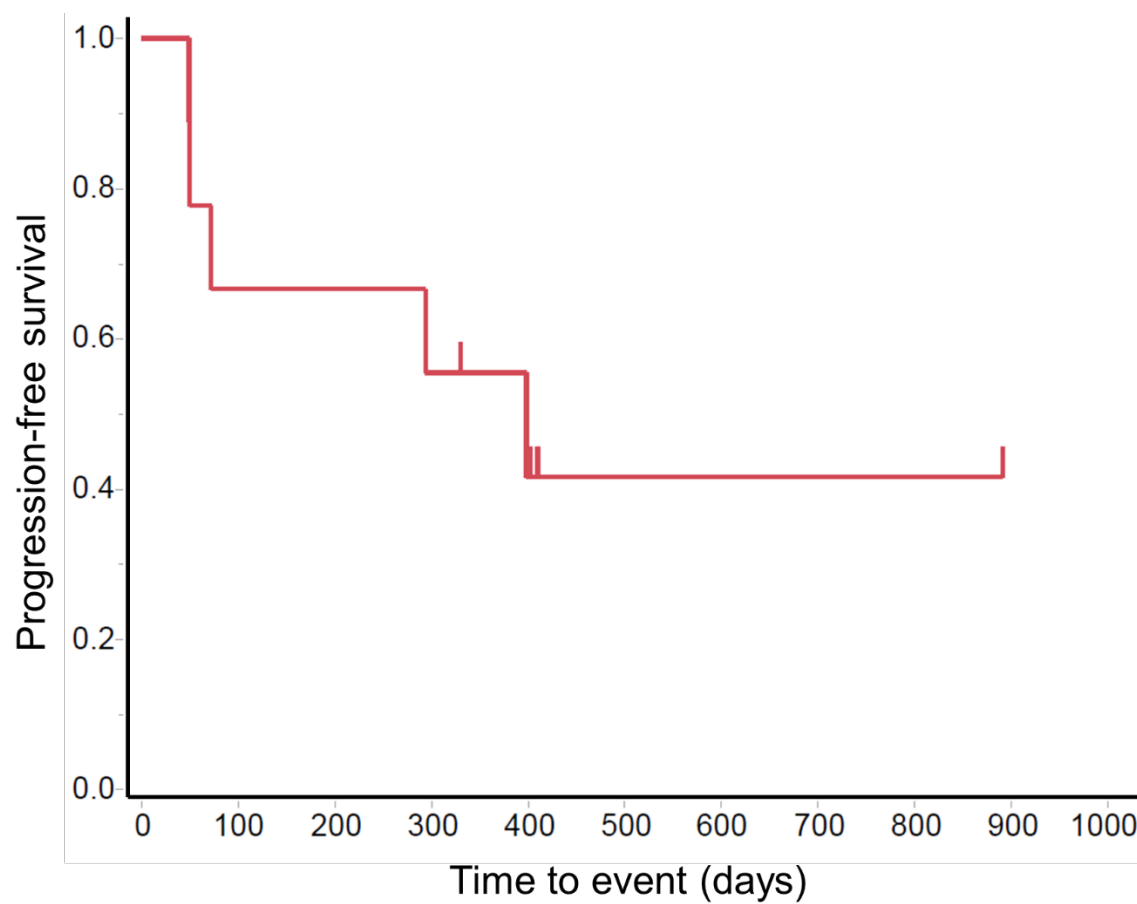


### Supplementary Figure S1.

Kaplan–Meier curves for progression-free survival (PFS).

PFS was defined as the time from enrollment to documented disease progression or death due to any cause. Median PFS was 398 days

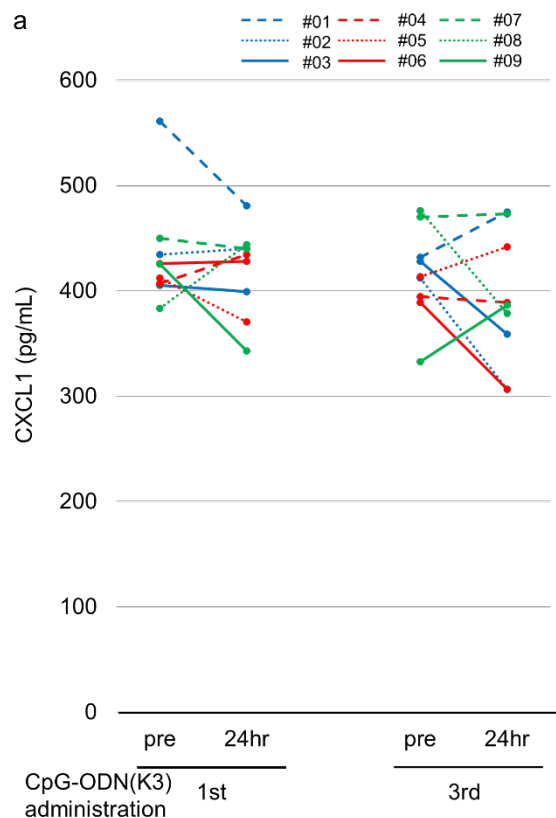


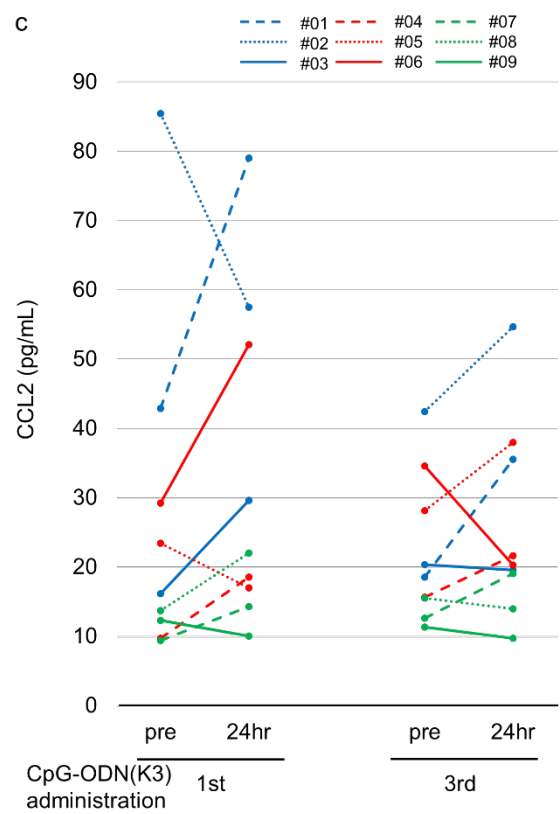
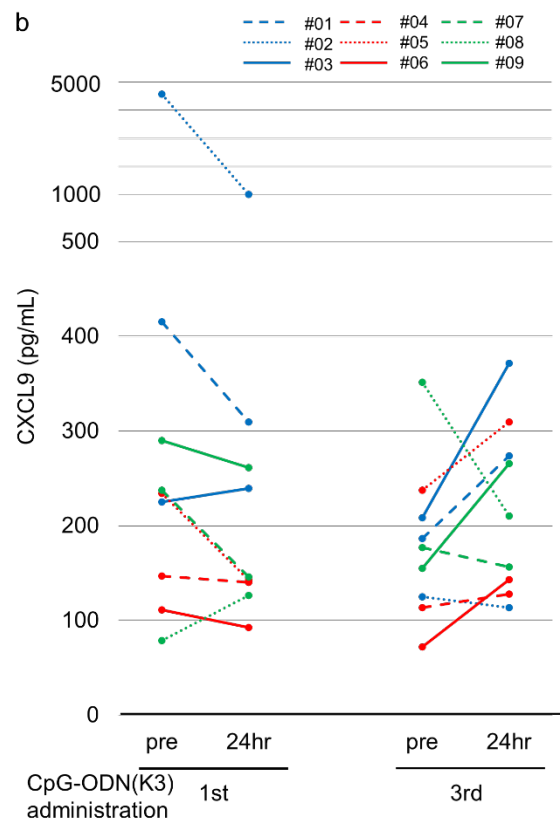
## Supplementary Figure S2. Analysis of chemokines and cytokines.

