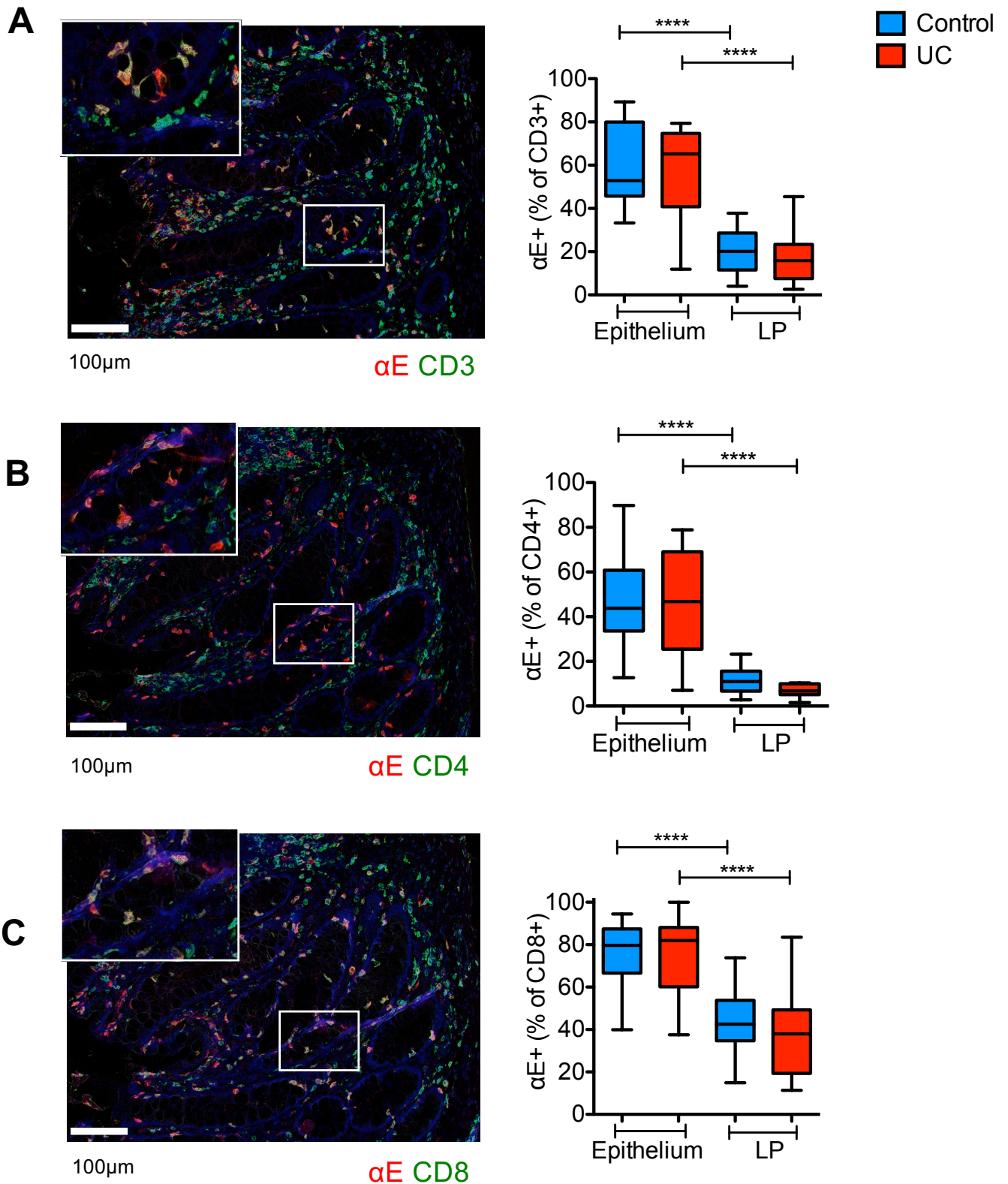
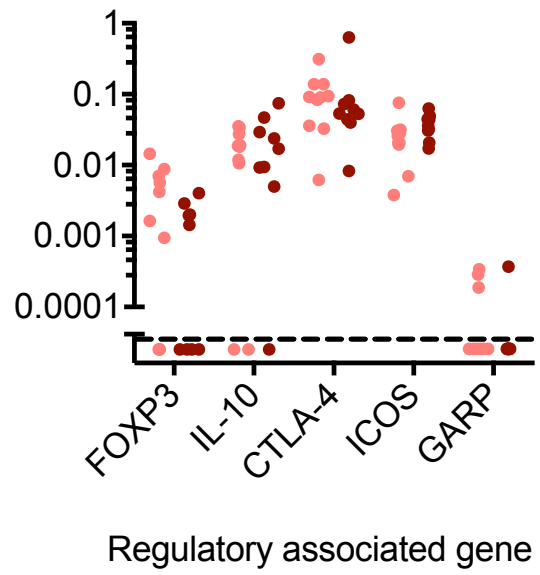
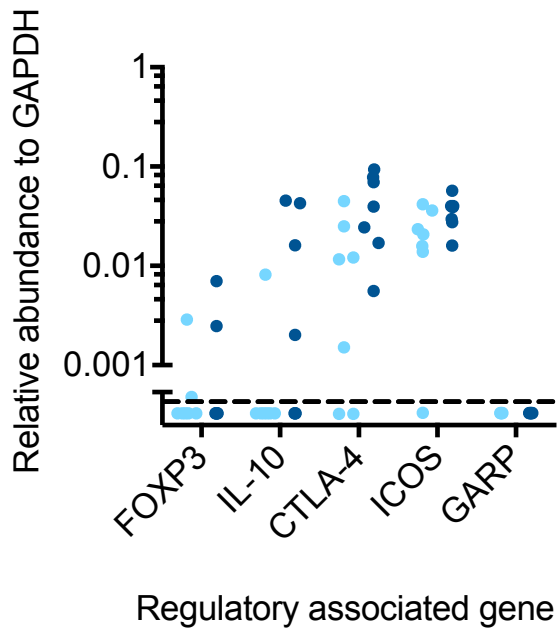
