# T cell rejuvenation after surgical debulking in patients with PDAC

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## Introduction

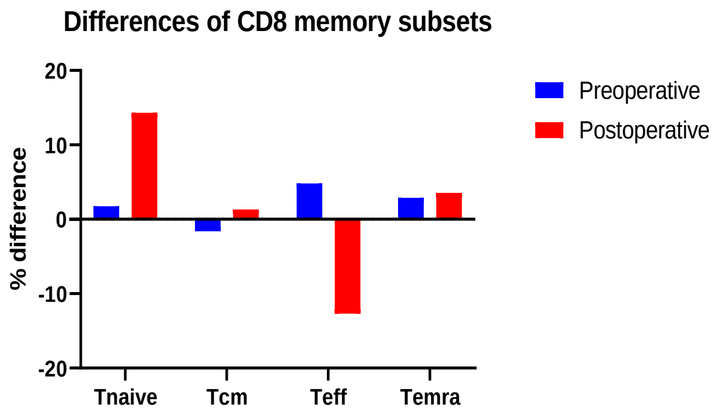
The aim of the current study was to investigate phenotypic differences under TCR stimulatory conditions in the T cells of PDAC patients before and after surgical removal of the primary tumor.

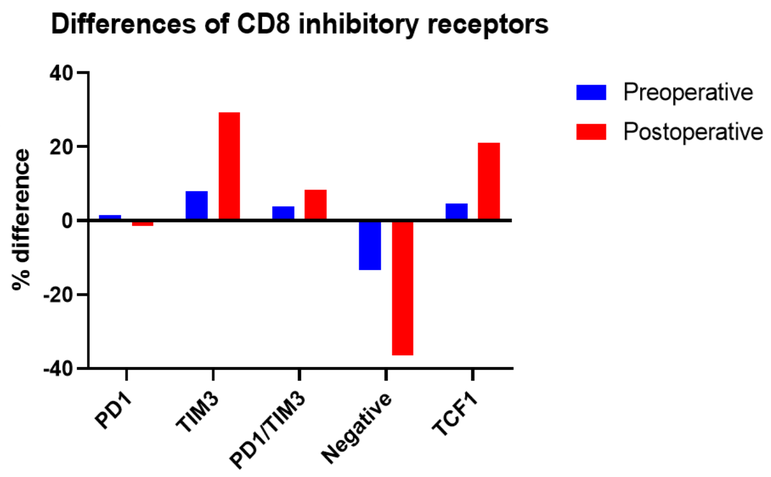
## Methods

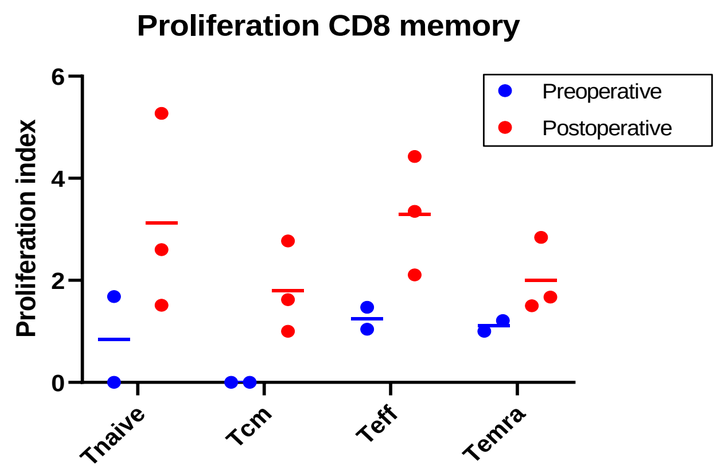
Preoperative and postoperative samples from patients with PDAC were provided by the PCRFTB (2019/09/QM/HK/P/Blood). Specimens were collected at Barts Health NHS trust.

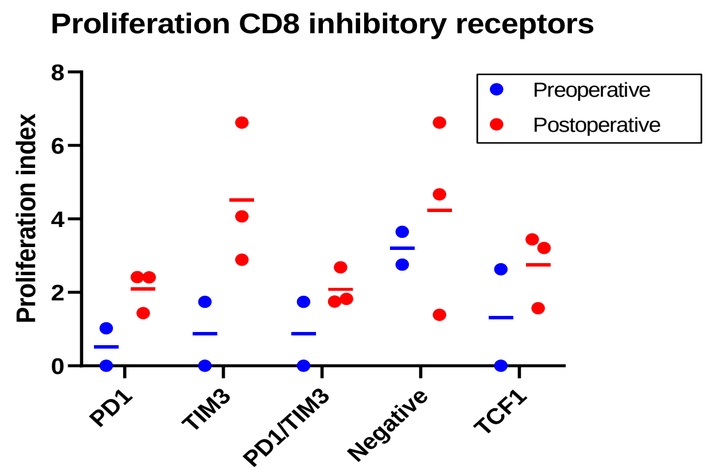
T cells were stained with fluorescent antibodies to characterize memory subsets (CD45RA, CCR7), inhibitory receptors (PD-1, TIM3) and the functional transcription factor TCF1. T cells were also stimulated in vitro with CD3/CD28 beads (Dynabeads, Gibco) to assess phenotypic changes and functional responses under T cell receptor (TCR) stimulatory conditions. The samples were acquired using a spectral flow cytometer (Cytek Aurora).

