**Aim:** TG4010 immunotherapy product is a poxvirus (MVA) coding for MUC1 tumor-associated antigen and interleukin-2. Previous Phase 2 trials have demonstrated the safety and efficacy of TG4010 in combination with chemotherapy for the treatment of advanced NSCLC. In addition, a previous study showed that a normal level of Triple Positive Activated Lymphocytes (TrPAL, CD16 + CD56 + CD69+) at baseline might be a predictive biomarker for TG4010 efficacy.

**Methods:** TIME is a double-blind randomized phase 2b/3 study comparing the combination of first-line chemotherapy with TG4010 or placebo (NCT01383148). Phase IIB part objective is to validate the TrPAL biomarker with a Bayesian approach. Primary endpoint is PFS according to RECIST 1.1; secondary objectives are response rate (RR), safety, overall survival (OS) and subgroup analyses.

**Results:** At the time of this analysis, 221 patients were enrolled out of which 170 had a normal TrPAL level at baseline. The analysis of PFS was conducted after 144 events of progression in this cohort: the hazard ratio (HR) was 0.74 (95% CI:0.53-1.02) which corresponds to a 98.6% Bayesian probability that the true HR is <1, passing the threshold of 95% necessary to meet the efficacy endpoint in patients with normal TrPAL. When looking at the 75% of patients with the lowest baseline level of TrPAL at screening (n = 152) PFS analysis shows a HR of 0.66 (95% CI: 0.46-0.96, p = 0.014). Sub-group analysis in patients with non-squamous tumors show also a statistically significant improvement in PFS when treated with TG4010 (n = 195, HR = 0.71; CI: 0.51-0.97; p = 0.016). In the whole study population RR was 39.1% with TG4010 versus 28.8% with placebo (p = 0.03). OS data will be presented at the time of the meeting.