

Figure S1 20 unique genes were finally selected for the construction of GPI, stratifying patients into immune high- and low-risk group.

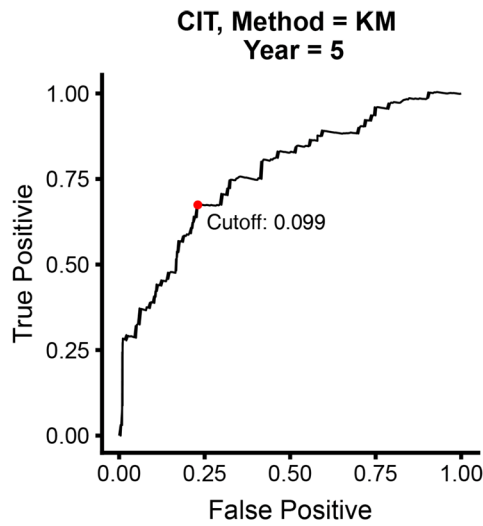


Figure S2 Time-dependent ROC curve analysis indicated that the GPI has satisfying prognostic significance at 5 years. Using Kaplan-Meier method, the best cutoff value to distinguish immune high- and low-risk group was determined to 0.099.

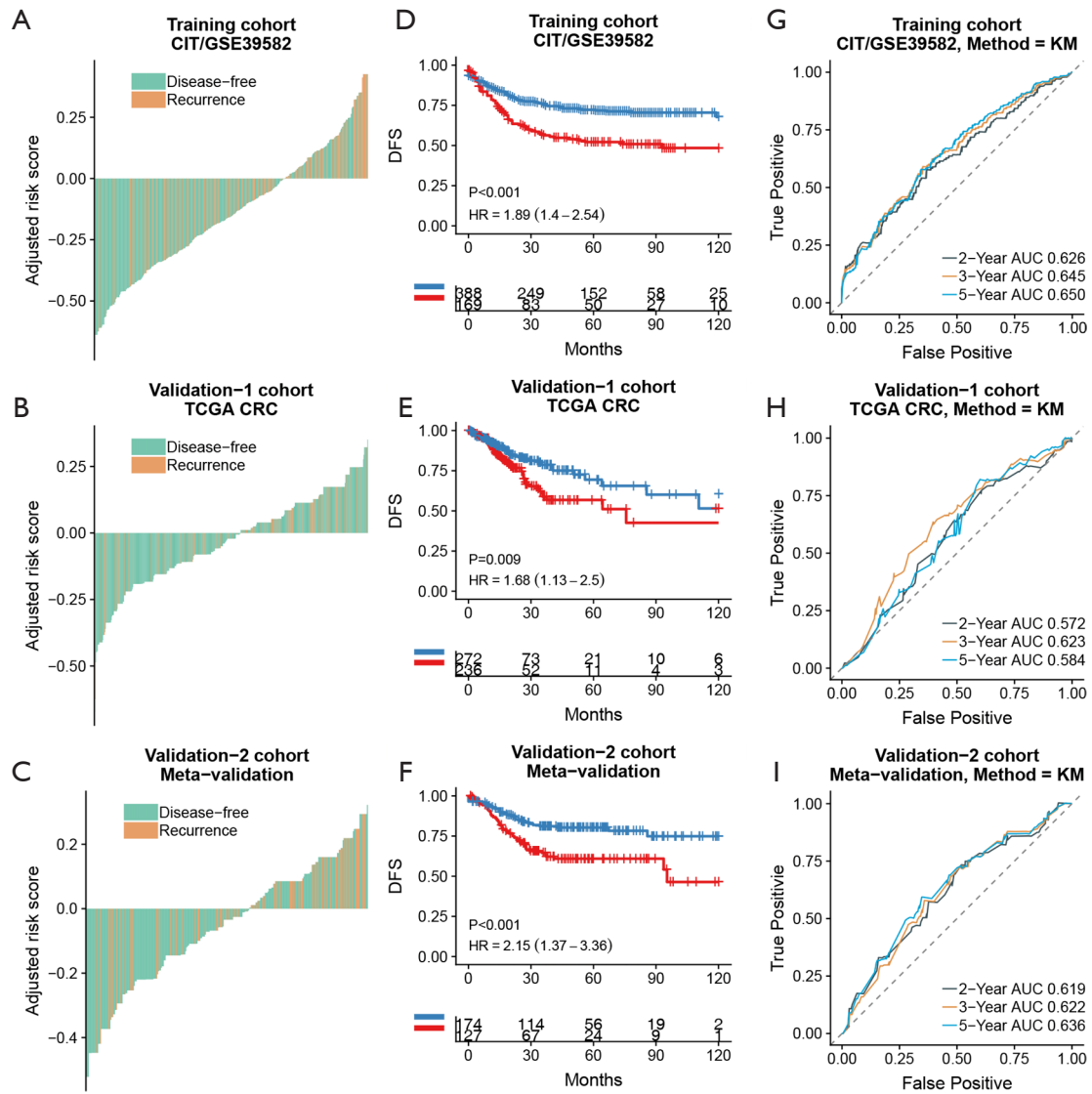


Figure S3 GPI-based risk stratification can also accurately predict the prognosis of all stages CRC. (A-C) Distribution of GPI-based risk scores between relapsed and disease-free cases in the training, validation-1 and validation-2 cohort; (D-F) disease-free survival analysis of patients with early stage CRC in the training, validation-1 and validation-2 cohort; (G-I) time-dependent ROC analysis of DFS in the training, validation-1 and validation-2 cohort at 2, 3 and 5 years for all stages CRC patients. HR and 95% CI are for immune high- vs. low-risk. P values comparing immune high- and low-risk groups were calculated with the log-rank test. AUC, area under the curve; CI, confidence interval; CRC, colorectal cancer; CIT, Cluster Identification Tool; DFS, disease-free survival; GPI, gene pair index; HR, hazard ratio; KM, Kaplan-Meier; ROC, receiver operating characteristic; TCGA, The Cancer Genome Atlas.

