Canadian Pathology Quality Assurance

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Summary Report for Run 106: Breast Module (ER, PR, HER2)

Assessors: N/A

Due to the COVID-19 pandemic, assessment of the Run 106 breast module is being provided based on self-assessed results submitted through TMA Scorer to expedite reporting.

Overview

Run 106 consisted of a 42-core tissue microarray of breast carcinomas. Two cores were provided solely as orientation cores for the array, and participants were asked to exclude these cores from analysis.

Results

Self-assessment results for ER and HER2 generally show good concordance with the reference. The descriptive statistics for ER show all laboratories with Kappa values of over 0.8 confirming protocols are satisfactory. As with most other previous PR proficiency testing challenges, greater variability of PR staining is observed based on self-assessment, with Kappa values being more variable and a larger percentage with a Kappa value below 0.8. This indicates that continued care should be taken in interpretation of PR results. Descriptive statistics for HER2 show one outlier lab with a Kappa value below 0.8 due to single false-negative (Lab 230). In addition, HER2 descriptive statistics for Lab 161 were excluded as a technical issue was apparent on the stained slide. In many instances of discordance, incorrect readout is often reported for a core found to be unsatisfactory for analysis by multiple participants.

Garrattogram of ER self-assessment:

Lab/ Core	101	102	103	106	107	111	112	113	114	120	123	125	127	128	129	132	133	134	136	141	144	147	148	151	159	160	161	175	180	183	186	187	190	192	194	196	198	199	202	207	220	230	233	R1
1	P	P	P	U	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	U	P	P	P	P	P	P	P	P	P	P	P	P
4	P	U	U	U	U	U	U	U	U	U	U	U	U	U	P	U	U	P	U	U	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	U	U	U	U	P	P	P	P	P
5	P	P	P	U	P	P	P	P	P	P	P	U	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
7	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
8	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
9	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
10	U	U	U	U	N	U	U	U	U	U	U	U	U	P	U	U	U	U	U	U	N	U	U	U	U	U	U	U	N	U	U	U	U	U	N	U	N	U	U	U	U	N	U
11	U	U	N	U	N	P	U	P	N	U	N	U	N	N	U	N	N	U	N	N	P	N	U	U	U	U	U	U	U	U	N	U	U	U	U	U	U	U	N	U	P	P	U
12	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	N	P	P	P	U	P	P	P	P	P	P	P	P	P	P	P
13	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
14	P	P	P	U	P	U	P	P	P	P	P	U	U	U	P	P	P	P	U	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	U	P	P	P	P
15	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
16	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
17	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
18	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
19	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
20	P	P	P	U	P	U	P	P	P	P	P	U	U	U	P	P	P	P	U	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	U	P	P	P	P
21	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	U	P	P	P	P	P	P	P	P	P	P	P	P
22	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
23	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
24	N	N	N	P	N	P	N	P	N	P	N	U	P	N	P	N	P	N	N	U	N	N	U	P	N	N	N	N	N	P	N	N	N	N	N	N	N	N	N	N	N	N	N	N
25	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	U	P	P	P
26	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
27	P	P	P	U	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
28	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
29	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
30	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
31	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
32	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
33	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
34	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
35	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	U	P	P	P	P	P	P	P	P	P	P	P	P
36	P	P	U	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	U	P	P	U	U	P	P	P	P	P	P	P	P
37	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
38	P	P	U	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	U	P	P	P	P	P	P	P	P	P	P	P	P
39	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
40	P	P	P	U	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

Garrattogram of PR self-assessment:

Lab/ Core	101	102	103	106	107	111	112	113	114	120	123	125	127	128	129	132	133	134	136	141	147	151	159	160	161	175	183	186	187	190	192	194	196	198	199	202	207	220	230	233	R1
1	P	P	P	U	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
3	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	U	P	P	P	P	P	P	P	P	P	P	P	P
4	P	U	U	U	U	U	U	U	U	U	U	U	U	N	P	U	U	P	U	U	P	P	P	P	P	P	P	P	P	P	N	P	P	U	U	U	P	P	U	P	P
5	P	P	P	U	P	P	U	P	N	P	P	U	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
6	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
7	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
8	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
9	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	P	N	N	N	N	N	P	P	N	N	N	N	N	N	N	N	N	N	N	N	N	N
10	U	U	U	U	N	U	U	U	U	U	U	U	U	N	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	N	N	U	N	U	U	U	U	U	N	U
11	U	U	U	U	N	N	U	N	N	U	N	U	P	P	U	N	N	U	N	P	N	U	U	U	U	U	U	N	U	N	N	U	U	U	U	U	N	U	U	P	U
12	P	P	P	P	P	P	P	P	P	P	P	N	P	P	P	P	P	P	P	P	N	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
13	N	N	P	N	P	P	N	P	N	P	N	N	P	P	P	P	P	N	N	P	N	U	N	N	N	P	P	P	N	N	N	N	N	N	N	P	N	P	N	N	N
14	P	P	P	U	P	U	P	P	N	U	P	U	P	P	P	P	P	P	U	P	P	P	P	P	P	P	P	P	P	P	P	N	P	P	P	P	P	P	P	P	P
15	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
16	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
17	P	P	P	N	P	P	N	N	P	P	P	N	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	N	P	P	P	P	P	P	P	P	P
18	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	P	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
19	N	N	P	N	N	N	N	N	N	N	N	N	P	P	N	N	N	P	N	P	N	N	N	P	N	P	N	N	N	N	P	P	P	N	N	N	N	P	N	N	N
20	P	P	P	U	P	P	P	P	P	P	P	U	P	P	P	P	P	P	U	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
21	U	U	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	U	P	P	P	P	P	P	U	P	P	P	P	P	P	P	P	P	P	N	U
22	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	P	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	P	N	N	N
23	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
24	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	U	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
25	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	U	P	P	
26	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	P	N	N	N	P	N	N	N	N	N	N	P	N	N	N	N	N	N	N	P	N	N	N	N	N	
27	P	P	P	U	P	P	P	P	P	P	P	U	P	P	P	P	P	P	U	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
28	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
29	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	N	N	N	P	P	P	P	P	P	P	P	P	
30	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	P	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	U	N	N	N	N	
31	P	P	P	N	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
32	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
33	N	N	P	N	N	N	N	N	N	N	N	N	P	N	N	N	P	N	P	N	N	N	N	N	P	N	N	N	N	N	N	P	N	N	N	N	P	N	N	N	
34	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	P	N	P	N	N	N	N	P	N	N	N	N	N	N	P	N	N	N	N	P	N	N	N	
35	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
36	U	U	U	P	U	P	N	U	N	U	P	N	N	P	N	P	P	U	N	U	N	P	P	P	U	U	P	P	U	U	N	U	U	U	U	U	U	U	U	U	
37	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
38	P	U	P	P	P	P	N	P	P	P	P	N	P	P	P	P	P	P	P	U	P	P	P	P	P	P	P	P	U	U	N	P	P	N	N	P	P	P	U	P	
39	P	P	P	P	P	P	P	P	N	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	U	U	P	P	P	N	P	P	P	P	N	N	
40	N	P	P	U	P	P	N	P	N	U	N	N	P	P	P	P	P	P	P	P	P	U	N	N	P	P	P	P	U	N	N	P	P	N	P	P	P	U	N	N	

Garrattogram of HER2 self-assessment:

Lab/ Core	101	102	103	106	107	111	112	113	114	120	123	125	127	129	133	136	147	151	160	161	175	181	186	187	190	194	198	199	202	207	220	230	233	R1
1	N	1	N	U	N	U	1	N	N	1	N	N	1	2	1	U	2	2	N	N	N	U	N	N	1	N	1	N	1	N	N	1	N	N
2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
4	1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	2	2	N	N	1	U	1	1	N	1	U	U	U	N	U	U	N	N
5	N	U	N	U	N	1	U	N	N	1	U	U	1	2	1	N	2	2	N	N	1	1	1	N	2	N	1	N	1	1	1	N	N	N
6	N	N	N	N	N	N	1	N	N	N	N	N	1	1	N	N	1	2	N	N	N	N	N	N	1	N	N	N	N	N	N	N	N	2
7	N	N	N	N	N	N	1	N	N	N	N	N	N	1	N	N	1	1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
8	N	N	N	N	N	1	N	N	N	N	N	N	1	1	N	N	2	2	N	N	N	1	N	N	N	N	N	N	N	N	N	N	N	2
9	N	1	N	N	N	N	N	N	N	N	N	N	1	1	N	N	2	2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
10	U	U	U	U	N	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	N	U	N	U	U	U	U	U	N	N
11	U	3	2	U	3	3	U	3	3	U	U	U	U	U	3	2	3	U	U	U	U	U	3	U	1	2	U	3	U	3	U	U	U	3
12	2	1	1	1	N	1	1	1	N	2	1	N	1	2	1	N	1	2	1	N	2	2	2	2	1	1	1	U	U	1	2	1	N	N
13	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	U	N	N	N	N	N
14	N	U	N	U	N	U	N	U	U	N	N	U	U	1	N	U	1	1	N	N	N	1	1	N	1	N	N	N	U	N	1	N	N	N
15	N	1	N	N	N	1	N	N	N	1	1	N	1	1	1	N	2	2	N	N	N	1	1	N	N	N	1	1	U	N	1	N	N	N
16	N	2	N	N	N	N	N	2	N	N	N	N	1	2	N	N	2	2	N	N	N	1	N	N	2	N	N	N	U	N	N	N	N	N
17	N	2	1	N	N	N	1	N	N	N	N	N	1	1	1	N	2	2	N	N	N	U	1	N	N	N	N	N	U	N	U	N	N	N
18	2	3	2	2	2	2	2	2	2	2	2	2	2	3	2	2	3	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	3
19	N	N	N	N	N	1	N	1	N	N	N	N	N	1	N	N	1	1	N	N	N	N	N	N	1	N	N	N	N	N	N	N	N	N
20	N	1	N	U	1	U	1	U	N	1	N	U	U	2	1	U	2	2	N	N	N	1	1	1	1	N	1	N	2	N	1	N	N	N
21	U	U	N	N	N	1	2	1	N	1	1	N	N	2	1	N	1	2	N	N	N	U	1	U	1	N	1	N	1	N	1	N	N	N
22	2	2	1	1	1	2	2	2	1	2	1	1	1	2	1	1	2	2	1	N	2	2	1	2	2	1	2	1	1	1	2	1	N	N
23	N	N	N	N	N	N	N	N	N	N	N	N	N	1	N	N	1	1	N	N	N	U	N	N	N	N	N	N	N	N	N	N	N	N
24	N	N	N	N	N	N	N	N	N	N	N	N	N	1	N	N	N	1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
25	N	U	N	1	N	1	U	2	N	1	1	N	1	2	1	1	2	2	N	N	N	N	1	N	1	N	N	N	1	N	U	U	N	N
26	2	2	2	2	2	2	3	2	2	2	2	2	2	3	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	1	2	3
27	N	U	N	U	N	U	1	U	N	U	N	U	U	2	N	U	2	2	N	N	N	N	N	N	1	N	U	2	N	N	U	N	N	N
28	U	N	N	N	N	N	N	N	N	N	N	N	N	1	N	N	1	2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
29	1	2	1	1	1	2	2	N	1	2	2	1	N	2	2	1	2	2	1	1	2	2	2	2	N	1	2	1	2	1	2	1	1	N
30	N	1	N	N	N	1	2	1	N	1	N	N	N	1	N	1	1	2	N	N	1	1	N	N	1	N	N	N	1	N	N	N	N	N
31	N	1	N	N	N	1	1	1	N	1	1	N	N	1	1	1	2	2	N	N	1	1	1	1	N	N	N	N	1	N	1	N	N	N
32	N	1	N	N	N	N	N	N	N	1	N	N	N	1	N	N	1	1	N	N	N	1	1	N	N	N	N	N	1	N	N	N	N	N
33	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
34	N	N	N	N	N	N	N	N	N	N	N	N	N	1	N	N	N	1	N	N	N	N	1	N	N	N	N	N	N	N	N	N	N	N
35	N	N	N	N	N	N	N	N	N	N	N	N	N	1	N	N	N	1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
36	U	U	U	N	U	1	1	N	U	U	U	1	1	1	1	U	U	1	N	N	1	U	1	N	U	N	U	N	U	U	U	U	U	N
37	N	N	N	N	N	N	N	1	N	N	N	N	1	1	N	1	N	1	N	N	N	N	1	N	N	N	N	N	N	N	N	N	N	N
38	U	U	U	1	2	2	1	2	2	2	1	N	1	2	1	2	2	2	1	N	2	U	2	2	2	2	2	U	N	1	2	1	N	2
39	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	U	N	N	N	N	N	N	N	N	N	N	N	N
40	N	N	N	U	N	1	N	N	N	U	N	N	1	1	N	1	N	U	N	N	N	U	N	U	N	N	N	N	1	N	N	N	N	N

Request for specific review of your site's stained slides are welcome. Please email help@cpqa.ca to submit a request. Supplementary Tables 1-3 summarize reported staining protocol details. Descriptive statistics are being provided in Supplementary Tables 4-6, but extra careful consideration for their interpretation is needed as they are based on self-assessments. Your regular participation in CPQA is greatly appreciated and we look forward to working with you and the Canadian Association of Pathologists – Association Canadienne des Pathologistes for external quality assurance services.

Table S1. Reported ER staining protocols.

