Supplementary Figure Legends

FIGURE S1. Knockdown of OGT results in a decrease in global *O*-GlcNAc levels. A549 cells were transfected with various amounts of OGT siRNA (siOGT). The total amount of siRNA oligonucleotide duplex was compensated with scrambled siRNA to final 5 pmol. Two days after transfection, cells were lysed and subjected to Western blotting analysis for OGT proteins and global *O*-GlcNAcylation. β-Actin was used as a loading control.

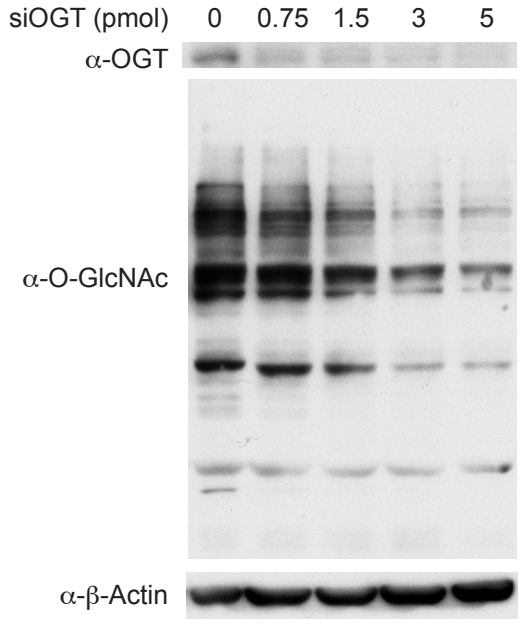
FIGURE S2. The interaction between endogenous OGT and GR. Western blot analysis of immunoprecipitates and cell lysates (left panel). HeLa cells were cultured in DMEM containing 10% char coal-stripped FBS. Upon confluency, cells were treated with 10 ng/ml of TNFα and/or 1μM Dex for 1 hr and lysed. Immunoprecipitation with an α-GR antibody was carried out at 4^{o}C overnight. OGT bands were detected using α-OGT (Abcam, ab50270) antibody. Co-immunoprecipitated OGT was quantified by densitometric analysis of α-OGT blot (right panel).

FIGURE S3. Quantitative PCR analysis of RNA pol II protein modifications. (A) Q- PCR analysis of RNA pol II protein modifications in A549 cells. Cells treated with TNF-α, Dex or ethanol vehicle were subject to sequential chromatin immunoprecipitation using α-RNA pol II CTD antibody (Total pol II), followed by α-phos-Ser2 pol II CTD (CTD-Phos) or α-*O*-GlcNAc (O-GlcNAc). (B) Q-PCR analysis of RNA pol II protein modifications in A549 cells transfected with OGT siRNA or scrambled siRNA and then treated with TNF-α and Dex. ** $P < 0.01$, *** $P < 0.001$, Boferroni's post-test. Q-PCR data were normalized to the input control. Primer sequences are available from the authors on request.

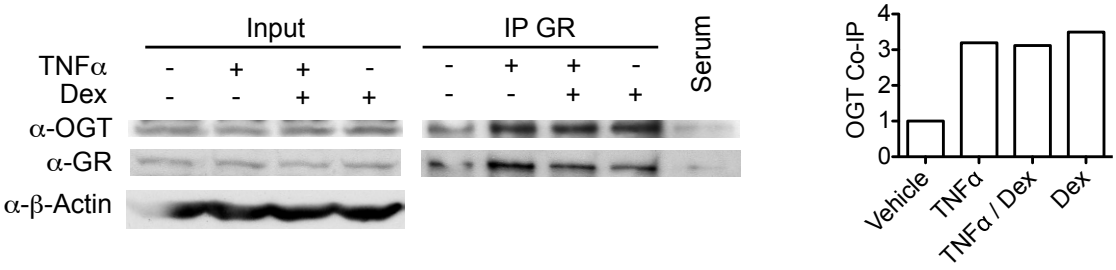
FIGURE S4. siRNA knockdown of OGT in CCRF-CEM cells. CCRF-CEM cells were transfected with siRNA oligonucleotide duplex (siCON, scrambled siRNA; siOGT, OGT siRNA). Two days after transfection, cells were lysed and subjected to Western blot analysis for OGT proteins and global *O*-GlcNAcylation. β-Actin was used as a loading control.

FIGURE S5. OGT mediates GR-induced transrepression. TNFα activates NF-κB and AP-1 signaling, promoting the expression of inflammatory and/or anti-apoptotic genes. GR recruits OGT to the promoters of NF-κB and AP-1 target genes, where OGT inhibits gene transcription through *O*-GlcNAc modification of the CTD of RNA pol II.

