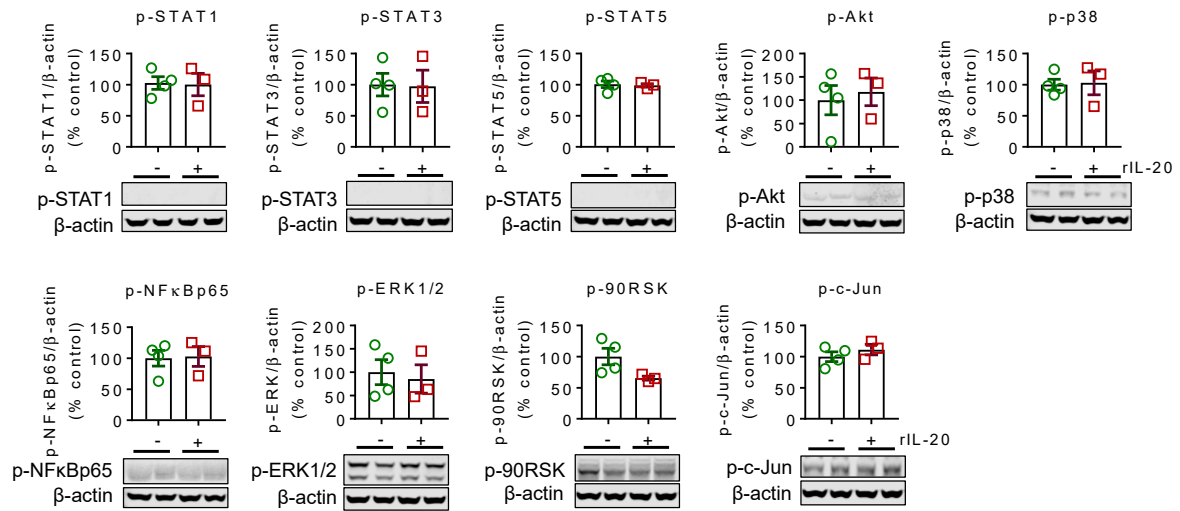


## Supplementary Figure S1

### A Differentiated WT mIECs



### B Differentiated Winnie mIECs

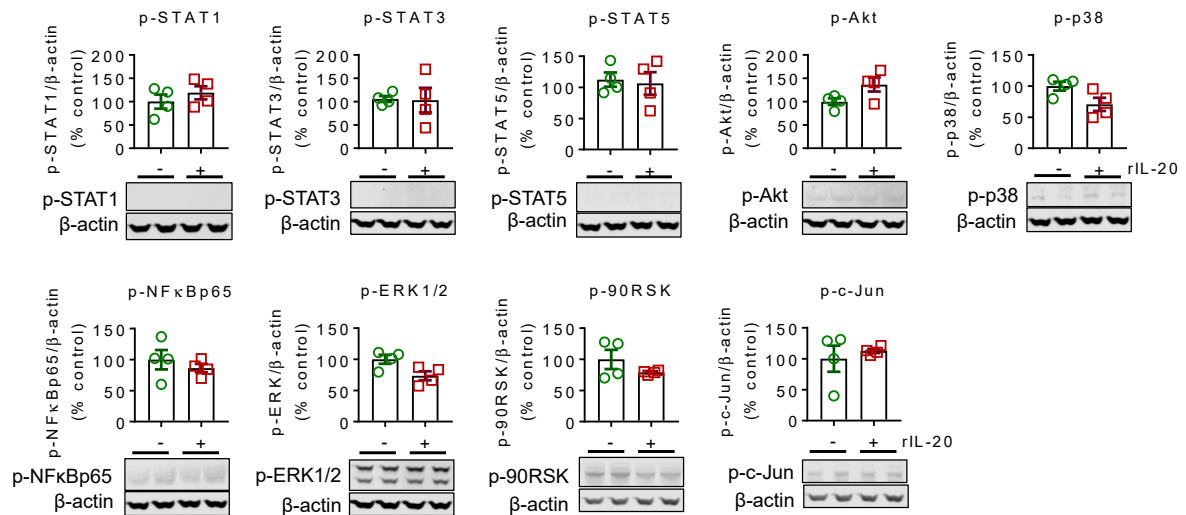


Figure S1: rIL-20 specific modulation of signalling pathways in differentiated primary intestinal epithelial cells. DAPT treated primary colonic organoids from C57BL/6 (A) and Winnie (B) were analysed for phosphorylated STAT1, STAT3, STAT5, Akt, p38, NF-κβ p65, ERK1/2, 90-RSK, and p-c-Jun by Western blot assay after treatment with rIL-20 (100 ng/mL) for 1 h. Data are presented as mean ± SEM