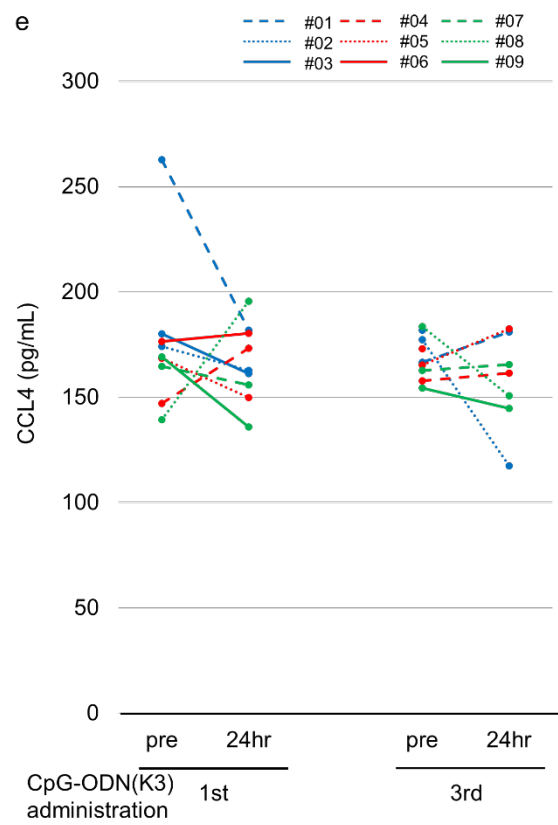
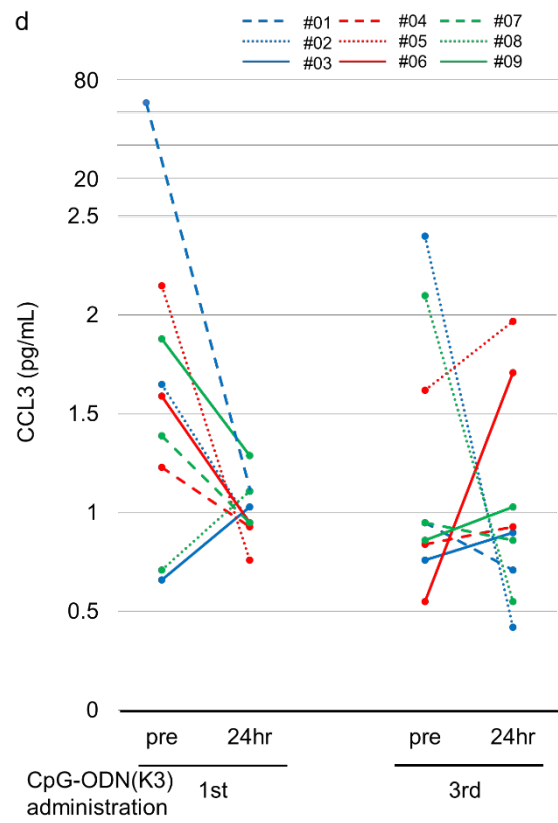
The serum levels of several chemokines and cytokines were analyzed using BioPlex. Serum was collected before and 24 h after the first and third administration of CpG ODN (K3).

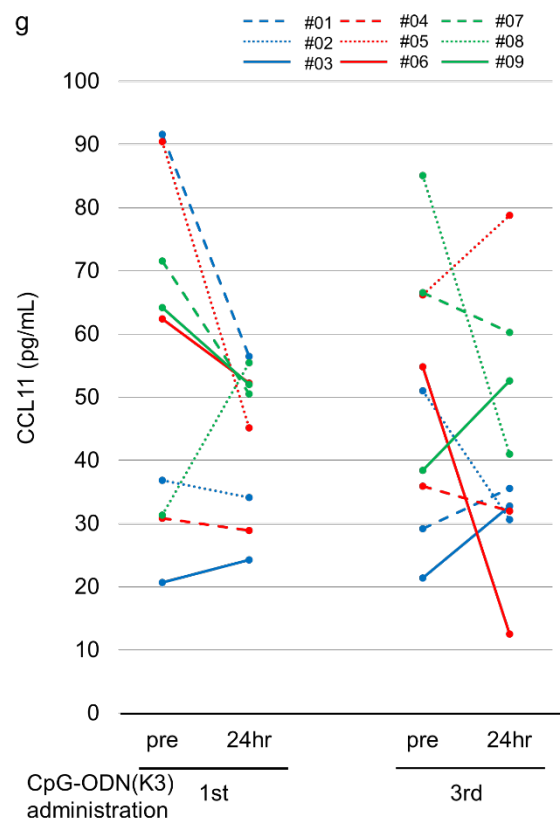
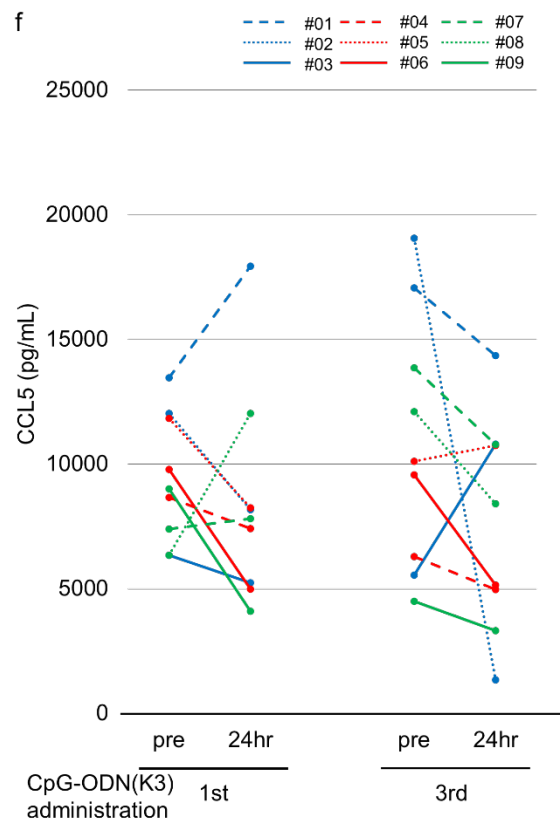
**a.** CXCL1. **b.** CXCL9. **c.** CCL2. **d.** CCL3. **e.** CCL4. **f.** CCL5. **g.** CCL11. **h.** CCL27. **i.** IL-1 $\alpha$ . **j.** IL-1 $\beta$ . **k.** IL-1Ra. **l.** IL-2R $\alpha$ . **m.** IL-4. **n.** IL-6. **o.** IL-8. **p.** IL-9. **q.** IL-10. **r.** IL-13. **s.** IL-16. **t.** IL-17. **u.** IL-18. **v.** TRAIL. **w.** FGF-basic. **x.** M-CSF. **y.** PDGF-bb. **z.** TNF- $\beta$ . **aa.** HGF. **ab.** MIF. **ac.**  $\beta$ -NGF. **ad.** SCF. **ae.** SCGF- $\beta$ . **af.** SDF-1 $\alpha$ . **ag.** VEGF.

