



**Supplementary Fig. 4**

The MSigDB Hallmark gene sets “Interferon alpha response” and “Interferon gamma response” show statistically significant, concordant up-regulation between the V3 and V1 sampling times for the vitamin D<sub>3</sub> treatment group in the WE cohort (adjusted p-values 9.36e-15 and 1.59e-11, respectively). a) Leading edge, core genes accounting for the enrichment signals in the gene set enrichment analysis of the D<sub>3</sub> data. b) Heatmap showing the log<sub>2</sub> fold change between V3 and V1 for each gene identified in a), for all the treatment groups in both the SA and WE cohorts (P = placebo, D<sub>2</sub> = vitamin D<sub>2</sub>, D<sub>3</sub> = vitamin D<sub>3</sub>). Gene membership of the Hallmark interferon alpha and gamma response gene sets is indicated to the right. Genes shared between both sets are labelled “alpha & gamma”. Gene PARP14 and ISG20 belong to both sets, but are leading edge genes only for the alpha response.