

Title: Involvement of classic and alternative non-homologous end joining in hematologic malignancies: Targeting strategies for treatment

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Objective and Background: The major contributing causes of hematologic malignancies as one of the highly convoluted types of cancers are chromosomal translocations and in the meantime for the most part, they are highly controllable. These translocations generally are the consequence of the aberrant DNA double strand break (DSB) repair. DSBs are exo- or endogenously originated and should be repaired by major pathways: non-homologous end joining (NHEJ), homologous recombination (HR), or the other minor routs: alternative end joining pathways (A-EJs). Henceforth, defective NHEJ, HR or A-EJs push the hematologic cells toward the malignancy.
Methods: Current study has been conducted based on PRISMA checklist. To obtain corresponding English documentations, databases, SID, Medlib, Scopus, PubMed, Science direct, Cochrane, Web of Science, Springer, Online Library Wiley as well as search engine Google Scholar were searched with no time limit to February 2019. Searching, study selection, quality evaluation and data extraction have been done by two persons of researchers independently.
Discussion: Components of non-homologous end joining (either classical or alternative) pathways are the guards of the genome. Reduction, inhibition, dysfunction or even increases of these components cause genomic instability and subsequently cancer development and disease progression in hematologic cell lines. On the other hand, removing or targeting these genome guards in cancer cells can sensitize them to radiation or chemotherapy agents. The targeting studies are being widely hired and accomplished but there is a series of biological pitfalls, clinical issues and occasionally underlain limitations.
Conclusion: We conclude that a huge bulk of data is convergently in favor of targeting A-EJs especially in combination with irradiation, and other minor data are divergently concluded considering some pitfalls.
Keywords: Double-strand break; Double-strand break repair; Non-homologous end-joining; Alternative end joining pathways; Hematologic malignancies; Treatment

Biography

M. Valikhani has completed his MSc at the age of 27 years from Iran University of Medical Sciences. He has published some english and persian paper and books. Now, he has a research program on the agenda. Indeed, he has a holistic approach that he hopes to be practically performant to eradicate malignant cells in hematologic malignancies. Unfortunately, there are some sanctions against his country and he can't provide the needed materials. Therefore, he is starting to look through overseas' universities to find a fully funded scholarhip and he is glad to inform you that this is his first negotiation.

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