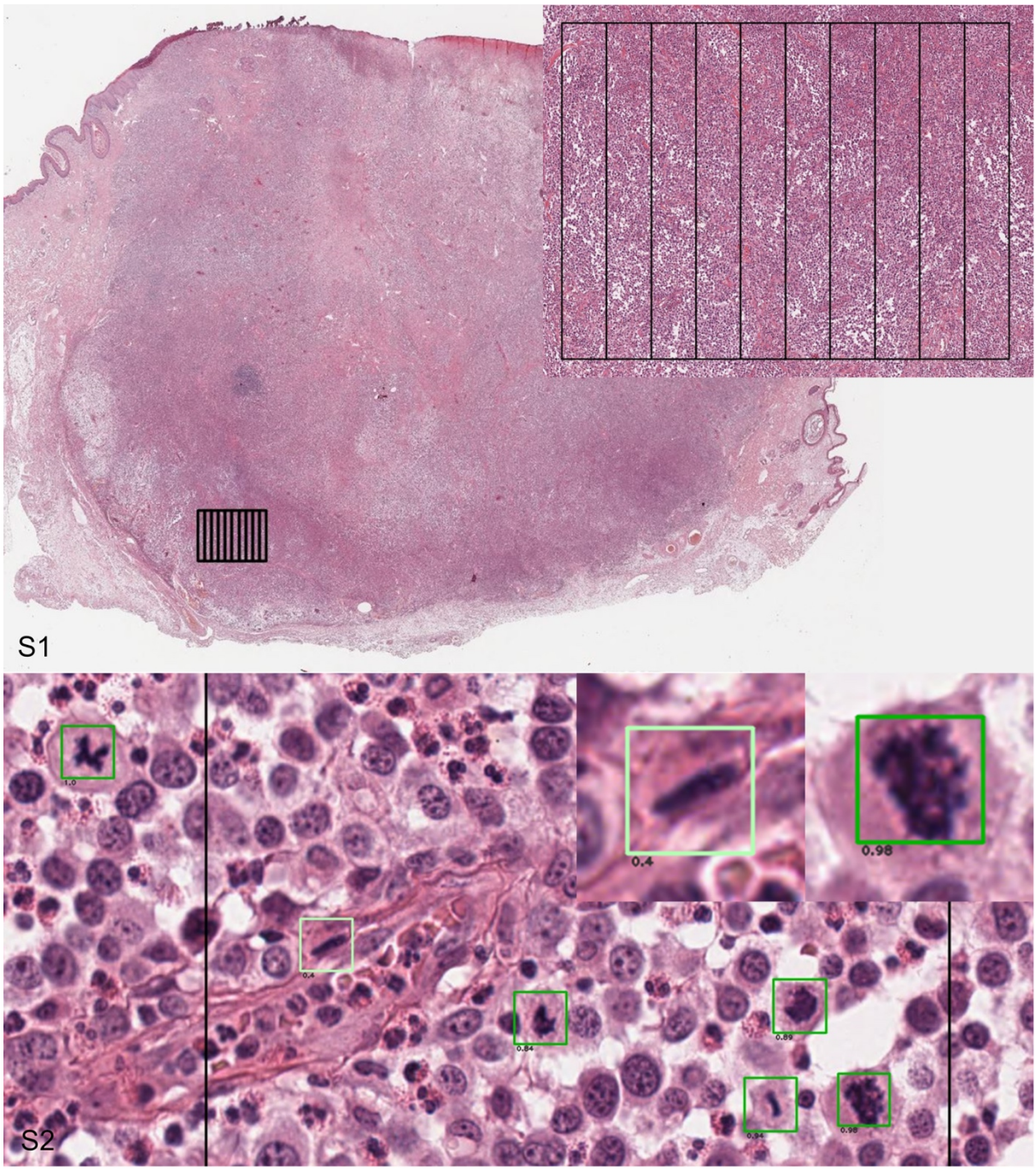
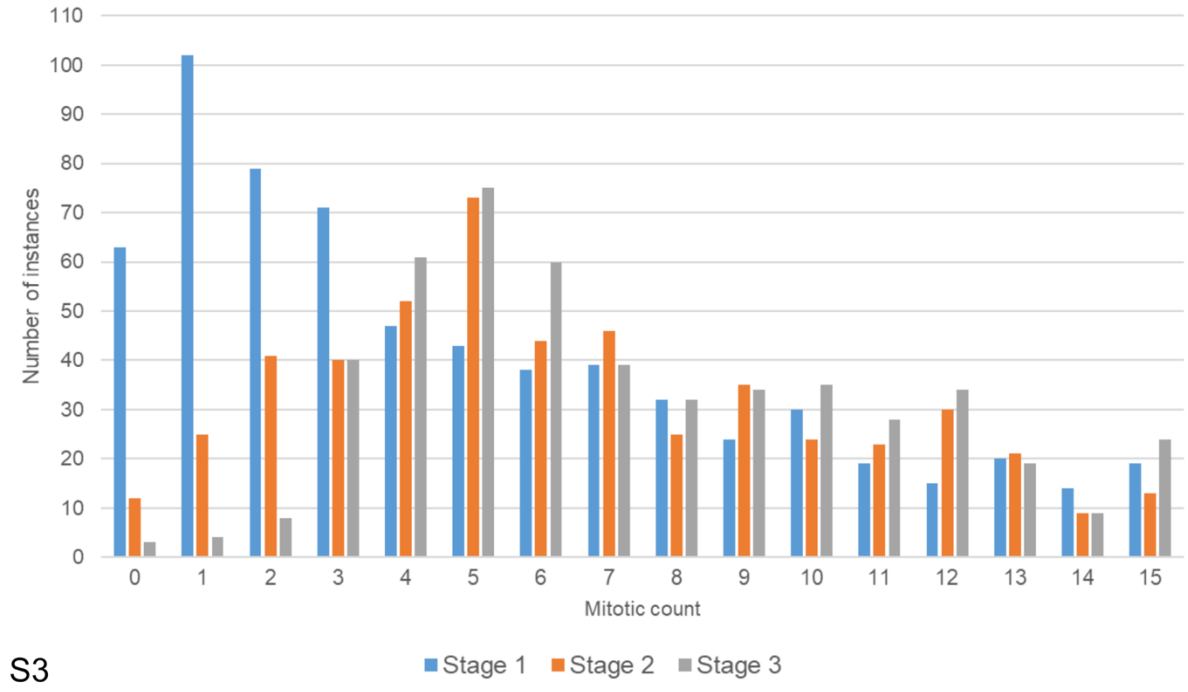
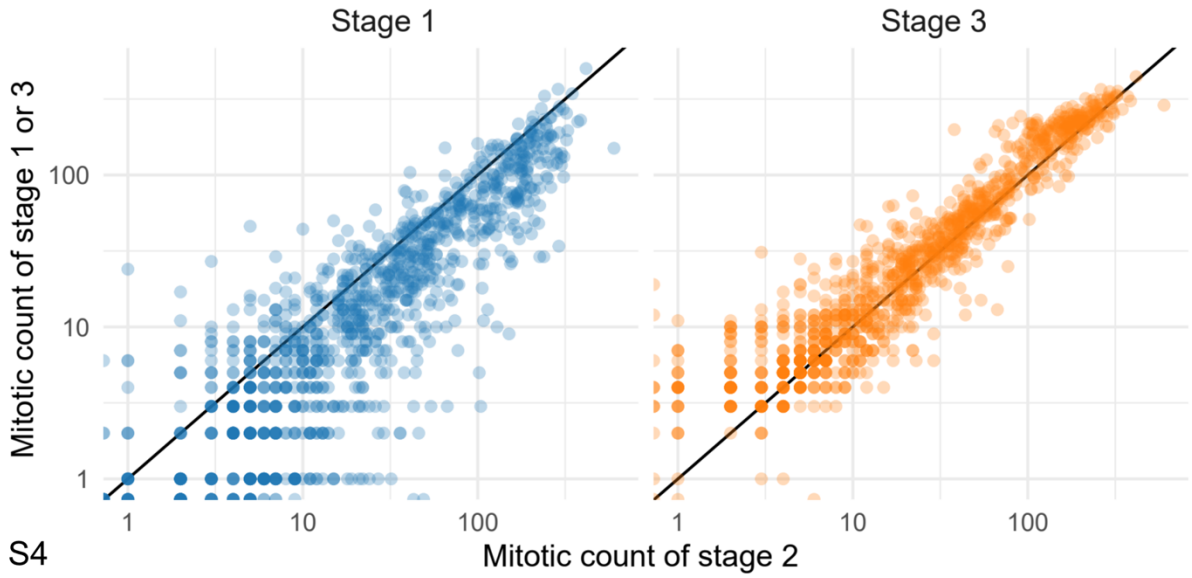


Supplemental Figures S1 and S2. Visualization of the computer-assistance tools used in stage 2 (Fig. S1) and stage 3 (Fig. S2). **Figure S1.** Overview of a whole slide (training case for participants of this study) with the algorithmically preselected mitotic count region of interest (MC-ROI) visualized as a back box (see inset for higher magnification). **Figure S2.** High magnification of the preselected MC-ROI with algorithmic detections (based on the predictions of the first convolutional neural network) and algorithmic classification of theses detections (by a second convolutional neural network) into mitotic figure candidates (dark green boxes; right inset) and look-alike candidates (light green box, left inset) based on their algorithmic classification score ("confidence value"; threshold for distinction set to 0.5).



S3

Supplemental Figure S3. Number of mitotic counts (MC) in the 50 study cases from all participants with a value between 0 and 15 for stage 1, 2 and 3. As compared to MC from stage 2 and 3, MC from stage 1 have more frequently a low value of 0, 1, 2 and 3.

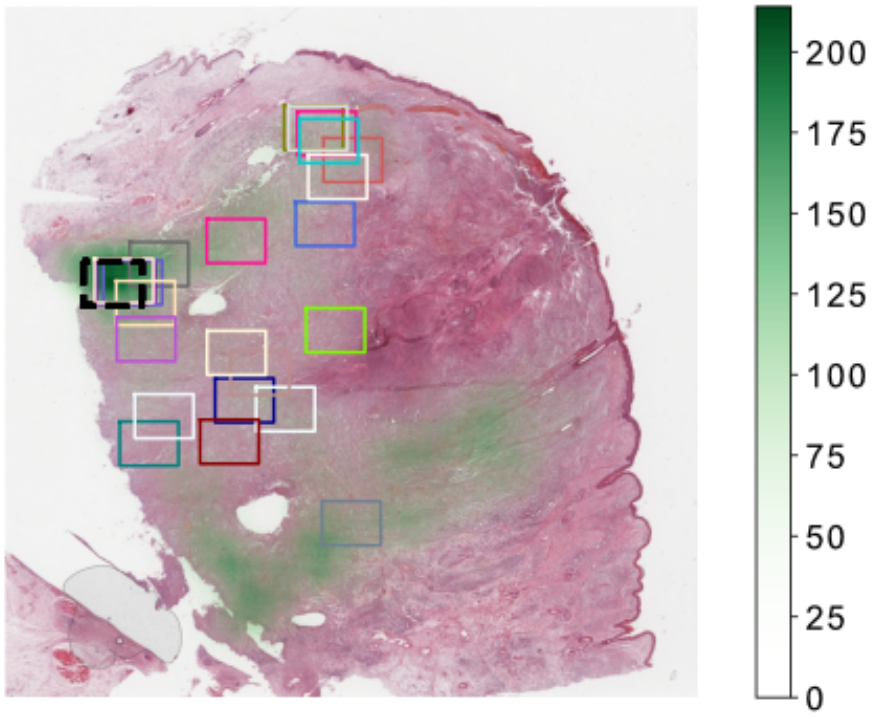


S4

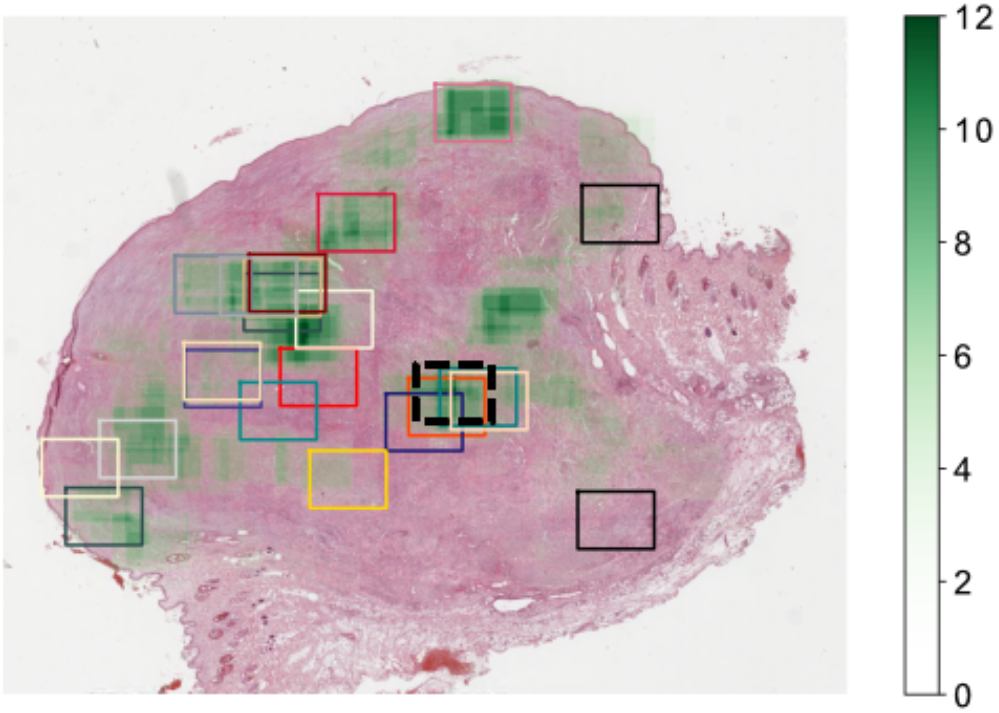
Supplemental Figure S4. Scatterplot of the participant's mitotic count (MC) from stage 2 compared to MC from stage 1 and stage 3. The black line in the scatterplots indicate equal values for stage 1 compared with stage 2 as well as stage 2 compared with stage 3 (respectively). The left scatterplot shows that the MC from stage 1 are somewhat lower than MC from stage 2. In contrast, MC from stage 3 have overall a higher value than MC from stage 2. Comparing both scatterplots it becomes clear that MC from stage 2 and 3 have a higher agreement than MC from stage 1 and 2.

Manual mitotic count region of interest selection

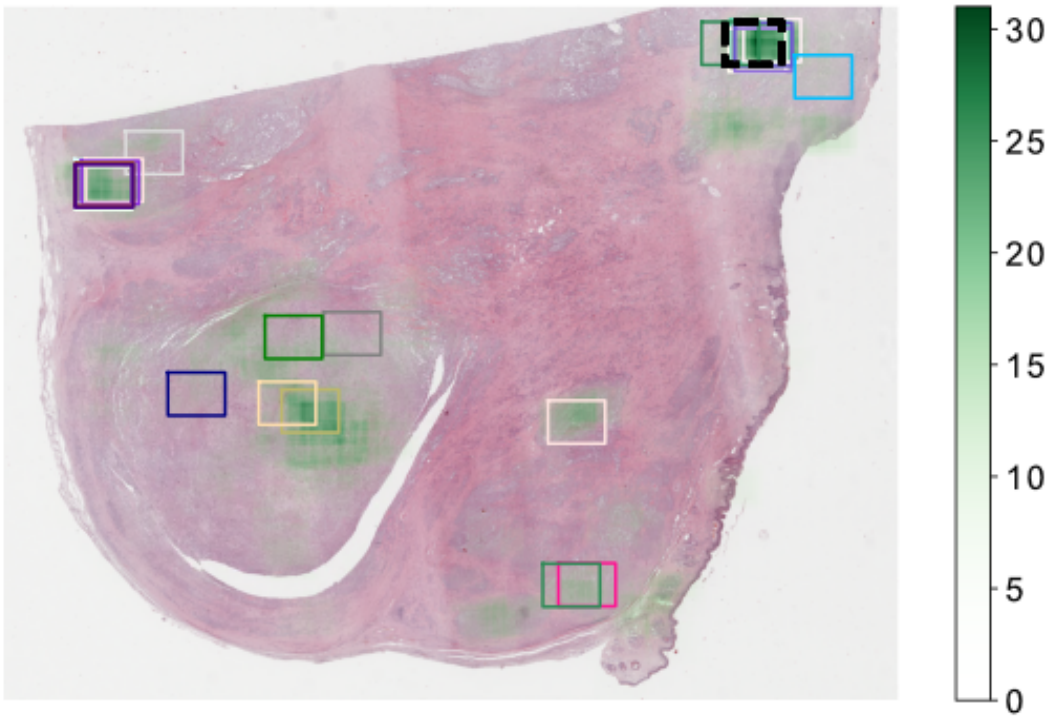
The following images (Supplemental Fig. S5-54) show the approximate mitotic count regions of interest (MC-ROI) in the whole slide image selected by the 23 participants for performing the mitotic count (MC) in stage 1. Due to a software failure, the exact image location of the selected MC-ROI was unfortunately not saved in the database. We therefore retrospectively determined the approximate MC-ROI in which the highest number of annotations could be placed. Thereby we ensured that the shift between the approximate and the actually selected MC-ROI were minimal and negligible for our analysis. For 63 cases that did not have a MF annotation (MC = 0) a MC-ROI would not be calculated for this respective participant. The black box with the dashed line represents the algorithmically preselected MC-ROI. The estimated MC heatmap is visualized by variable opacity of a green overlay (scale on the right side of image) on the histological image (hematoxylin and eosin stain) and is based on the algorithmic mitotic figure predictions.



