Supplementary Table 1. Clinical information of pediatric patients

Pediatric patient groups	N	Age in years, mean (range)	Gender, male n (%)	White n (%)	Black n (%)	Hispanic n (%)	Paris Classification Disease Location*	IBD Disease duration in months, mean (range)	IBD medications (n, %)	Disease activity score**
Non-IBD (Control)	12	12.8, (7-19)	5 (42%)	9 (75%)	0 (0%)	1 (8%)	N/A	N/A	N/A	N/A
Active Ulcerative Colitis	18	14.9 (7-21)	10 (56%)	16 (88%)	1 (6%)	0 (0%)	E1 (1, 6%), E2 (2, 11%), E3 (3, 17%), E4 (12, 67%)	28 (0 – 95)	5-ASA (10, 56%), 5-ASA enemas (1, 6%), Infliximab (2, 11%), Prednisone (3, 17%), Corticosteroid enemas (3, 17%), 6-MP (2, 11%), None (4, 22%)	PUCAI: 31 (0 – 70)
Inactive UC	9	19.2 (12-25)	6 (67%)	9 (100%)	0 (0%)	0 (0%)	E3 (2, 22%) E4 (7, 78%)	104 (0 – 180)	5-ASA (5, 56%), 5-ASA enemas (1, 11%), Infliximab (0, 0%), Prednisone (0, 0%), Corticosteroid enemas (2, 18%), 6-MP (1, 11%), None (2, 22%)	PUCAI: 7 (0 – 40)
Crohn's disease	6	13.3 (9-17)	3 (50%)	6 (100%)	0 (0%)	0 (0%)	L3, L4a (6, 100%)	34 (0 – 132)	5-ASA (2, 33%), 5-ASA enemas (0, 0%), Infliximab (0, 0%), Prednisone (0, 0%), Corticosteroid enemas (0, 0%), 6-MP (0, 0%), None (4, 67%)	ShPCDAI: 23 (0 – 65)

*Partners Information Systems: N/A: No IBD.Ulcerative Colitis E1: Ulcerative proctitis, E2: Left sided (distal to splenic flexure), E3: Extensive (hepatic flexure distally), E4: Pancolitis (proximal to hepatic fixture). Crohn'sDisease L3: Ileocolonic,L4a: Upper disease proximal to ligament of treitz.

**PUCAI: Pediatric Ulcerative Colitis activity index,ShPCDAI: Short Pediatric Crohn's Disease activity index

Supplementary Data

Disease activity in pediatric patients

Active UC was defined as gross sigmoid disease on colonoscopy confirmed by chronic, active inflammation on a matched sigmoid biopsy. Subjects were considered to have inactive UC if matched sigmoid biopsies showed no inflammation, inactive or quiescent disease. Of note, three subjects had a Pediatric Ulcerative Colitis Activity Index (PUCAI) score of 0, consistent with clinical remission, but had gross and microscopic inflammation so were included in the active pediatric-UC group. Two UC subjects had PUCAI scores ≥15, consistent with mild to moderate disease but had no evidence of inflammation on matched biopsy so were considered to have inactive disease. Control subjects underwent colonoscopy for evaluation of gastrointestinal symptoms, but none had IBD. One subject in the pediatric-control group with salmonella enterocolitis had mild focal active inflammation histologically, consistent with bacterial infection, but no evidence chronic inflammation. The mean age of subjects in the inactive pediatric-UC group was 19 years but all 9 subjects in the group were diagnosed with UC during childhood.