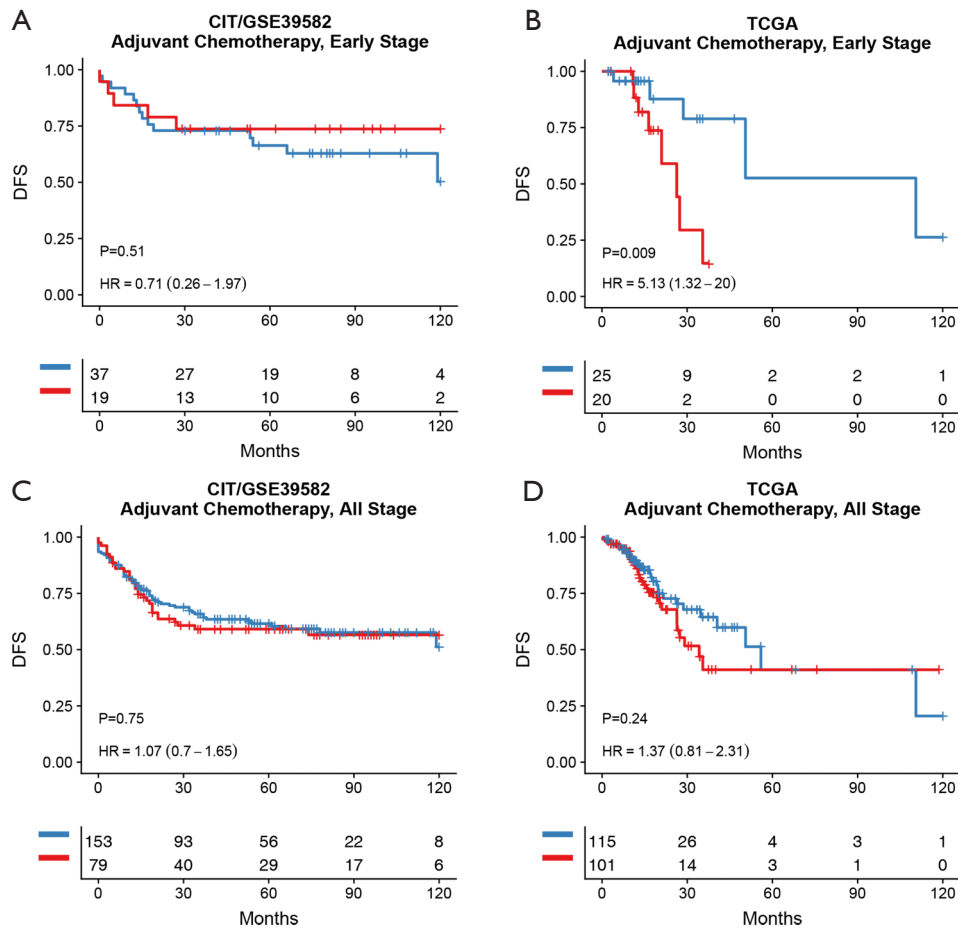


Figure S4 DFS analysis of GPI stratified high and low-risk groups among patients with adjuvant chemotherapy. (A,B) DFS analysis among early stage CRC patients with adjuvant chemotherapy in training and validation-1 cohort; (C,D) DFS analysis among all stages CRC patients with adjuvant chemotherapy in training and validation-1 cohort. HR and 95% CI are for immune high- *vs.* low-risk. P values comparing immune high-and low-risk groups were calculated with the log-rank test. CI, confidence interval; CIT, Cluster Identification Tool; CRC, colorectal cancer; DFS, disease-free survival; GPI, gene pair index; HR, hazard ratio; TCGA, The Cancer Genome Atlas.