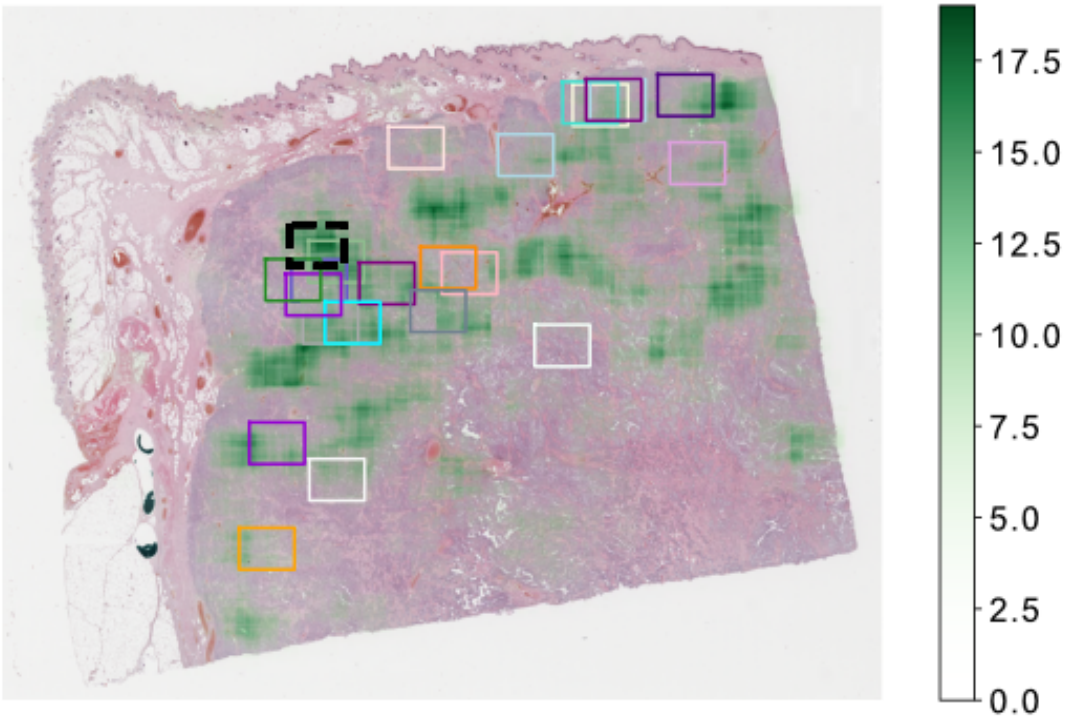
Supplemental Figure S5. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 1.



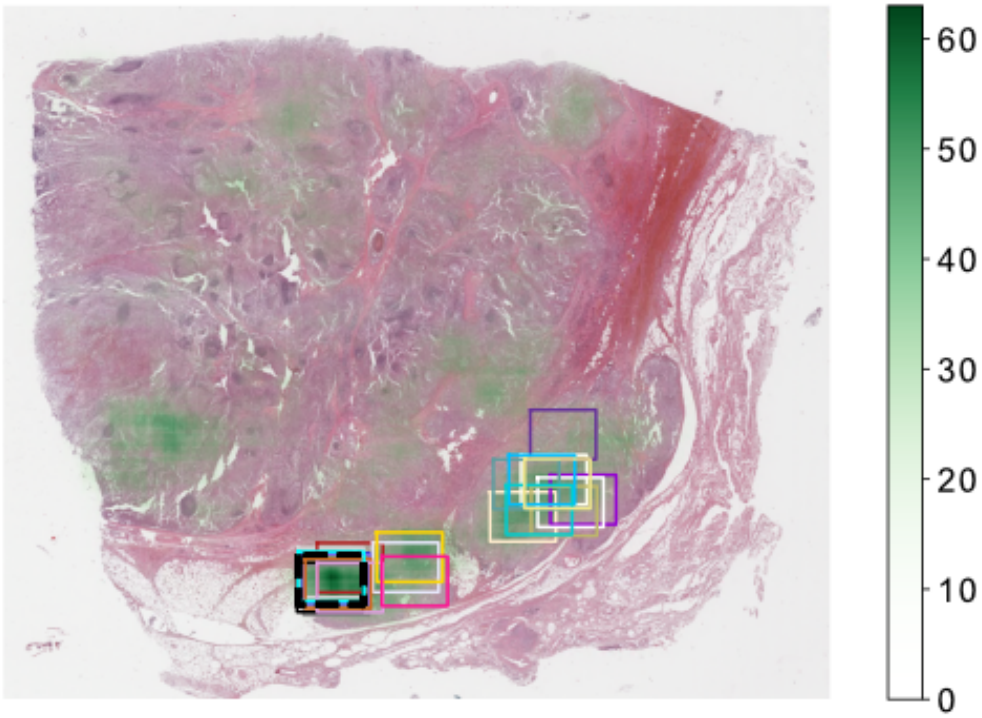
Supplemental Figure S6. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 2.



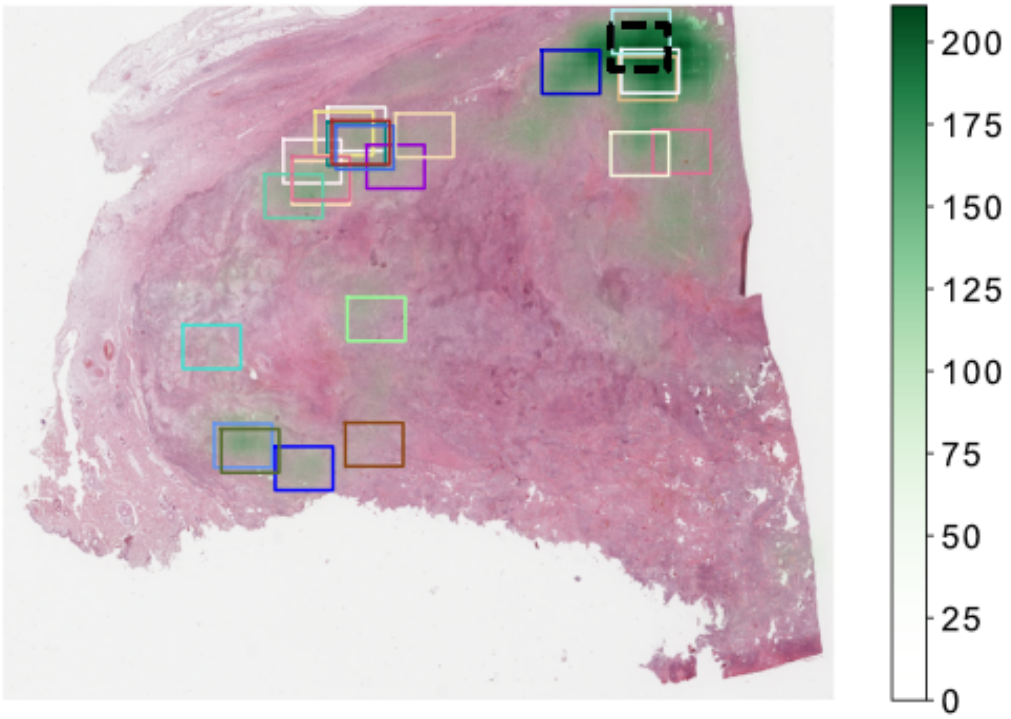
Supplemental Figure S7. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 3.



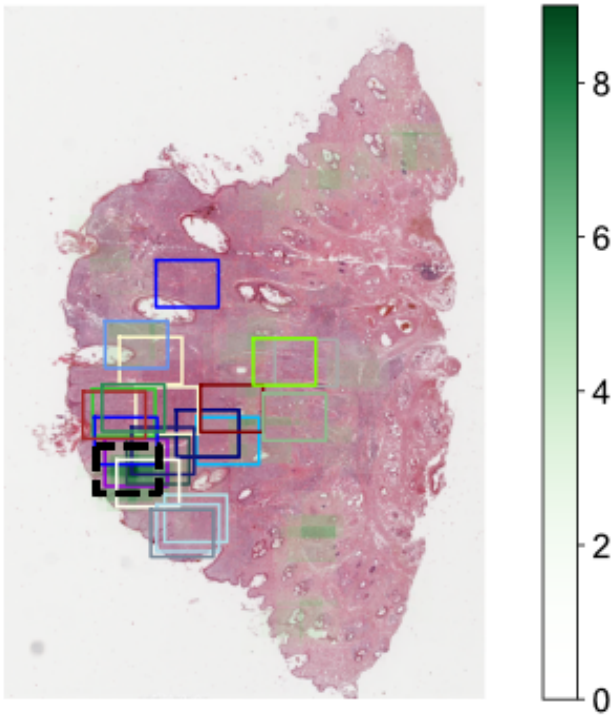
Supplemental Figure S8. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 4.



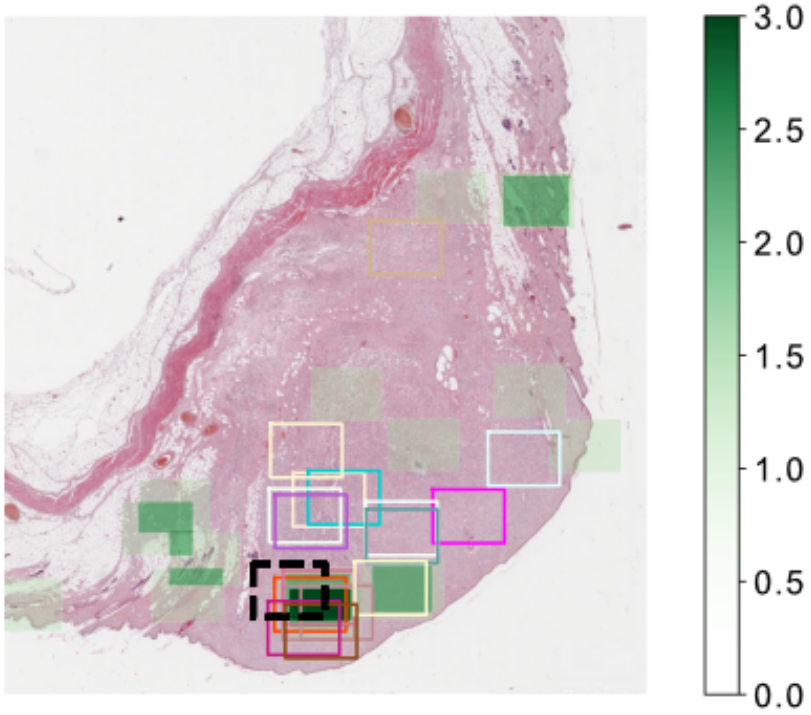
Supplemental Figure S9. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 5.



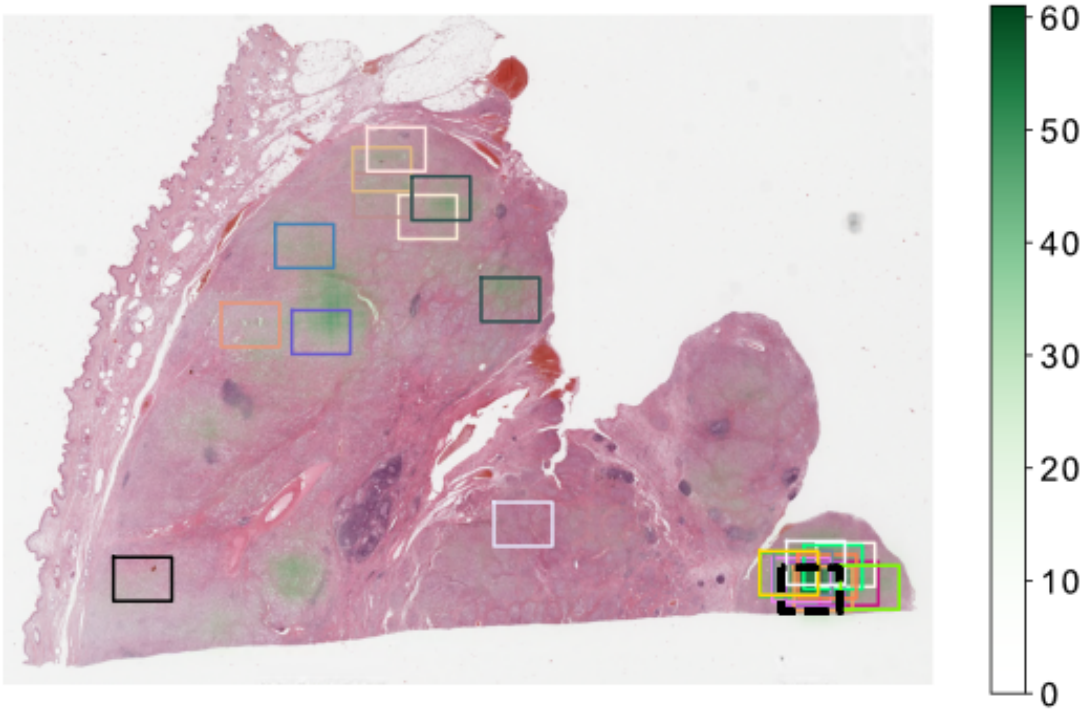
Supplemental Figure 10. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 6.



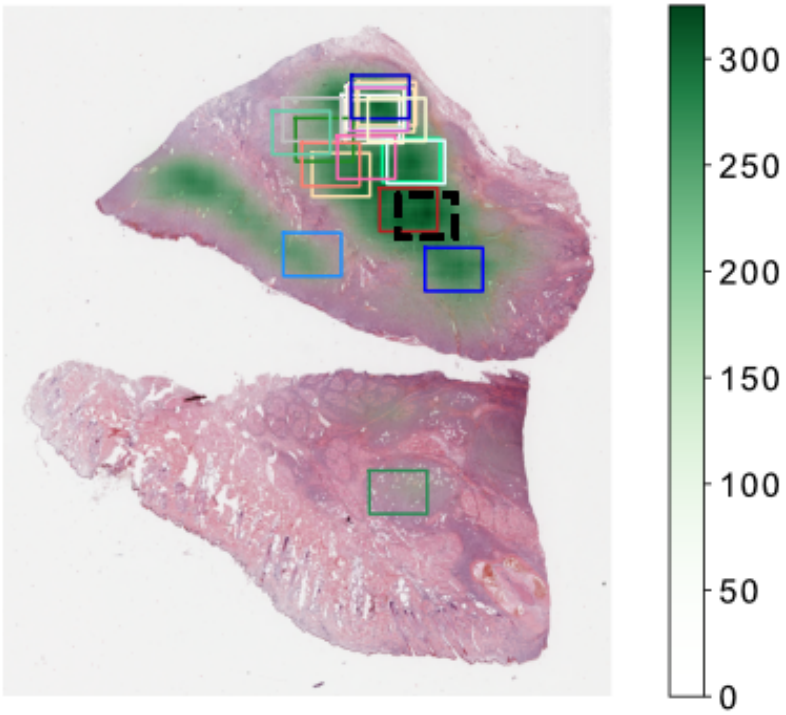
Supplemental Figure 11. Approximate location of the MC-ROIs selected manually by 22 study participants (1 participant had no annotation in the image) in the whole slide image of case No. 7.



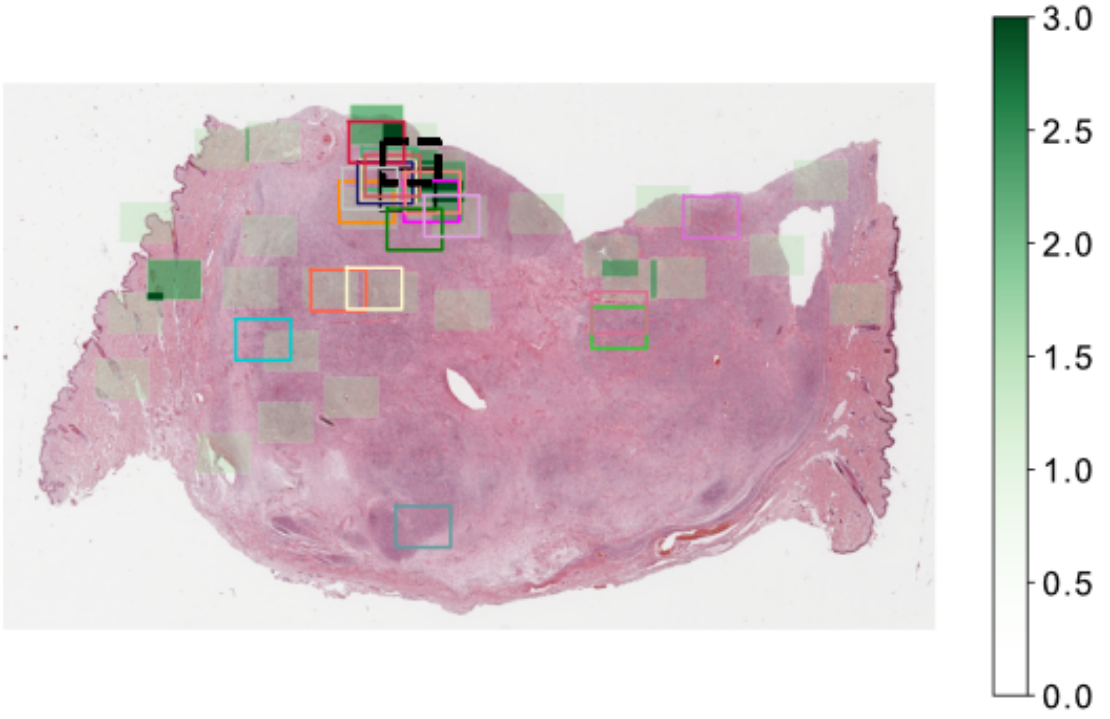
Supplemental Figure 12. Approximate location of the MC-ROIs selected manually by 17 study participants (6 participants had no annotation in the image) in the whole slide image of case No. 8.



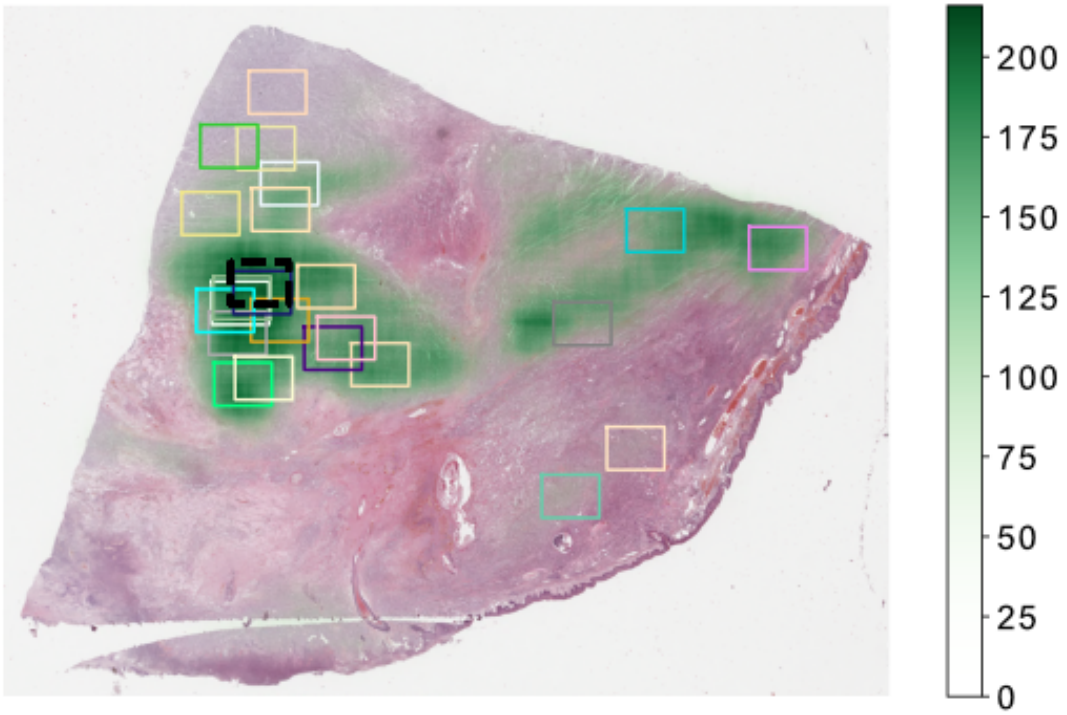
Supplemental Figure 13. Approximate location of the MC-ROIs selected manually 23 study participants in the whole slide image of case No. 9.