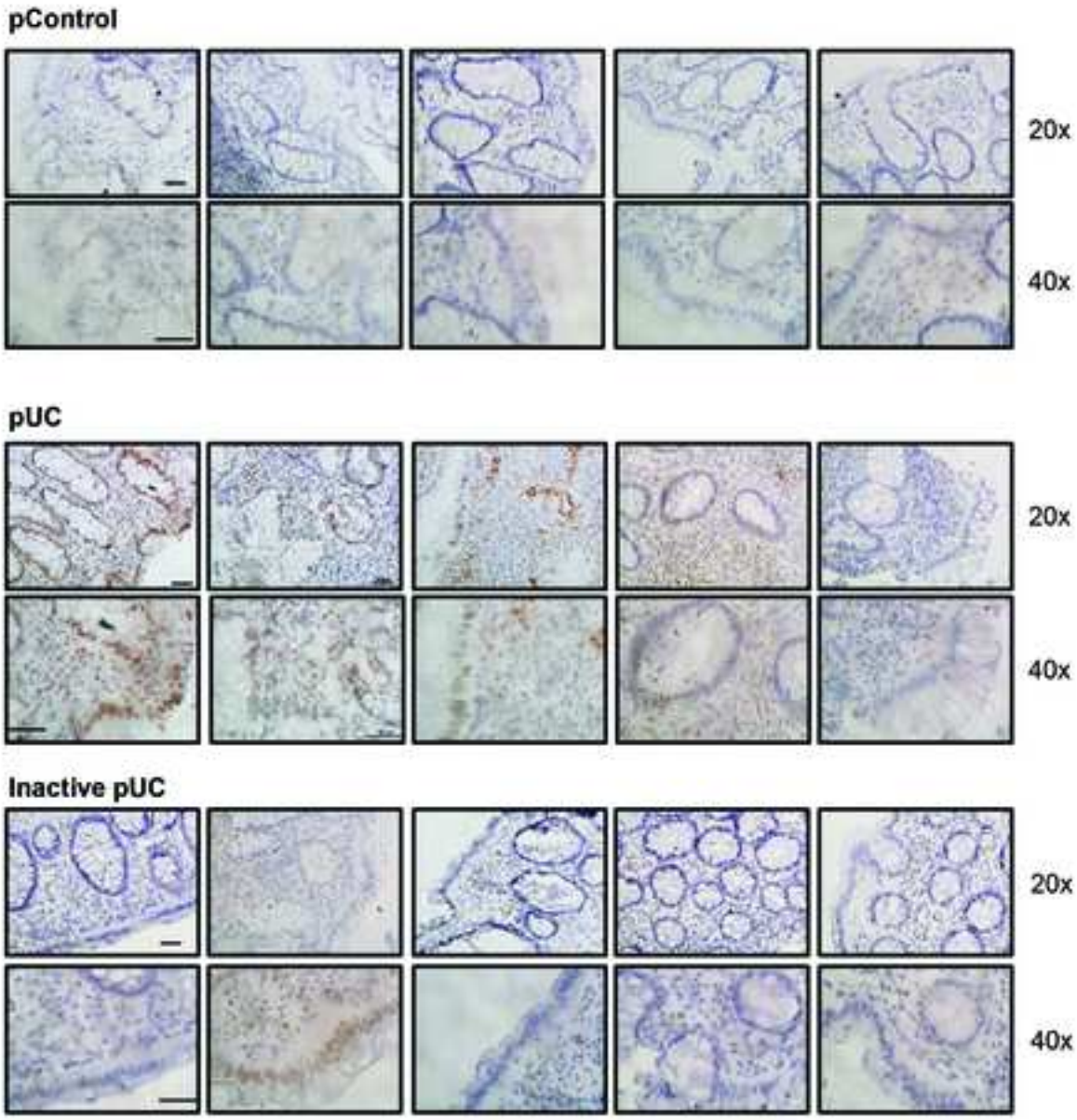
Primer sequences for real-time PCR

Primers used for VEGF were: forward: 5'-GAGCCTTGCCTTGCTGCTCTAC-3' and reverse: 5'-CACCAGGGTCTCGATTGGATG-3'; for BCL2 were: forward: 5'-ATGTGTGTGGAGAGCGTCAACC-3' and reverse: 5'-TGAGCAGAGTCTTCAGAGACAGCC-3'; for BCLXL were: forward: 5'- GATCCCCATGGCAGCAGTAAAGCAAG -3' and reverse: 5'-CCCCATCCC GGAAGAGTTCATTCACT-3'; for MMP9 were: forward: 5'-CCTGGAGACCTGAGAACCAATC-3' and reverse: 5'- CCACCCGAGTGTAACCATAGC-3'; for STAT3 were: forward: 5'-GCCAGAGAGCCAGGAGCA-3' and reverse: 5'-ACACAGATAAACTTGGTCTTCAGGTATG-3' and for GAPDH were: forward: 5'-CGCTCTCTGCTCCTCCTGTT-3' and reverse: 5'-CCATGGTGTCTGAGCGATGT-3'.
Primers used for mouse STAT3 were the following: forward: 5'-CAATACCATTGACCTGCCGAT-3' and reverse: 5'-GAGCGACTCAAACTGCCCT-3'.

