

Mathematical model of CAR-T therapy taking into account cells targeting off-tumour antigens

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In [1] two mathematical models of CAR-T (Chimeric Antigen Receptor T) cell therapy was presented. The results of this therapy against leukaemias and lymphomas was positive, but in the case of solid tumours, including glioblastoma the results were less optimistic. We will focus on the mathematical analysis of one of presented models, that takes into account CAR-T cells targeting no-tumour and off-tumour antigens. The system consist of four ordinary differential equations. In [1] only an initial dose of CAR-T cell treatment was considered. Basic mathematical properties of the model will be presented as well as an asymptotic dynamics of solutions will be discussed. Existence and global stability of periodic solution will be proved.

References

- [1] León-Triana O. et al. Dual-target car-ts with on- and off-tumour activity may override immune suppression in solid cancers: A mathematical proof of concept, 2021 *Cancers*, 2021 13(4), 2021.