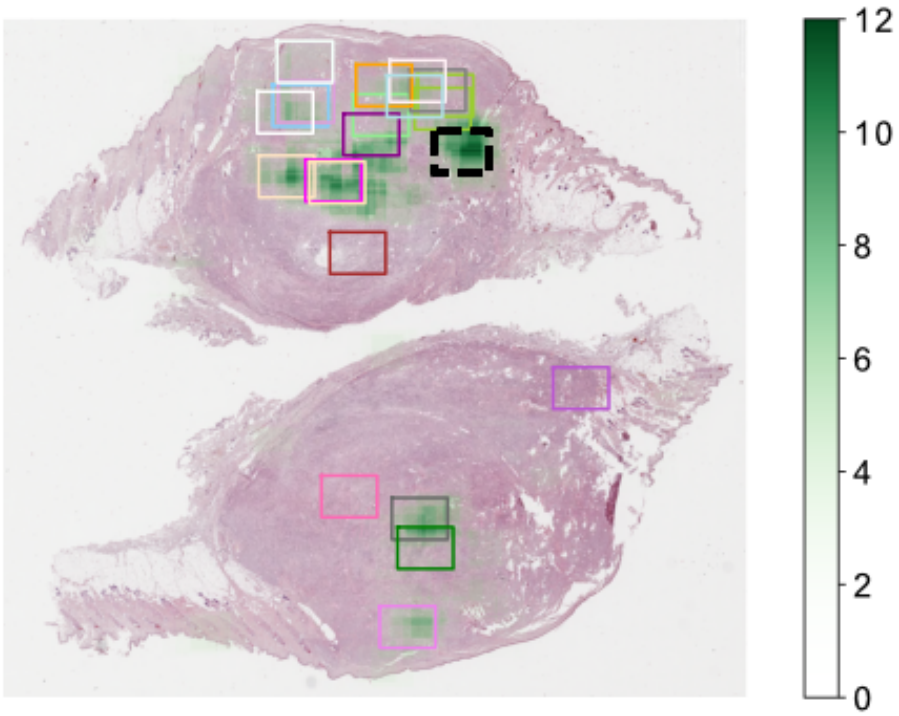
Supplemental Figure 14. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 10.



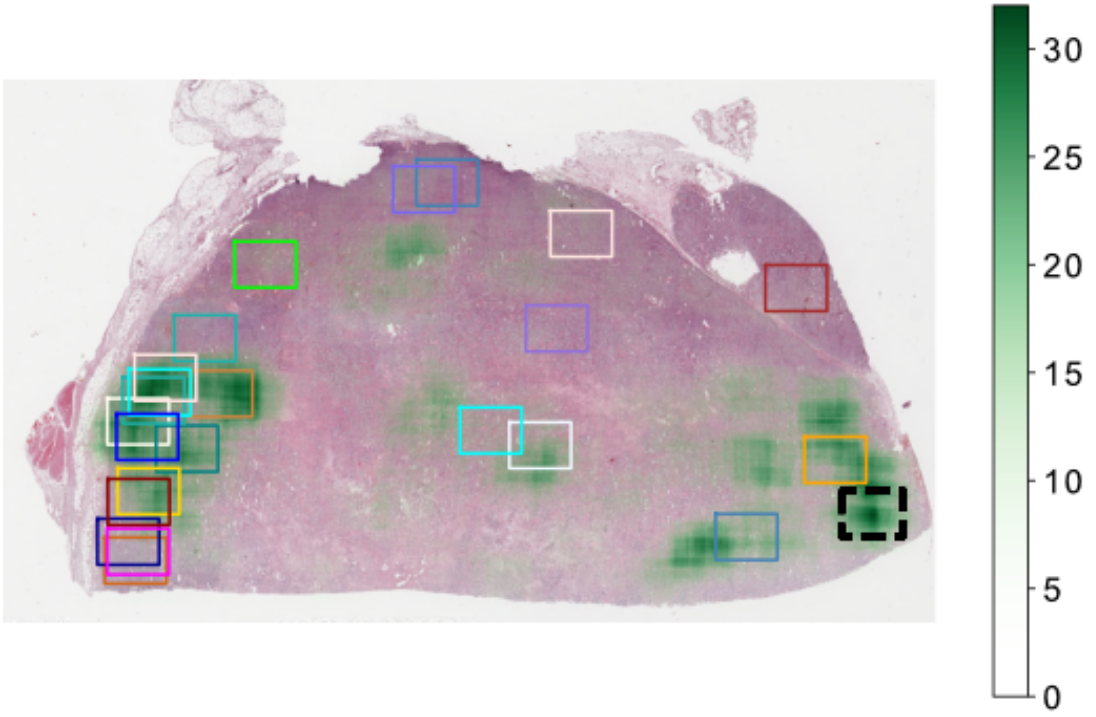
Supplemental Figure 15. Approximate location of the MC-ROIs selected manually by 19 study participants (4 participants had no annotation in the image) in the whole slide image of case No. 11.



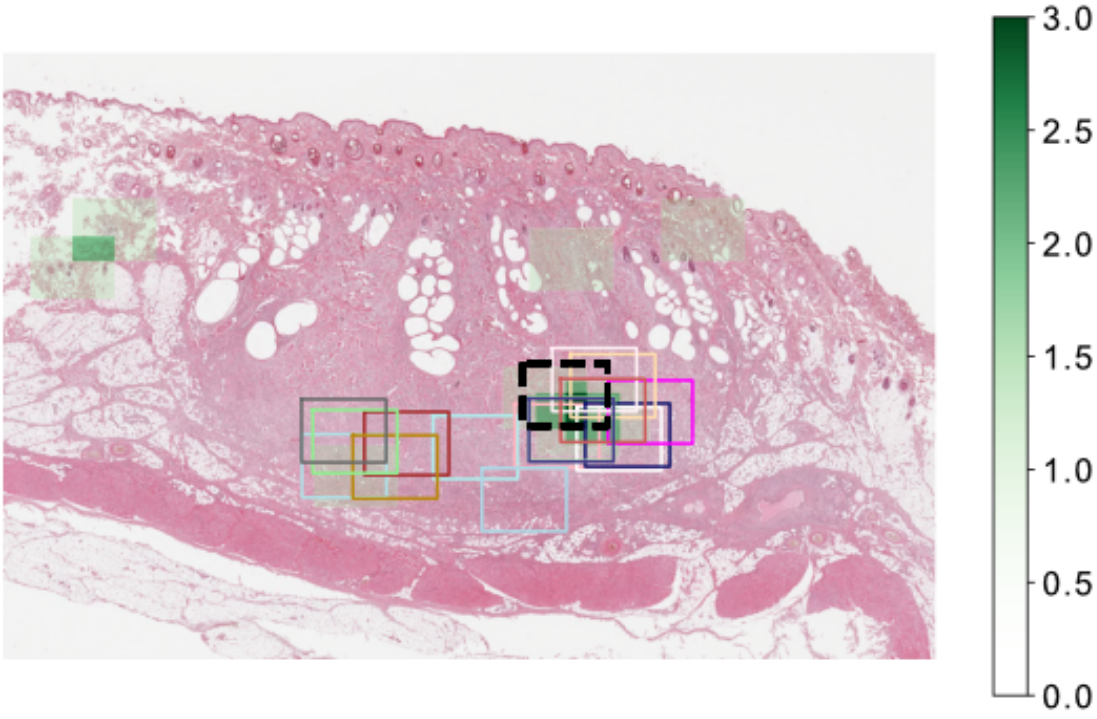
Supplemental Figure 16. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 12.



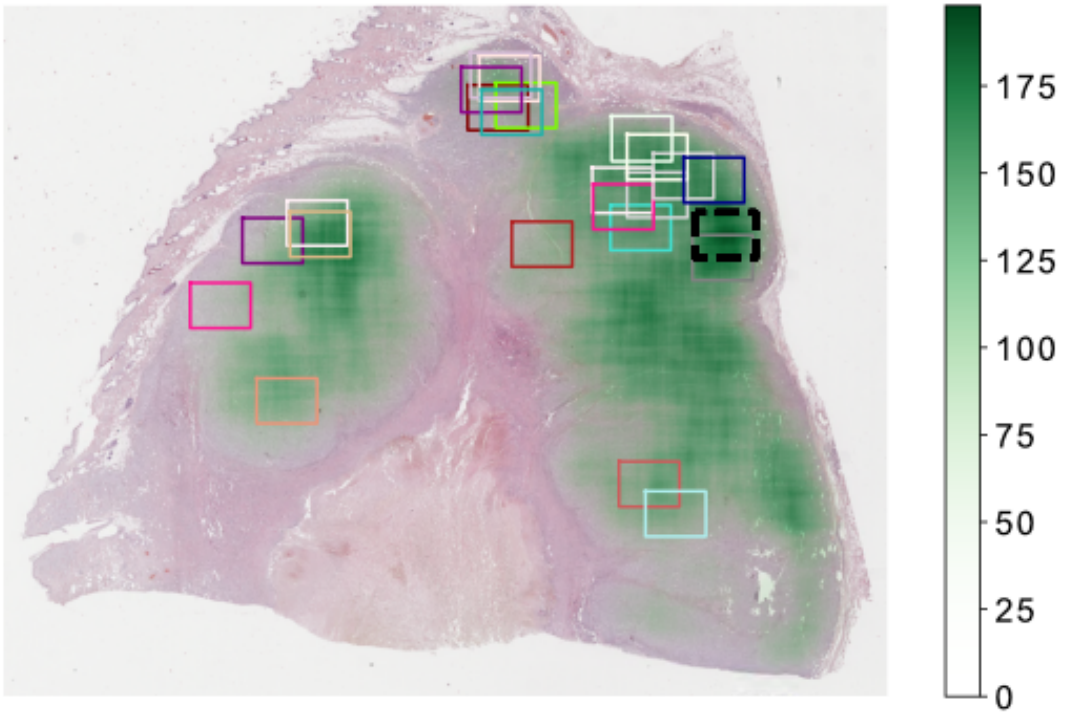
Supplemental Figure 17. Approximate location of the MC-ROIs selected manually by 21 study participants (2 participants had no annotation in the image) in the whole slide image of case No. 13.



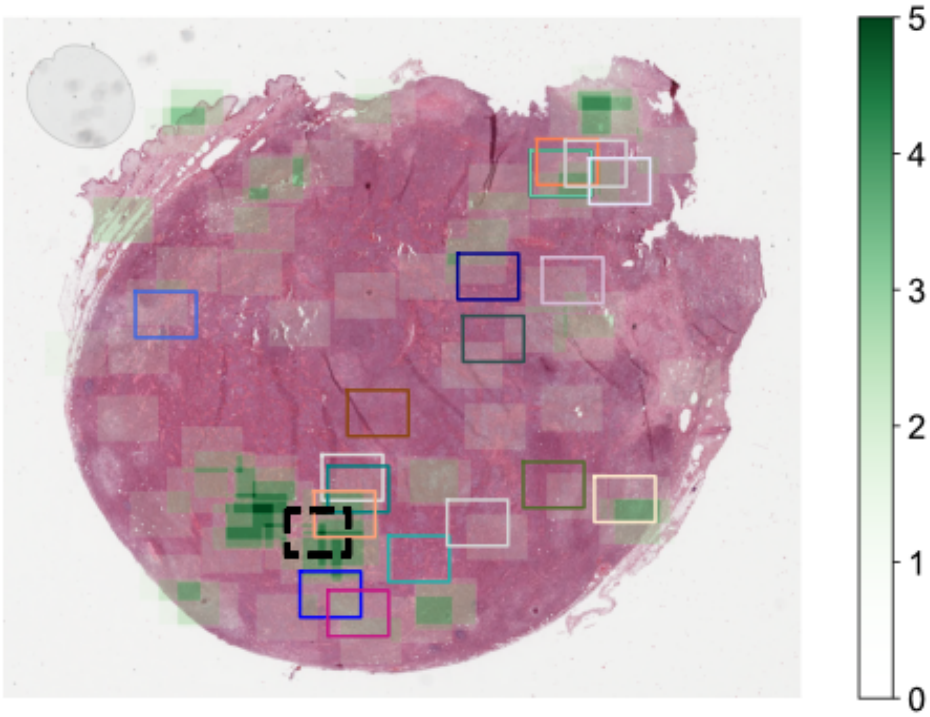
Supplemental Figure 18. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 14.



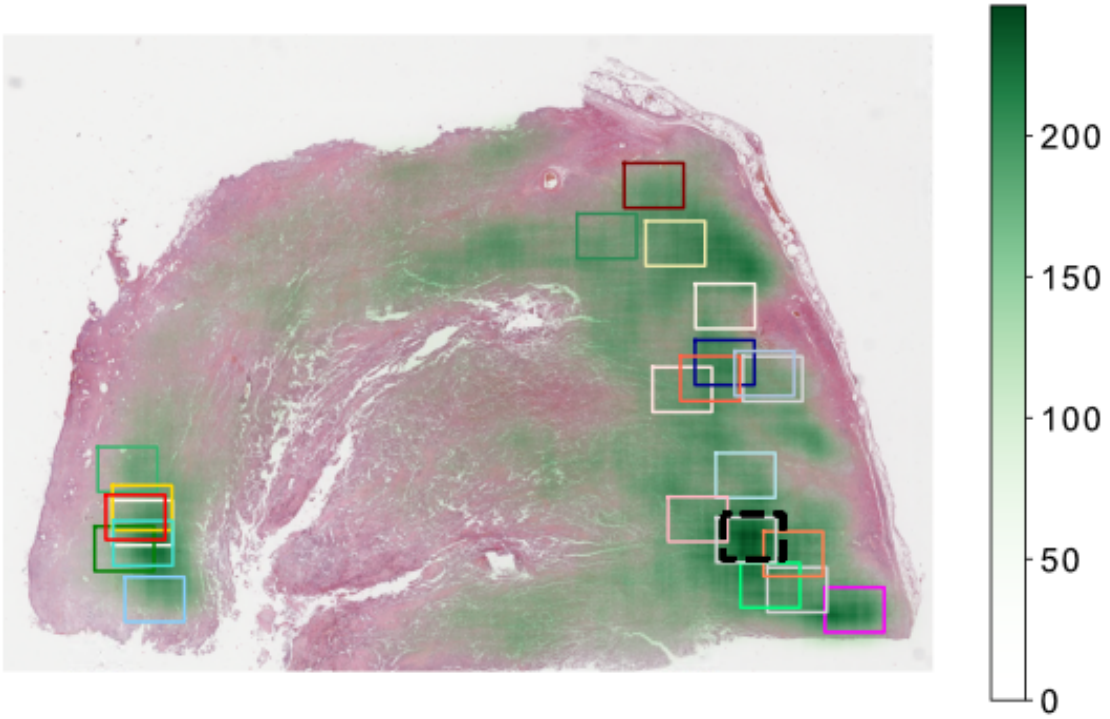
Supplemental Figure 19. Approximate location of the MC-ROIs selected manually by 16 study participants (7 participants had no annotation in the image) in the whole slide image of case No. 15.



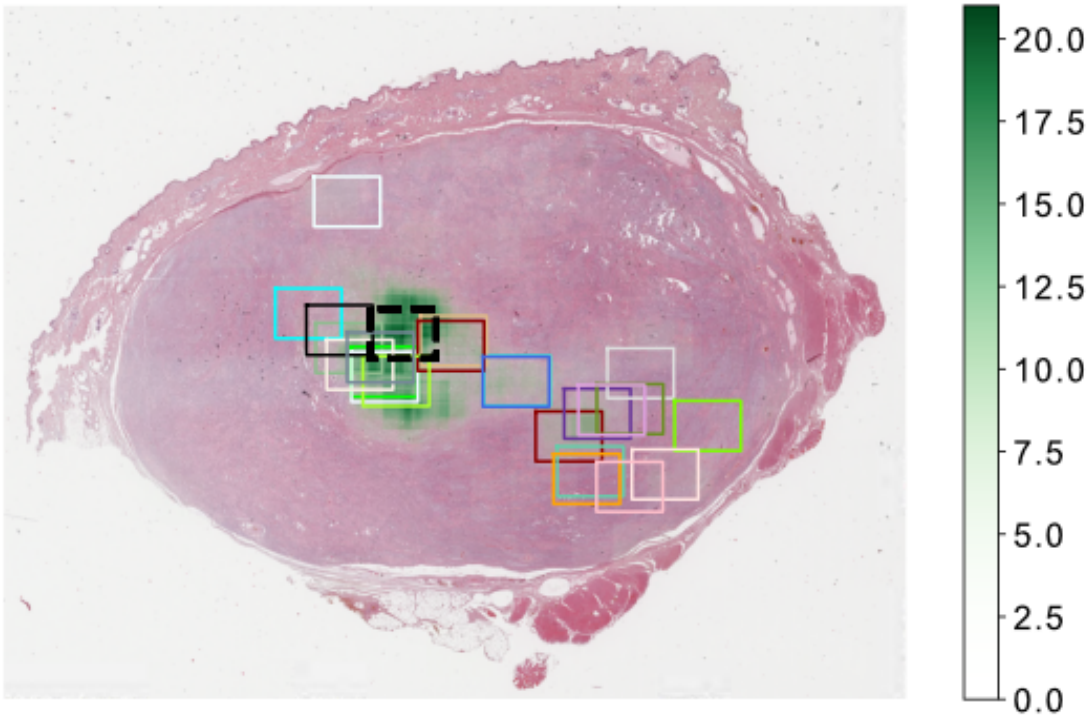
Supplemental Figure 20. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 16.



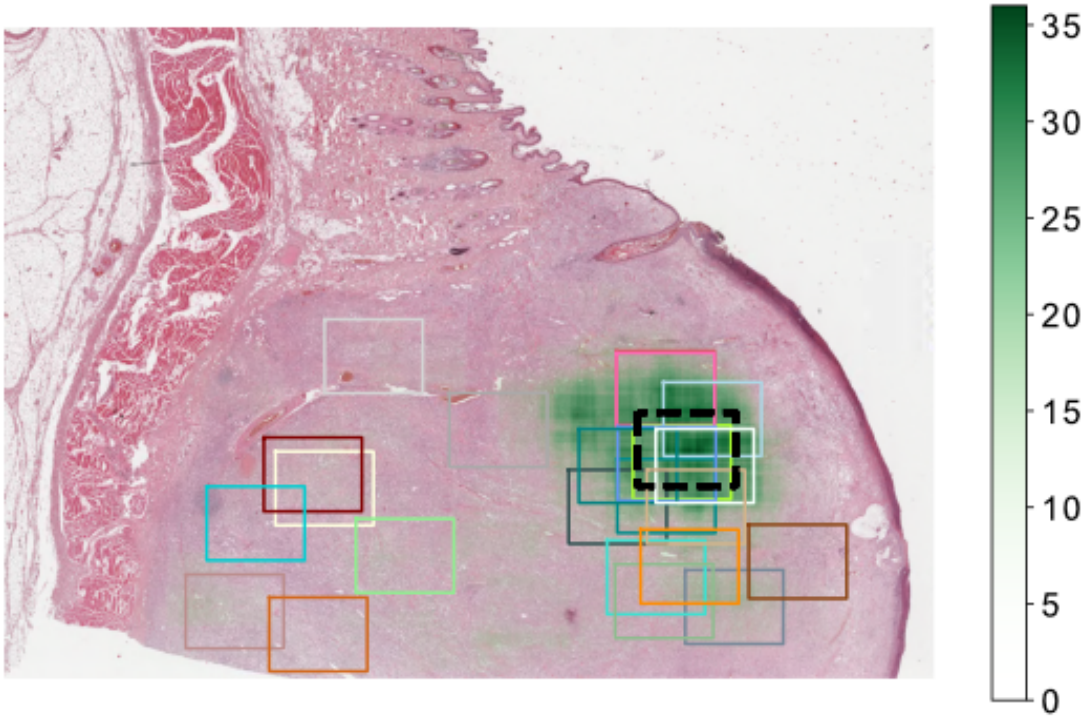
Supplemental Figure 21. Approximate location of the MC-ROIs selected manually by 19 study participants (4 participants had no annotation in the image) in the whole slide image of case No. 17.