pMSP primer sequences and reaction

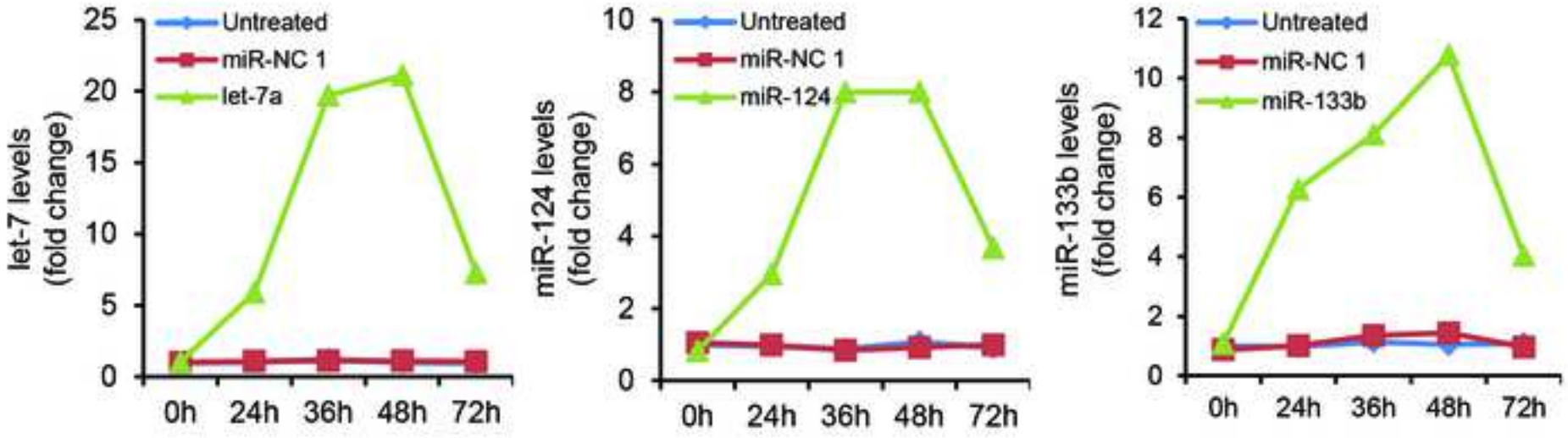
Primers designed specific for the methylated DNA region of the promoter of *miR124* were: forward: 5'-GGGTAATTAATTTGGATTTACGTCGTTAT-3' and reverse: 5'-CGTAAAAATATAAACGATACGTATACCTACGT-3'. qMSP reactions were carried out in a final volume of 12 µl containing 50 ng of treated-DNA, 417 nM of primers, 208 nM probe and the QuantiTech Probe PCR kit master-mix (Qiagen).