Lab ID	Ag Retrieval Method	Time for Ag Retrieval (min)	Ab Clone	Ab Dilution	Ab Supplier/ Vendor	Ab Lot No.	Time for Ab Incubation (min)	Detection System	Amplification (y/n)	Enhancement (y/n)	Chromogen
101	EnV FlexTRS, HIgh PH	30 min	EPI	RTU	Dako	10150988	10 MIN	DAKO Envision Flex	N	N	DAB
102	DAKO PT - HIGH PH	20	EP1	1:50	DAKO	10144585	30" RT	DAKO ENVISION FLEX	NO	YES CUSO4	DAB+
103	CC1	64	SP1	PRE	VENTANA	F12922	16	ULTRA VIEW	NO	YES COPPER	DAB Ultraview
106	CC1 95 DEG	64 MIN	SP1	PREDILUTE	ROCHE	F21057	32 MIN	OPTIVIEW	N	Y	DAB
107	Dako FLEX TRS High pH	30	EP1	RTU	Dako	11086033	17	Dako FLEX	N	N	DAB
111	HIER	36	SP1	PREDILUTE	VENTANA	F21057	32	ULTRAVIEW	N	Y	DAB
112	Bond ER2 pH 9.0	20 minutes	SP1	1:200	ThermoFisher	9101S1803C	15 minutes @ RT	Bond Polymer Refine	no	no	DAB
113	CC1	36	SP1	predilute	Roche	F12922	32	Roche Ultraview	N	N	DAB
114	Envision Flex TRS, High pH	30	EP1	RTU	Dako	10151856	25	Envision FLEX DAKO Omnis	Y	N	Envision Flex DAB
120	HIER	64 MINS	SP1	RTU	VENTANA	F13886	32 MINS	ULTRAVIEW	N	N	DAB
123	Roche CC1	36	SP1	predilute	Roche	E33042	32	Roche ultraView	N	Y	DAB
125	HIER	30	SP1	RTU	ROCHE	F18087	30	Envision Flex	Y	N	DAB
127	HIER	36 MIN	SP1	PREDILUTE	VENTANA	F12922	32 MIN	ULTRAVIEW DAB	N	Y	DAB
128	Ultra CC1	64 mins	SP1	Ready to Use	Ventana/Roche	F13886	16min	Ultraview Universal DAB	No	No	DAB
129	ER 2- High pH retrieval	20	SP1	undiluted	Ventana Roche RTU	F12922	20	Bond Refine Detection Kit	N	N	DAB
132	High pH	20	EP1	RTU	Dako	10150736	20	Envision flex	N	N	DAB
133	HIER	36	SP1	predilute	Roche	F12922	32 minutes	polymer-Ultraview	n	n	dab
134	HIER - CC1	30 min	SP1	RTU	VENTANA/ROCHE	E33042	8 min	ULTRAVIEW	N	N	DAB
136	High pH	20	EP1	RTU	Dako/ Agilent	10152974	20	Dako Envision FLEX +	N	N	DAB
141	HIER	30 min	SP1	RTU	VENTANA/ROCHE	E33042	8 min	ULTRAVIEW	N	N	DAB
144	EnFlex High pH	17 min	EP1	RTU	Da	11086033	17 min	EnFlex Dako Omnis	No	No	DAB
147	HIER PH9	20	SP1	150	THERMO	9101S1809-1A	15	POLYMER LEICA REFINE	N	N	DAB
148	CC1	32	SP1	RTU	Ventana	F13886	16	OPTIVIEW	NO	NO	DAB
151	BUFFER 9.0	20 MIN	SP1	RTU	VENTANA	F12922	15 MIN	BOND REFINE	N	N	DAB
159	Flex TRS High	40 min.	EP1	RTU	Dako, Agilent	10148022	20	Dako Flex	N	N	DAB
160	CC1	36 MIN	SP1	RTU	VENTANA	F12922	8 MIN	ULTRAVIEW	N	Y	DAB
161	HIER-Hier EDTA TRIS tampon	20 Minutes	EP1	RTU	Dako	11088752	20 Minutes	Envision Flex	Non	Non	DAB
175	HIER	36	SP1	Pre dilute	Roche	F13886	32	Ultra DAB polymer	N	Y	DAB
180	CC1	32	SP1	RTU	Ventana	F13886	16	Optiview	N	Y	DAB
183	ULTRA CC1	36	SP1	RTU	VENTANA	F13886	32	ULTRAVIEW	N	N	DAB
186	HIER	20	SP1	1:50	THERMOSCIENTIFIC	9101S1904A	15	BOND POLYMER REFINE DETECTION	N	N	DAB
187	CC1	16	SP1	Predilute	Roche	F21057	8	Optiview	N	N	DAB
190	CC1	32	SP1	Pre-dilute	Ventana	F13886	32	iView	N	N	DAB
192	Ultra CC1	36 minutes	SP1	Ready to use	Ventana/Roche	F13886	16 minutes	Ventana Ultraview DAB	N	Y (copper)	DAB
194	CC1	64	SP1	RTU	ROCHE	E27215	16	ULTRAVIEW	N	Y	DAB
196	none	none	SP1	none	Ventana	F21057	8 minutes	Ultraview DAB			
198	High pH HIER	30 min	EP1	RTU	Dako/Agilent	10151856	10 min	Envision Flex/HRP	Y	N	DAB
199	ER2	30	6f11	RTU	Lecia	6066488	15	Refine	N	N	DAB
202	HIER	15	6F11	100	LEICA	6069100	15	BOND POLYMER REFINE DETECTION	N	N	DAB
207	on-line CC1	36	SP1	prediluted	Ventana	F12922	16	ULTRAVIEW	N	Y	DAB
220	HIER	36	SP1	PRE DILUTE	VENTANA	F21057	36	VENTANA ULTRAVIEW	N	Y	DAB
230	HIER	64	SP1	predilute	Roche	F13886	32	Ultraview	N	N	DAB
233	HIER CC1	36	SP1	NA	Roche	F12922	16	Ultraview Universal DAB	N	Y	Ultraview DAB

Table S2. Reported PR staining protocols.

