## Suppl. Fig. Legends:

**Suppl. Fig. 1:** (A) The bar plot shows the distribution of the three CRP kinetics subgroups in the CIO NSCLC cohort (left) and conceptual representation of early CRP kinetics determined at indicated time points (right). (B) Progression-free survival (PFS) and overall survival (OS) after ICB initiation stratified according to CRP kinetics groups in the retrospective CIO NSCLC cohort.

**Suppl. Fig. 2:** Kaplan-Meier survival curves showing overall survival (OS) after ICB initiation stratified by early on-treatment CRP kinetics for the CIO NSCLC discovery cohort (upper panel) and IMIT NSCLC validation cohort (lower panel) for the two major histological subtypes adenocarcinoma (A+C) and squamous cell carcinoma (B+D).

**Suppl. Fig. 3:** Kaplan-Meier survival curves showing the progression-free (PFS, A) and overall survival (OS, B) after ICB initiation stratified until week 4 according to early on-treatment CRP kinetics for the first line anti-PD-1 monotherapy subgroup of the IMIT NSCLC validation cohort.

**Suppl. Table 1:** Comparison of baseline parameters between CRP flare-responders, CRP responders and CRP non-responders in the CIO NSCLC discovery cohort.

**Suppl. Table 2**: Univariable Cox regression analysis regarding progression-free and overall survival after immunotherapy start in the CIO NSCLC discovery cohort.

**Suppl. Table 3:** Univariable Cox regression analysis of concurrent medication (chemotherapy or steroid) and line of therapy regarding progression-free and overall survival after immunotherapy start in the IMIT NSCLC validation cohort.

**Suppl. Table 4:** Univariable Cox regression analysis of concurrent medication (chemotherapy or steroid) and line of therapy regarding progression-free and overall survival after immunotherapy start in the CIO NSCLC discovery cohort.