with individual cultures from 3-4 independent experiments (non-parametric Man-Whitney t-test).

## Supplementary Figure S2

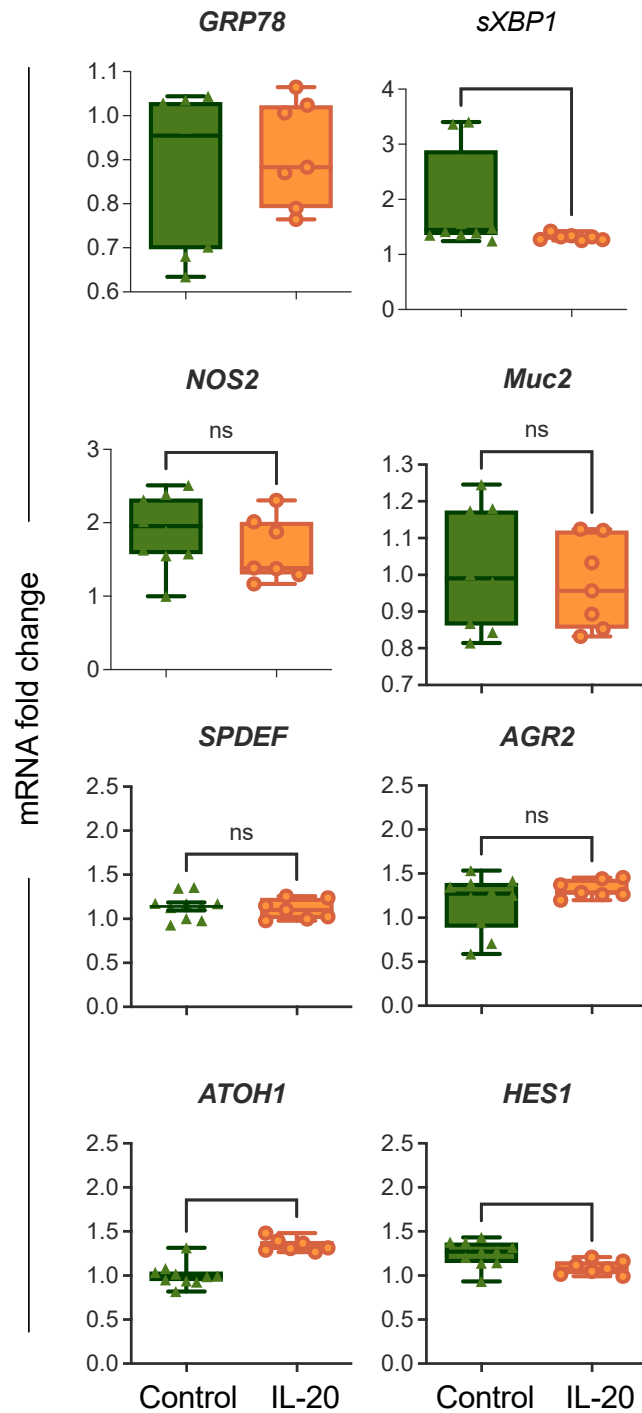


Figure S2: Intestinal cellular stress and differentiation markers in the rIL-20 treated LS174T cells. Relative mRNA expression levels of ER stress, goblet cell and intestinal stem cell inducing transcriptional factors measured by qRT-PCR in the LS174T cells treated with vehicle (PBS) or IL-20 (100 ng/mL) for 24 h. Data are presented as mean ± SEM (n=7-9), compared with PBS controls, student's t-test.