Lab ID	Ag Retrieval Method	Time for Ag Retrieval (min)	Ab Clone	Ab Dilution	Ab Supplier/ Vendor	Ab Lot No.	Time for Ab Incubation (min)	Detection System	Amplification (y/n)	Enhancement (y/n)	Chromogen
101	EnV FlexTRS, HIgh PH	30 min	PgR 1294	RTU	Dako	20072329	25 min	DAKO Envision Flex	N	N	DAB
102	DAKO PT - HIGH PH	20	16	1:200	LEICA	6072364	30" RT	DAKO ENVISION FLEX	NO	YES CUSO4	DAB+
103	CC1	64	IE2	PRE	VENTANA	F18043	16	ULTRA VIEW	NO	Y COPPER	DAB Ultraview
106	CC1 95 DEG	64 MIN	PGR1294	1:525	dAKO/AGILENT	10144176	32 MIN	OPTIVIEW	N	Y	DAB
107	Dako FLEX TRS High pH	30	PgR1294	RTU	Dako	11086044	15	Dako FLEX	N	N	DAB
111	HIER	32	16	80	LEICA	6061979	32	OPTIVIEW	N	Y	DAB
112	BOND ER2 pH 9.0	10 minutes	16	RTU	Leica	66065	15 minutes @ RT	BOND Polymer Refine	no	no	DAB
113	CC1	32	16	1/60	Leica	6066488	32	Roche Optiview	N	N	DAB
114	Envision Flex TRS, High pH	30	1294	RTU	Dako	10147124	25	Envision FLEX DAKO Omnis	N	N	Envision Flex DAB
120	HIER	36 MINS	1294	1/50	DAKO	10150204	16 MINS	ULTRAVIEW	N	N	DAB
123	Roche CC1	64	16	1/25	Leica	6072364	60	Roche ultraView	N	Y	DAB
125	HIER	30	PgR 1294	1/200	Dako	10148066	20	Envision Flex	N	N	Dab
127	HIER	36 MIN	IE2	PREDILUTE	VENTANA	E33110	8 MIN	ULTRAVIEW DAB	N	Y	DAB
128	Ultra CC1	64 mins	IE2	Ready to Use	Ventana/Roche	F04648	16min	Ultraview Universal DAB	No	No	DAB
129	ER 2- High pH retrieval	20	16	1:400	Novacastra	6061976	15	Bond Refine Detection Kit	N	N	DAB
132	High pH	20	16	1:200	Leica	6069409	30	Envision flex	N	N	DAB
133	HIER	64 minutes	16	1/25	Leica	6069409	60	polymer-Ultraview	n	n	Dab
134	HIER - CC1	30 min	IE2	RTU	VENTANA/ROCHE	F04649	12 min	ULTRAVIEW	N	N	DAB
136	Low pH	20	PGR 636	RTU	Dako/ Agilent	10151715	20	Dako Envision FLEX +	N	N	DAB
141	HIER	30 min	IE2	RTU	VENTANA/ROCHE	F04649	12 min	ULTRAVIEW	N	N	DAB
147	HIER PH9	20	16	800	NCL	6061976	15	POLYMER LEICA	N	N	DAB
151	BUFFER 6.0	20 MIN	16	1:100	NCL	806299	15 MIN	BOND REFINE	N	N	DAB
159	Flex TRS High	40 min.	PgR 636	RTU	Dako, Agilent	10146463	30	Dako Flex	N	N	DAB
160	CC1	36 MIN	IE2	RTU	VENTANA	E33110	8 MIN	ULTRAVIEW	N	Y	DAB
161	HIER-High EDTA TRIS tampon	20 Minutes	PgR 636	RTU	Dako	10154161	20 Minutes	Envision Flex	Non	Non	DAB
175	HIER	64	IE2	Pre dilute	Roche	F16118	32	Ultra DAB polymer	N	Y	DAB
183	ER2	30	16	RTU	LEICA/NOVOCASTRA	65083	15	POLYMER REFINE	N	N	DAB
186	HIER	30	16	1:200	LEICA	6061976	15	BOND POLYMER REFINE DETECTION	N	N	DAB
187	CC1	64	IE2	Predilute	Roche	F16118	12	Optiview	N	N	DAB
190	CC1	32	16	1:50	32	6061976	32	iView	N	N	DAB
192	Ultra CC1	36 minutes	IE2	Ready to use	Ventana/Roche	F12737	16 minutes	Ventana Ultraview DAB	N	Y (copper)	DAB
194	CC1	64	IE2	RTU	ROCHE	E28886	16	ULTRAVIEW	N	Y	DAB
196	none	none	IE2	none	Ventana	F04648	8 minutes	Ultraview DAB			
198	High ph HIER	30 min	1294	1/100	Dako/Agilent	10144176	20 min	Envision Flex/DAB	N	N	DAB
199	ER2	30	16	1:200	Lecia	6066488	15	refine	n	n	dab
202	HIER	20	16	RTU	LEICA	66065	15	BOND POLYMER REFINE DETECTION	N	N	DAB
207	on line CC1	32	16-leica	1/100	Leica	6072381	32	Optiview	N	Y	DAB
220	HIER	36	IE2	PRE DILUTE	VENTANA	F16118	12	VENTANA ULTRAVIEW	N	Y	DAB
230	HIER	64	IE2	predilute	Roche	F16118	16	Ultraview	N	N	DAB
233	HIER CC1	48	16	NA	Leica	6072364	32	Optiview	N	Y	Optiview DAB