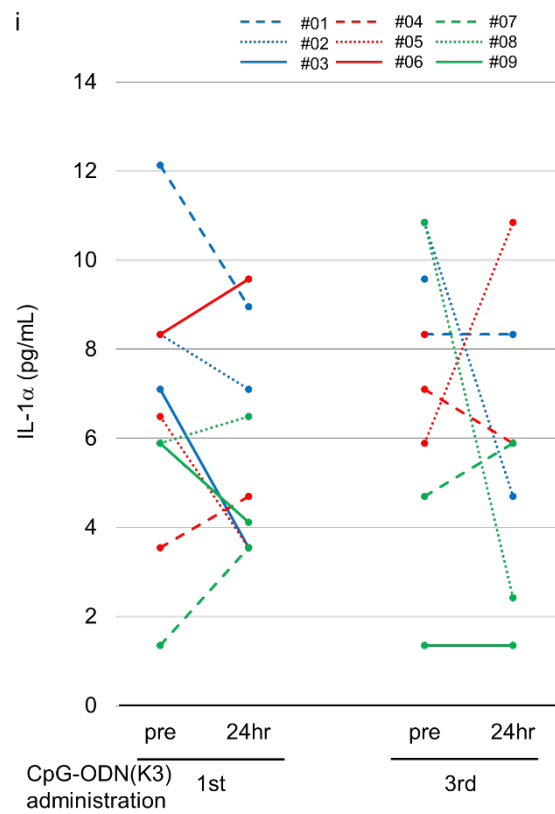
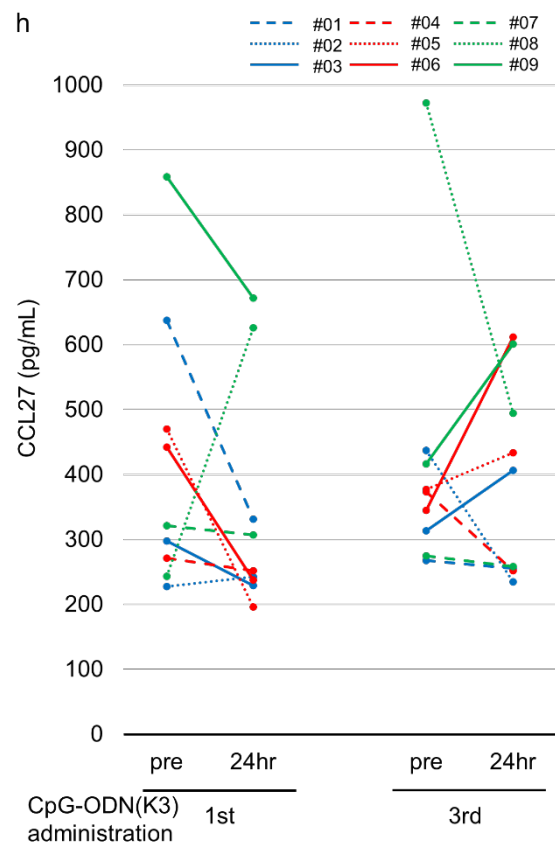
The data of CCL7, IL-2, IL-3, IL-5, IL-7, IL-12 (p70), IL-12 (p40), IL-15, G-CSF, GM-CSF, and LIF were not shown because the majority of results were less than the lower limit of quantification. Line graphs represents the change in chemokines and cytokines in each patient. Blue lines: dose level 0, Red line: dose level 1, and Green line: dose level 2

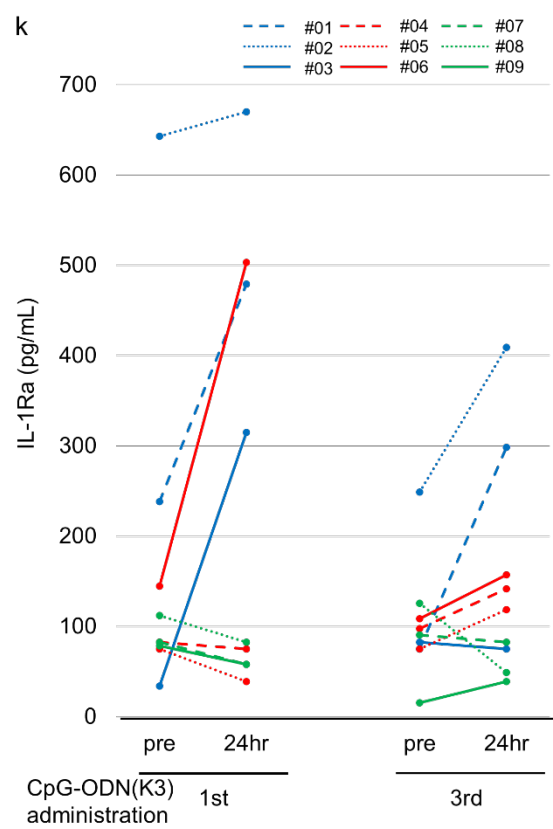
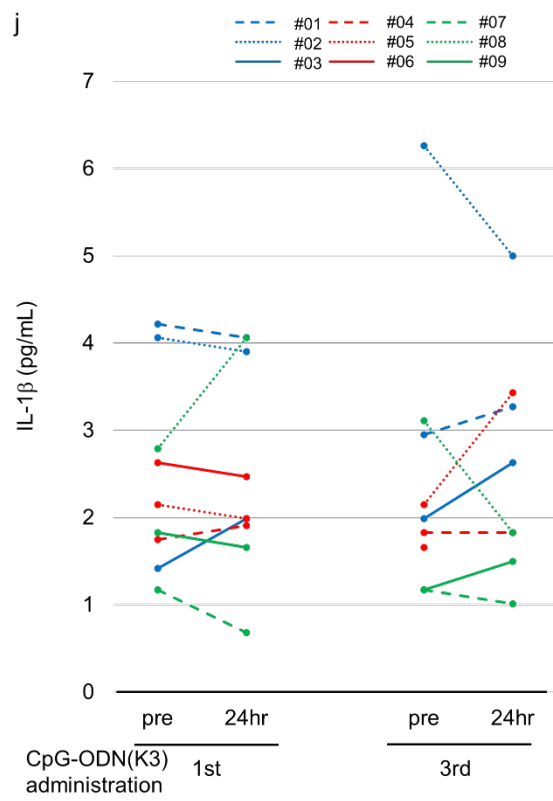


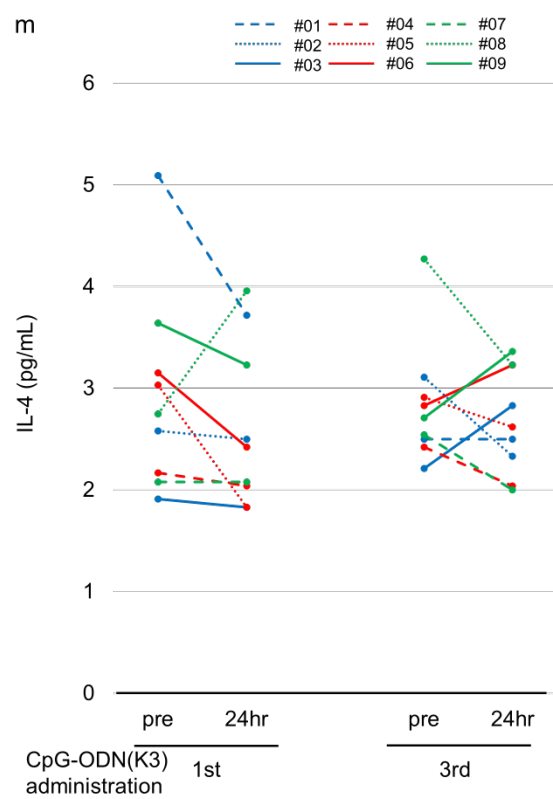
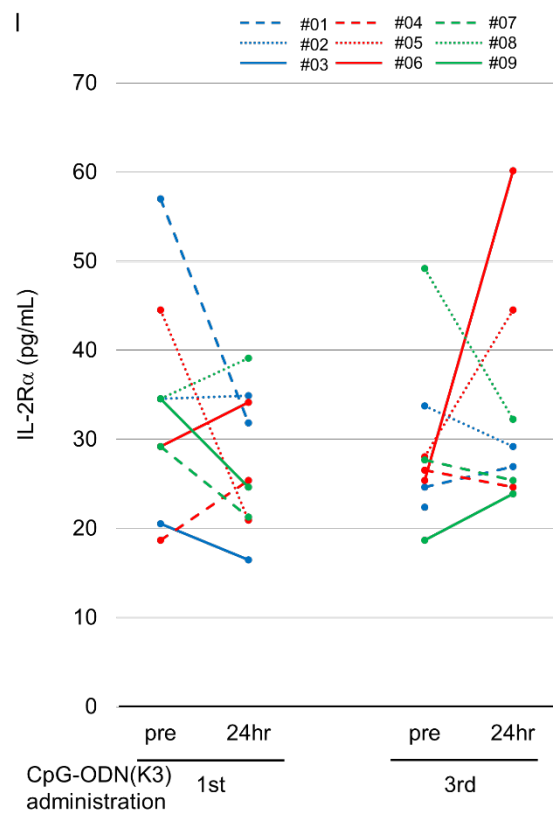


