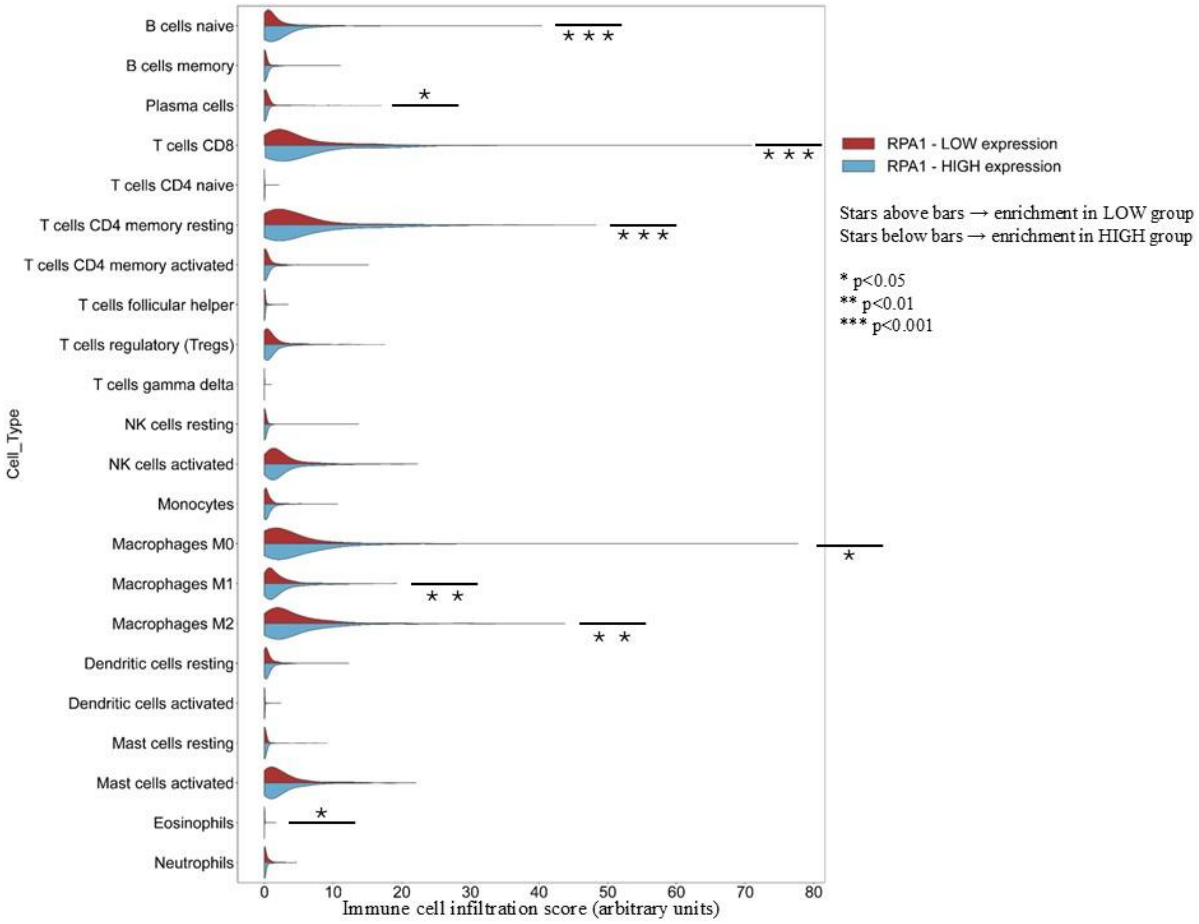
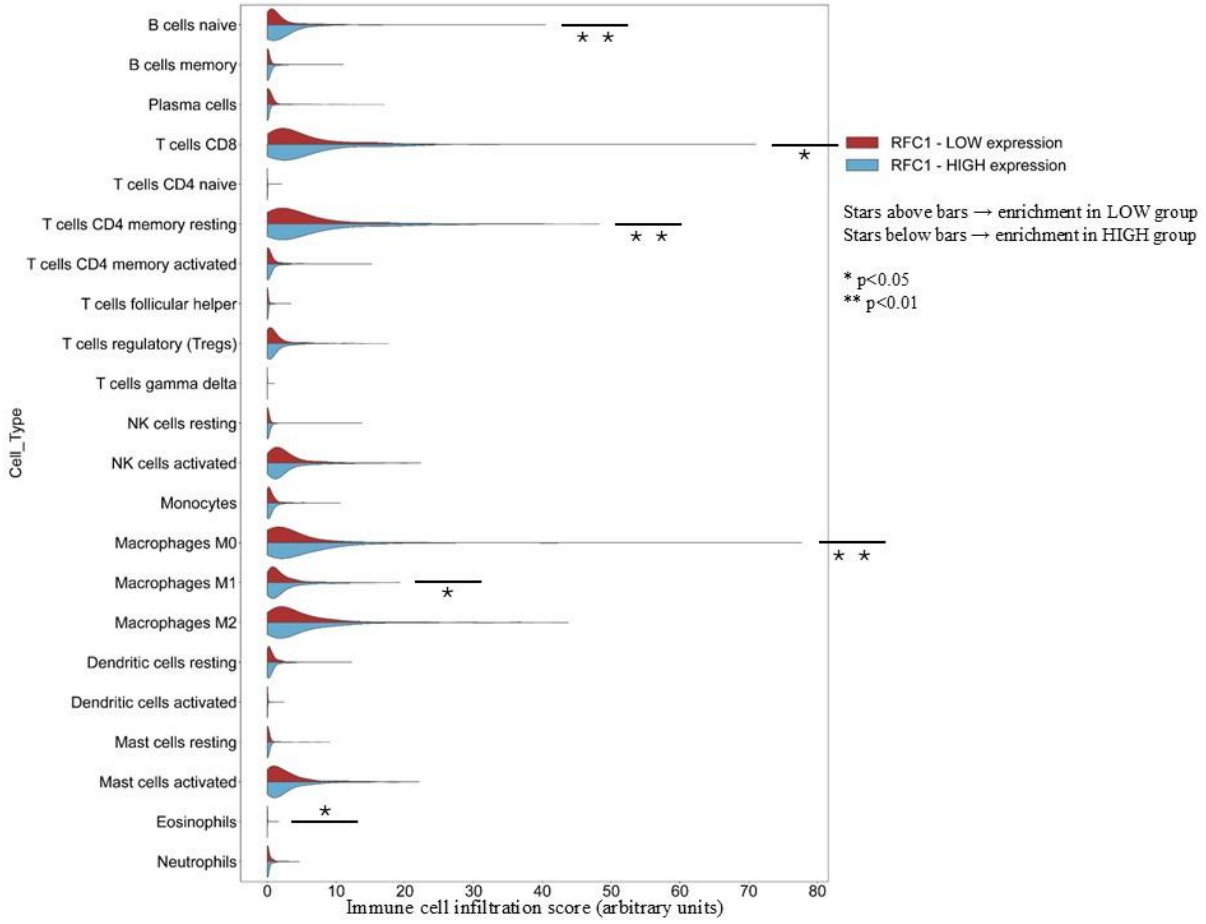
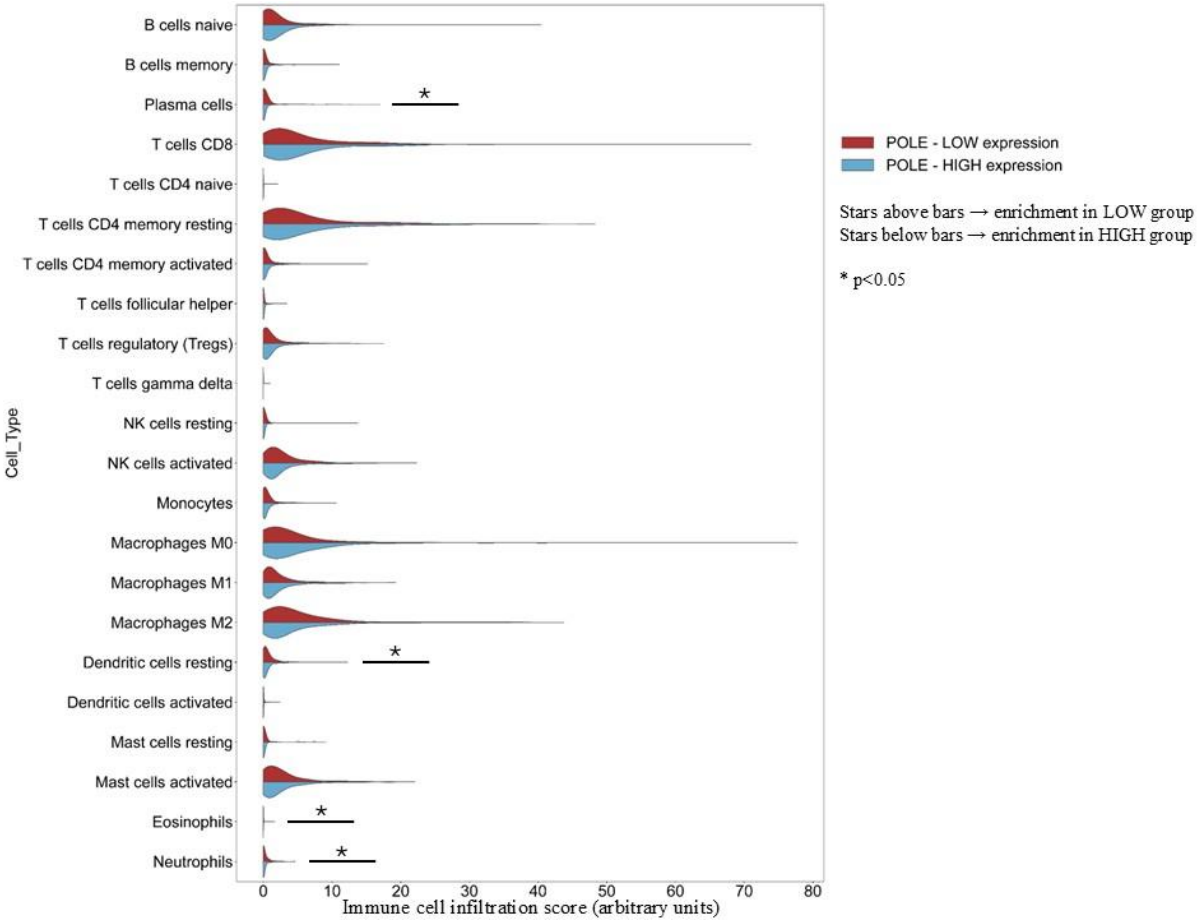
Supplementary figure 1. Immune cell infiltration in the TCGA colorectal cancer cohort according to *RPA1* mRNA expression. Comparison of immune cell infiltration scores between tumors with low and high *RPA1* expression in the combined TCGA COAD and READ cohort. Statistically significant differences are indicated by asterisks (p<0.05, p<0.01, p<0.001).