Table S3. Reported ER staining protocols.

Lab ID	Ag Retrieval Method	Time for Ag Retrieval (min)	Ab Clone	Ab Dilution	Ab Supplier/ Vendor	Ab Lot No.	Time for Ab Incubation (min)	Detection System	Amplification (y/n)	Enhancement (y/n)	Chromogen
101	EnV FlexTRS, HIgh PH	30 min	4B5	1:8	ROCHE DIAGNOSTICS	F05675	15 min	DAKO Envision Flex	N	N	DAB
102	DAKO PT - HIGH PH	20	SP3	1:80	CELL MARQUE	50420	25"	DAKO ENVISION FLEX	NO	YES CUSO4	DAB+
103	CC1	36	4B5	PRE	VENTANA	F15240	16	ULTRA VIEW	NO	Y COPPER	DAB Ultraview
106	HIGH pH 97	30 MIN	4B5	1/5	ROCHE	F20661	20 MIN	FLEX	N	N	DAB
107	Dako FLEX TRS High pH	30	Polyclonal (Rabbit)	1:1000	Dako	20067288	12	Dako FLEX	N	N	DAB
111	HIER	36	4B5	PREDILUTE	VENTANA	F12738	32	ULTRAVIEW	N	Y	DAB
112	BOND ER2 pH 9.0	20 minutes	4B5	1:4 ratio of RTU	Ventana/Roche	F10545	15 MINUTES @ RT	bond Polymer Refine	no	no	DAB
113	CC1	36	SP3	1/50	Cell Marque	57447	20	Roche Ultraview	N	N	DAB
114	Envision Flex TRS, High pH	30	4B5	1:8	Roche	F15240	25	Envision FLEX DAKO Omnis	N	N	Envision Flex DAB
120	HIER	32 MINS	4B5	RTU	VENTANA	F20661	16 MINS	ULTRAVIEW	N	N	DAB
123	Roche CC1	36	4B5	predilute	Roche	F12738	24	Roche ultraView	N	Y	DAB
125	HIER	30	A0485	1/800	DAKO	20067288	10	DAB	N	N	DAB
127	HIER	36 MIN	4B5	PREDILUTE	VENTANA	F20661	24 MIN	ULTRAVIEW DAB	N	Y	DAB
129	ER 2- High pH retrieval	20	SP3	1:50	Thermo Scientific	UF2773162	15	Bond Refine Detection Kit	N	N	DAB
133	HIER	36	4B5	predilute	Roche	F12738	24	polymer-Ultraview	n	n	Dab
136	Dako Hercep Test buffer	40	A0485	RTU	Dako/ Agilent	200272143	30	Dako Hercep Test Kit	N	N	HT DAB
147	HIER PH 9	20	SP3	100	THERMO S	UI2843377	15	LOLYMER LEICA REFINE	N	N	DAB
151	BUFFER 9.0	20 MIN	SP3	1:50	THERMO	TL267341	15 MIN	BOND REFINE	N	N	DAB
160	CC1	36 MIN	4B5	RTU	VENTANA	F22519	16 MIN	ULTRAVIEW	N	Y	DAB
161	Herceptest epitope	40 Minutes	Rabbit anti-human HER protein	RTU	Dako	20072143	30 Minutes	Herceptest visualization reagent	Non	Non	Herceptest DAB chromogen
175	HIER	36	4B5	Pre dilute	Roche	F20902	16	Ultra DAB polymer	N	Y	DAB
186	HIER	20	c-erbB-2	1:400	DAKO	20067287	15	BOND POLYMER REFINE DETECTION	N	N	DAB
187	CC1	16	4B5	Predilute	Roche	F12738	24	Optiview	N	N	DAB
190	CC1	32	SP3	1:50	Thermo	9103S1711B	32	Optiview	N	N	DAB
194	CC1	36	4B5	RTU	ROCHE	F22519	12	ULTRAVIEW	N	Y	DAB
198	High pH HIER	30 min	4B5	1/5	Ventana/Roche	E25115M	20 min	Envision/Flex/HRP	N	N	DAB
199	ER2	30	SP3	1:300	Cell Marque	47174	15	Refine	N	N	Dab
202	HIER PH6.0	40	ERBB2	RTU	DAKO	20072143	30	HERCEPTEST FOR AUTOMATED LINK PLATFORMS VISUALIZATION	N	N	DAB
207	on line CC1	36	4B5	prediluted	Ventana	F20661	16	Ultraview	N	Y	DAB
220	HIER	36	4B5	PRE DILUTE	VENTANA	F18078	12	VENTANA ULTRAVIEW	N	Y	DAB
230	HIER	32	4B5	predilute	Roche	F20661	16	Ultraview	N	N	DAB
233	HIER CC1	36	4B5	NA	Roche	F108078	16	Ultraview Universal DAB	N	Y	Ultraview DAB