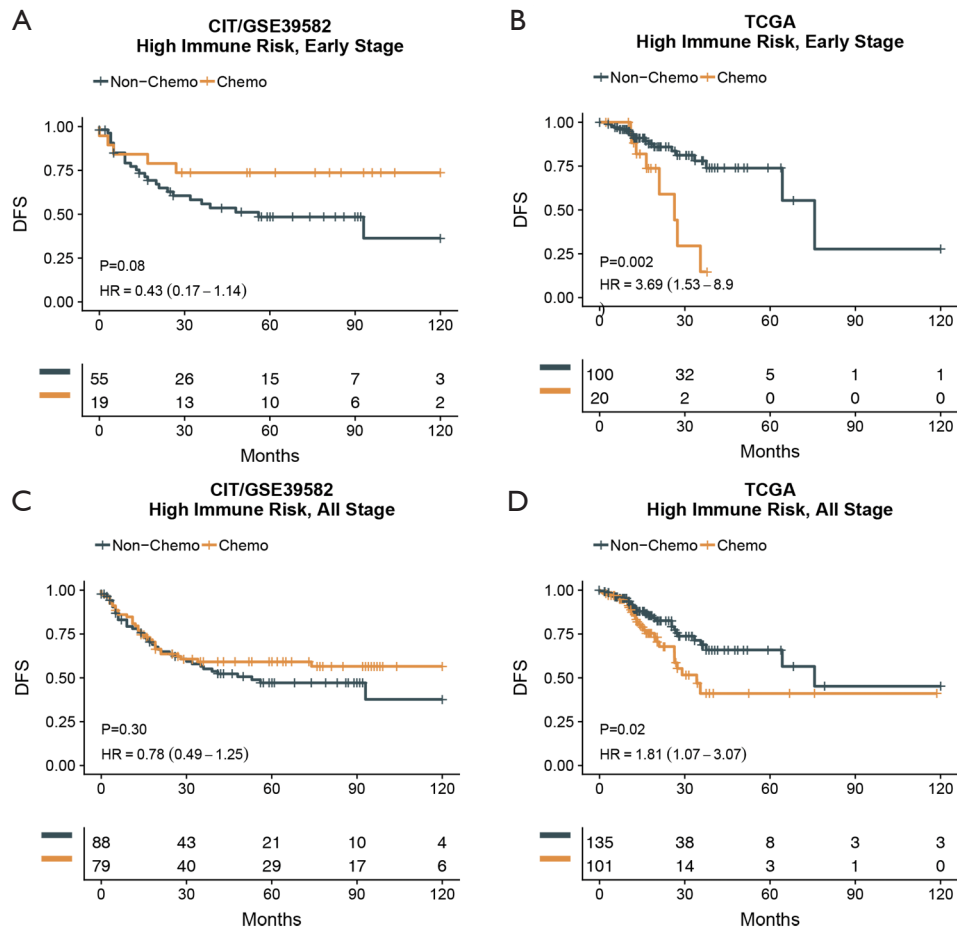


Figure S5 DFS among GPI stratified immune high-risk CRC patients. (A,B) DFS analysis among early stage CRC patients stratified in high immune risk group in training and validation-1 cohort; (C,D) DFS analysis among all stages CRC patients stratified in high immune risk group in training and validation-1 cohort. HR and 95% CI are for chemo *vs.* non-chemo. P values comparing chemo and non-chemo groups were calculated with the log-rank test. CI, confidence interval; CIT, Cluster Identification Tool; CRC, colorectal cancer; DFS, disease-free survival; GPI, gene pair index; HR, hazard ratio; TCGA, The Cancer Genome Atlas.