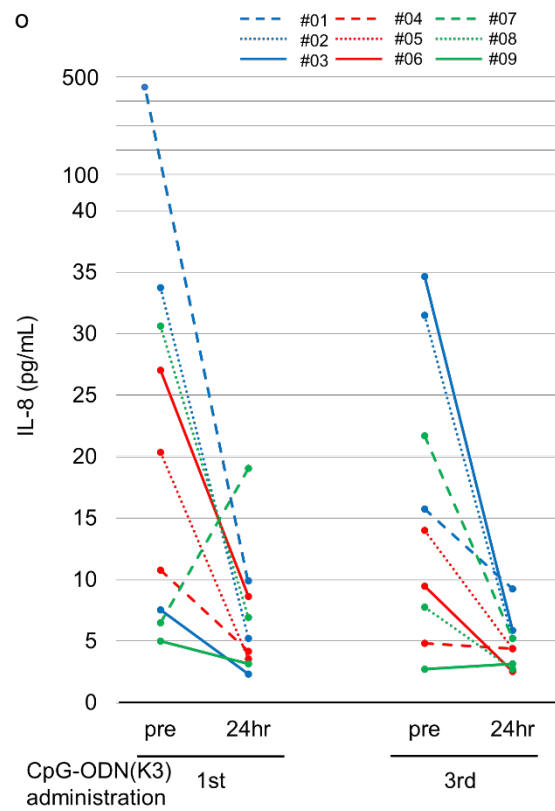
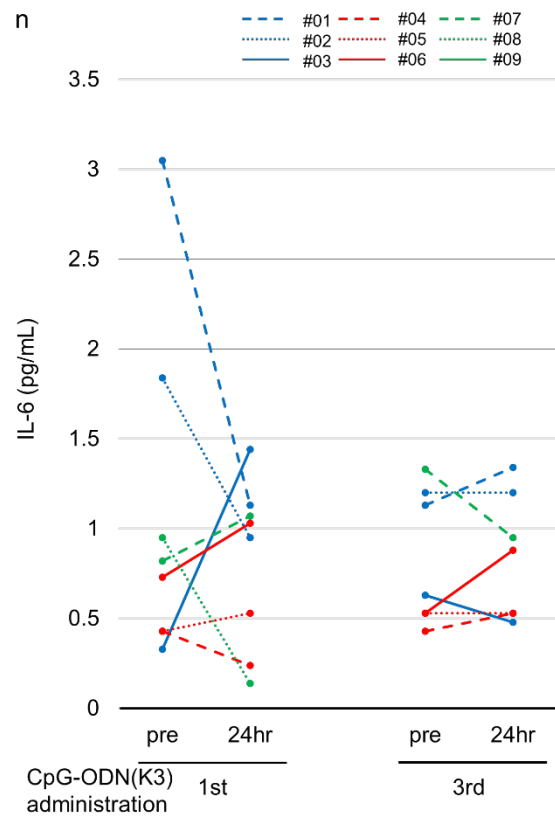


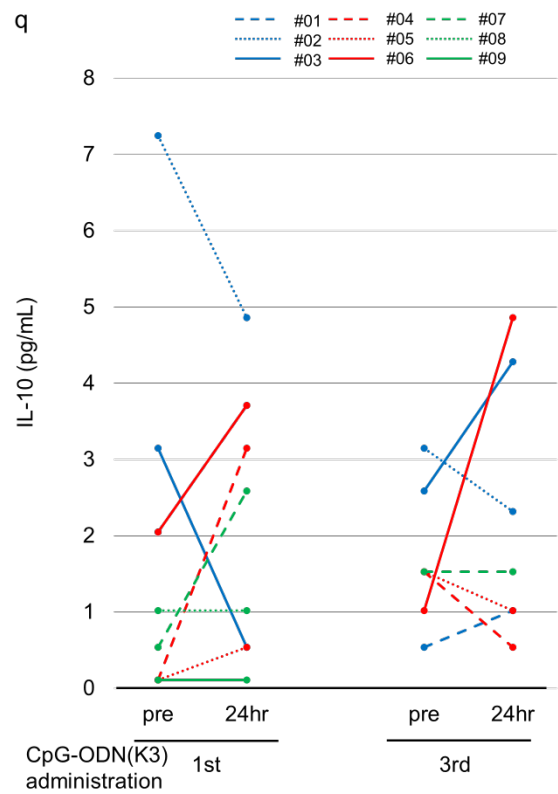
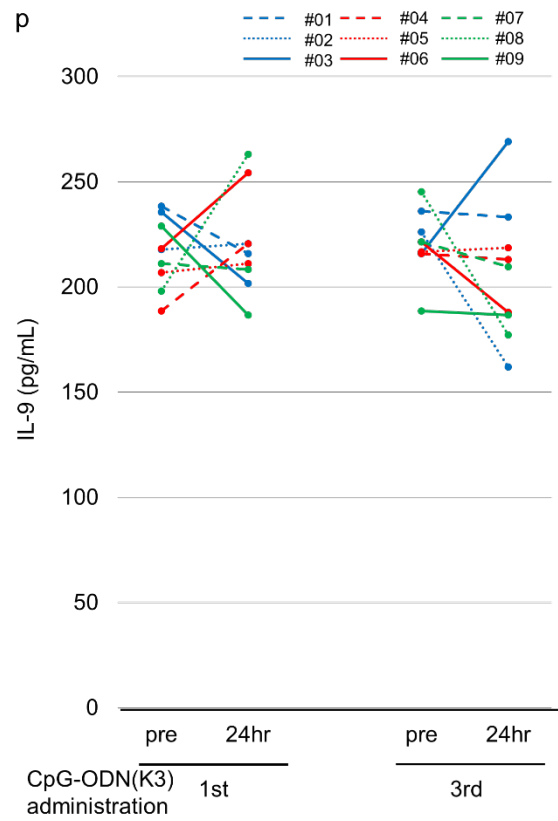