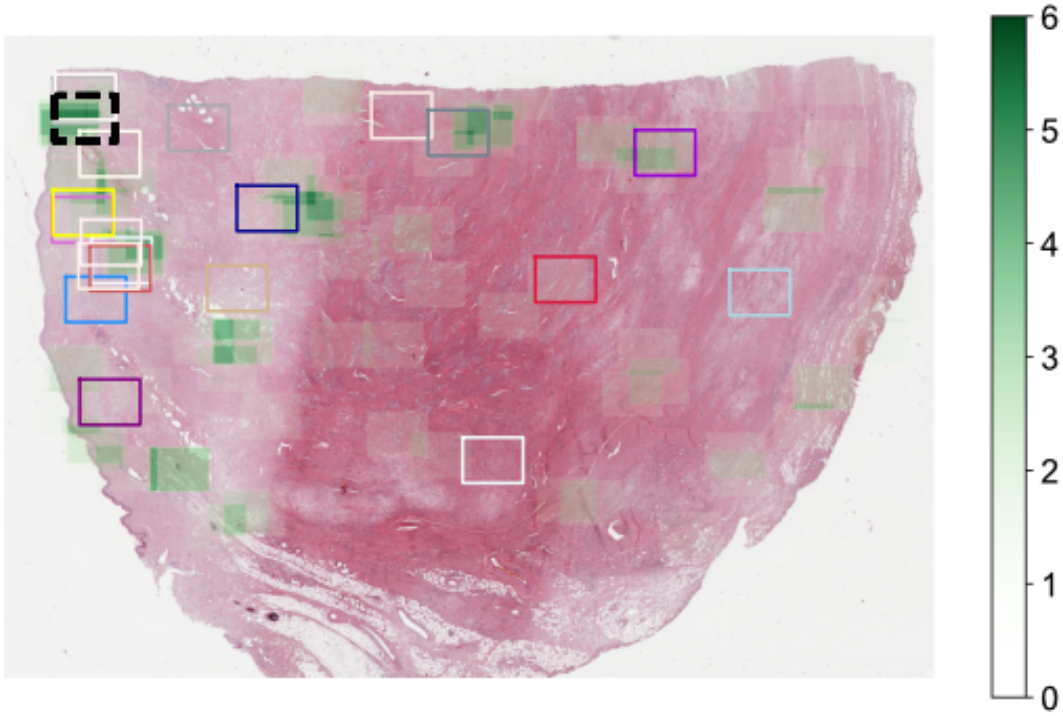
Supplemental Figure 22. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 18.



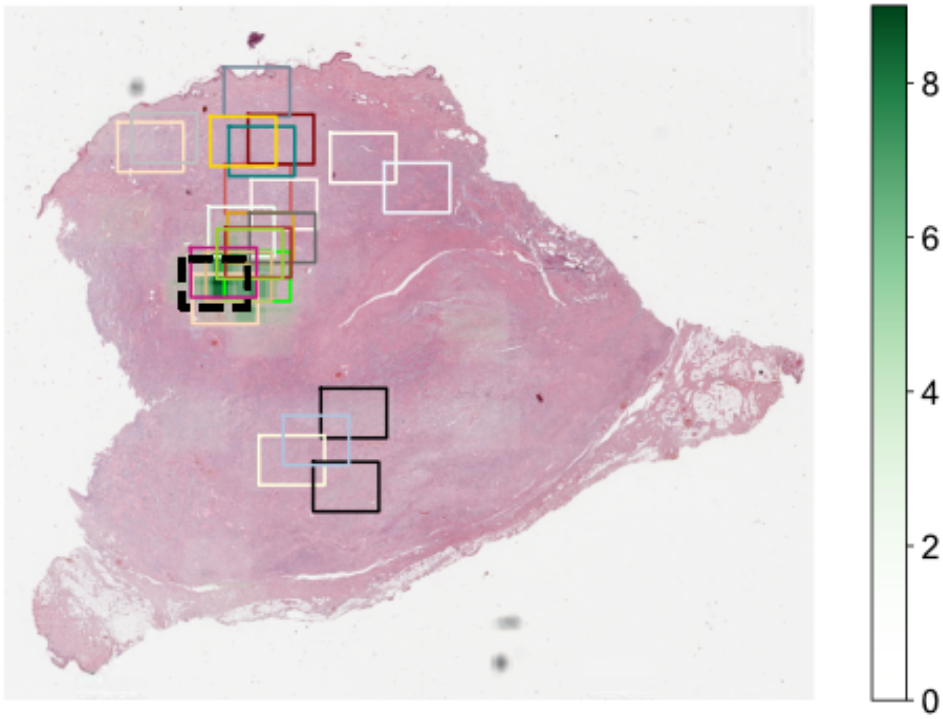
Supplemental Figure 23. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 19.



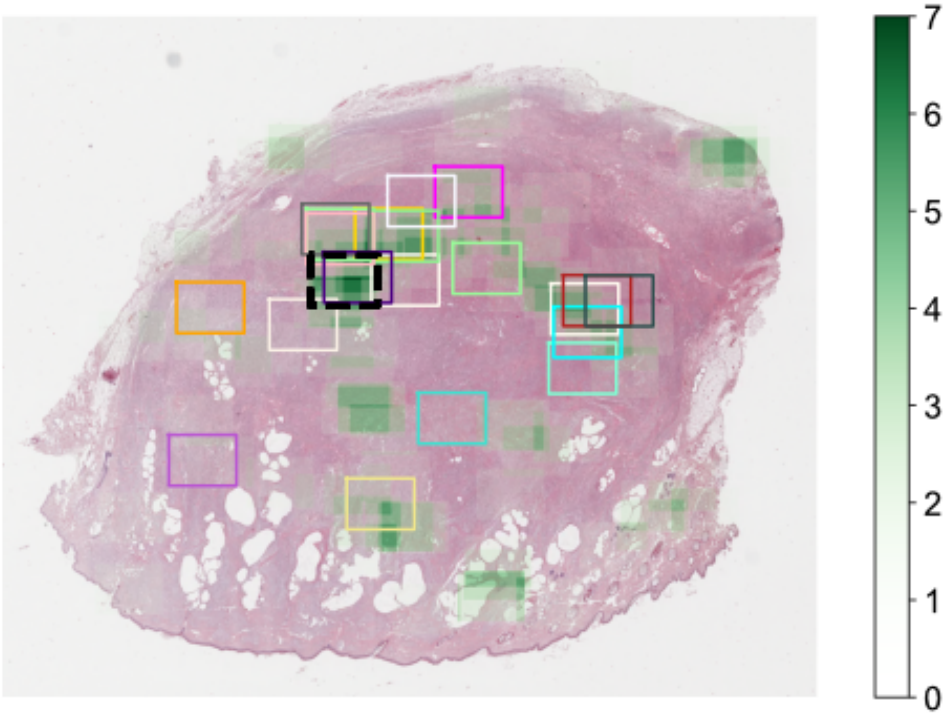
Supplemental Figure 24. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 20.



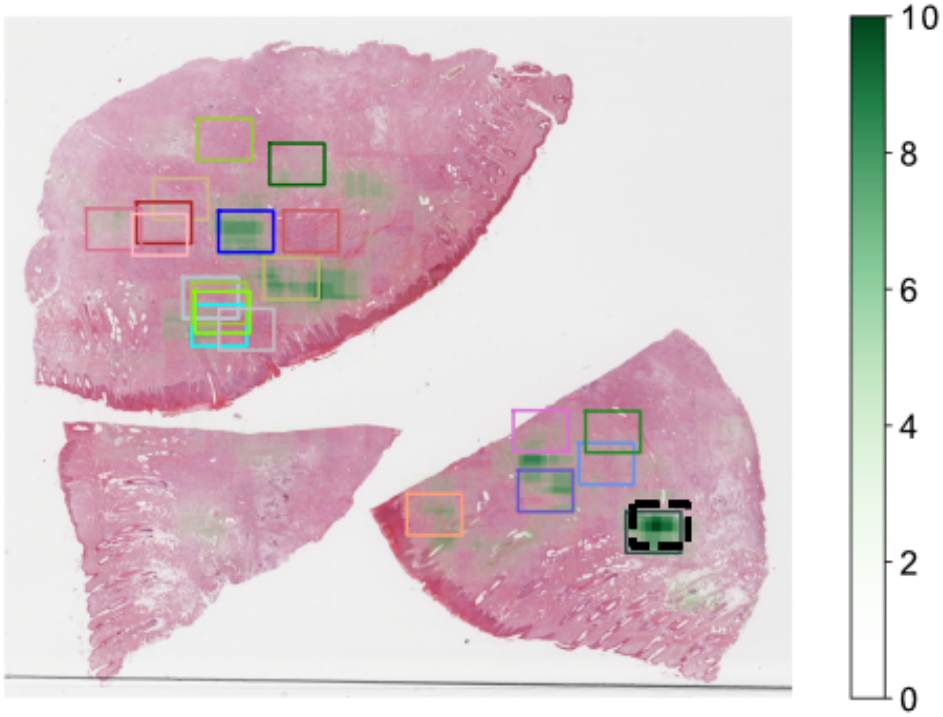
Supplemental Figure 25. Approximate location of the MC-ROIs selected manually by 20 study participants (3 participants had no annotation in the image) in the whole slide image of case No. 21.



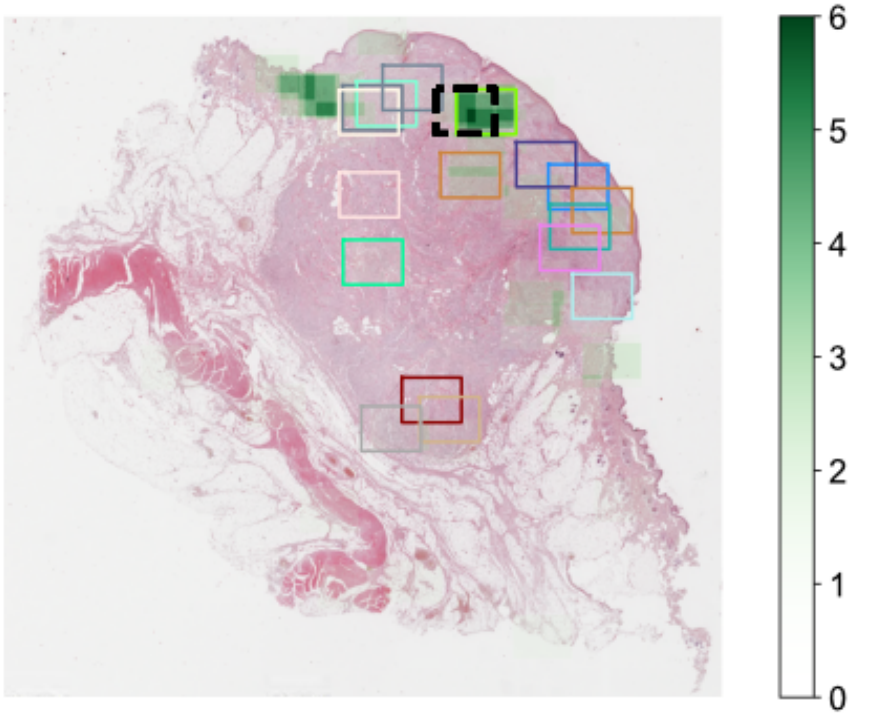
Supplemental Figure 26. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 22.



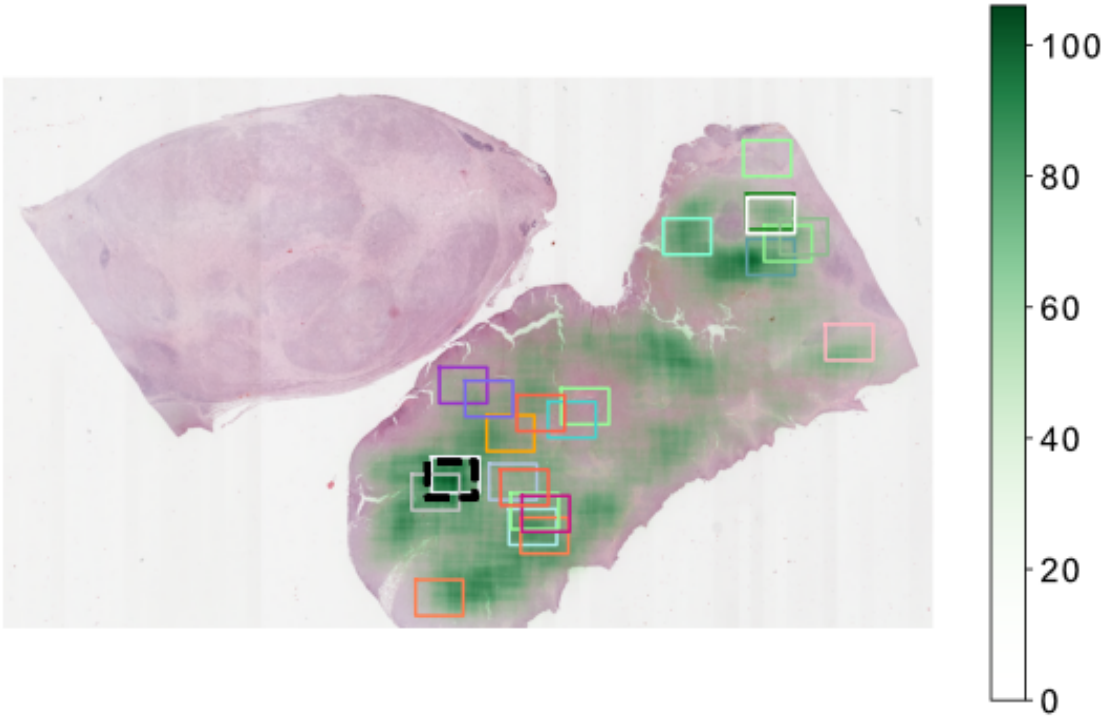
Supplemental Figure 27. Approximate location of the MC-ROIs selected manually by 20 study participants (3 participants had no annotation in the image) in the whole slide image of case No. 23.



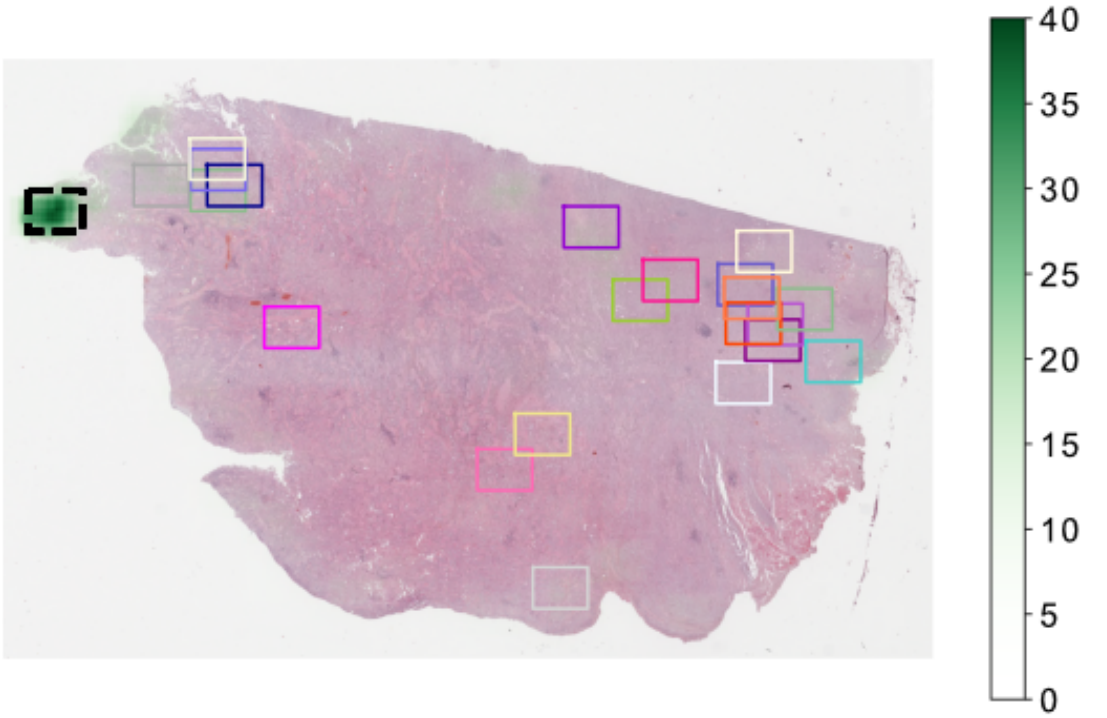
Supplemental Figure 28. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 24.