Supplementary Figure 1



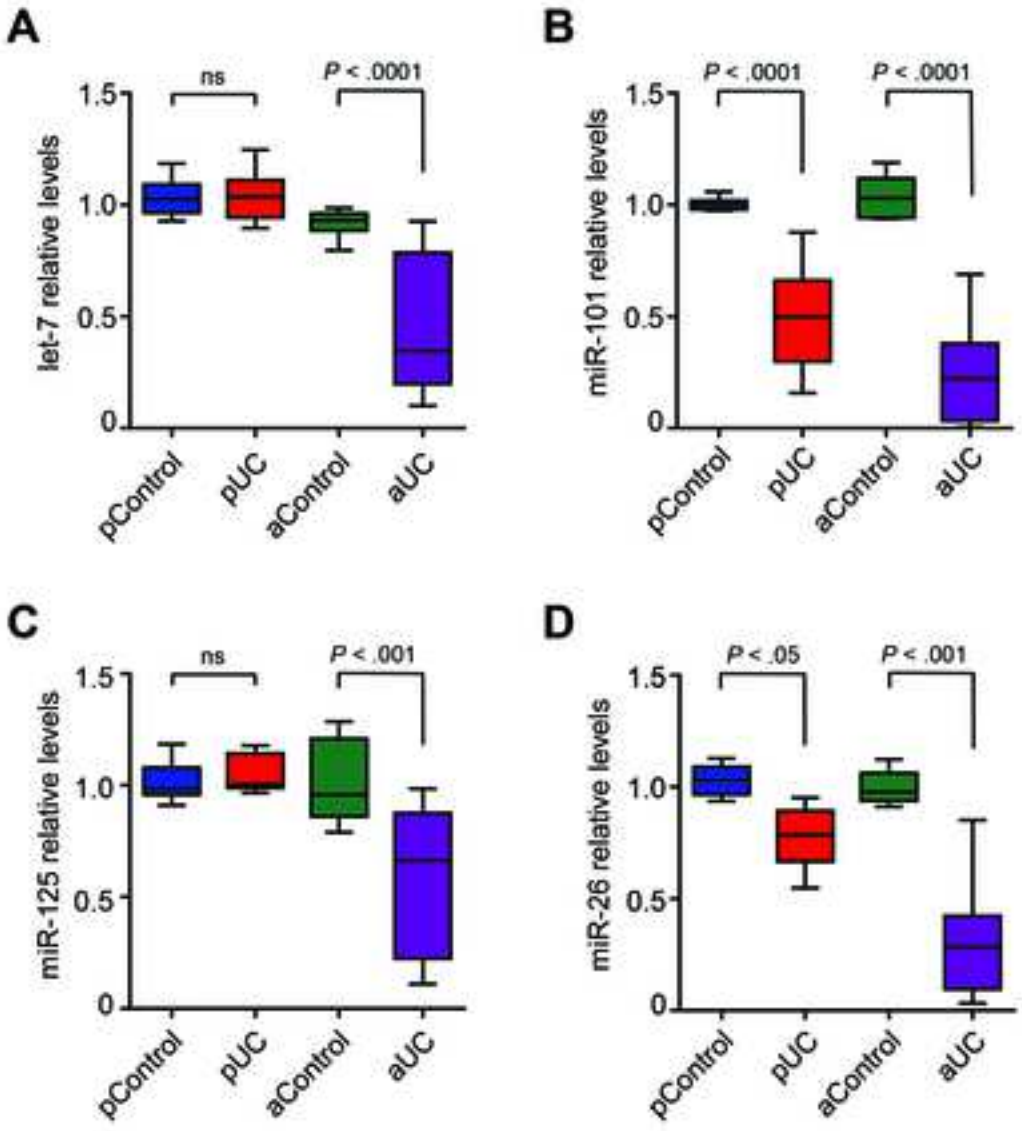
Supplementary Figure 1. Immunostaining for p-STAT3 (brown stain) in biopsies from non-IBD (pControl), active ulcerative colitis (pUC) and inactive pUC patients. Counterstained with hematoxylene (blue stain). Microscopy pictures in original magnification 20x and 40x, as indicated. Bars represent 50 µm.

