**Supplemental Figure 1.** Programmed death ligand-1 staining by immunohistochemistry on a colon biopsy from a patient with acute graft-versus-host disease, normal colon, and lung carcinoma.

Supplemental Figure 1



**Supplemental Figure 2.** Cell signaling processes at the onset of acute graft-versus-host disease associated early mortality.

Supplemental Figure 2

## Cell signaling processes at the onset of acute GVHD associated early mortality

Activation of DNA fragmentation factor_Homo sapiens_R-HSA-211227	
Apoptosis induced DNA fragmentation_Homo sapiens_R-HSA-140342	
Formation of Senescence-Associated Heterochromatin Foci (SAHF)_Homo sapiens_R-HSA-2559584	
Apoptotic execution phase_Homo sapiens_R-HSA-75153	
DNA Damage/Telomere Stress Induced Senescence_Homo sapiens_R-HSA-2559586	
Triglyceride Biosynthesis_Homo sapiens_R-HSA-75109	
Cellular Senescence_Homo sapiens_R-HSA-2559583	
Apoptosis_Homo sapiens_R-HSA-109581	
Programmed Cell Death_Homo sapiens_R-HSA-5357801	
Fatty acid, triacylglycerol, and ketone body metabolism_Homo sapiens_R-HSA-535734	

**Supplemental Figure 3.** Cell signaling processes at the onset of acute graft-versus-host disease associated prolonged survival.

Supplemental Figure 3

Cell signaling processes at the onset of acute GVHD associated longer survival

Activation of SMO_Homo sapiens_R-HSA-5635838	
Elongation arrest and recovery_Homo sapiens_R-HSA-112387	
HIV elongation arrest and recovery_Homo sapiens_R-HSA-167287	
Pausing and recovery of HIV elongation_Homo sapiens_R-HSA-167290	
SMAD2/SMAD3:SMAD4 heterotrimer regulates transcription_Homo sapiens_R-HSA-2173796	
Formation of HIV elongation complex in the absence of HIV Tat_Homo sapiens_R-HSA-167152	
Formation of RNA Pol II elongation complex_Homo sapiens_R-HSA-112382	
RNA Polymerase II Transcription Elongation_Homo sapiens_R-HSA-75955	
Transcriptional activity of SMAD2/SMAD3:SMAD4 heterotrimer_Homo sapiens_R-HSA-2173793	
TP53 Regulates Transcription of DNA Repair Genes_Homo sapiens_R-HSA-6796648	