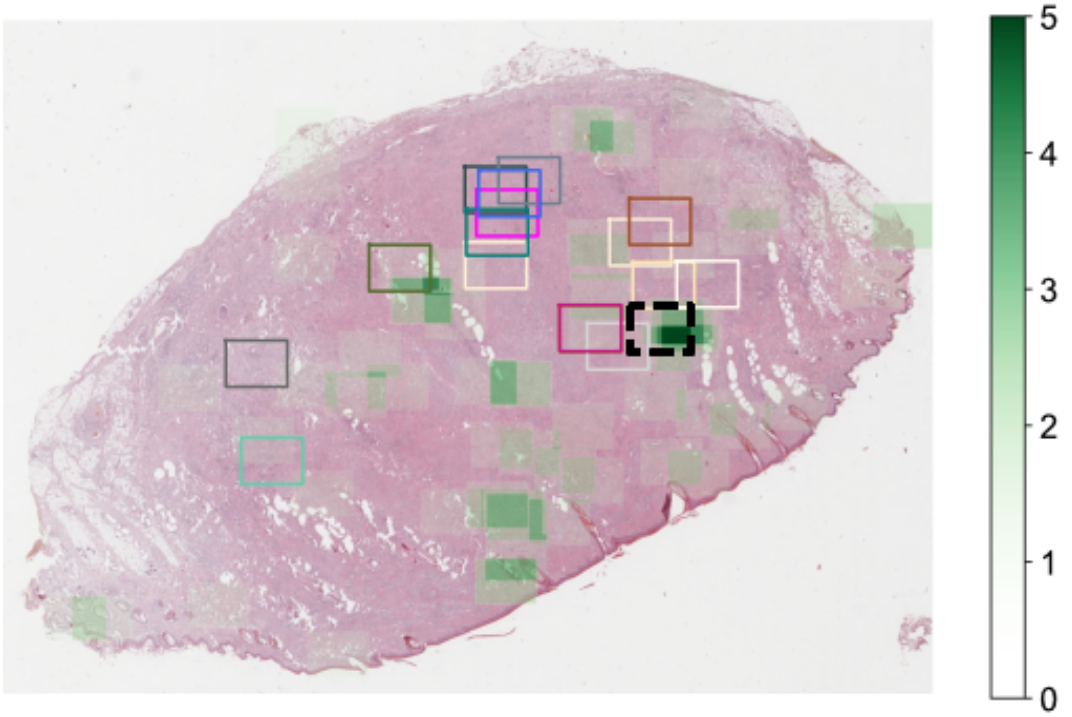
Supplemental Figure 29. Approximate location of the MC-ROIs selected manually by 17 study participants (6 participants had no annotation in the image) in the whole slide image of case No. 25.



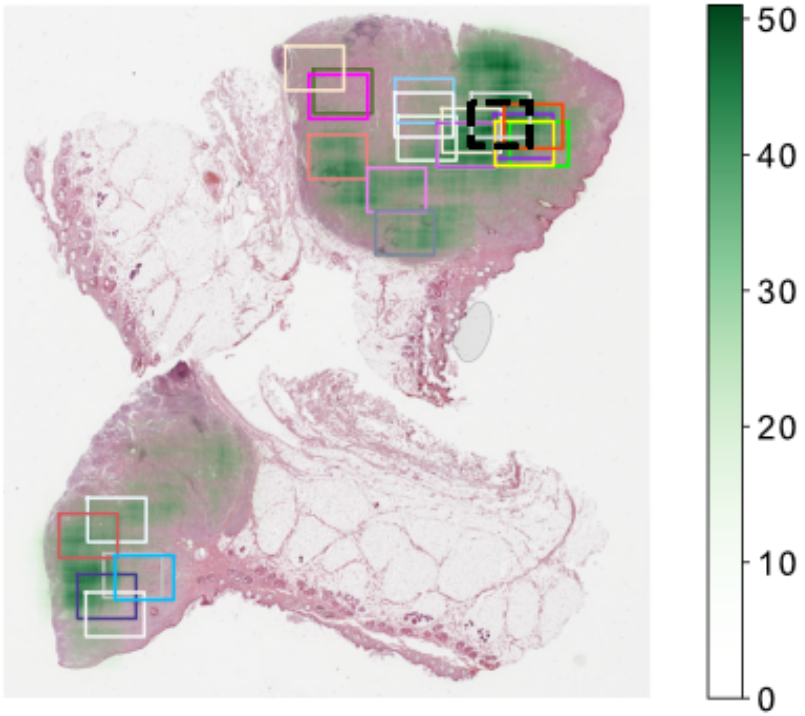
Supplemental Figure 30. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 26.



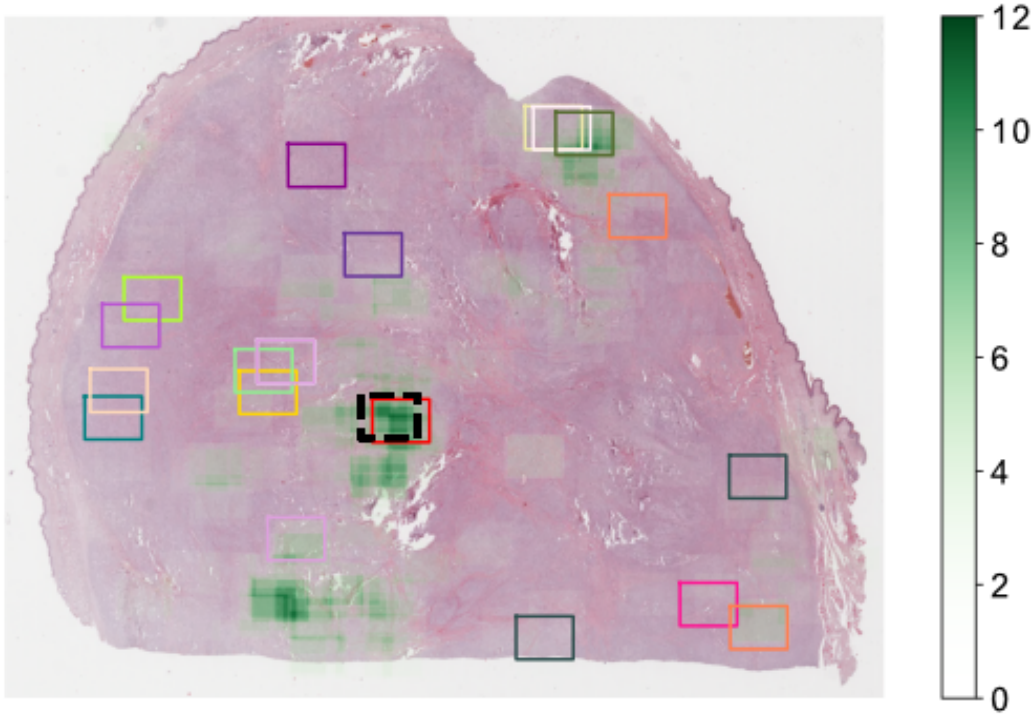
Supplemental Figure 31. Approximate location of the MC-ROIs selected manually by 21 study participants (2 participants had no annotation in the image) in the whole slide image of case No. 27. The algorithmically preselected MC-ROI (hotspot location) in the left corner of the tissue section is due to false positive detections of the algorithm in an area with crush artefacts.



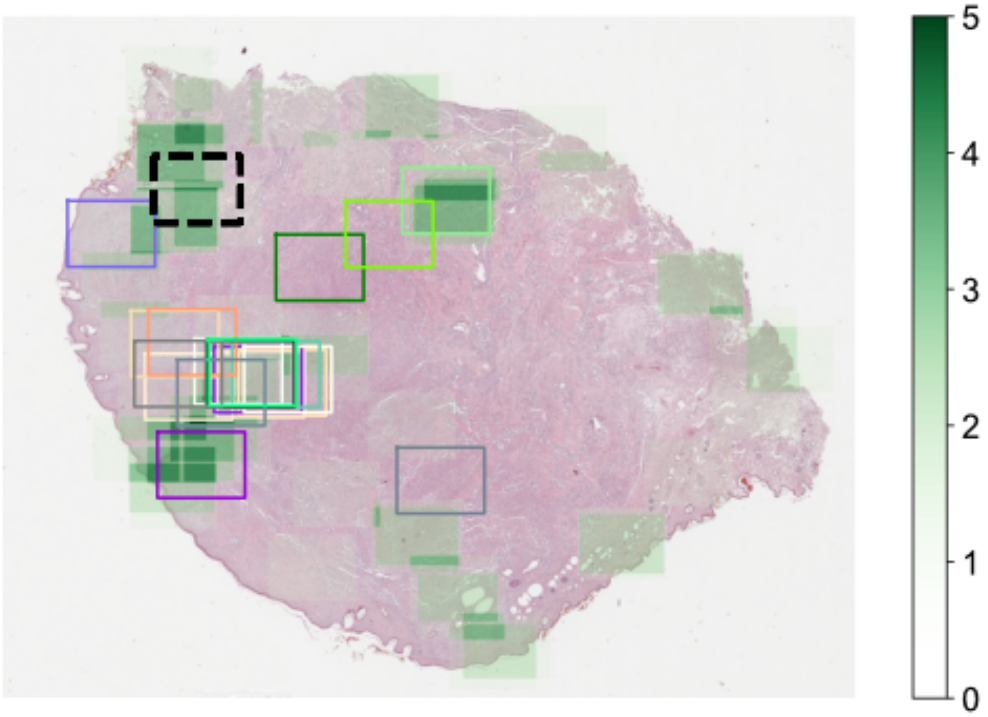
Supplemental Figure 32. Approximate location of the MC-ROIs selected manually by 17study participants (6 participants had no annotation in the image) in the whole slide image of case No. 28.



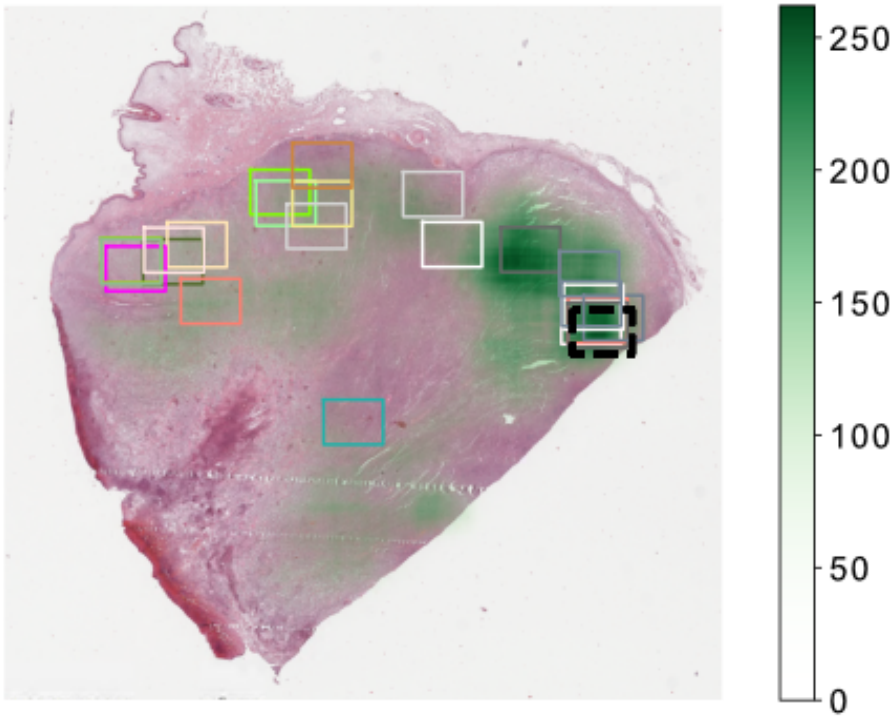
Supplemental Figure 33. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 29.



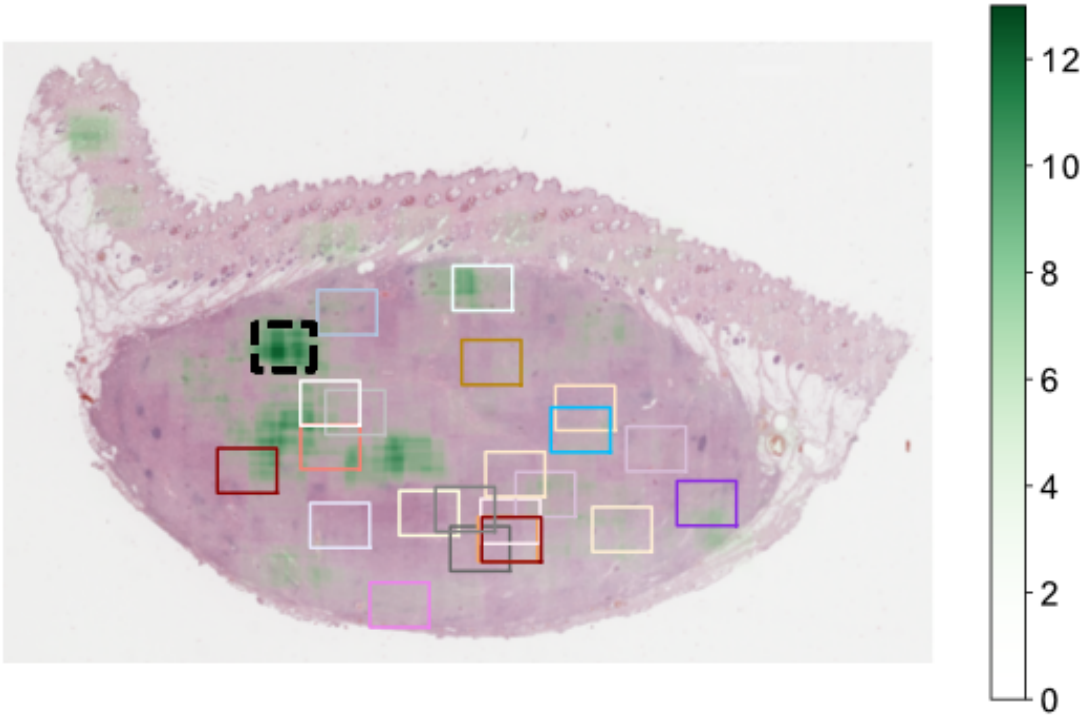
Supplemental Figure 34. Approximate location of the MC-ROIs selected manually by 20 study participants (3 participants had no annotation in the image) in the whole slide image of case No. 30.



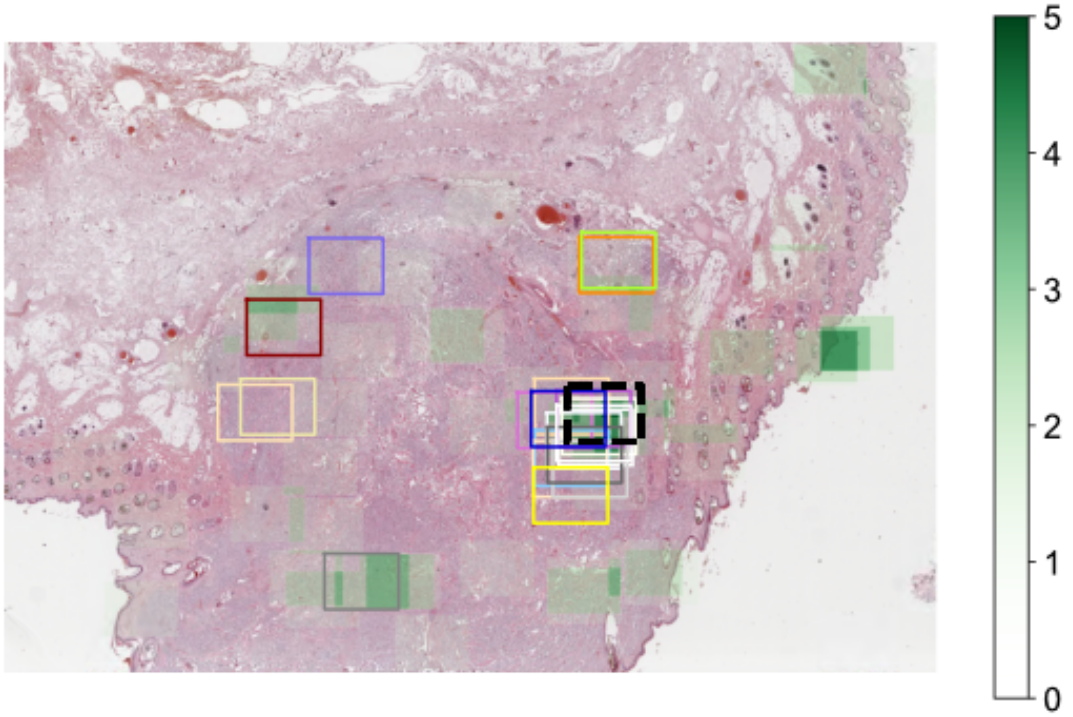
Supplemental Figure 35. Approximate location of the MC-ROIs selected manually by 20 study participants (3 participants had no annotation in the image) in the whole slide image of case No. 31.



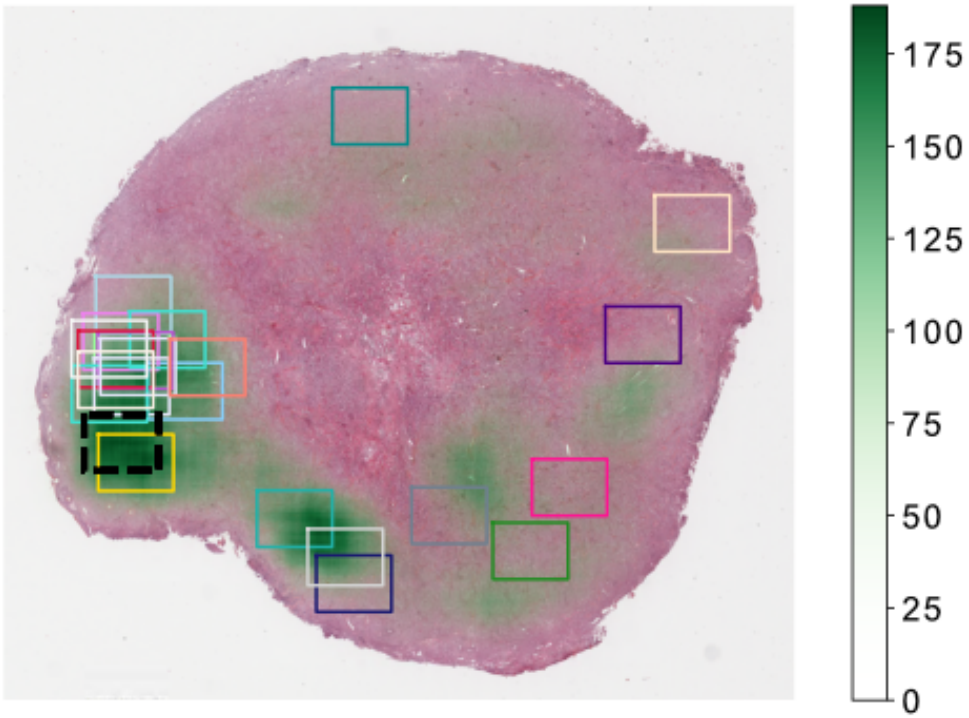
Supplemental Figure 36. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 32.



