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(54) Title: PROTEOGENOMIC-BASED METHOD FOR IDENTIFYING TUMOR-SPECIFIC ANTIGENS

(57) Abstract: T cells, notably CD8 T cells, are known to be essential players in tumor eradication as the presence of tumor-infiltrating lymphocytes (TILs) in several cancers positively correlates with a good prognosis. To eliminate tumor cells, CD8 T cells recognize tumor antigens, which are MHC I-associated peptides present at the surface of tumor cells, with no or very low expression on normal cells. Described herein a proteogenomic approach using RNA-sequencing data from cancer and normal-matched mTEC^{hi} samples in order to identify non-tolerogenic tumor-specific antigens derived from (i) coding and non-coding regions of the genome, (ii) non-synonymous single-base mutations or short insertion/deletions and more complex rearrangements as well as (iii) endogenous retroelements, which works regardless of the sample's mutational load or complexity.



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