Table S4. Descriptive statistics based on ER self-assessment.

Lab ID	Total n	% scorable	Pairwise complete observations	Concordance with reference (%)	Sensitivity	Specificity	Cohen's kappa
101	40	95	38	38/38 (100%)	1	1	1
102	40	92.5	37	37/37 (100%)	1	1	1
103	40	90	35	35/35 (100%)	1	1	1
106	40	77.5	31	30/31 (97%)	1	0.8	0.87
107	40	97.5	37	37/37 (100%)	1	1	1
111	40	90	35	34/35 (97%)	1	0.8	0.87
112	40	92.5	37	37/37 (100%)	1	1	1
113	40	95	37	36/37 (97%)	1	0.8	0.87
114	40	95	37	37/37 (100%)	1	1	1
120	40	92.5	37	36/37 (97%)	1	0.8	0.87
123	40	95	37	37/37 (100%)	1	1	1
125	40	82.5	33	33/33 (100%)	1	1	1
127	40	90	35	34/35 (97%)	1	0.8	0.87
128	40	92.5	35	35/35 (100%)	1	1	1
129	40	95	38	37/38 (97%)	1	0.8	0.87
132	40	95	37	37/37 (100%)	1	1	1
133	40	95	37	36/37 (97%)	1	0.8	0.87
134	40	95	38	38/38 (100%)	1	1	1
136	40	90	35	35/35 (100%)	1	1	1
141	40	92.5	36	36/36 (100%)	1	1	1
144	40	100	38	38/38 (100%)	1	1	1
147	40	97.5	38	38/38 (100%)	1	1	1
148	40	92.5	37	37/37 (100%)	1	1	1
151	40	95	38	37/38 (97%)	1	0.8	0.87
159	40	95	38	38/38 (100%)	1	1	1
160	40	95	38	38/38 (100%)	1	1	1
161	40	95	38	38/38 (100%)	1	1	1
175	40	95	38	38/38 (100%)	1	1	1
180	40	97.5	38	37/38 (97%)	0.97	1	0.89
183	40	95	38	37/38 (97%)	1	0.8	0.87
186	40	97.5	38	38/38 (100%)	1	1	1
187	40	90	36	36/36 (100%)	1	1	1
190	40	85	34	34/34 (100%)	1	1	1
192	40	95	38	38/38 (100%)	1	1	1
194	40	97.5	38	38/38 (100%)	1	1	1
196	40	92.5	37	37/37 (100%)	1	1	1
198	40	92.5	36	36/36 (100%)	1	1	1
199	40	92.5	37	37/37 (100%)	1	1	1
202	40	92.5	37	37/37 (100%)	1	1	1
207	40	90	35	35/35 (100%)	1	1	1
220	40	95	38	38/38 (100%)	1	1	1
230	40	95	37	37/37 (100%)	1	1	1
233	40	100	38	38/38 (100%)	1	1	1

Table S5. Descriptive statistics based on PR self-assessment.