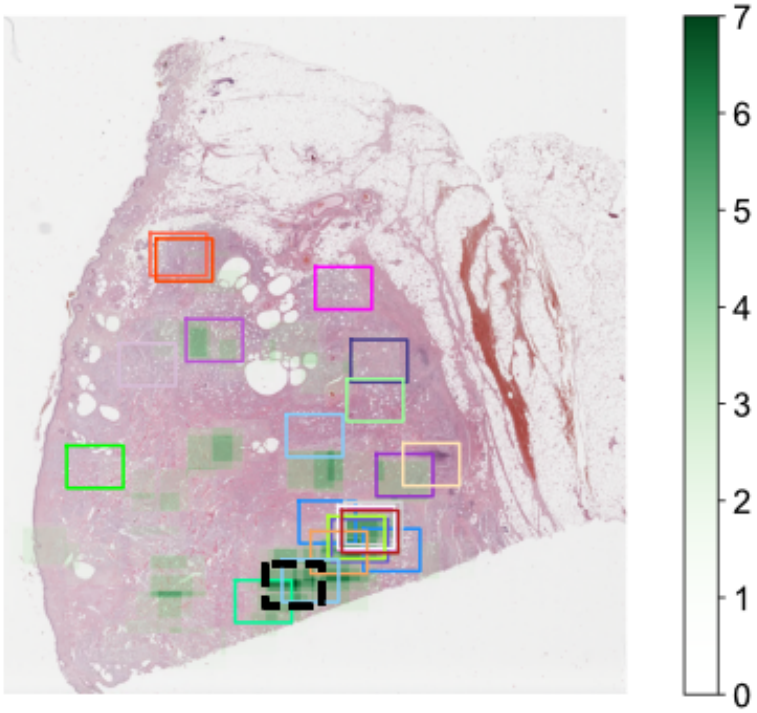
Supplemental Figure 37. Approximate location of the MC-ROIs selected manually by 22 study participants (1 participant had no annotation in the image) in the whole slide image of case No. 33.



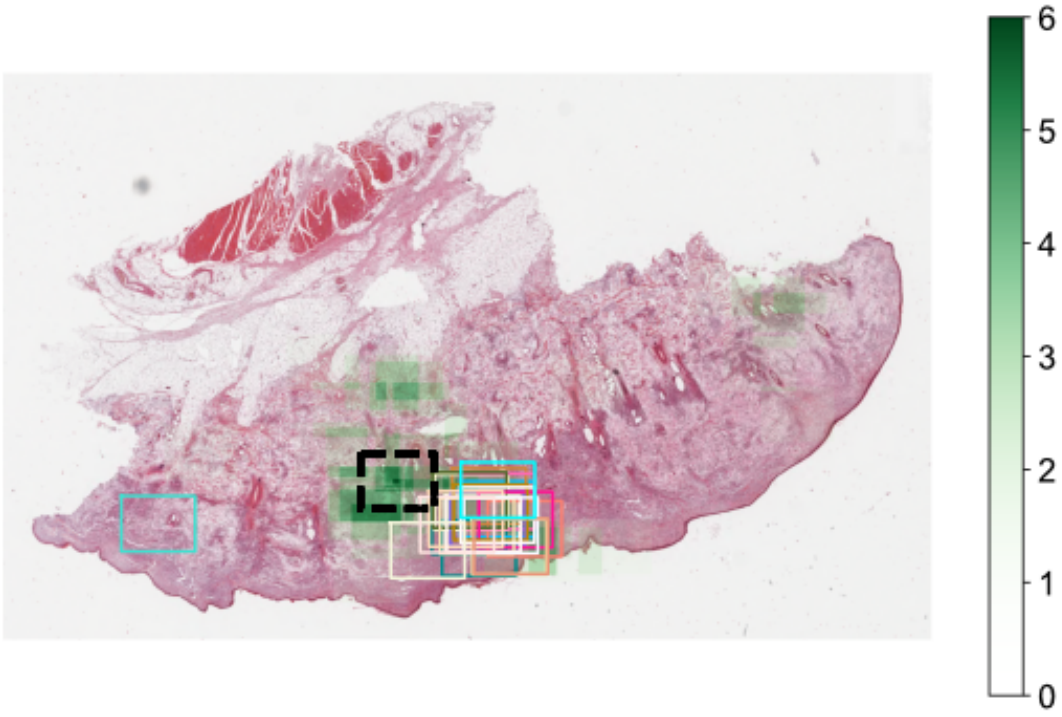
Supplemental Figure 38. Approximate location of the MC-ROIs selected manually by 20 study participants (3 participants had no annotation in the image) in the whole slide image of case No. 34.



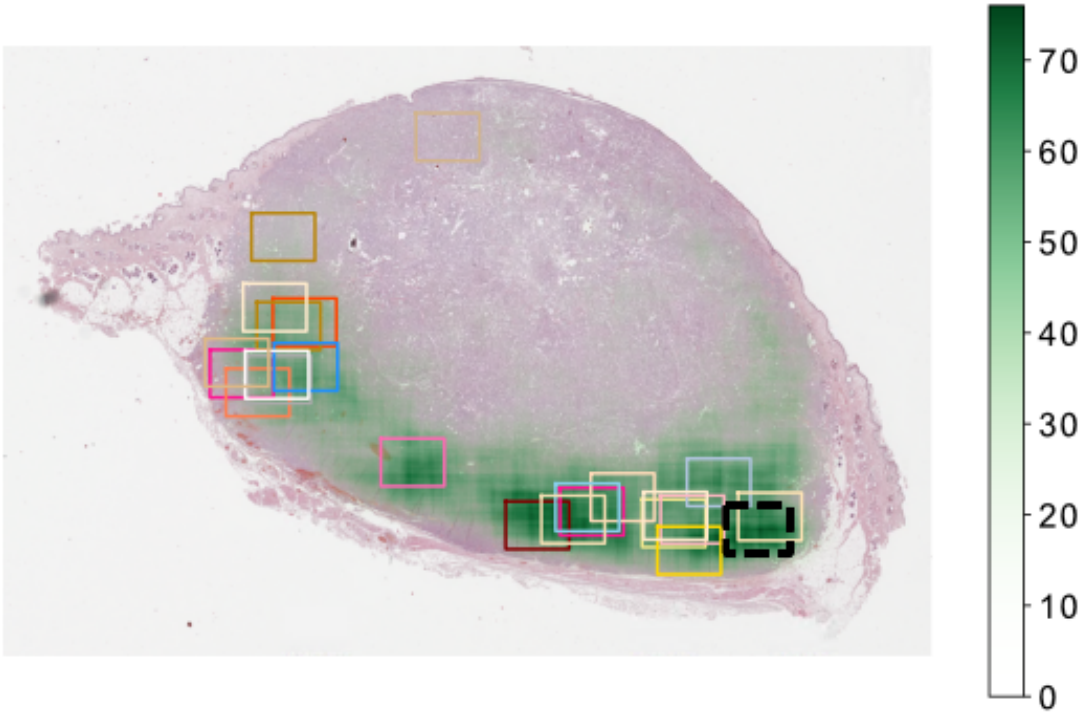
Supplemental Figure 39. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 35.



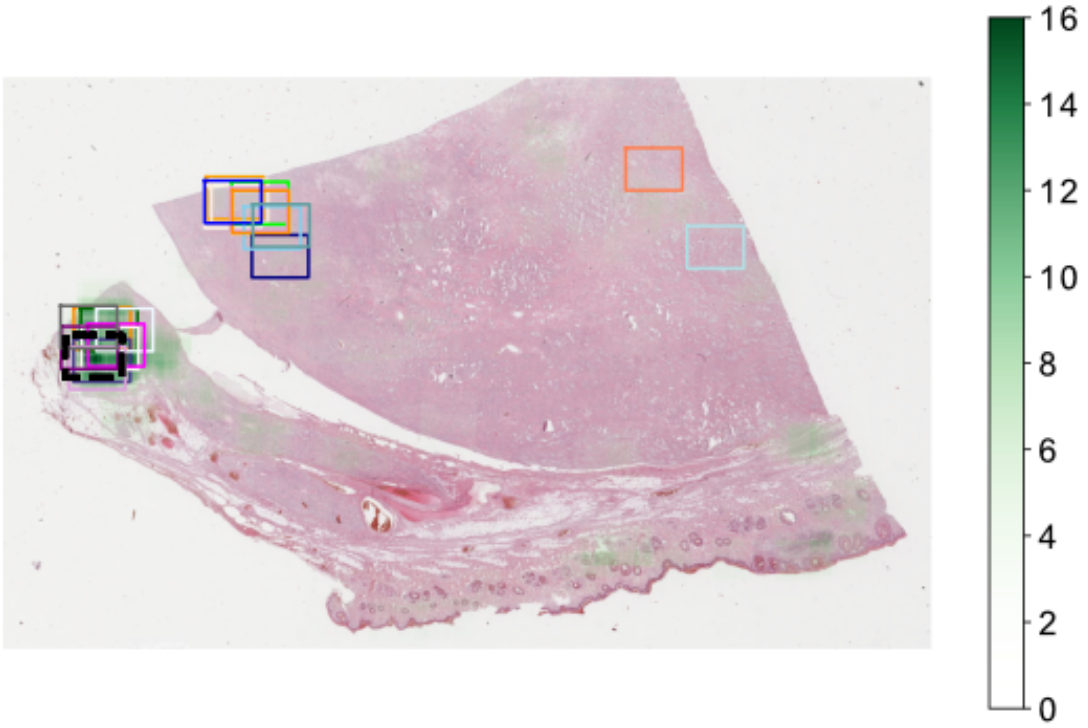
Supplemental Figure 40. Approximate location of the MC-ROIs selected manually by 22 study participants (1 participant had no annotation in the image) in the whole slide image of case No. 36.



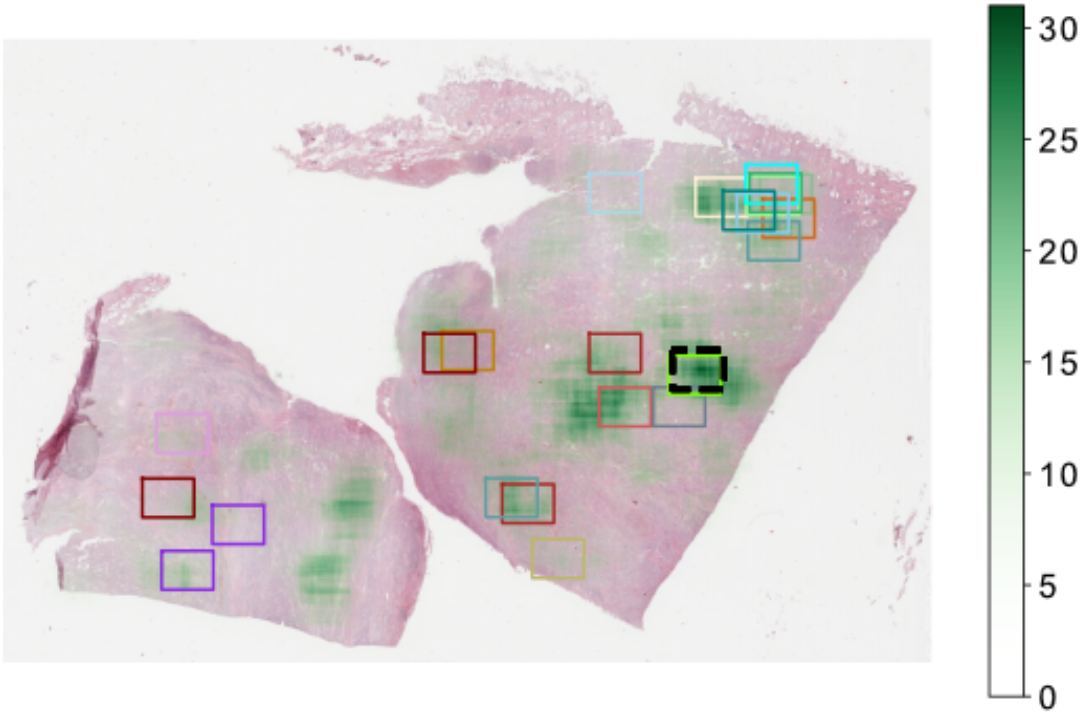
Supplemental Figure 41. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 37.



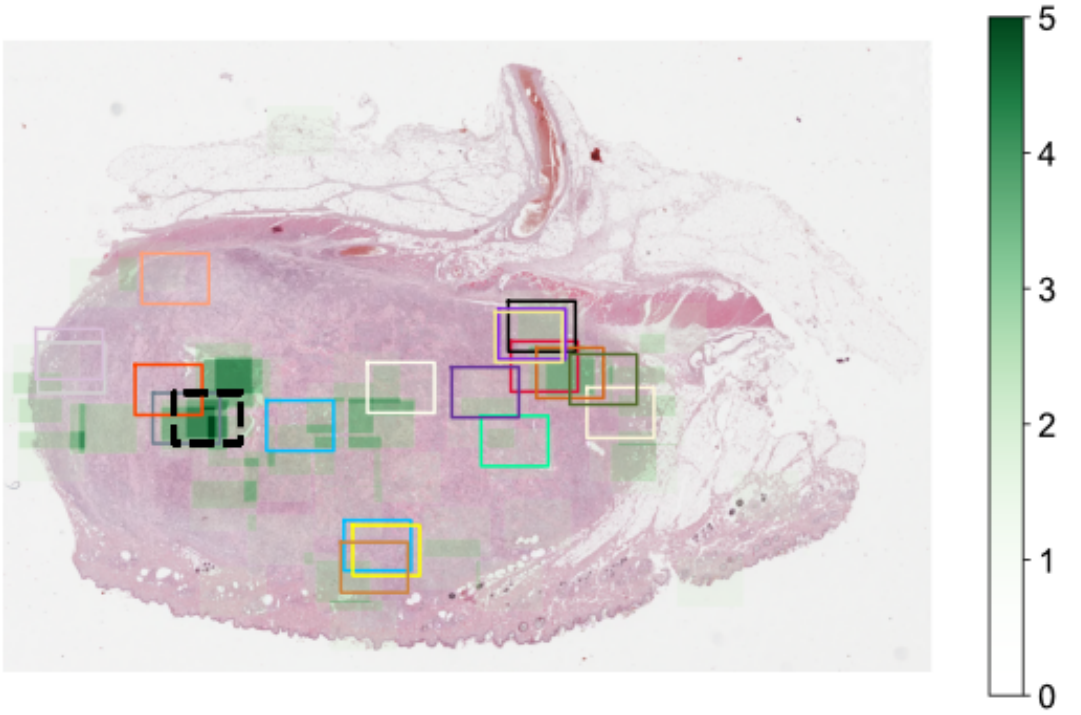
Supplemental Figure 42. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 38.



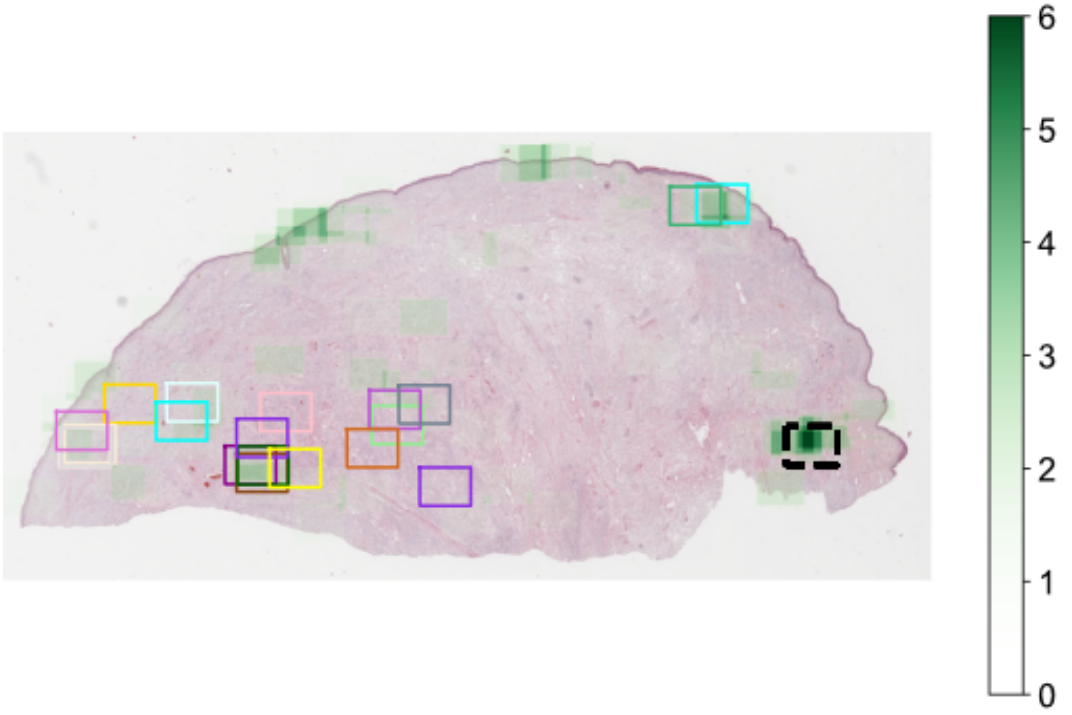
Supplemental Figure 43. Approximate location of the MC-ROIs selected manually by 22 study participants (1 participant had no annotation in the image) in the whole slide image of case No. 39.



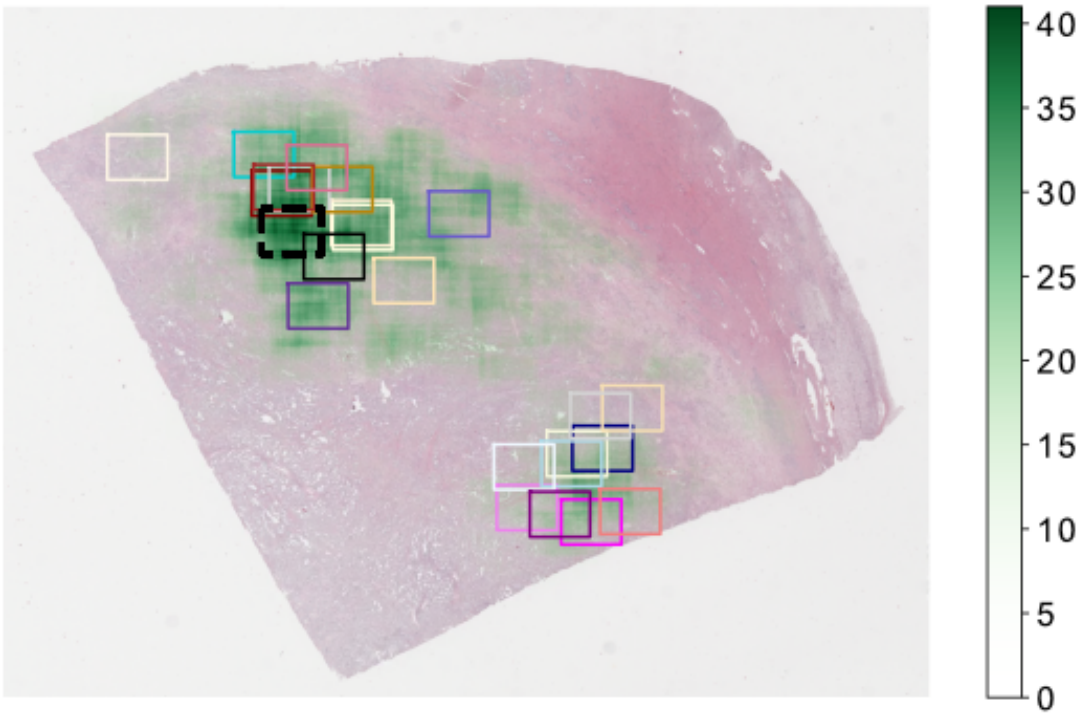
Supplemental Figure 44. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 40.



