Review of: "The tumour microenvironment in BRCA1/BRCA2 hereditary breast cancer and the role of epigenetics in its regulation"

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The authors conducted a literature review related to the involvement of BRCA1/BRCA2 genes in the tumor microenvironment of hereditary cancer and the participation of epigenetics in its regulation.

Although in hereditary cancer there are identifiable factors to which the disease is associated, such as the BRCA1/BRCA2 genes, genomic instability leads to the deregulation of an infinite number of genes and, consequently, of cellular pathways and processes. Trying to associate only BRCA1/BRCA2 with the whole context of the tumor microenvironment is a lot to me.

From my point of view, the revision is missing a lot of things:

1. Review the English language in depth.
2. Work hard on the structure of the review; that is to say, an introduction is needed where the alterations of the BRCA1/BRCA2 genes are discussed in depth; which variants are pathogenic; mention why these genes are central in hereditary BC; which other genes are involved.
3. The information is very scarce. In no chapter do the authors go into depth and describe the mechanisms or signaling pathways involved when they have already been described, of course. For example, in the chapter of noncoding RNAs they mention that siRNAs and miRNAs methylate and acetylate genes, which results in differential expression of the genes they modify. But they do not mention how this occurs, which complexes participate in this regulation; etc.
4. It is noted that they did not make an in-depth review, since there are other ncRNAs that also participate in this regulation, such as piRNAs, lncRNAs, snoRNAs, etc:

- Zhang Z, Liu N. (PIWI interacting RNA-13643 contributes to papillary thyroid cancer development through acting as a novel oncogene by facilitating PRMT1 mediated GLI1 methylation. Biochim Biophys Acta Gen Subj. 2023 Aug 30;1867(11):130453. doi: 10.1016/j.bbagen.2023.130453. Online ahead of print.
- Wang K, Zhou LY, Liu F, Lin L, Ju J, Tian PC, Liu CY, Li XM, Chen XZ, Wang T, Wang F, Wang SC, Zhang J, Zhang YH, Tian JW, Wang K.PIWI-Interacting RNA HAAPIR Regulates Cardiomyocyte Death After Myocardial Infarction by Promoting NAT10-Mediated ac4 C Acetylation of Tfec mRNA. Adv Sci (Weinh). 2022 Mar;9(8):e2106058. doi: 10.1002/advs.202106058. Epub 2022 Feb 9.PMID: 35138696
- Ren G, Li H, Hong D, Hu F, Jin R, Wu S, Sun W, Jin H, Zhao L, Zhang X, Liu D, Huang C, Huang HLNC00955

suppresses colorectal cancer growth by acting as a molecular scaffold of TRIM25 and Sp1 to Inhibit DNMT3B-mediated methylation of the PHIP promoter. BMC Cancer. 2023 Sep 23;23(1):898. doi: 10.1186/s12885-023-11403-2.PMID: 37742010

- Bian Z, Xu C, Xie Y, Wang X, Chen Y, Mao S, Wu Q, Zhu J, Huang N, Zhang Y, Ma J, Sun F, Pan G. SNORD11B-mediated 2'-O-methylation of primary let-7a in colorectal carcinogenesis. Oncogene. 2023 Aug 24. doi: 10.1038/s41388-023-02808-1. Online ahead of print.PMID: 37620450.
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- 5. I suggest a discussion at the end of each Chapter, where the authors mention what are the current issues in each area of study and what they think about the scientific evidence in each area and where the study is going in this area
- 6. Many references are missing.
- 7. A review on LSD in breast cancer came out this year:

- Dong Yeul Lee [1,2], Talha Salahuddin [3], Jabed Iqbal [1]. Lysine-Specific Demethylase 1 (LSD1)-Mediated Epigenetic Modification of Immunogenicity and Immunomodulatory Effects in Breast Cancers. Curr Oncol. 2023 Feb 9;30(2):2127-2143. doi: 10.3390/curroncol30020164.

The information in this section is therefore not new.