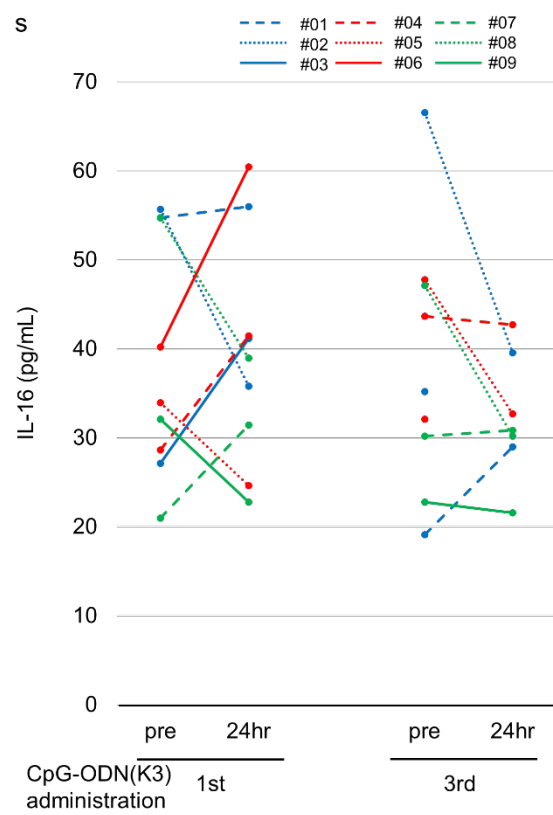
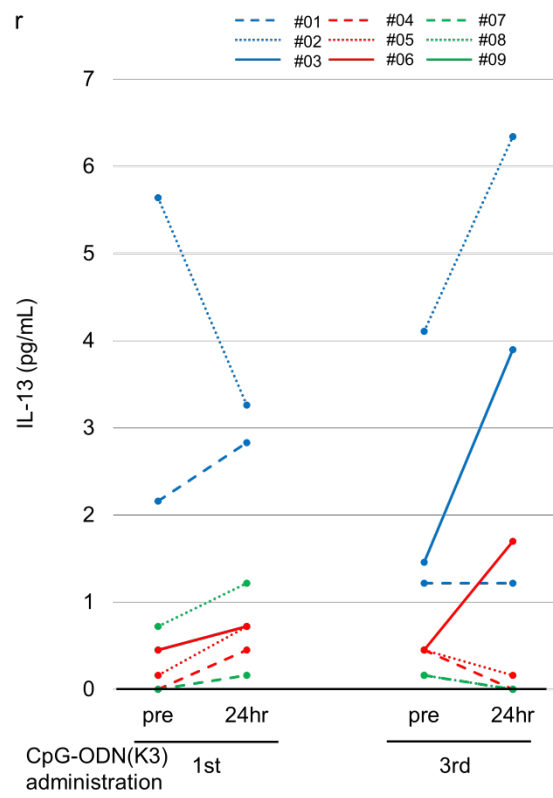


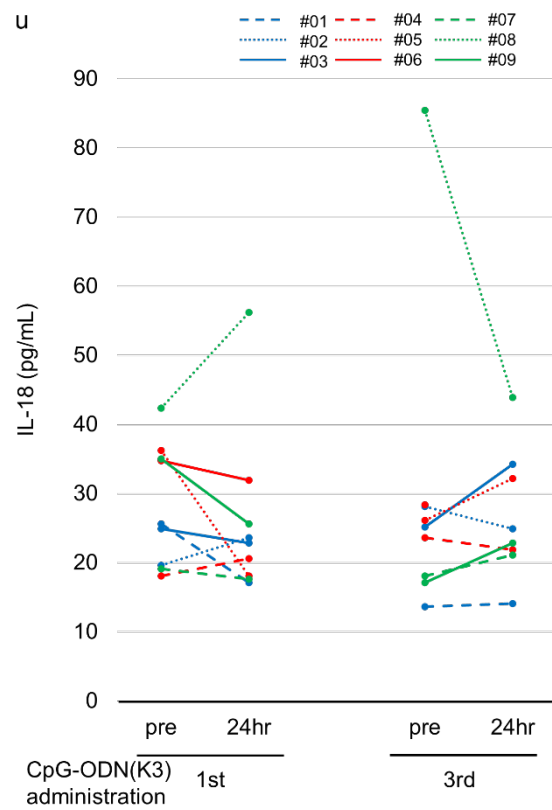
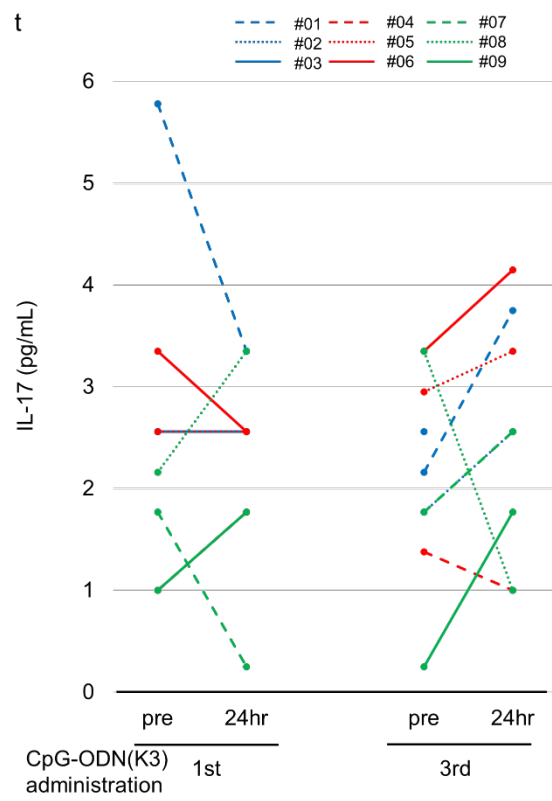


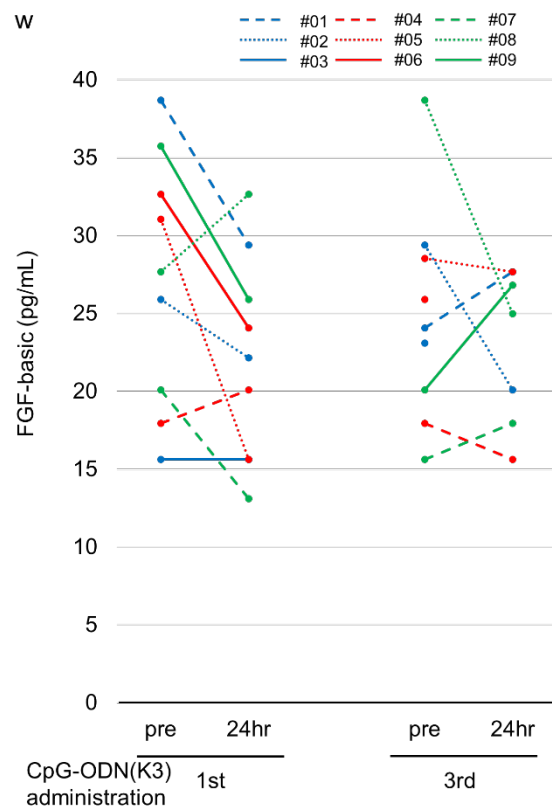
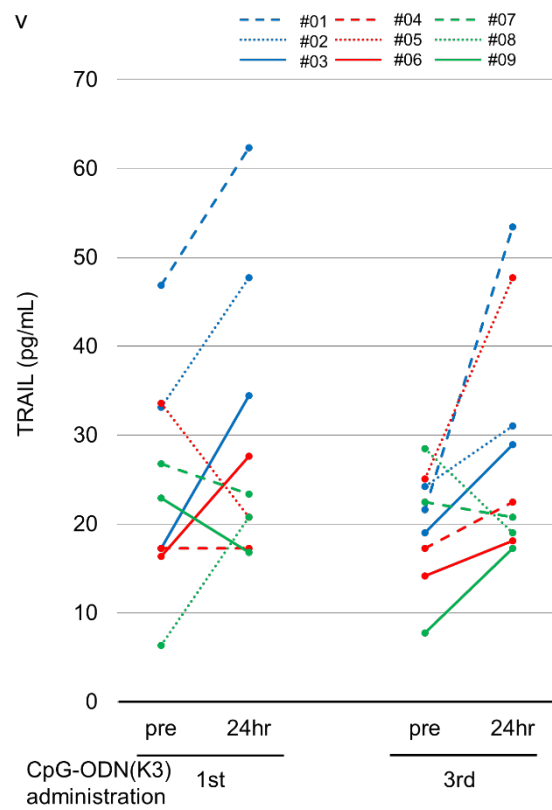