Supplementary figure 2



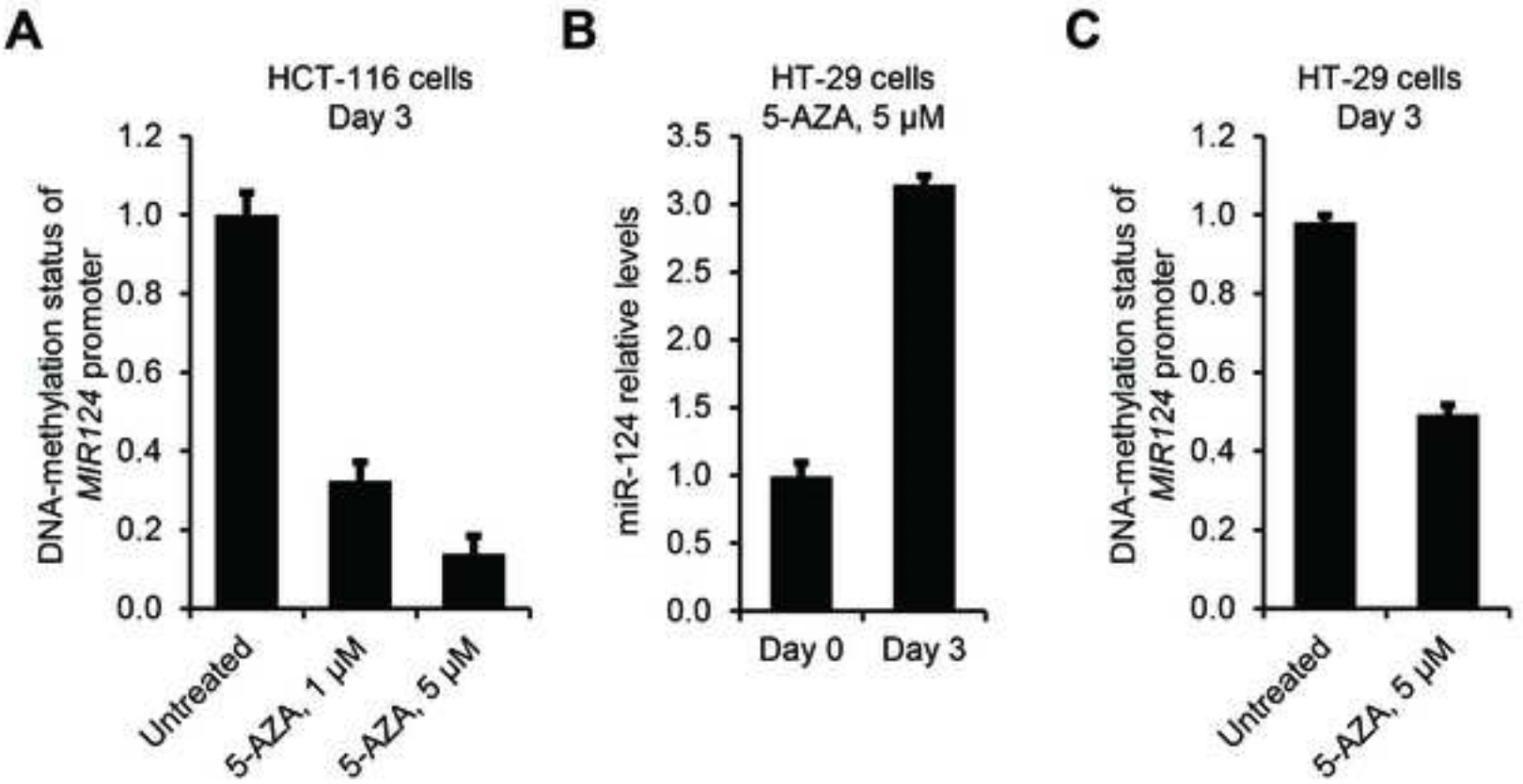
Supplementary Figure 2. MicroRNA expression levels for let-7, miR-124 and miR-133b in NCM460 according to post-transfection time. 75 nM of the corresponding microRNA mimics and negative controls (miR-NC) were used. Fold changes of microRNA expression levels were estimated through qPCR, compared to untreated samples.

Supplementary Figure 3



Supplementary Figure 3. Expression levels of (*A*) let-7, (*B*) miR-101, (*C*) miR-125 and (*D*) miR-26 in pediatric non-IBD (pControl, n=8), pediatric active UC (pUC, n=7), adult non-IBD (aControl, n=6) and adult UC (aUC, n=11) patient biopsies, determined by qPCR. Results are expressed relative to pediatric control sample (pControl), as boxes with whiskers (minimum-to-maximum). ns: not statistically significant (One-way ANOVA, Prism 6, GraphPad).

Supplementary Figure 4



Supplementary Figure 4. Methylation status of *MIR214* promoter and miR-124 levels after treatment of HCT-116 and HT-29 with 5-aza-2'-deoxycytidine (5-AZA). (*A*) Methylation status of MIR124 promoter region in HCT116 colonic cells, after 3 days of treatment with 1 or 5 µM of 5-AZA, relative to untreated cells. (*B*) Relative levels of miR-124 in HT-29 colonic cells after treatment with 5 µM 5-AZA for 3 days. (*C*) DNA-methylation status of MIR124 promoter region in HT-29 colonic cells after 3 days of treatment with 5 µM 5-AZA, relative to untreated cells. Values represent mean ± standard deviation.