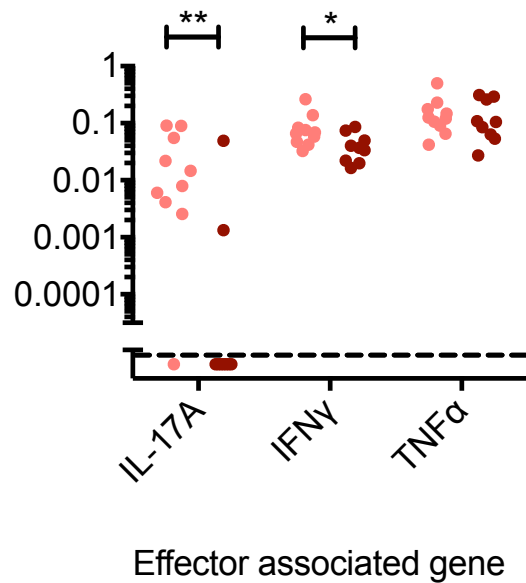
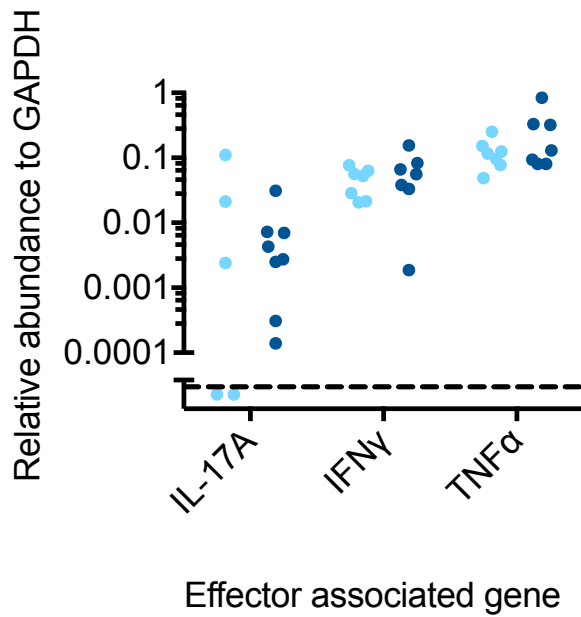