## Supplementary Figure S3

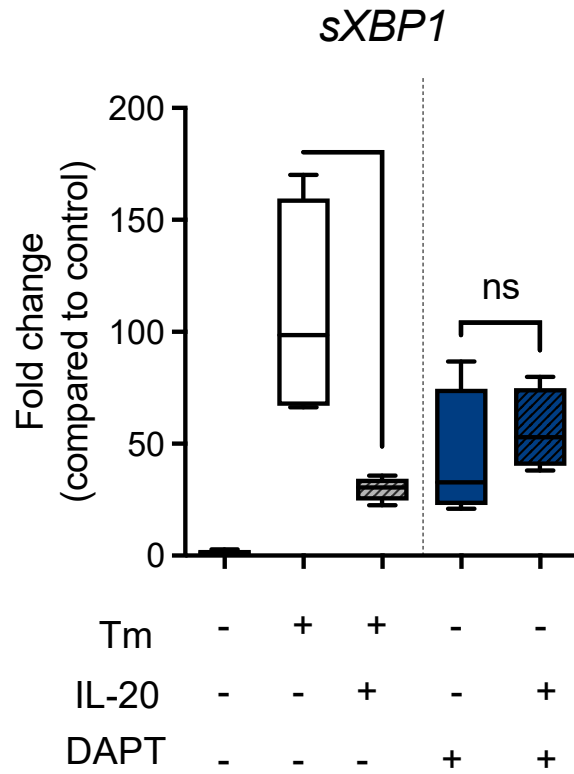


Figure S3: rIL-20 modulates cellular ER stress in LS174T cell lines. Undifferentiated and differentiated LS174T cell lines were co-treated with 10  $\mu$ M tunicamycin (6 h) and rIL-20 (100 ng/mL) for 24 h and analysed for cellular stress marker, *sXBP1* by qRT-PCR. Data are presented as mean  $\pm$  SEM (n=12), \*P<0.01, one-way ANOVA followed by Dunnett's post hoc test.