The analysis of the flow cytometry acquisition panels was performed using FCS Express (DeNovo Software 7th edition). Descriptive statistics were performed using GraphPad Prism (8th edition).

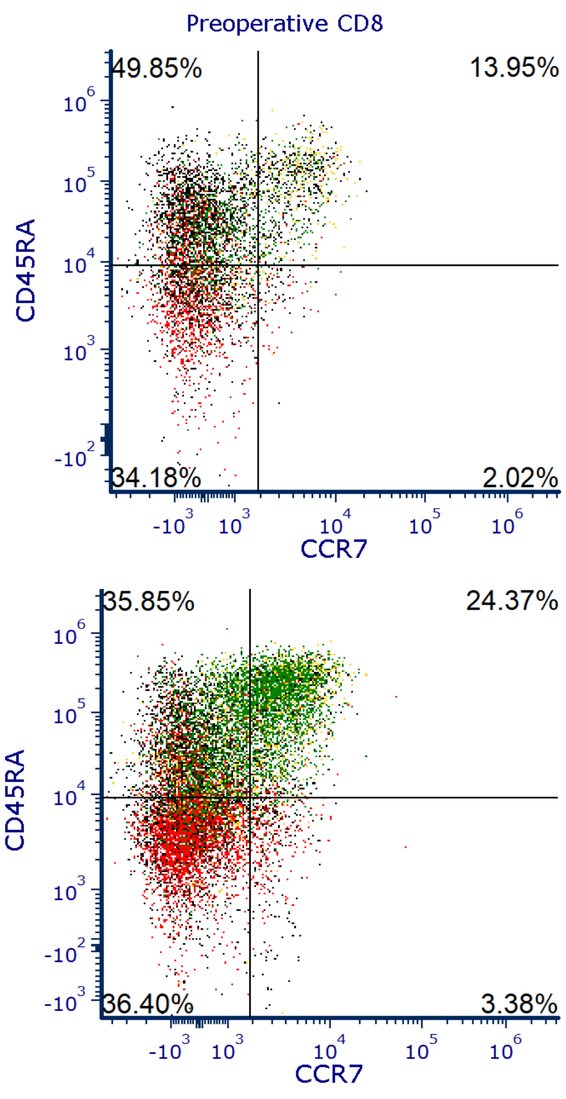


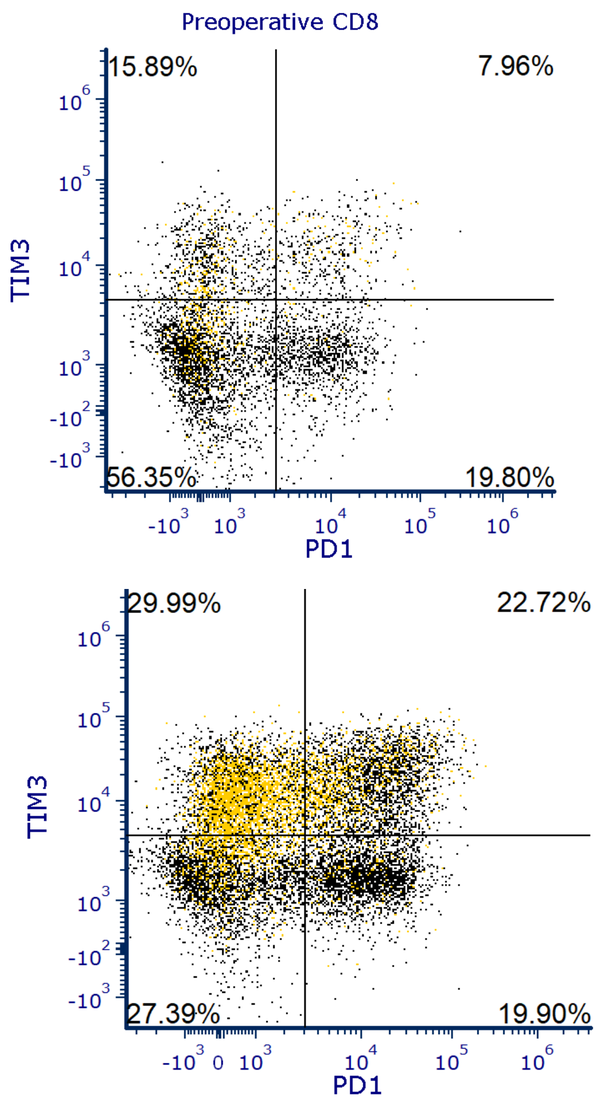




### Memory subsets




### Inhibitory receptors




TCF1 expression PD1 expression TIM3 expression

## Results

After TCR stimulation we observe a divergence to effector subsets in the preoperative samples compared to the postoperative samples which maintain a better equilibrium by increasing the naïve subset (CD45RA+CCR7+).

Similarly, after stimulation TIM3 expression is increased in postoperative samples rather than PD1 expression which is comparable pre and postoperatively.

Finally, we can see upregulation of TCF1 in the postoperative samples after stimulation which can explain the equilibrium maintenance in the postoperative samples and its co-expression in the TIM3 positive subset.

## Conclusion

The higher expression of TCF1 postoperatively along with increased maintenance of naïve and memory subsets by increased proliferation suggests systemic effects on T cell stimulation which might be attributed to the removal of pancreatic adenocarcinoma.