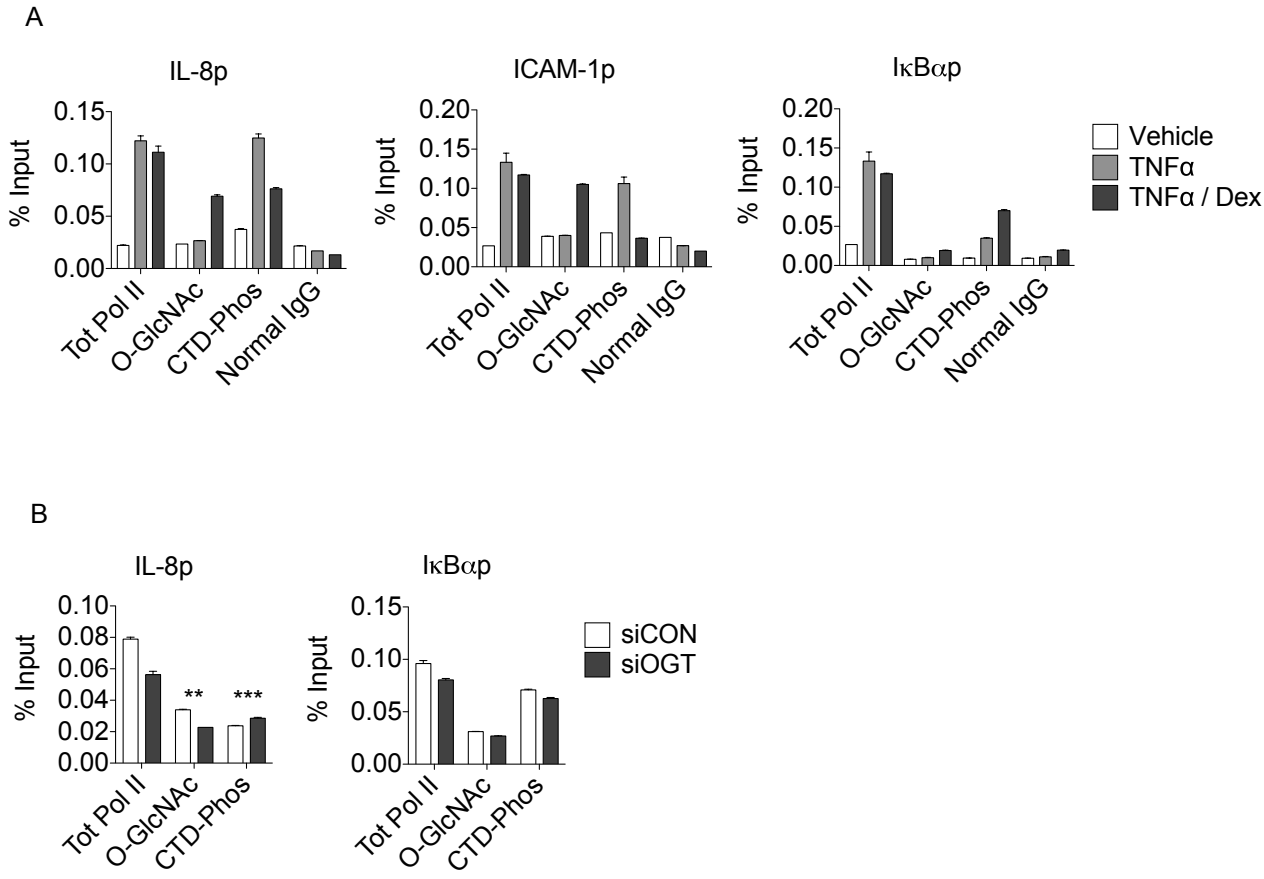
Supplementary Figure 1



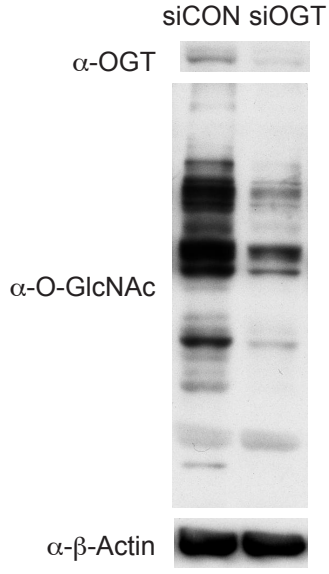
Supplementary Figure 2



Supplementary Figure 3



Supplementary Figure 4



Supplementary Figure 5