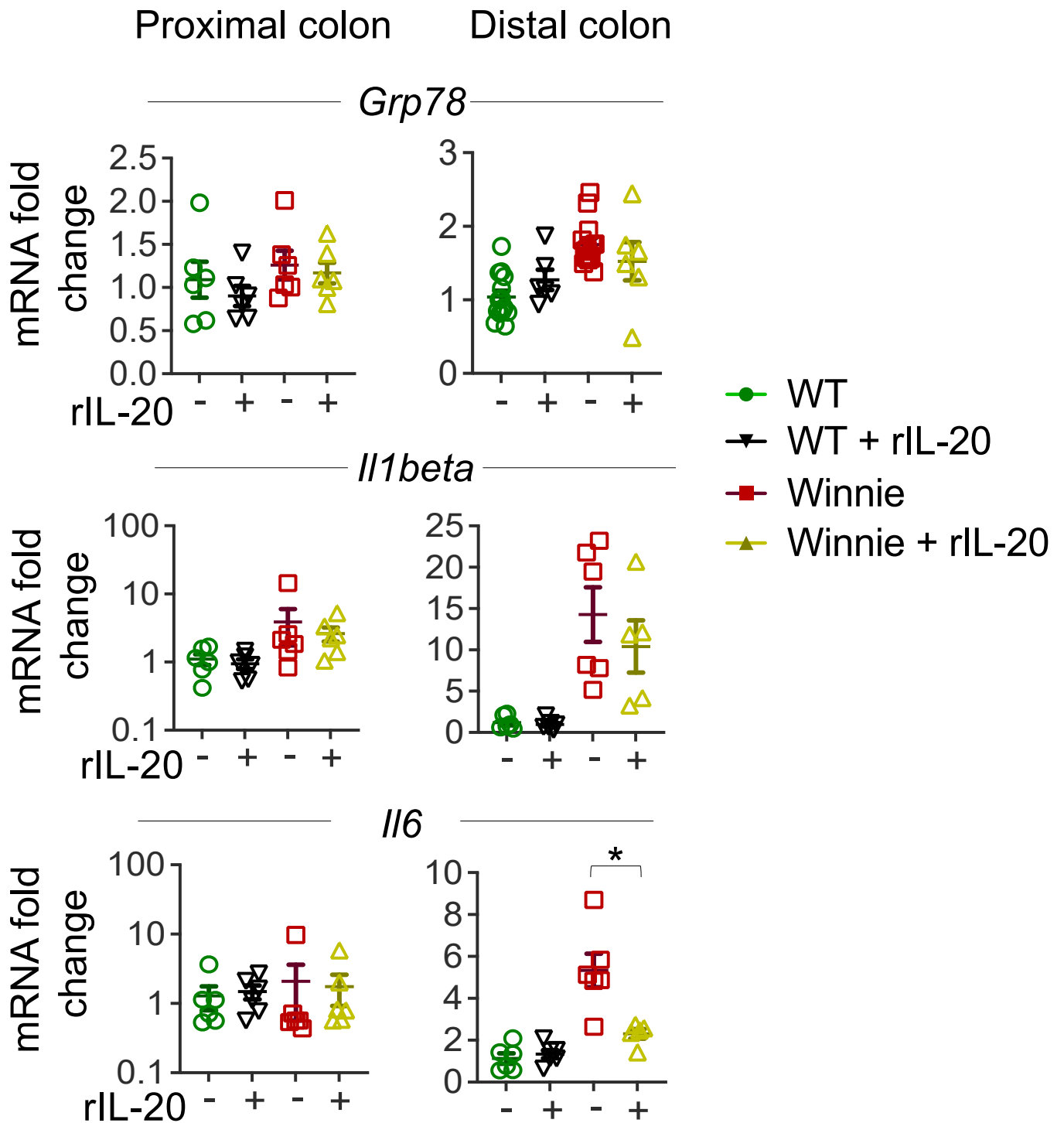


Figure S4: ER stress and pro-inflammatory markers in rIL-20 treated Winnie mice. Relative mRNA levels of *GRP78*, *Il1β* and *Il6* measured by qRT-PCR in the proximal and distal colon tissues harvested from naïve and rIL-20 treated C57BL/6 and Winnie mice (as described in Figure 3). Data are presented as mean ± SEM (n=6-8).

\* P<0.05, one-way ANOVA followed by Dunnett's post hoc test.