Supplementary figure 2. Immune cell infiltration in the TCGA colorectal cancer cohort according to *RFC1* mRNA expression. Comparison of immune cell infiltration scores between tumors with low and high *RFC1* expression in the combined TCGA COAD and READ cohort. Statistically significant differences are indicated by asterisks (p<0.05, p<0.01).



Supplementary figure 3. Immune cell infiltration in the TCGA colorectal cancer cohort according to *POLE* mRNA expression. Comparison of immune cell infiltration scores between tumors with low and high *POLE* expression in the combined TCGA COAD and READ cohort. Statistically significant differences are indicated by asterisks ($p<0.05$).



Supplementary table 1. Correlations between RFC1, RPA1, and POLE expression and immune checkpoint molecules in colorectal adenocarcinoma cohorts from TCGA.

Gene_Cohort	*PDCD1*	*CD274*	*CTLA4*	*LAG3*	*TIGIT*	*HAVCR2*	*VSIR*
RPA1_COAD	0.289	0.291	0.259	**0.300**	0.278	**0.326**	0.261
RFC1_COAD	0.084	0.239	0.217	0.072	0.293	0.180	0.053
POLE_COAD	0.173	0.067	0.147	0.176	0.144	-0.087	0.002
RPA1_READ	0.044	0.181	0.103	0.050	0.148	0.013	-0.014
RFC1_READ	-0.067	0.243	0.126	-0.053	0.265	0.110	-0.213
POLE_READ	0.135	0.229	0.226	0.235	0.180	0.010	0.041

The table presents Spearman's rank correlation coefficients (rho) between RFC1, RPA1, and POLE expression and selected immune checkpoint genes in colon adenocarcinoma (COAD) and rectal adenocarcinoma (READ) cohorts from The Cancer Genome Atlas (TCGA). PDCD1: programmed cell death protein 1 (PD-1); CD274: programmed death-ligand 1 (PD-L1); CTLA4: cytotoxic T-lymphocyte-associated protein 4; LAG3: lymphocyte activation gene 3; TIGIT: T cell immunoreceptor with Ig and ITIM domains; HAVCR2: hepatitis A virus cellular receptor 2 (TIM-3); VSIR: V-domain Ig suppressor of T cell activation (VISTA). Statistically significant correlations are highlighted.

Supplementary table 2. Correlations between RFC1, RPA1, and POLE expression and functional immune markers in colorectal adenocarcinoma cohorts from TCGA.

Gene_Cohort	*PRF1*	*CXCL9*	*IFNG*	*GMZB*
RPA1_COAD	**0.343**	**0.301**	0.229	0.116
RFC1_COAD	0.175	0.233	0.194	0.100
POLE_COAD	0.149	0.057	0.129	0.114
RPA1_READ	0.009	0.151	0.084	0.038
RFC1_READ	-0.091	0.146	0.125	0.032
POLE_READ	0.058	0.063	0.114	-0.020

The table presents Spearman's rank correlation coefficients (rho) between RFC1, RPA1, and POLE expression and selected functional immune markers in colon adenocarcinoma (COAD) and rectal adenocarcinoma (READ) cohorts from The Cancer Genome Atlas (TCGA). PRF1: perforin 1; CXCL9: C-X-C motif chemokine ligand 9; IFNG: interferon gamma; GZMB: granzyme B. Statistically significant correlations are highlighted.

Supplementary table 3. Correlations between RFC1 and RPA1 protein immunoexpression levels and preoperative blood parameters in the colorectal cancer cohort (n=78).

Preoperative blood parameter	*RFC1 IRS*	*RPA1 IRS*
RED BLOOD CELLS	0,0458	-0,0498
WHITE BLOOD CELLS	0,0321	-0,0206
NEUTROPHILS	0,0818	0,1218
LYMPHOCYTES	-0,1077	-0,1795
MONOCYTES	0,0081	-0,0259
EOSINOPHILS	0,1896	0,1518
BASOPHILS	0,1319	-0,0835
HEMOGLOBIN	0,0212	-0,0486
HEMATOCRIT	0,0350	-0,0612
MEAN CORPUSCULAR VOLUME	0,0396	-0,0549
RED CELL DISTRIBUTION WIDTH	0,0508	0.0437
PLATELET COUNT	0,1694	0.2531
CREATININE	0,0888	0,1439
UREA	-0,0586	-0,0684
GLUCOSE	0,0140	0,0269
TOTAL PROTEIN	0,1686	-0.0391
NEUTROPHIL-TO-LYMPHOCYTE RATIO	0,1487	0.2183
PLATELET-TO-LYMPHOCYTE RATIO	0,1263	0.2312
SYSTEMIC IMMUNE-INFLAMMATION INDEX (PLT*NEU)/LYM	0.1393	0.2620

Correlation analyses were performed using Spearman's rank correlation coefficient (rho). IRS: immunoreactivity score; LYM: lymphocytes; NEU: neutrophils; PLT: platelets.