT2</i>	1.28	0.40	4.06	
<i>pT3a</i>	1.12	0.36	3.53	
<i>pT3b</i>	2.29	0.77	6.80	
<i>pT4a</i>	2.56	0.80	8.21	
<i>pT4b</i>	6.76	1.63	28.03	
<b>Gender</b>				<b>0.586</b>
<i>male</i>	1.00			
<i>female</i>	0.89	0.57	1.37	
<b>WHO-grade</b>				<b>0.322</b>
<i>Low grade</i>	1.00			
<i>High grade</i>	1.26	0.80	1.97	
<b>pN</b>				<b>&lt;0.001</b>
<i>pN0</i>	1.00			
<i>pN1</i>	1.57	0.88	2.78	
<i>pN2</i>	4.71	2.70	8.22	
<b>pM</b>				<b>0.002</b>
<i>pM0</i>	1.00			
<i>pM1</i>	2.59	1.43	4.68	
<b>Resection margin</b>				<b>0.636</b>
R0	1.00			
R1	0.97	0.41	2.30	
R2	1.64	0.21	12.63	
<b>Age group</b>				<b>&lt;0.001</b>
<i>Below median</i>	1.00			
<i>Median and above</i>	2.28	1.44	3.62	

Supplementary Table 15	HR (DSS)	lower CI (95%)	upper CI (95%)	p-value
<b>revised pT classification</b>				<b>&lt;0.001</b>
<i>pT1</i>	1.00			
<i>pT2</i>	1.72	0.22	13.65	
<i>pT3a</i>	2.24	0.30	16.67	
<i>pT3b</i>	6.15	0.85	44.57	
<i>pT4a</i>	6.15	0.83	45.44	
<i>pT4b</i>	8.62	1.17	63.49	
<b>Gender</b>				<b>0.500</b>
<i>female</i>	1.00			
<i>male</i>	0.91	0.68	1.20	
<b>WHO-grade</b>				<b>0.857</b>
<i>Low grade</i>	1.00			
<i>High grade</i>	1.03	0.75	1.43	
<b>pN</b>				<b>0.195</b>
<i>pN0</i>	1.00			
<i>pN1</i>	1.19	0.82	1.72	
<i>pN2</i>	1.29	0.88	1.90	
<b>pM</b>				<b>&lt;0.001</b>
<i>pM0</i>	1.00			
<i>pM1</i>	1.95	1.34	2.85	
<b>Resection margin</b>				<b>0.226</b>
R0	1.00			
R1	1.22	0.72	2.06	
R2	1.35	0.83	2.17	
<b>Age group</b>				<b>0.002</b>
<i>Below median</i>	1.00			
<i>Median and above</i>	1.59	1.19	2.12	



<b>Supplementary Table 16</b>						
		<b>pT3 conventional measurement</b>		<b>Number of cases</b>	<b>Kappa-value</b>	<b>p-value</b>
		<b>pT3a</b>	<b>pT3b</b>			
<b>pT3 digital measurement</b>	<b>pT3a</b>	74	1	75	<b>0.89</b>	<b>&lt;0.001</b>
	<b>pT3b</b>	5	45	50		
<b>Number of cases</b>		79	46	125		

## **Supplementary material legends**

**Supplementary Figure 1:** Disease specific survival analysis of pT3a vs. pT3b within all pT3 colon cancers (A) and in all pT3 rectal cancers (B), with a comparable survival impact in both anatomic subgroups, that is also visible in comparison to other pT stages, as separately shown for colon cancers (C) and rectal cancers (D).

**Supplementary Table 1:** Distribution and prognostic relevance of basic clinicopathological and morphological parameters in the training cohort (Munich).

**Supplementary Table 2:** Distribution and prognostic relevance of basic clinicopathological and morphological parameters in validation cohort 1 (Mainz).

**Supplementary Table 3:** Distribution and prognostic relevance of basic clinicopathological and morphological parameters in validation cohort 2 (Bayreuth).

**Supplementary Table 4:** Impact on survival parameters (log-rank test) of the proposed pT3a/b substratification in pT3 CRC subgroup of the training cohort (Munich), including pN, pM and WHO-grade subgroups.

**Supplementary Table 5:** Impact on survival parameters (log-rank test) of the proposed pT3a/b substratification in pT3 CRC subgroup of validation cohort 1 (Mainz), including pN, pM and WHO-grade subgroups.

**Supplementary Table 6:** Impact on survival parameters (log-rank test) of the proposed pT3a/b substratification in pT3 CRC subgroup of validation cohort 2 (Bayreuth), including pN, pM and WHO-grade subgroups.

**Supplementary Table 7:** Multivariate analysis for Disease specific survival (DSS) of the proposed pT3a/b substratification (Cox-regression) in the pT3 CRC subgroup of the training cohort (Munich) including age, gender, WHO-grade, pN, pM and resection margin.

**Supplementary Table 8:** Multivariate analysis for Disease specific survival (DSS) of the proposed pT3a/b substratification (Cox-regression) in the pT3 CRC subgroup of validation cohort 1 (Mainz), including age, gender, WHO-grade, pN, pM and resection margin.

**Supplementary Table 9:** Multivariate analysis for Disease specific survival (DSS) of the proposed pT3a/b substratification (Cox-regression) in the pT3 CRC subgroup of validation cohort 2 (Bayreuth), including age, gender, WHO-grade, pN, pM and resection margin.

**Supplementary Table 10:** Impact on survival parameters (log-rank test) in all CRCs of the revised pT classification including all pT-stages and the proposed pT3a/b substratification in the training cohort (Munich), including pN, pM and WHO-grade subgroups.

**Supplementary Table 11:** Impact on survival parameters (log-rank test) in all CRCs of the revised pT classification including all pT-stages and the proposed pT3a/b

substratification in validation cohort 1 (Mainz), including pN, pM and WHO-grade subgroups.

**Supplementary Table 12:** Impact on survival parameters (log-rank test) in all CRCs of the revised pT classification including all pT-stages and the proposed pT3a/b substratification in validation cohort 2 (Bayreuth), including pN, pM and WHO-grade subgroups.

**Supplementary Table 13:** Multivariate analysis for Disease specific survival (DSS) in all CRCs of the revised pT classification including all pT-stages and the proposed pT3a/b substratification of the training cohort (Munich) including age, gender, WHO-grade, pN, pM and resection margin.

**Supplementary Table 14:** Multivariate analysis for Disease specific survival (DSS) in all CRCs of the revised pT classification including all pT-stages and the proposed pT3a/b substratification of validation cohort 1 (Mainz), including age, gender, WHO-grade, pN, pM and resection margin.

**Supplementary Table 15:** Multivariate analysis for Disease specific survival (DSS) in all CRCs of the revised pT classification including all pT-stages and the proposed pT3a/b substratification of validation cohort 2 (Bayreuth), including age, gender, WHO-grade, pN, pM and resection margin.

**Supplementary Table 16:** Concordance of digital measurements versus non-digital measurements using a conventional light-microscope and a ruler.