**Table S1: Primer Sequences**

<b>Primers</b>	<b>Sequence</b>
<i>mTata box</i>	Forward: CTCAGTTACAGGTGGCAGCA Reverse: ACCAACAATCACCAACAGCA
<i>mGrp78</i>	Forward: TGCTGCTAGGCCTGCTCCGA Reverse: CGACCACCGTGCCACATCC
<i>m/hXbp1</i>	Forward: GAGTCCGCAGCAGGTGC Reverse: CAAAAGGATATCAGACTCAGAATCTGAA
<i>mNos2</i>	Forward: CAGCTGGGCTGTACAAACCTT Reverse: CATTGGAAGTGAAGCGTTTCG
<i>mMuc2</i>	Forward: CCATTGAGTTTGGGAACATGC Reverse: TTCGGCTCGGTGTTTCAGAG
<i>mAgr2</i>	Forward: CGGTGAGGGCAGACATCACTGGA Reverse: CCGGTGCGCAGTTGGCTCTA
<i>mHes1</i>	Forward: GGTCTAACGCAGTGTACC Reverse: GAGAGGTGGGCTAGGGACTT
<i>mSpdef</i>	Forward: GGTGCCTGCTACTGTTCCCAGATG Reverse: AAAGCCACTTCTGCACGTTACCAG
<i>mAtoh-1</i>	Forward: GCTTCCTCTGGGGGTACTC Reverse: GAAGGCGACAGGTCCTTCTG
<i>mIL-1<math>\beta</math></i>	Forward: CAACCAACAAGTGATATTCTCCATG Reverse: GATCCACACTCTCCAGCTGCA
<i>mTnf-<math>\alpha</math></i>	Forward: CATCTTCTCAAATTCGAGTGACAA Reverse: TGGGAGTAGACAAGGTACAACCC
<i>mIL-6</i>	Forward: TCAGGAAATTTGCCTATTGAAA Reverse: GGAAATTGGGGTAGGAAGGA
<i>mMip2<math>\alpha</math></i>	Forward: ACGTGTTCCAGGACACAACA Reverse: ACAAACCCTCCCCACCTAAC
<i>mIL-10</i>	Forward: AGCTCCAAGACCAAGGTGTC Reverse: TCCAAGGAGTTGTTTCCGTTA
<i>mIL-17a</i>	Forward: CTCCAGAAGGCCCTCAGACTAC Reverse: AGCTTTCCCTCCGCATTGACACAG
<i>mIL-23p19</i>	Forward: AGCGGGACATATGAATCTACTAAGAGA Reverse: GTCCTAGTAGGGAGGTGTGAAGTTG
<i>Reg3<math>\beta</math></i>	Forward: ACTCCCTGAAGAATATACCCTCC Reverse: CGCTATTGAGCACAGATACGAG
<i>Reg3<math>\gamma</math></i>	Forward: GGCCATATCTGCATCATACCAG Reverse: ATGCTTCCCCGTATAACCATCA
<i>mLrg1</i>	Forward: TTGGCAGCATCAAGGAAGC Reverse: CAGATGGACAGTGTGCGCA
<i>mTimpl</i>	Forward: TACACCCAGTCATGGAAAGC Reverse: CGGCCCGTGATGAGAACT
<i>mTrim15</i>	Forward: TGAGCGAGACCTACTGTGAAG

	Reverse: AACCGACTCCTGAGACGATCC
<i>mOsmr</i>	Forward: TCAAGCCACGAAGGGTCCTAA
	Reverse: GTCTTAAAGTCTCGGGTTTCACA
<i>mLcn2</i>	Forward: TGGCCCTGAGTGTCATGTG
	Reverse: CTCTTGTAAGTCATAGATGGTGC
<i>mIL-18</i>	Forward: ACGTGTTCCAGGACACAACA
	Reverse: ACAAACCCTCCCCACCTAAC
<i>mIL-33</i>	Forward: CGGATCCACTTCACTTTTAACACAGTC
	Reverse: GAGATCTTTAGATTTTTCGAGAGCTTA
<i>mIL-13ral</i>	Forward: AGCGTCTCTGTGCGAAAATCTCT
	Reverse: GAGTGCAATTTGGACTGGCTC
<i>mSmad4</i>	Forward: ACACCAACAAGTAACGATGCC
	Reverse: GCAAAGGTTTCACTTTCCCCA
<i>mSocs3</i>	Forward: GGACCAAGAACCTACGCATCCA
	Reverse: CACCAGCTTGAGTACACAGTCG
<i>mClaudin4</i>	Forward: GGCGTCTATGGGACTACAGG
	Reverse: GAGCGCACAACTCAGGATG
<i>mClaudin8</i>	Forward: GTGGATGTGGCCCTAAAGC
	Reverse: CGCTGTGGTCCAGCCTAT
<i>mZo-1</i>	Forward: TTTTGTGACAGGGGGAGTGG
	Reverse: TGCTGCAGAGGTCAAAGTTCAAG