

Supplementary Table 1. Characteristics of UC patients for scRNA-seq

Characteristics	Patient1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6	Patient 7
Age(years)	40	51	27	43	66	45	43
Gender(M/F)	M	M	M	F	M	F	M
Disease duration (month)	4	1	12	6	2	1	72
Disease activity (adapted from Truelove& Witts).	Moderate	Moderate	Severe	Moderate	Moderate	Moderate	Severe
Rectal bleeding	Obvious	Obvious	Obvious	Obvious	Obvious	Obvious	Obvious
Mucosa	Moderate friability	Moderate friability	Severe	Moderate friability	Moderate friability	Moderate friability	Severe
Physician's global assessment	Moderate	Moderate	Severe	Moderate	Moderate	Moderate	Severe
Mesalazine used	√	√	√	√	√	√	√
Glucocorticoid used	—	—	—	—	—	—	—
Biosimilar	—	—	—	—	—	—	—
Peripheral blood	—	√	√	—	—	√	—
Sample type	Inflammatory tissue	√	√	√	√	—	√
obtained	non-Inflammatory tissue	√	√	√	√	—	√

****We deleted one UC sample (patient 3) non-Inflammatory tissue sample because of lower percentage of mitochondrial genes and the lower estimated number of cells in the alignment.***

Supplementary Table 2. Quality control information

Sample ID	Estimated Number of Cells	Fraction Reads in Cells	Mean Reads per Cell	Median UMI per Cell	Total Genes	Median Genes per Cell	Saturation	Raw Reads	Valid Reads	Q30 of Barcodes	Q30 of UMIs
BLOOD_01	8860	0.7069	45291	1059	24863	607	0.7944	432351575	432351575	0.9627	0.9593
IFM_01	9164	0.6425	55156	2578	30980	511	0.8108	543879140	505452418	0.964	0.9607
NON-01	11438	0.7492	43620	2294	31847	631	0.7717	537140364	498926627	0.963	0.9593
BLOOD_02	10630	0.7238	52221	868	25283	522	0.7386	602763293	555116950	0.9632	0.9595
BLOOD_03	11601	0.7807	35886	987	24098	535	0.7695	461391776	416321891	0.9601	0.9555
IFM_03	9556	0.6542	42860	1774	30624	547	0.8122	448147797	409575439	0.9583	0.9525
IFM_04	12527	0.7031	32662	1811	31030	597	0.774	454548449	409159238	0.9635	0.9597
NON-04	10040	0.6668	31910	1881	30367	637	0.7331	354714246	320376538	0.9518	0.9468
BLOOD_05	11318	0.6197	33964	1391	26752	730	0.7792	425476110	384405496	0.9542	0.9489
IFM_05	11683	0.6783	31775	2362	32285	785	0.7231	415724722	371238923	0.959	0.9531
NON-05	13543	0.6611	28319	2187	33292	866	0.652	433036032	383533825	0.9565	0.9474
IFM_06	8536	0.5557	43574	2821	32218	1084	0.7411	415388619	371954260	0.9627	0.9594
NON-06	9457	0.6563	40954	2801	32745	1004	0.663	432600101	387311390	0.9684	0.9652
IFM_07	12638	0.7919	25021	3259	28846	1020	0.5151	357364540	316223293	0.9461	0.9409
NON-07	7929	0.6346	39545	4330	29641	1204	0.5593	353736803	313559769	0.9523	0.9474

Supplementary Table 3. Characteristics of UC-CRC patients for mlHC

Characteristics	Patient8	Patient 9	Patient 10
Age(years)	43	55	53
Gender(M/F)	M	M	M
TNM Classification	T3N0M0	T1N0M0	T2N1bM0
Locaton	Colon	Rectum	Rectum
pathologic diagnoses	Moderately differentiated adenocarcinoma	Moderately differentiated adenocarcinoma	Moderately differentiated adenocarcinoma