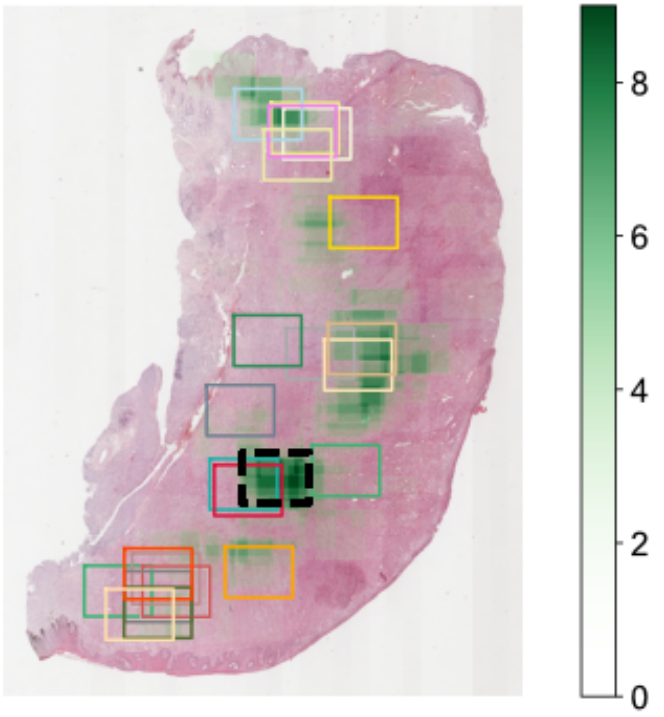
Supplemental Figure 45. Approximate location of the MC-ROIs selected manually by 19 study participants (4 participants had no annotation in the image) in the whole slide image of case No. 41.



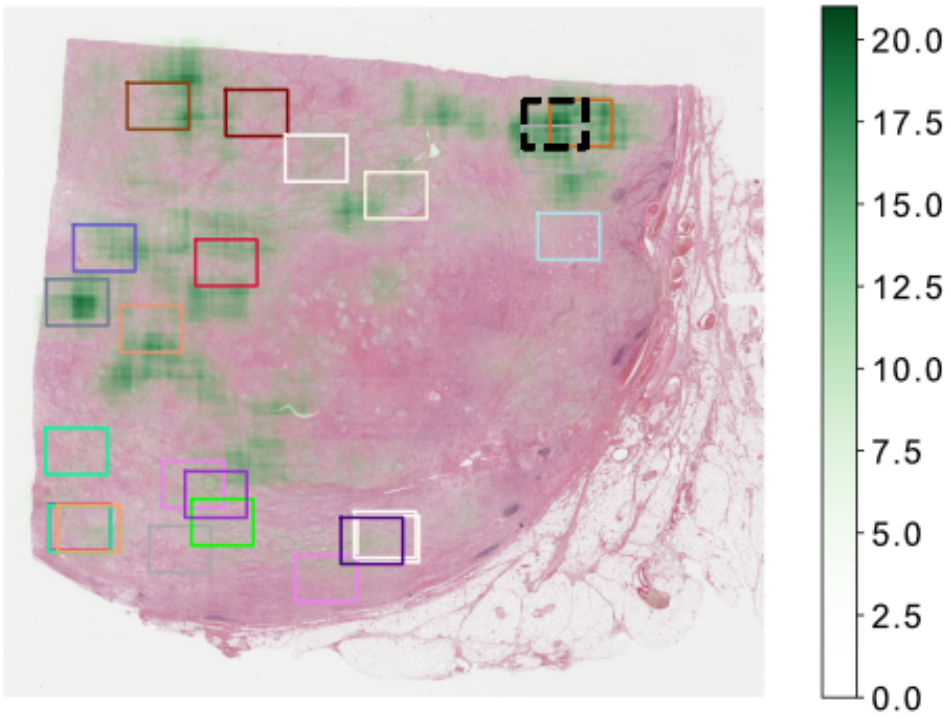
Supplemental Figure 46. Approximate location of the MC-ROIs selected manually by 21 study participants (2 participants had no annotation in the image) in the whole slide image of case No. 42.



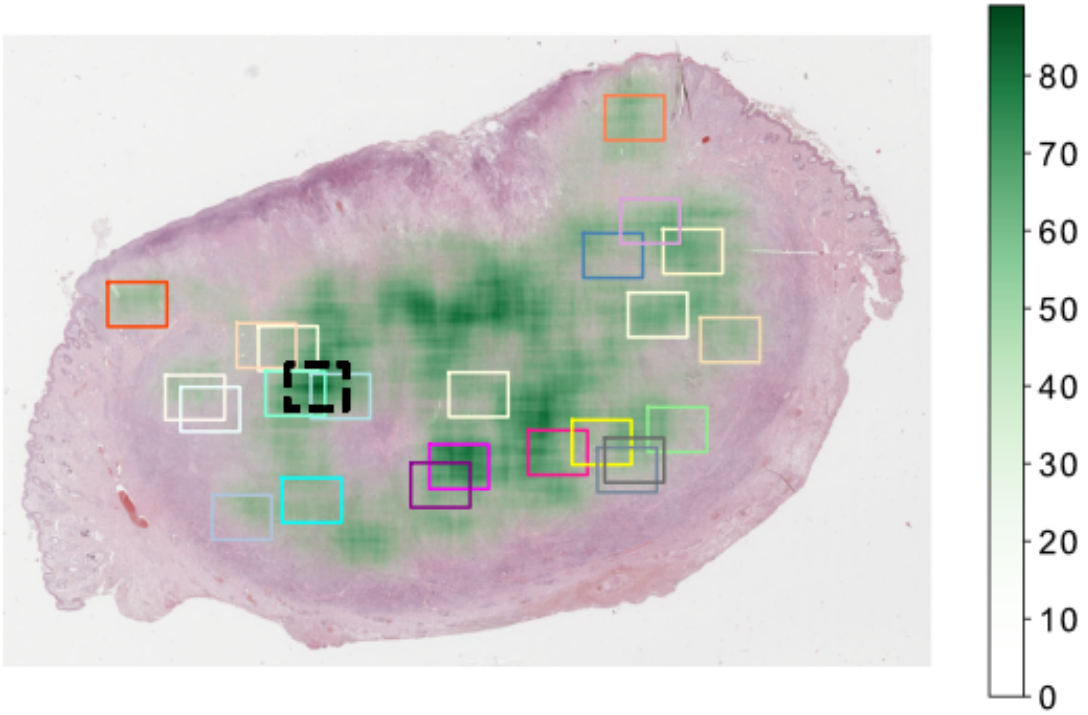
Supplemental Figure 47. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 43.



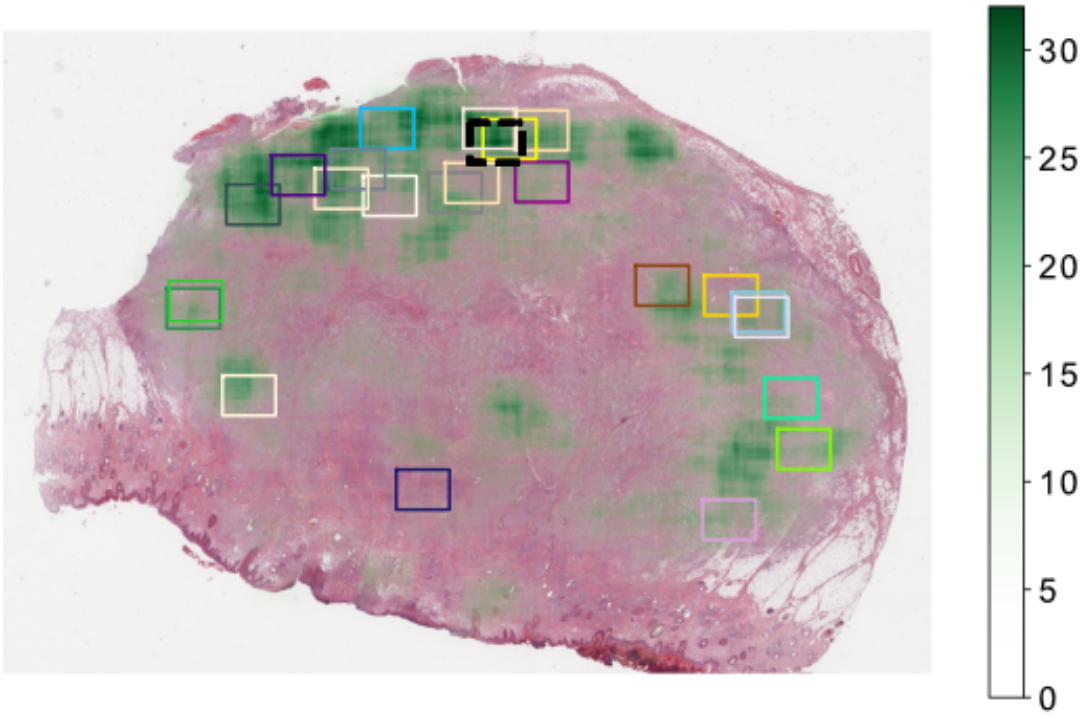
Supplemental Figure 48. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 44.



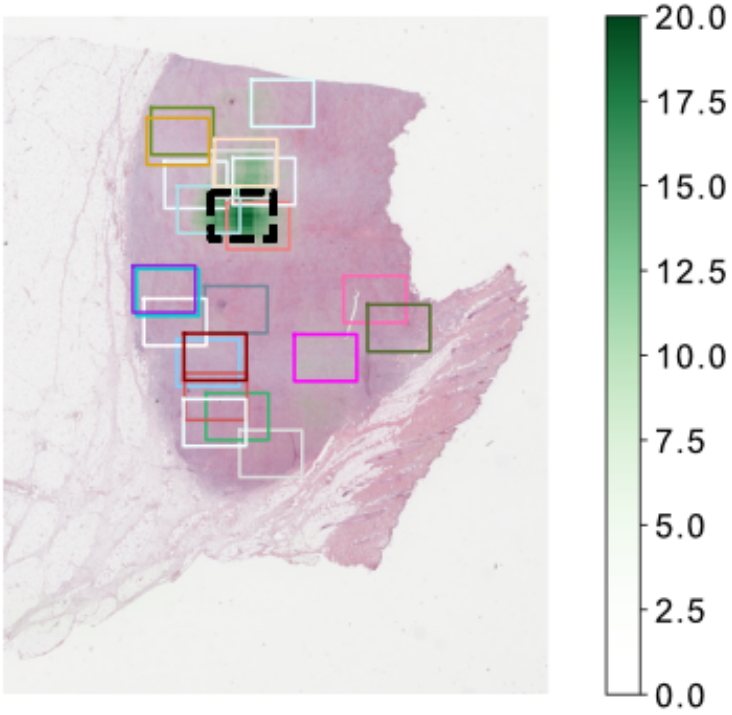
Supplemental Figure 49. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 45.



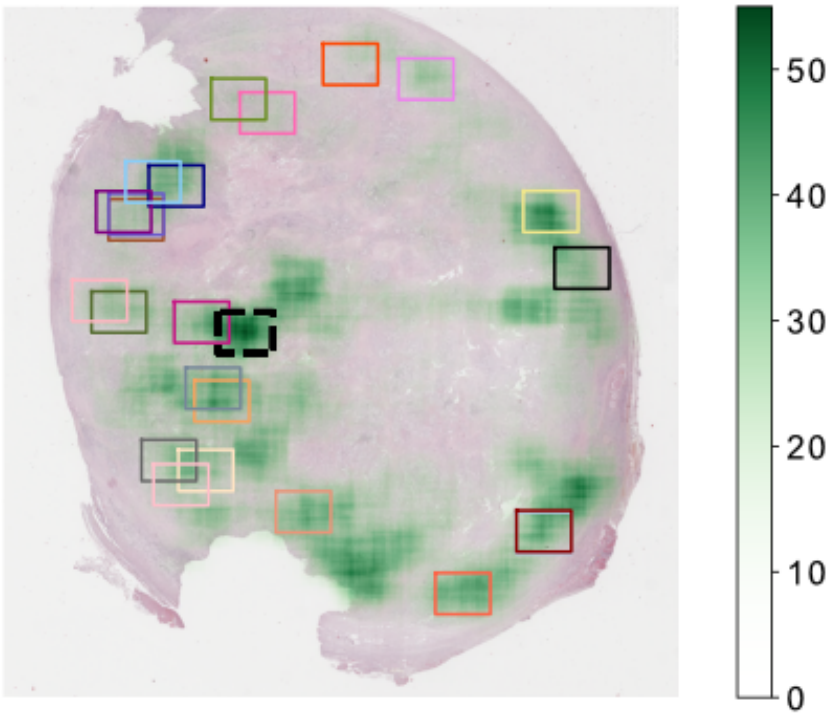
Supplemental Figure 50. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 46.



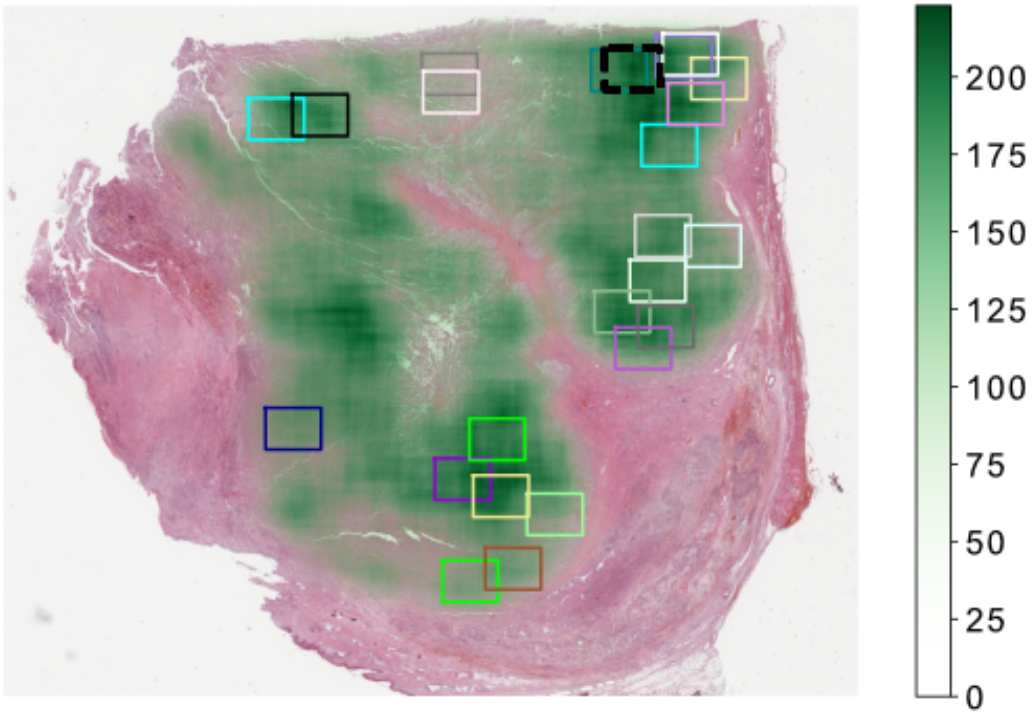
Supplemental Figure 51. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 47.



Supplemental Figure 52. Approximate location of the MC-ROIs selected manually by 22 study participants (1 participant had no annotation in the image) in the whole slide image of case No. 48.



Supplemental Figure 53. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 49.



Supplemental Figure 54. Approximate location of the MC-ROIs selected manually by 23 study participants in the whole slide image of case No. 50.

Supplemental Table S1. Frequency of performing the mitotic count in malignant tumors of the 23 study participants before the study (as per survey).

	A few times per year	**A few times per month**	**Weekly**	**(Almost) every workday**
Number of participants	3 (14%)	1 (5%)	4 (19%)	15 (71%)

Supplemental Table S2. Main examination modality used by the 23 study participants for performing the mitotic count in malignant tumors before the study (as per survey). We highlight that this distribution is probably not representative for veterinary diagnostic pathologists in some geographic locations.

	Light microscopy	**Digital microscopy**	**Both at equal proportion**
Number of participants	16 (69%)	5 (22%)	2 (9%)

Supplemental Table S3. Frequency of using digital microscopy (for any purpose) of the 23 study participants before the study (as per survey). We highlight that this distribution is probably not representative for veterinary diagnostic pathologists in some geographic locations.

	Never before	**A few times per year**	**A few times per month**	**Weekly**	**(Almost) every workday**
Number of participants	0	11 (48%)	1 (4%)	3 (13%)	8 (35%)

Supplemental Table S4. Overview of the included dog breeds in the study cases.

Breeds	**Number of included cases**
Mixed breed	9
Boxer	7
Labrador Retriever	4
German Shepherd, French Bulldog, Golden Retriever	3
Yorkshire Terrier, Shar Pei, Bernese Mountain Dog, Greater Swiss Mountain Dog	2
American Bulldog, Bracke, Bull Terrier, Dachshund, Flat Coated Retriever, Jack Russel Terrier, Malinois, Pug, Podenco, Poodle, Puggle, West Highland White Terrier	1
Unknown breed	1

Supplemental Table S5. Classifications of the study participant's (N = 23) and algorithmic (Algo) mitotic counts (MCs, based on the number of annotations or predictions in the mitotic count region of interest of the respective image) into below (MC < 5) and above (MC ≥ 5) the prognostic cut-off (based on the pHH3-assisted ground truth mitotic count (GT)). Cases are sorted by the GT MC by ascending order.

