



**Supplementary Figure S3. Correlations between metagenomic pathways and the features of cytokine and lymphocytes during the vaccination process of SARS-CoV-2 to highlight their relationship.** Correlations between (a) 1CMET2-PWY: N10-formyl-tetrahydrofolate biosynthesis and Eos; (b) BRANCHED-CHAIN-AA-SYN-PWY: superpathway of branched amino acid biosynthesis and CD3; (c) PWY-7228: superpathway of guanosine nucleotides de novo biosynthesis I and IFN; (d) PWY0-1319: CDP-diacylglycerol biosynthesis II and CD3CD7; (e) PWY-7222: guanosine deoxyribonucleotides de novo biosynthesis II and CD3CD4CD8, and (f) PWY-3001: superpathway of L-isoleucine biosynthesis I and IL-2.