ABSTRACT

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Suicide gene therapy in cancer and HIV-1 infection: An alternative to conventional treatments.

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Suicide Gene Therapy (SGT) aims to introduce a gene encoding either a toxin or an enzyme making the targeted cell more sensitive to chemotherapy. SGT represents an alternative approach to combat pathologies where conventional treatments fail such as pancreatic cancer or the high-grade glioblastoma which are still desperately lethal. We review the possibility to use SGT to treat these cancers which have shown promising results in vitro and in preclinical trials. However, SGT has so far failed in phase III clinical trials thus further improvements are awaited. We can now take advantages of the many advances made in SGT for treating cancer to combat other pathologies such as HIV-1 infection. In the review we also discuss the feasibility to add SGT to the therapeutic arsenal used to cure HIV-1-infected patients. Indeed, preliminary results suggest that both productive and latently infected cells are targeted by the SGT. In the last section, we address the limitations of this approach and how we might improve it.

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