Slide	GT MC	GT MC below or above cut-off	Number of study participants						Algo
			Stage 1		Stage 2		Stage 3		
			MC < 5	MC ≥ 5	MC < 5	MC ≥ 5	MC < 5	MC ≥ 5	
11	2	Below	17	6	13	10	17	6	Below
8	3	Below	18	5	14	9	17	6	Below
31	3	Below	14	9	12	11	9	14	Above
25	4	Below	20	3	7	16	3	20	Above
17	5	Above	13	10	16	7	5	18	Above
21	6	Above	15	8	4	19	0	23	Above
23	6	Above	12	11	4	19	6	17	Above
28	6	Above	21	2	8	15	6	17	Above
42	6	Above	17	6	6	17	7	16	Above
41	7	Above	20	3	5	18	2	21	Above
22	9	Above	12	11	5	18	2	21	Above
2	11	Above	8	15	1	22	0	23	Above
44	11	Above	5	18	5	18	1	22	Above
33	12	Above	14	9	0	23	0	23	Above
39	14	Above	9	14	3	20	0	23	Above
13	17	Above	11	12	7	16	0	23	Above
7	18	Above	14	9	4	19	0	23	Above
4	20	Above	1	22	0	23	0	23	Above
19	23	Above	6	17	0	23	0	23	Above
20	28	Above	4	19	0	23	0	23	Above
40	30	Above	1	22	0	23	0	23	Above
47	37	Above	3	20	3	20	0	23	Above
49	39	Above	0	23	0	23	0	23	Above
29	40	Above	0	23	0	23	0	23	Above
30	43	Above	12	11	6	17	1	22	Above
3	50	Above	1	22	0	23	0	23	Above
9	57	Above	0	23	0	23	0	23	Above
5	58	Above	0	23	0	23	0	23	Above
38	58	Above	0	23	0	23	0	23	Above
14	61	Above	1	22	0	23	0	23	Above
43	64	Above	0	23	0	23	0	23	Above
46	83	Above	0	23	0	23	0	23	Above
35	164	Above	0	23	0	23	0	23	Above
50	205	Above	0	23	0	23	0	23	Above
12	211	Above	0	23	0	23	0	23	Above
16	218	Above	0	23	0	23	0	23	Above
1	223	Above	0	23	0	23	0	23	Above
18	248	Above	0	23	0	23	0	23	Above
32	248	Above	0	23	0	23	0	23	Above
6	269	Above	0	23	0	23	0	23	Above
1	N/A	N/A	0	23	0	23	0	23	Above
15	N/A	N/A	19	4	18	5	18	5	Below
24	N/A	N/A	15	8	4	19	0	23	Above

Slide	GT MC	GT MC below or above cut-off	Number of study participants						Algo
			Stage 1		Stage 2		Stage 3		
			MC < 5	MC ≥ 5	MC < 5	MC ≥ 5	MC < 5	MC ≥ 5	
26	N/A	N/A	0	23	0	23	0	23	Above
27	N/A	N/A	10	13	4	19	3	20	Above
34	N/A	N/A	18	5	13	10	14	9	Above
36	N/A	N/A	10	13	3	20	1	22	Above
37	N/A	N/A	12	11	3	20	4	19	Above
45	N/A	N/A	2	21	1	22	0	23	Above
48	N/A	N/A	7	16	1	22	0	23	Above

N/A: pHH3-immunohistochemistry was not available for these 10 cases

Supplemental Table S6. Number of true positive, false positive, and false negative mitotic figure annotations / predictions (compared to a pHH3-assisted ground truth annotation; available for 40 cases) in stage 2 of the individual participants and the deep learning-based algorithm. The indicated experience (as per survey) with performing the mitotic count (MC; also see Table S1) or use of digital microscopy (DM, also see Table S3) for any purpose is listed for each study participant.

Participant	Years since Diplomate	Routine in MC [a]	Use of DM [b]	True positive	False positive	False negative
1	≤ 5	1	2	1976	399	638
2	≤ 5	1	1	1432	317	1183
3	≤ 5	2	1	1309	116	1306
4	≥ 6	2	1	1913	1490	737
5	≤ 5	2	2	1010	60	1604
6	≥ 6	1	1	2025	1547	590
7	≥ 6	2	1	1480	261	1137
8	≥ 6	2	2	1602	395	1033
9	≥ 6	2	2	2137	912	477
10	≥ 6	2	1	1890	949	742
11	≥ 6	2	2	1879	830	741
12	≥ 6	2	2	1323	251	1294
13	≤ 5	2	2	1412	235	1202
14	≤ 5	1	2	1548	456	1067
15	≥ 6	2	2	1918	682	700
16	≥ 6	2	2	1841	270	773
17	≤ 5	2	2	1457	154	1157
18	≥ 6	2	1	1806	423	809
19	≤ 5	2	1	1508	336	1108
20	≤ 5	2	1	1665	217	950
21	≤ 5	2	1	1901	545	716
22	≤ 5	2	1	1113	60	1501
23	≥ 6	2	1	972	76	1642
Algorithm	N/A	N/A	N/A	2122	406	496

[a] Routine in performing the MC: 1: a few times per month or less; 2: at least a few times per week;

[b] Use of DM for any purpose: 1: a few times per month or less; 2: at least weekly;

Supplemental Table S7. Number of true positive, false positive, and false negative mitotic figure annotations / predictions (compared to a pHH3-assisted ground truth annotation; available for 40 cases) in stage 3 of the individual participants and the deep learning-based algorithm. The indicated experience (as per survey) with performing the mitotic count (MC; also see Table S1) or use of digital microscopy (DM; also see Table S3) for any purpose is listed for each study participant.

Participant	Years since Diplomate	Routine in MC [a]	Use of DM [b]	True positive	False positive	False negative
1	≤ 5	1	2	2196	508	419
2	≤ 5	1	1	1836	186	778
3	≤ 5	2	1	1416	95	1200
4	≥ 6	2	1	2178	654	442
5	≤ 5	2	2	1803	270	812
6	≥ 6	1	1	2233	1627	384
7	≥ 6	2	1	2020	376	597
8	≥ 6	2	2	1783	340	840
9	≥ 6	2	2	2134	459	480
10	≥ 6	2	1	2254	1205	364
11	≥ 6	2	2	2155	495	464
12	≥ 6	2	2	1937	362	677
13	≤ 5	2	2	1904	280	714
14	≤ 5	1	2	1987	300	631
15	≥ 6	2	2	2103	520	515
16	≥ 6	2	2	2149	348	466
17	≤ 5	2	2	1928	255	688
18	≥ 6	2	1	1981	288	636
19	≤ 5	2	1	2138	466	480
20	≤ 5	2	1	1965	291	649
21	≤ 5	2	1	2268	760	352
22	≤ 5	2	1	1863	342	752
23	≥ 6	2	1	1698	155	916
Algorithm	N/A	N/A	N/A	2122	406	496

[a] Routine in performing the MC: 1: a few times per month or less; 2: at least a few times per week;

[b] Use of DM for any purpose: 1: a few times per month or less; 2: at least weekly;

Supplemental Table S8. Mean performance values (macro-averaged) for detecting individual mitotic figures of the participants grouped according to different experience attributes. The F1-score (F1) is the harmonic mean of precision (Prec; also known as positive predictive value) and recall (Rec; also known as sensitivity).

	Stage 2			Stage 3		
Participants	**Prec**	**Rec**	**F1**	**Prec**	**Rec**	**F1**
All participants (N = 23)	0.80	0.62	0.68	0.83	0.76	0.79
Diplomat since ≤ 5 years (N = 11)	0.86	0.57	0.67	0.86	0.74	0.79
Diplomat since ≥ 6 years (N = 12)	0.75	0.66	0.69	0.80	0.78	0.79
Performing the MC a few times per month or less (N = 4)	0.75	0.67	0.69	0.79	0.79	0.78
Performing the MC at least a few times per week (N = 19)	0.82	0.61	0.68	0.83	0.76	0.79
Had used mainly LM for the MC (N = 16)	0.81	0.60	0.66	0.82	0.77	0.78
Had used mainly DM or DM and LM for the MC (N = 7)	0.79	0.67	0.72	0.84	0.76	0.80
Had used DM (for any purpose) a few times per month or less (N = 12)	0.80	0.61	0.67	0.81	0.76	0.77
Had used DM (for any purpose) at least weekly (N = 11)	0.81	0.63	0.69	0.84	0.77	0.80

MC: mitotic count; LM: light microscopy, DM: digital microscopy;

Concluding survey

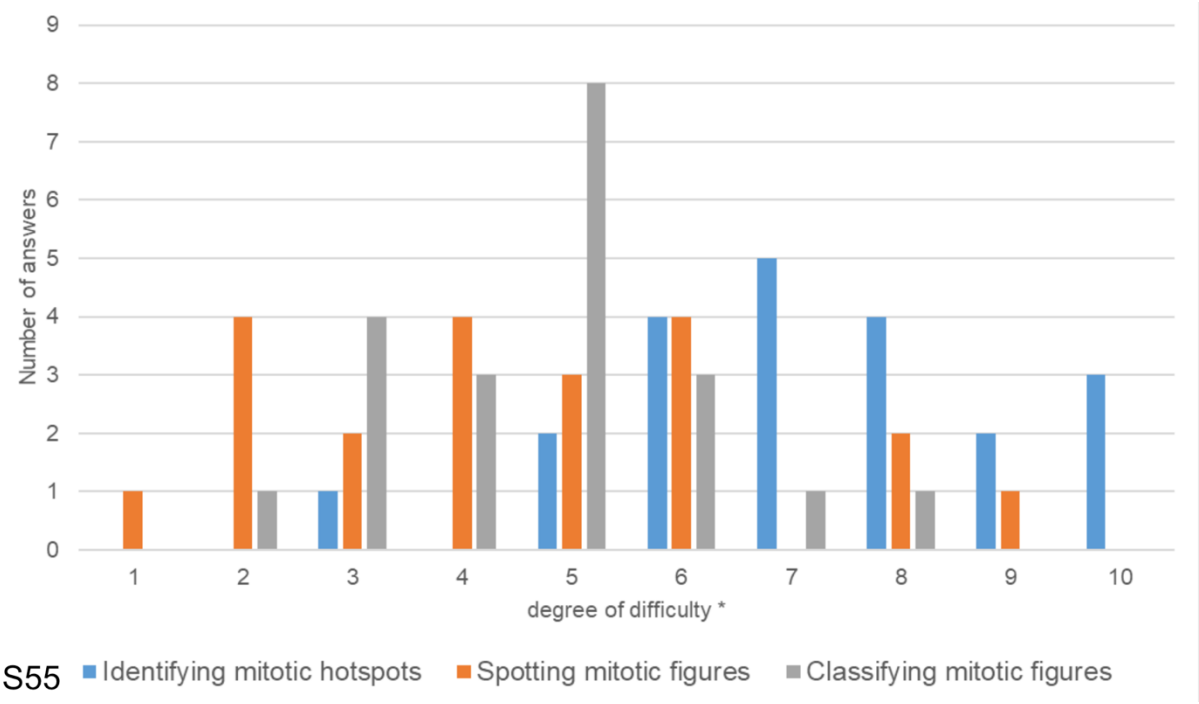
Twenty-one of the 23 study pathologists (91%) filled out a survey after conducting the study. Relevant questions and the participant's answers are listed below in Supplemental Table S8 – S14 and Supplemental Figure S55 and S56.

Supplemental Table S9. Question 1 of the concluding survey: How would you rate the ease/difficulty of following tasks without computer-assistance?

Score *	**Identification of the tumor area (MC-ROI) with highest mitotic density (hotspot; stage 1)**	**Spotting all mitotic figures in the (pre)selected tumor area (stage 1 and 2)**	**Classifying individual cells as mitotic versus non-mitotic (stage 1 and 2)**
1) Extremely easy	0	1 (5%)	0
2) Very easy	0	4 (19%)	1 (5%)
3) Fairly easy	1 (5%)	2 (10%)	4 (19%)
4) Relatively easy	0	4 (19%)	3 (14%)
5) Moderately easy	2 (10%)	3 (14%)	8 (38%)
6) Non-trivial	4 (19%)	4 (19%)	3 (14%)
7) Somewhat difficult	5 (24%)	0 (0%)	1 (5%)
8) Difficult	4 (19%)	2 (10%)	1 (5%)
9) Very difficult	2 (10%)	1 (5%)	0
10) Extremely difficult	3 (14%)	0	0
Median / mean score	**7 / 7.2**	**4 / 4.5**	**5 / 4.7**

* Participants could only choose each score once for the three tasks (see Supplemental Table S9 for ranking of the tasks)

Supplemental Figure S55. Graphic presentation of the answers to question 1 of the concluding survey (see Supplemental Table S8): How would you rate the ease/difficulty of following tasks without computer-assistance?



* Degree of difficulty: 1) extremely easy; 2) very easy; 3) fairly easy; 4) relatively easy; 5) moderately easy; 6) non-trivial; 7) somewhat difficult; 8) difficult; 9) very difficult; 10) extremely difficult

Supplemental Table S10. Question 1 of the concluding survey: How would you rate the ease/difficulty of following tasks without computer-assistance? Answers sorted by rank*.

Rank for the three tasks	**Identification of the tumor area with highest mitotic density (stage 1)**	**Spotting all mitotic figures in the selected tumor area (stage 1 and 2)**	**Classifying individual cells as mitotic versus non-mitotic (stage 1 and 2)**
1) Most difficult	19 (90%)	1 (5%)	1 (5%)
2) Medium difficult	2 (10%)	8 (38%)	11 (52%)
3) Least difficult	0	12 (57%)	9 (43%)

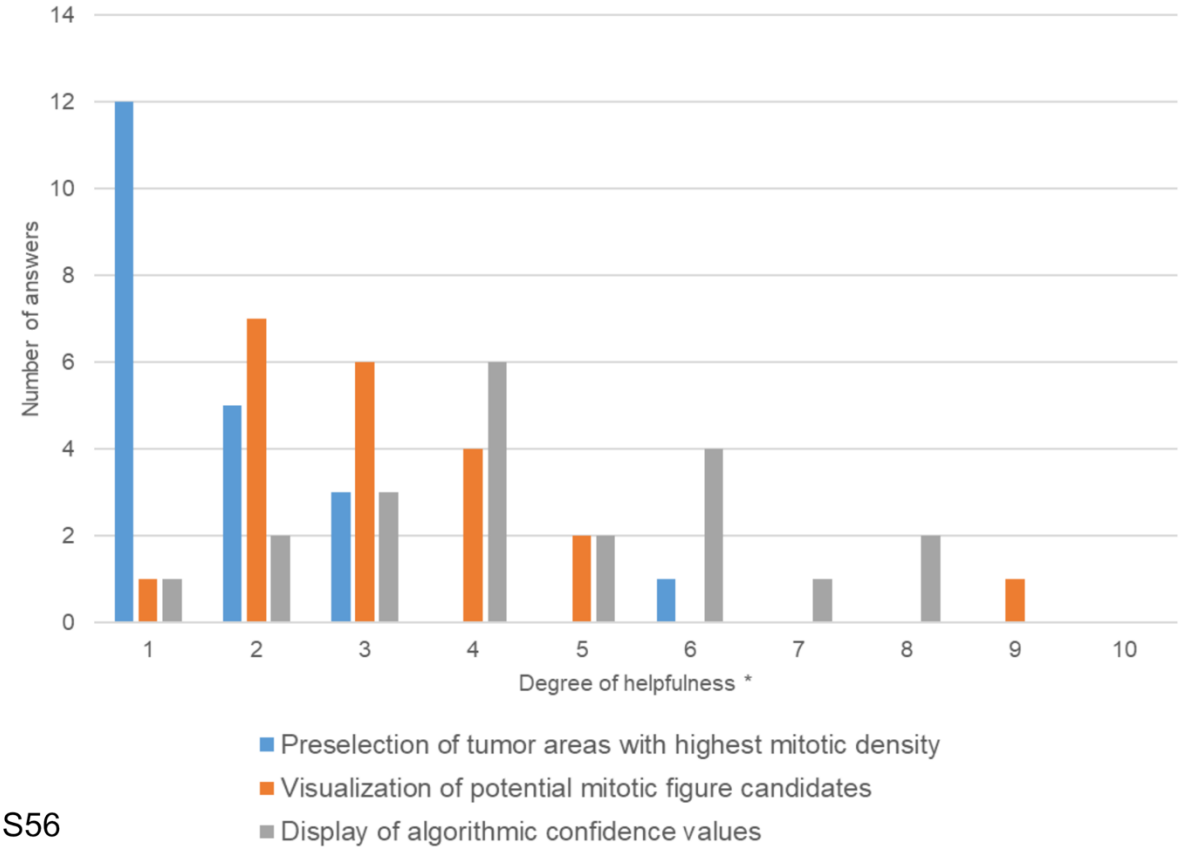
* Participants could only choose each score (ranging from 1 to 10; see Supplemental Table S8) once for the three tasks.

Supplemental Table S11. Question 2: How helpful did you find computer-assistance for the following tasks?

Score *	**Preselection of the hotspot tumor area with the highest mitotic density (stage 2 and 3)**	**Visualization of potential mitotic figure candidates (stage 3)**	**Display of algorithmic confidence value for each mitotic figure and look-alike candidate (stage 3)**
1) Extremely helpful	12 (57%)	1 (5%)	1 (5%)
2) Very helpful	5 (24%)	7 (33%)	2 (10%)
3) Fairly helpful	3 (14%)	6 (29%)	3 (15%)
4) Relatively helpful	0	4 (19%)	6 (29%)
5) Moderately helpful	0	2 (10%)	2 (10%)
6) Slightly helpful	1 (5%)	0	4 (19%)
7) Not helpful	0	0	1 (5%)
8) Slightly disadvantageous	0	0	2 (10%)
9) Moderately disadvantageous	0	1 (5%)	0
10) Very disadvantageous	0	0	0
Median / mean score	**1 / 1.8**	**3 / 3.2**	**4 / 4.5**

* Participants could only choose each score once for the three tasks (see Supplemental Table S11 for ranking of the tasks)

Supplemental Figure S56. Graphic presentation of the answers to question 2 of the concluding survey (see Supplemental Table S10): How helpful did you find computer-assistance for the following tasks?



S56

* Degree of helpfulness: 1) extremely helpful; 2) very helpful; 3) fairly helpful; 4) relatively helpful; 5) moderately helpful; 6) slightly helpful; 7) not helpful; 8) slightly disadvantageous; 9) moderately disadvantageous; 10) very disadvantageous

Supplemental Table S12. Question 2: How helpful did you find computer-assistance for the following tasks? Answers sorted by rank*.

Rank for the three tasks	**Preselection of the tumor area with the highest mitotic density (stage 2 and 3)**	**Visualization of mitotic figure candidates (stage 3)**	**Display of algorithmic confidence value for each mitotic figure candidate (stage 3)**
1) Most helpful	18 (85%)	2 (10%)	1 (5%)
2) Medium helpful	2 (10%)	16 (76%)	3 (14%)
3) Least helpful	1 (5%)	3 (14%)	17 (81%)

* Participants could only choose each score (ranging from 1 to 10; see Supplemental Table S11) once for the three tasks.

Supplemental Table S13. Question 3: Did the algorithmic confidence value (number underneath green box) consciously influence your decision whether this candidate is a mitotic figure?

	Yes, in most cases (> 50 %)	**Yes, in many cases (> 25 %)**	**Yes, in some cases (> 10 %)**	**Yes, in few cases (> 3 %)**	**Yes, in very few cases (< 3 %)**	**No, in no case**
Number of answers	0	2 (10%)	12 (57%)	3 (14%)	3 (14%)	1 (5%)

Supplemental Table 14. Question 4: How difficult do you find identification of mitotic figures in digital images (single focus plane) compared to light microscopy?

	Significantly more difficult	**Slightly more difficult**	**No appreciable difference**	**Slightly easier**	**Significantly easier**
Number of answers	3 (14%)	12 (57%)	6 (29%)	0	0

Supplemental Table 15. Question 5: How important do you find the fine focus for identification of mitotic figures (z-stacking in digital images)?

	Necessary for most mitotic figures (> 50 %)	**Necessary for many mitotic figures (> 25 %)**	**Necessary for some mitotic figures (> 10 %)**	**Necessary for few mitotic figures (> 3 %)**	**Necessary for very few mitotic figures (< 3 %)**
Number of answers	2 (10%)	5 (24%)	7 (33%)	3 (14%)	4 (19%)