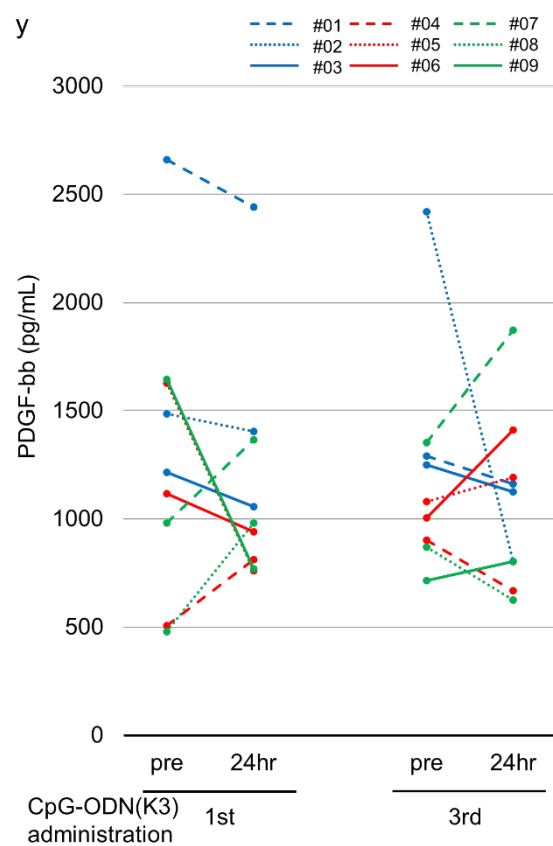
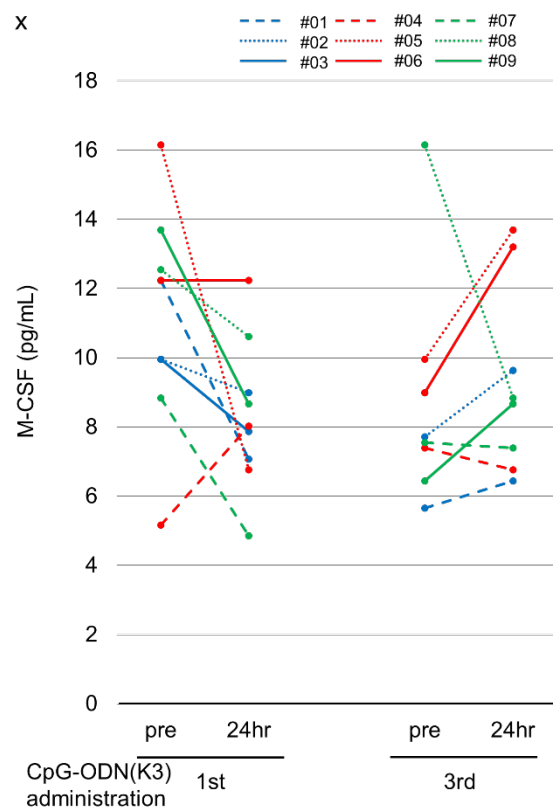


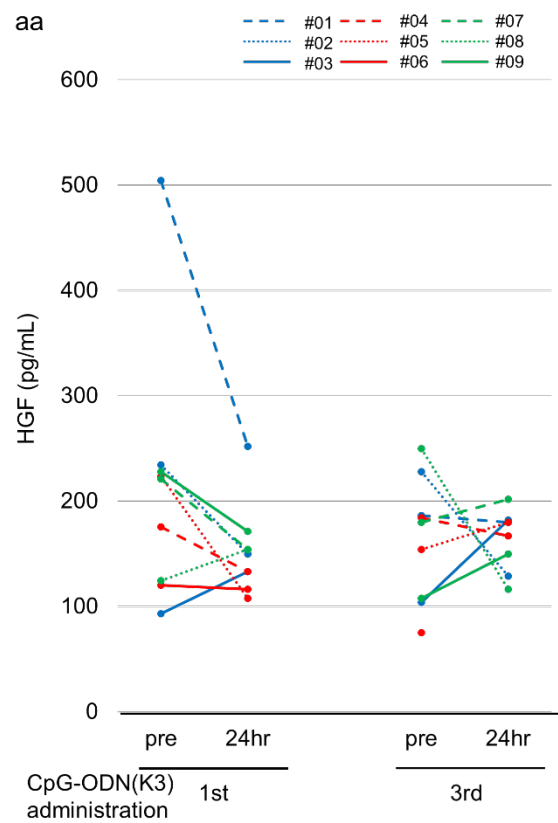
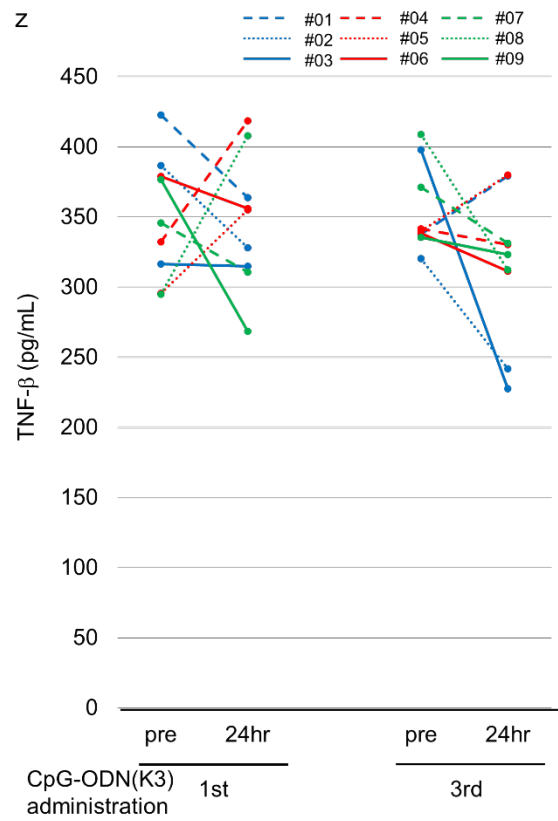