Lab ID	Total n	% scorable	Pairwise complete observations	Concordance with reference (%)	Sensitivity	Specificity	Cohen's kappa
101	40	90	36	36/36 (100%)	1	1	1
102	40	85	34	33/34 (97%)	1	0.93	0.94
103	40	90	35	31/35 (89%)	1	0.71	0.75
106	40	77.5	29	27/29 (93%)	0.88	1	0.86
107	40	95	35	33/35 (94%)	1	0.86	0.88
111	40	92.5	34	32/34 (94%)	1	0.86	0.88
112	40	90	34	32/34 (94%)	0.9	1	0.88
113	40	92.5	35	32/35 (91%)	0.95	0.86	0.82
114	40	95	35	32/35 (91%)	0.86	1	0.83
120	40	85	33	32/33 (97%)	1	0.92	0.94
123	40	95	35	35/35 (100%)	1	1	1
125	40	82.5	31	28/31 (90%)	0.82	1	0.81
127	40	95	35	32/35 (91%)	1	0.79	0.81
128	40	100	36	31/36 (86%)	0.95	0.71	0.7
129	40	95	36	34/36 (94%)	1	0.86	0.88
132	40	95	35	32/35 (91%)	1	0.79	0.81
133	40	95	35	33/35 (94%)	1	0.86	0.88
134	40	92.5	36	32/36 (89%)	1	0.71	0.75
136	40	87.5	32	31/32 (97%)	1	0.93	0.94
141	40	87.5	33	24/33 (73%)	1	0.31	0.35
147	40	97.5	36	33/36 (92%)	0.95	0.86	0.82
151	40	87.5	34	34/34 (100%)	1	1	1
159	40	95	36	36/36 (100%)	1	1	1
160	40	95	36	35/36 (97%)	1	0.93	0.94
161	40	92.5	36	35/36 (97%)	1	0.93	0.94
175	40	92.5	36	30/36 (83%)	1	0.57	0.62
183	40	95	36	32/36 (89%)	1	0.71	0.75
186	40	97.5	36	34/36 (94%)	1	0.86	0.88
187	40	80	32	31/32 (97%)	0.95	1	0.94
190	40	90	34	33/34 (97%)	0.95	1	0.94
192	40	100	36	32/36 (89%)	0.86	0.93	0.77
194	40	95	36	34/36 (94%)	1	0.86	0.88
196	40	92.5	36	32/36 (89%)	1	0.71	0.75
198	40	92.5	35	31/35 (89%)	0.81	1	0.77
199	40	90	35	33/35 (94%)	0.95	0.93	0.88
202	40	87.5	34	31/34 (91%)	1	0.77	0.8
207	40	95	36	35/36 (97%)	1	0.93	0.94
220	40	90	35	30/35 (86%)	1	0.62	0.67
230	40	85	33	32/33 (97%)	0.95	1	0.94
233	40	97.5	36	35/36 (97%)	0.95	1	0.94

Table S6. Descriptive statistics based on HER2 self-assessment.

Lab ID	Total n	% scorable	Pairwise complete observations	Concordance with reference (%)	Sensitivity	Specificity	Cohen's kappa
101	38	89.47	34	34/34 (100%)	1	1	1
102	38	78.95	30	30/30 (100%)	1	1	1
103	38	92.11	35	35/35 (100%)	1	1	1
106	38	81.58	31	31/31 (100%)	1	1	1
107	38	94.74	36	36/36 (100%)	1	1	1
111	38	86.84	33	33/33 (100%)	1	1	1
112	38	92.11	35	35/35 (100%)	1	1	1
113	38	89.47	34	34/34 (100%)	1	1	1
114	38	92.11	35	35/35 (100%)	1	1	1
120	38	89.47	34	34/34 (100%)	1	1	1
123	38	92.11	35	35/35 (100%)	1	1	1
125	38	86.84	33	33/33 (100%)	1	1	1
127	38	89.47	34	34/34 (100%)	1	1	1
129	38	97.37	37	37/37 (100%)	1	1	1
133	38	97.37	37	37/37 (100%)	1	1	1
136	38	84.21	32	32/32 (100%)	1	1	1
147	38	97.37	37	37/37 (100%)	1	1	1
151	38	97.37	37	37/37 (100%)	1	1	1
160	38	100	38	38/38 (100%)	1	1	1
175	38	100	38	38/38 (100%)	1	1	1
181	38	76.32	29	29/29 (100%)	1	1	1
186	38	100	38	38/38 (100%)	1	1	1
187	38	94.74	36	36/36 (100%)	1	1	1
190	38	97.37	37	37/37 (100%)	1	1	1
194	38	100	38	38/38 (100%)	1	1	1
198	38	92.11	35	35/35 (100%)	1	1	1
199	38	92.11	35	35/35 (100%)	1	1	1
202	38	78.95	30	30/30 (100%)	1	1	1
207	38	97.37	37	37/37 (100%)	1	1	1
220	38	86.84	33	33/33 (100%)	1	1	1
230	38	92.11	35	34/35 (97%)	0.67	1	0.79
233	38	97.37	37	37/37 (100%)	1	1	1