**Supplementary Figure 1: Gating strategy to identify integrin expressing T cells by flow cytometry**



**Supplementary Figure 2: A higher proportion of intraepithelial than lamina propria lymphocytes express the  $\alpha$ E integrin**

Dual stain IHC was performed on formalin-fixed paraffin-embedded colonic biopsies to evaluate co-expression of the  $\alpha$ E integrin (shown in red) with (A) CD3, (B) CD4 and (C) CD8 lymphocytes (all shown in green) in colonic biopsies from control subjects (n=16) and patients with active UC (n=14). Representative Nuance spectrally unmixed images (with magnified insert) from a UC patient are shown for each pair of stains. Automated morphometric analysis was used to enumerate cellular expression of single or dual chromagen. Dual-expressing cells contain yellow. Scale bars represent 100 $\mu$ m.

**A****B**

Control

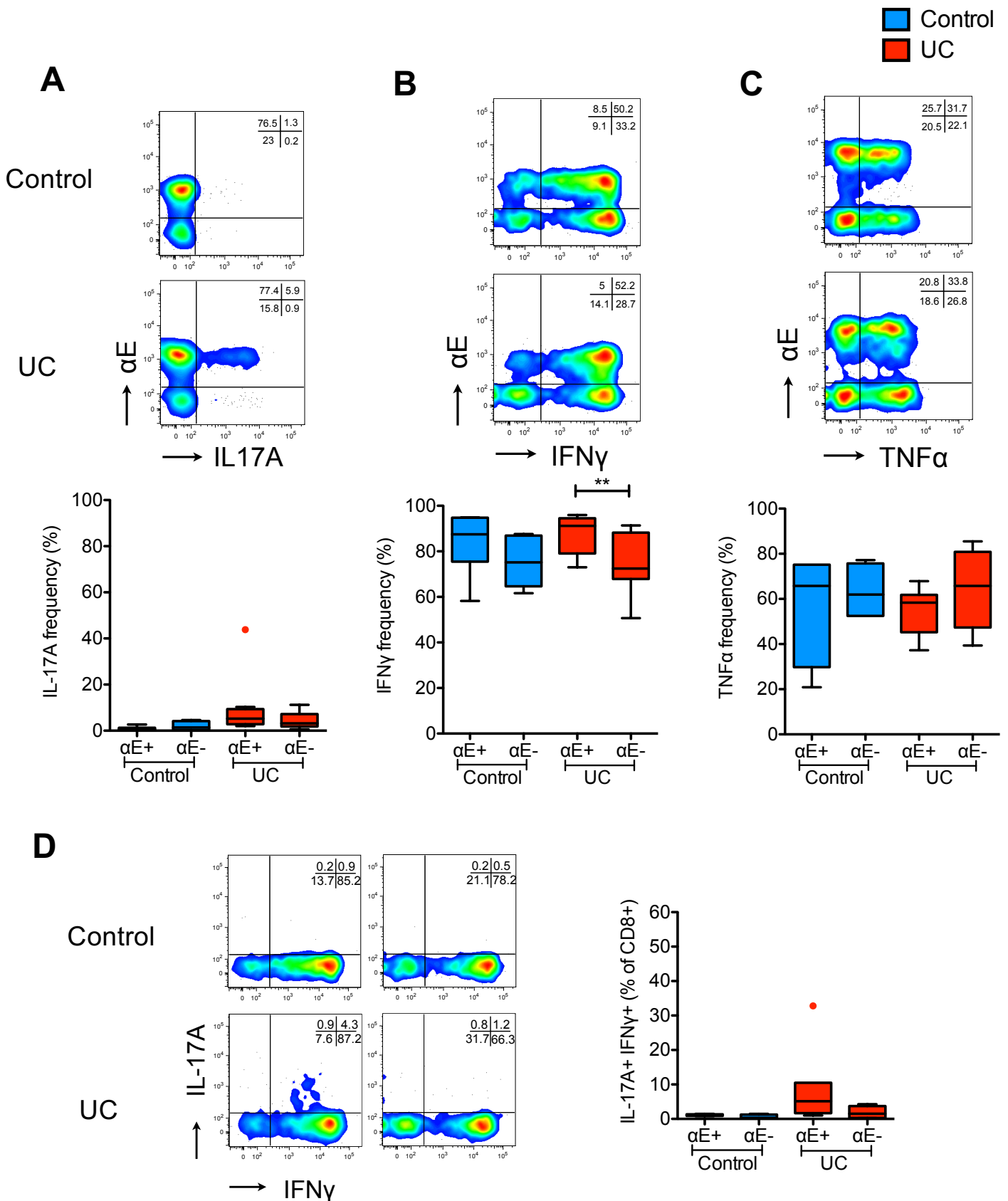
- CD4+ $\alpha$ E+
- CD4+ $\alpha$ E-

UC

- CD4+ $\alpha$ E+
- CD4+ $\alpha$ E-

### Supplementary Figure 3: CD8+ $\alpha$ E+ and CD8+ $\alpha$ E- colonic T lymphocytes have a similar expression of regulatory and effector genes