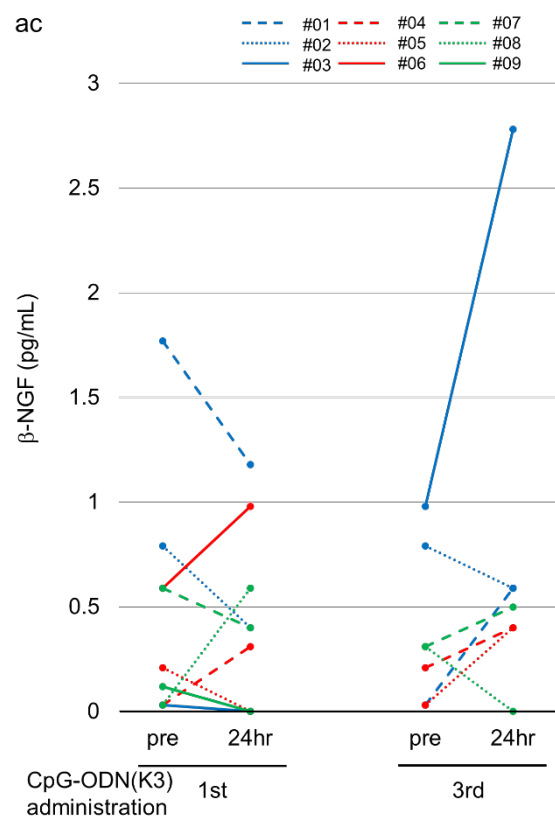
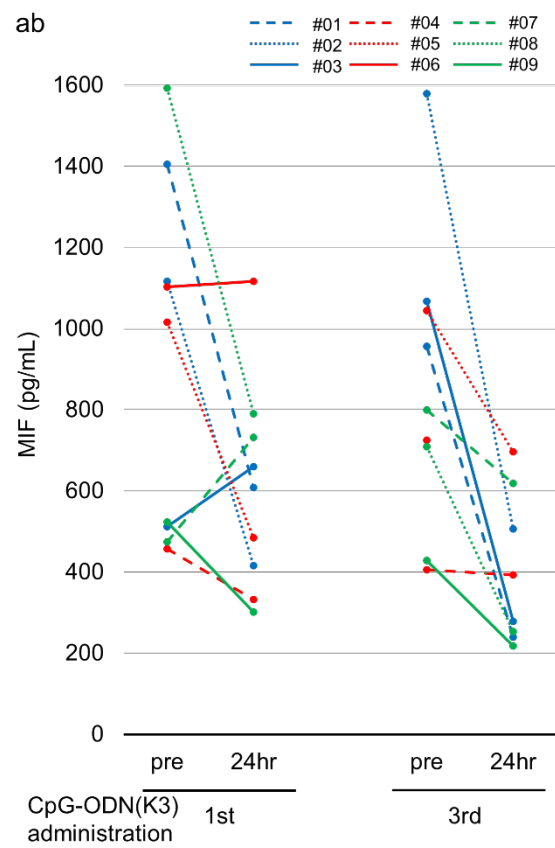


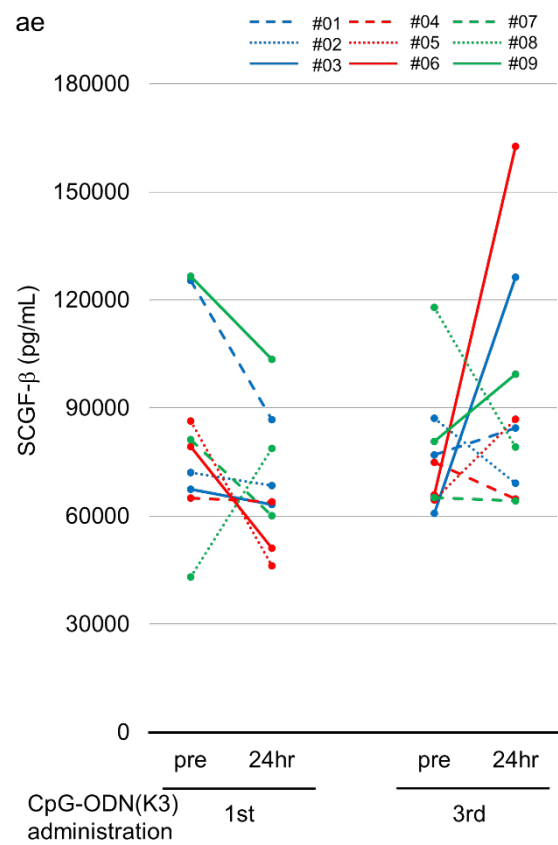
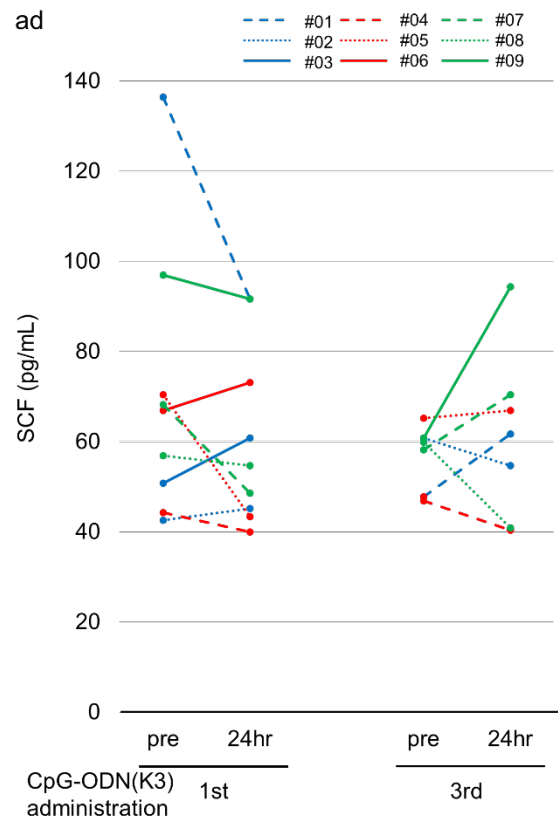


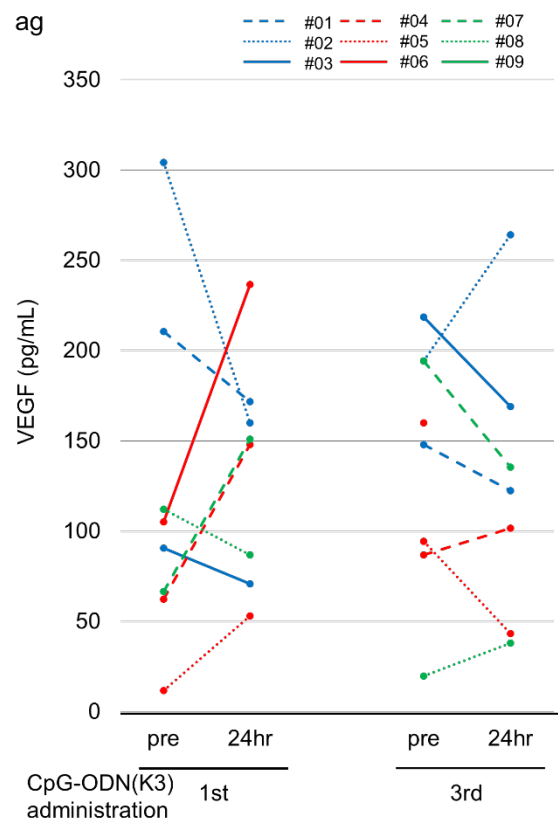
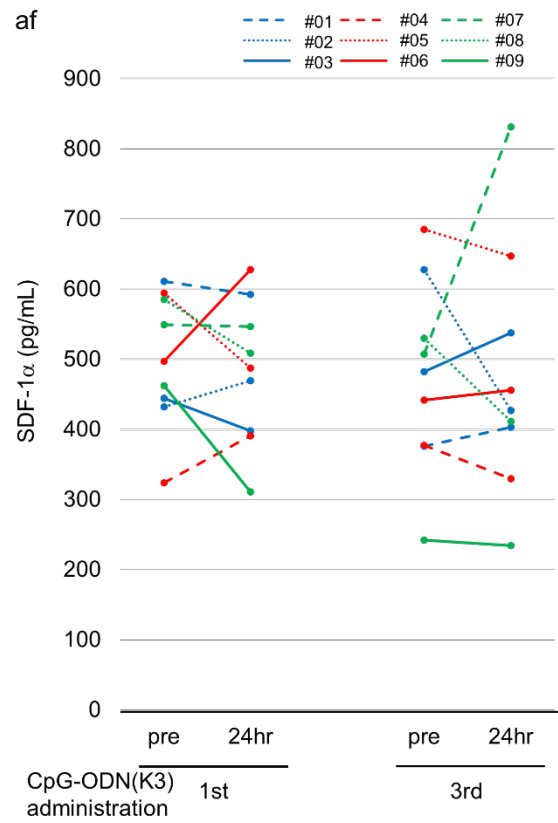






