HR1/23: Hormonal Receptors

This EQA round was accomplished according to the document ***EQA Plan 2023***.
Typing conventions: *We are using comma as a decimal separator and dates in day.month.year format.*

Samples

The participants received 2 histological slides made of the TMAs (each TMA consists of 10 samples of the tissue), one to determine the estrogen receptor (ER) and one for progesterone receptor (PgR).
The samples were prepared by the subcontractor.

Supervisor's comment

There were 66 participants in this round, 12 of them from Slovakia, and 1 from Poland.
We asked the participants to report a qualitative result (negative / positive) for each sample and to supplement it with a quantitative estimate of the percentage of ER or PgR in the invasive carcinoma.
Each sample on each slide is processed as a separate test in the process of the EQA assessment.
In general, if a participant does not provide a result for the particular sample (e.g. sample lost during staining), then we do not process the relevant test (sample) at all for that participant - it is not counted in the evaluation and statistics. Therefore, for all tests in the statistics, the total number of results may not be equal to the number of participants - those who have not reported the result are missing.

Qualitative results

The assigned values are determined as the consensus of the participants. In the case of qualitative results, the consensus is reached if at least 80 % of the participants agree on the result.

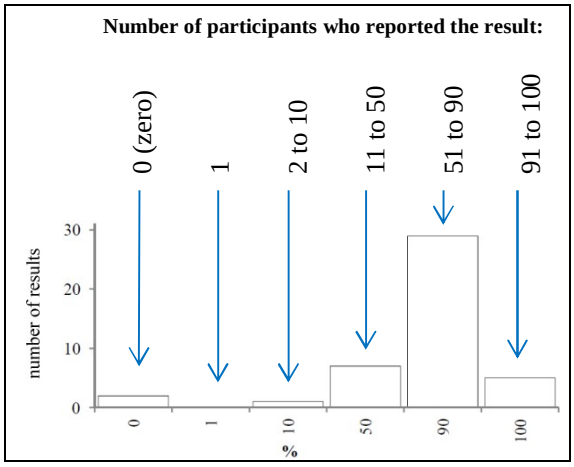
The **ER** staining was without problems and consensus was reached in all tests. We observed excellent success rate for all positions.

In the case of **PgR**, the consensus was reached for all tests. Achieved success rates were excellent (95 % or higher) for almost all positions, only position 1 showed lower success rate (92 %).

Quantitative results

We do not determine AVs for **quantitative** results in this EQA programme. Since these are only estimates with a large uncertainty, consistent determination of the AVs is not possible. Instead of evaluating, we send to the participants the histograms where the summary of all quantitative results and their location within the histogram should be found.

The figure on the right shows how the results of the participants are sorted (summarised) in the histograms, i.e. what results are summed in the individual columns.



The assessment of the test always depends on the qualitative results. Quantitative results do not affect the assessment of the test, but are an important guide to the staining sensitivity settings, and therefore histograms should be considered. If the individual positions deviate systematically from most participants, this indicates a problem. Unfortunately many participants did not provide quantitative results.

Notes on the comments that the participants wrote as a free text

Some participants informed us about the impossibility to evaluate some positions (missing tissue, sample relocation). In principle, these phenomena cannot be excluded and prevented in the process of sample preparation. In these cases, please follow the instructions printed in the document *General instructions* that you received with the samples:

> If **3 or more** samples are **missing (or relocated so that their position cannot be identified)** on a glass after staining at your laboratory, you can request by e-mail a spare glass. If only 2 (or less) samples in a block are missing or displaced, this is not the reason for requesting a new glass (missing result for any TMA position is not evaluated as a wrong result).

An important reminder is the absence of a positive internal control in negative samples. For technical reasons, this cannot always be ensured in TMA (these are mostly destructively growing high-grade tumours that do not contain

mammary gland structures). From the assessment point of view, the presence of a positive internal control is not required for a negative result (unlike real tests).

Cut-offs reported by the participants

Cut-off	*Number of the participants*	
	Estrogen receptor (ER)	*Progesterone receptor (PgR)*
1 %	54	54
2 %	2	2
5 %	2	2
55 %	-	1
70 %	1	-
90 %	1	1

According to the recent recommendation of the ASCO/CAP (Journal of Clinical Oncology, Vol 28, Issue 16 (June), 2010: 2784-2795) the **cut-off = 1 %**. The recommendation of the Czech Society of Pathology is identical. It is always true that low ER values are questionable in terms of clinical response to hormonal manipulation; therefore, a quantitative result in percent or as Allred score (as agreed with the clinical oncologist) must also be reported. It cannot be replaced by a higher cut-off. In this EQA programme the cut-off is required also if the laboratory does not use it in the routine practice.

Long term success rate

You can find the overview of the total success of the participants of this round over last 2 years in the following table. Particular ranges of success are defined in the column headers (percentage of the tests on which the participant reported the correct result). Next 2 lines contain both absolute and relative number of participants who reached the success from the header.

	Success	*0 %*	*1 - 74 %*	*75 - 79 %*	*80 - 89 %*	*90 - 94 %*	*95 - 99 %*	*100 %*
Success in words		unsatisfactory		acceptable	good	very good	excellent	
Count	absolute	0	0	0	0	3	30	33
	relative	-	-	-	-	4,5 %	45 %	50 %
Note: You can find your individual success over last 2 years in your result sheet.								

Overall success of most participants of this round over the last 2 years is 95 % or higher.
Success rates below 95 % should be considered to be an impulse to improve.

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Supplements

As a supplement to this report individual participants receive:

Name of the supplement	*Remark*
Confirmation of attendance	Issued only to those participants that fulfilled the criteria.
Result sheet (qualitative results)	Issued only to those participants that reported qualitative results.
Histograms	Only for the quantitative results.

The supplements are identified with a name, EQA round identification and participant code and are intended for the needs of the participant.

Additional information

The final report, with the exception of the supplements, is public. Further information is freely available to the participants and other professionals at www.sekk.cz, in particular:

- The summary of the results of this round, including this final report.
- The document ***EQA Plan*** (contains information that applies both to this round and also the EQA in general).
- Explanation of the content of the particular supplements mentioned above.
- Contact to the EQA provider and the EQA coordinator and the list of all supervisors, including contacts.