FACS-sorted CD8+ $\alpha$ E+ and CD8+ $\alpha$ E- T lymphocytes from colonic biopsies harvested from control subjects (n=8) and patients with active UC (n=10) were analysed by qPCR for expression of (A&B) regulatory and (C&D) effector associated genes.



**Supplementary Figure 4: Both CD8+ $\alpha$ E+ and CD8+ $\alpha$ E- lymphocyte subsets have a low potential to express IL-17A, but a high potential to express IFN $\gamma$  and TNF $\alpha$**

Colonic CD8+ $\alpha$ E+ and CD8+ $\alpha$ E- T lymphocytes were stimulated *ex-vivo* and evaluated by FACS to determine effector cytokine production of (A) IL-17A (n=6 control subjects and n=8 patients with active UC), (B) IFN $\gamma$  (n=6 control subjects and n=8 patients with active UC), (C) TNF $\alpha$  (n=4 control subjects and n=6 patients with active UC), and (D) dual IL-17A and IFN $\gamma$  (n=4 control subjects and n=6 patients with active UC). Representative 2-colour FACS plots and summary Tukey box plots are shown for each cytokine or cytokine pair.

Antibody	Fluorochrome	Isotype	Clone	Host	Source
$\alpha$ E integrin	FITC	IgG1k	Ber-ACT8	Mouse	BD Pharmingen
$\alpha$ E integrin	PE	IgG1k	Ber-ACT8	Mouse	eBioscience
$\beta$ 7 integrin	PE	IgG2ak	FIB504	Rat	BD Pharmingen
$\alpha$ 4 $\beta$ 7 integrin	Alexa Fluor 647	IgG1k	ACT1	Mouse	From hybridoma
CD45	PE	IgG1k	2D1	Mouse	eBioscience
CD3	eFluor450	IgG2ak	OKT3	Mouse	eBioscience
CD3	PerCP Cy5.5	IgG2ak	OKT3	Mouse	eBioscience
CD4	PE-Cy7	IgG1k	RPA-T4	Mouse	eBioscience
CD8 $\alpha$	APC Cy7	IgG1k	HIT8a	Mouse	Biolegend
CD161	APC	IgG1k	DX12	Mouse	BD Pharmingen
IL-17A	PE	IgG1k	N49-653	Mouse	BD Pharmingen
TNF $\alpha$	Alexa Fluor 647	IgG1k	Mab11	Mouse	Biolegend
IFN $\gamma$	APC	IgG1k	B27	Mouse	BD Pharmingen
Isotype	FITC	IgG1k	P3.6.2.8.1	Mouse	eBioscience
Isotype	PE	IgG1k	P3.6.2.8.1	Mouse	eBioscience
Isotype	PE	IgG2ak	R39-95	Rat	BD Pharmingen
Isotype	PE-Cy7	IgG1k	P.3.6.2.8.1	Mouse	eBioscience
Isotype	Alexa Fluor 647	IgG1k	MOPC-21	Mouse	Biolegend
Isotype	APC	IgG1k	MOPC-21	Mouse	BD Pharmingen
Isotype	APC Cy7	IgG1k	MOPC-21	Mouse	Biolegend

**Supplementary Table 1: Antibodies used for cell surface and intracellular flow cytometric analysis**

Antibody	Host	Clone	Dilution	Manufacturer
$\alpha$ E integrin	Mouse	EPR4166	1:2000	Epitomics
CD3	Mouse	LN10	1:50	Leica
CD4	Rabbit	Sp35	Pre-dilute	Ventana
CD8	Mouse	UCH-T4	1:40	Ventana
FOXP3	Mouse	259D	1:100	Biolegend
Isotype	Mouse	MOPC21	Pre-dilute	Ventana
Isotype	Rabbit	-	Pre-dilute	Ventana

**Supplementary Table 2: Immunohistochemistry antibodies**