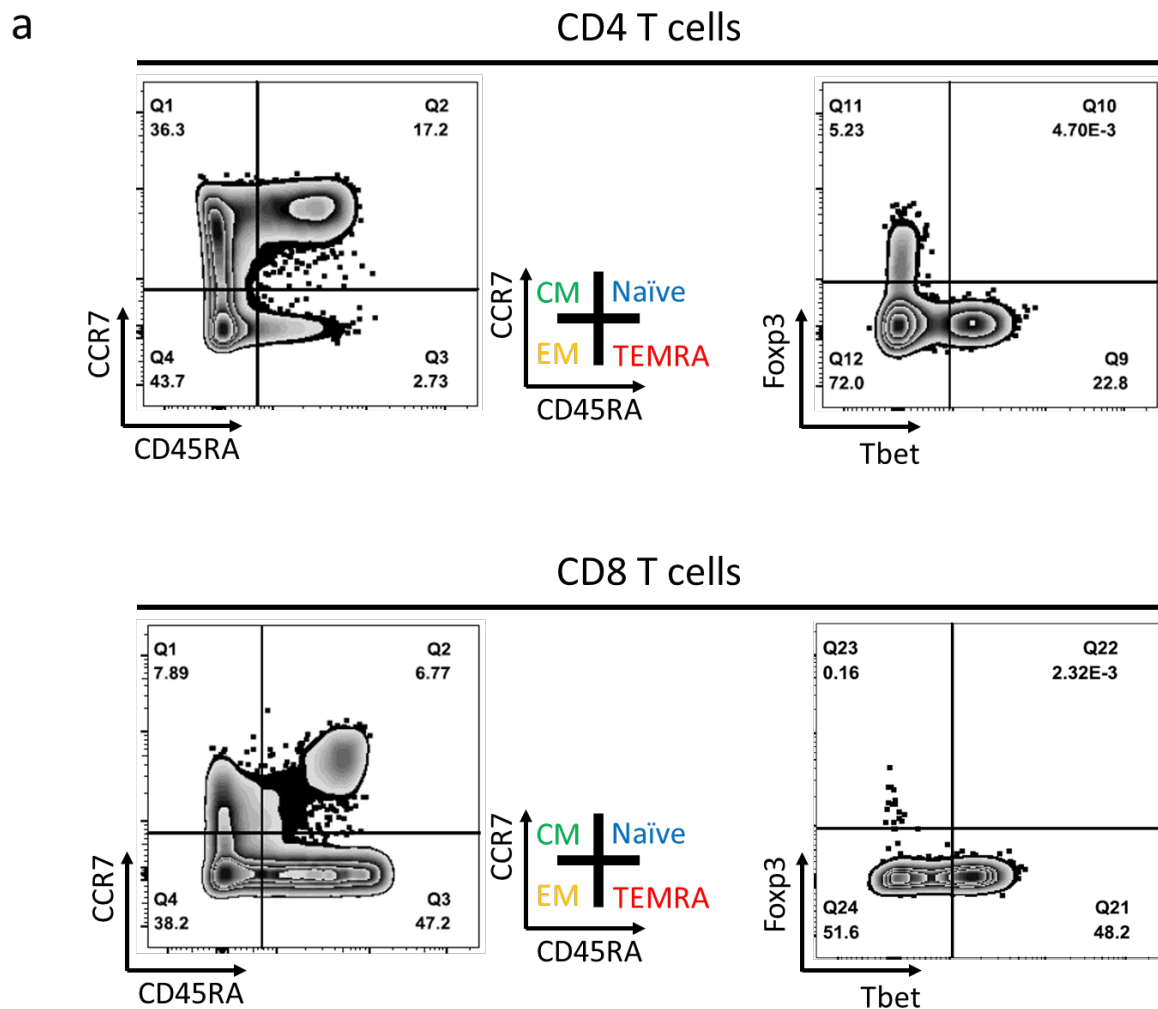






**Supplementary Figure S3.** Gating strategy for immune phenotyping and functional characteristics of T cells.

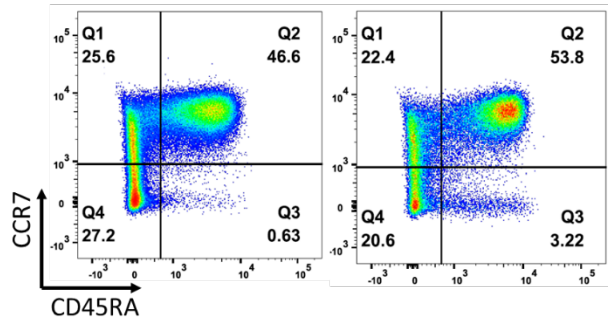
**a.** CD4<sup>+</sup> and CD8<sup>+</sup> T cell subpopulations were determined based on CCR7 and CD45RA expression: naïve (CCR7+CD45RA+), central memory (CM) (CCR7+CD45RA-), effector memory (EM) (CCR7-CD45RA-), and terminally differentiated effector memory (TEMRA) (CCR7-CD45RA+) cells. Analysis of functional characteristics in CD4<sup>+</sup> T cells. Th1 T cells and regulatory T cells in CD4<sup>+</sup> T cells were gated based on T-bet or Foxp3 expression. Analysis of T-bet expression in CD8<sup>+</sup> T cells. **b.** Results of the analyses of immune phenotypes and functional characteristics with PBMCs collected from two healthy subjects



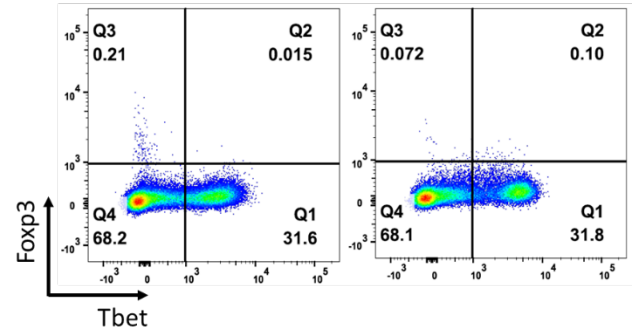
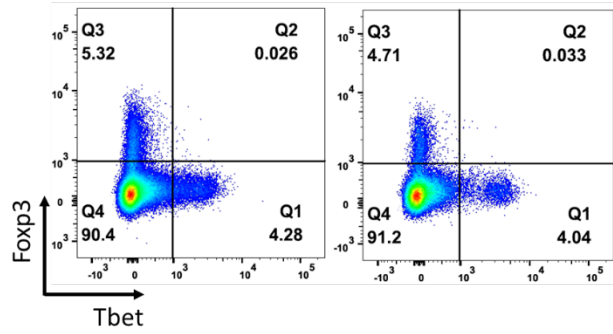
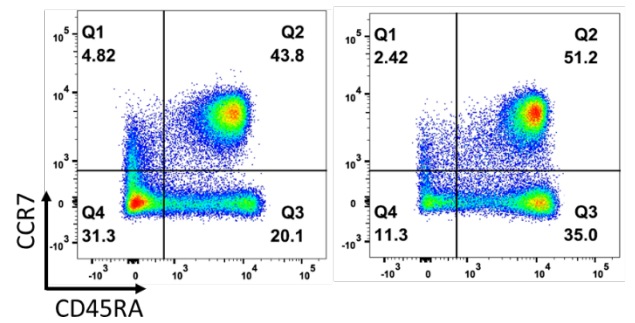
b

# Healthy Subjects

## CD4 T cells



## CD8 T cells



**Supplementary Figure S4.** Foxp3 expression in effector memory of CD4<sup>+</sup> T cells in individual cases.

At baseline, patients with T-bet predominance (**left**), T-bet / Foxp3 equivalent (**middle**), and Foxp3 predominance (**right**) in CD4<sup>+</sup> T cells were classified into groups 1, 2, and 3, respectively. Blue lines, dose level 0; red lines, dose level 1; and green lines, dose level 2

