

Description of Additional Supplementary Files

File Name: Supplementary Data 1

Description: **Hallmark gene sets of each factor for different predefined factor numbers.**

File Name: Supplementary Data 2

Description: **Patient information including tumor stages, CMS, and MSI status.** We obtained tumor stage and MSI information from the cBioPortal website and CMS information from the Colorectal Cancer Subtype Consortium (CRCSC) website (<https://www.synapse.org/#!Synapse:syn4978511.1>). NOLBL means that the patient is not classified as any CMS type.