The International Journal of Cancer enforces strict quality control of the cell lines used in biomedical research

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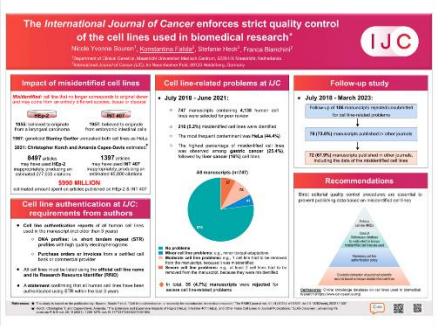
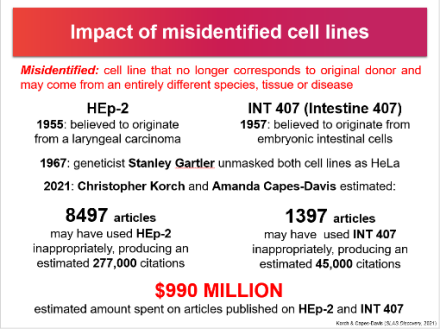
SLIDE 1



My name is Konstantina Falida and I am working at the Editorial Office of the IJC. It´s the first time I am attending an EASE conference and I am very excited to share our study on the importance of cell line authentication in biomedical research with you.

SLIDE 2



A misidentified cell line occurs through cross-contamination, mislabeling, or other laboratory errors, meaning that it no longer corresponds to the original donor and may in fact come from an entirely different species, tissue or disease. The tremendous damage of the use of misidentified cell lines in biomedical research has been shown exemplarily by a study from Korch & Capes-Davis. It was estimated that almost billions of research dollars have been spent on studies using two commonly misidentified

cell lines, while at the same time data based on misidentified cell lines could misguide and delay therapy development, resulting in missed opportunities to improve human health.

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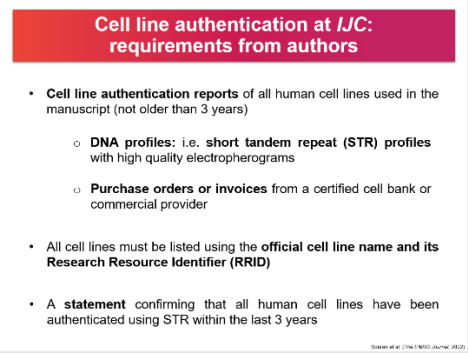

To avoid publishing studies that are based on misidentified cell lines, the IJC has introduced a stringent cell line policy already since 2010. In the Editorial office, it´s my responsibility to check all cell line-related issues of manuscripts submitted to our journal before the peer review process starts. We request:

- cell line authentication reports of all human cell lines used in a study

- listing of the official cell line name and its Research Resource Identifier and

- a statement confirming the authentication in the M&M section

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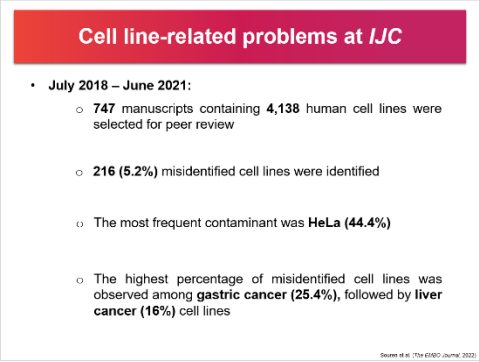

Last year we published a study providing an overview of issues pertinent to misidentified cell lines and discussing available solutions. More than 5% of the cell lines used in manuscripts submitted to our

journal were misidentified and the most frequent contaminant was the HeLa cell line. We also found that most of the misidentified cell lines were used in studies for gastric and liver cancer. These findings indicate that the literature on these cancer types probably suffers a lot from misidentified cell lines.

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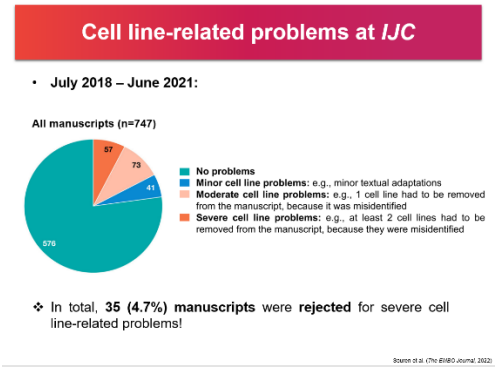

When we look at the manuscript level, then we see that based on the available information the majority of the selected manuscripts have no cell line-related problems.

However, in more than 100 manuscripts moderate or severe cell line-related problems were observed.

Finally, 35 manuscripts (almost 5%) were rejected for severe cell line-related problems.

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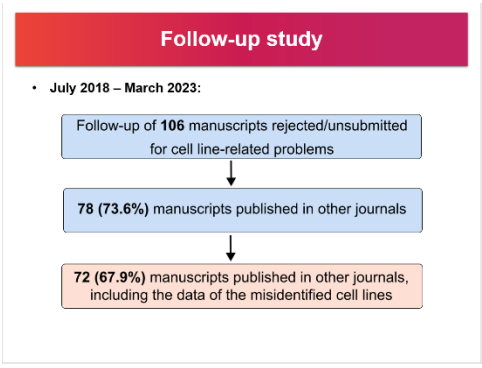
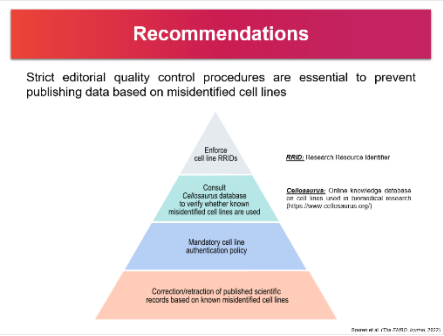


In order to explore whether manuscripts rejected at the *IJC* with severe cell line-related problems are subsequently published elsewhere, we followed up 106 manuscripts that contained a large amount of data based on misidentified cell lines. In March 2023, 78 of these manuscripts were published in other journals, of which 72 manuscripts still included the data of the misidentified cell lines!

SLIDE 7



Based on our experiences, we have several recommendations for journals and publishers to avoid the publication of studies including misidentified cell line data:

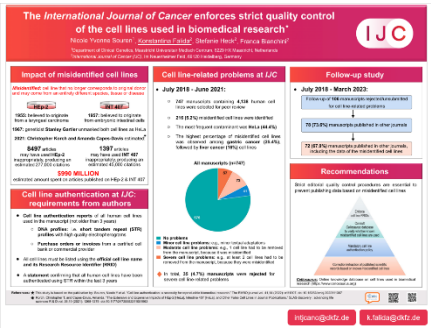
- Journals should consider to enforce the use of cell line research resource identifiers (RRIDs); these can be obtained at the RRID portal or Cellosaurus database, where a warning is displayed when a cell line is problematic.

- Journals should verify all cell lines used in a manuscript in the Cellosaurus database, where many cell lines are recorded.

- In addition, journals should implement mandatory cell line authentication and occasionally check the documents, so that regular authentication of cell lines will become common practice.

- Last but not least, action should be taken to correct already published manuscripts that contain data on misidentifed cell lines.

SLIDE 8



Before closing, I would like to mention that this study was performed by Nicole Souren and was supported by other members of our Journal as well as some external ones. For further information, you can check our paper by scanning the QR-Code at the right bottom of the poster or you could contact our Editorial Office or me personally.