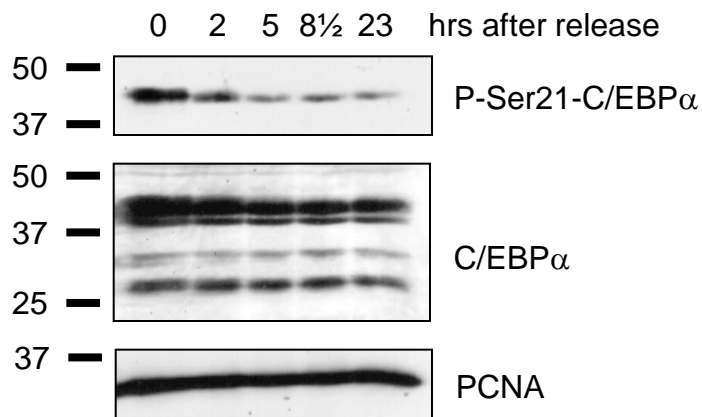
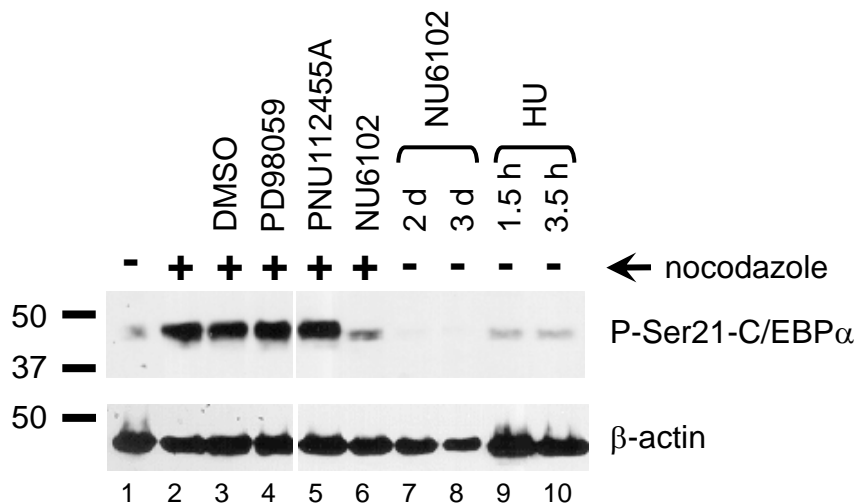
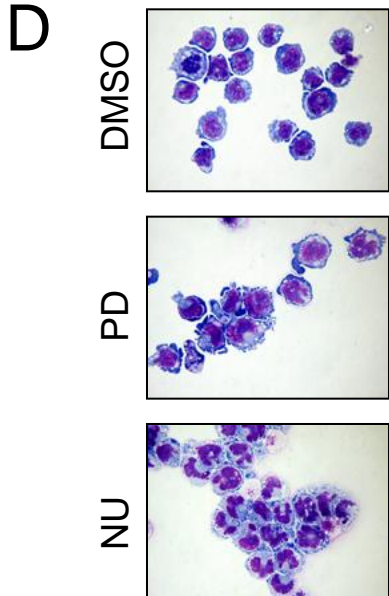
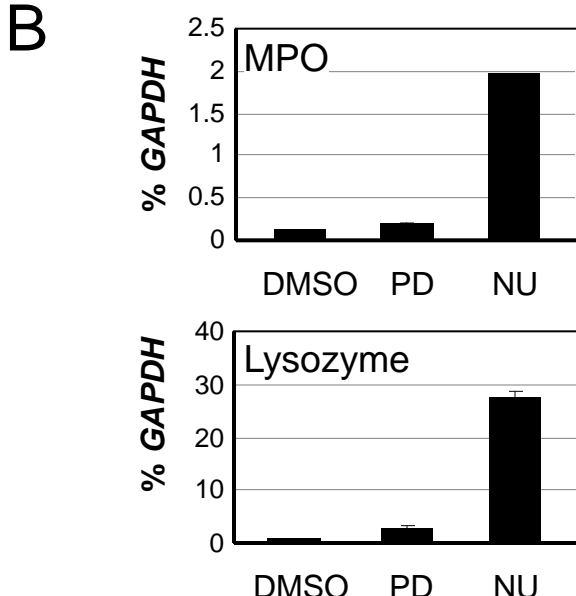
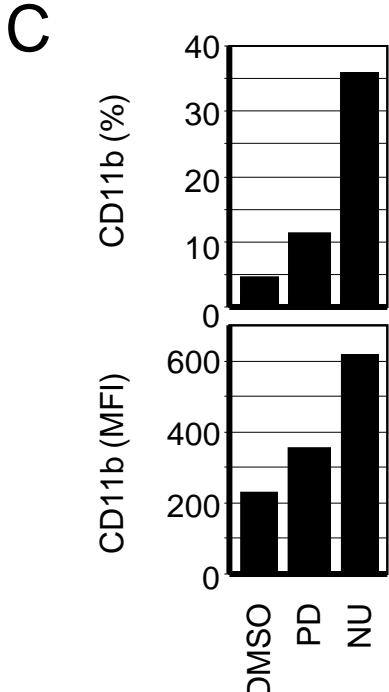
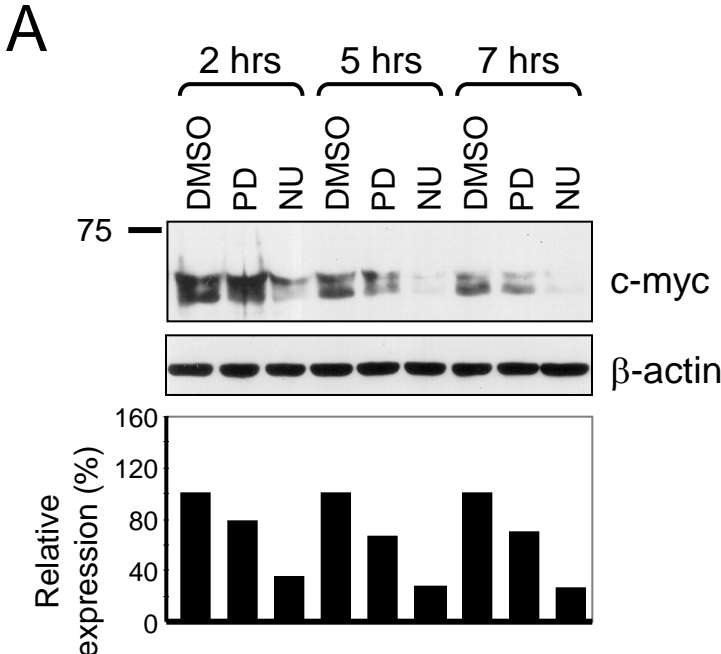
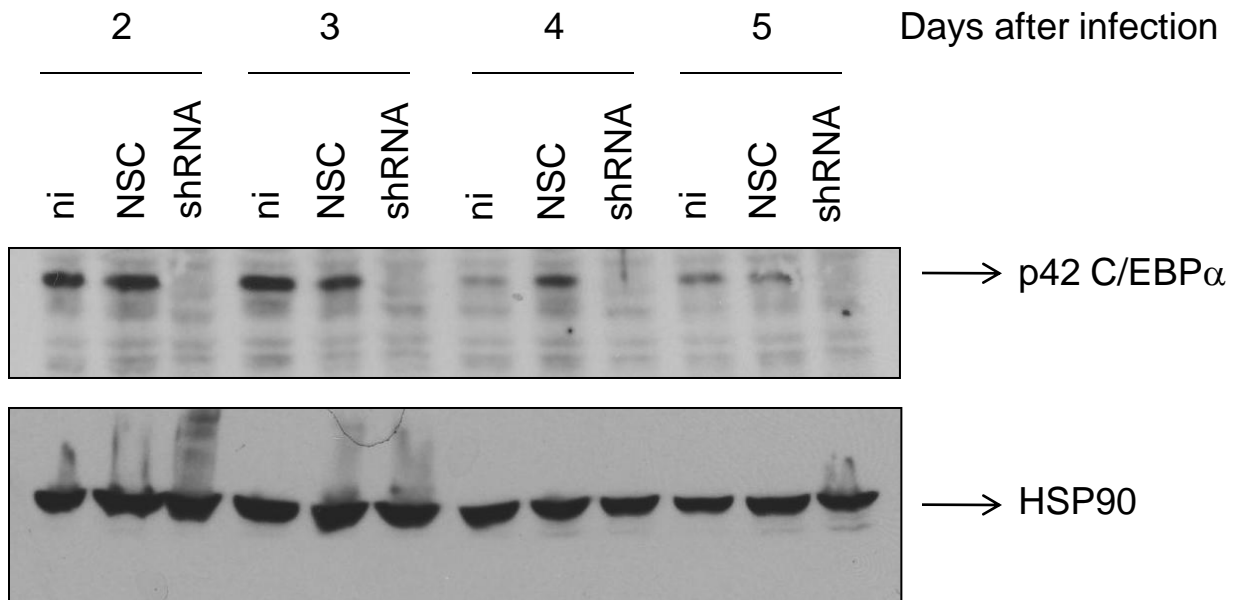


**A****B****Supplemental Figure 1**

Phosphorylation of C/EBPα on serine 21 correlates with cell cycle-dependent activity of CDK1. **(A)** U937 cells were treated with 0.1 μg/ml nocodazole for 17 hrs and analyzed by western blot following the release from the mitotic arrest at time points indicated above the blot. **(B)** U937 cells were treated with 0.01% DMSO (lane 1) for 17 hrs, or arrested in mitosis with nocodazole for 17 hrs (lanes 2-6; indicated by +) and then treated for 2 hrs with 0.05% DMSO (lane 3), 100 μM PD98059 (MEK1 inhibitor, lane 4), 50 μM PNU112455A (CDK2/CDK5 inhibitor, lane 5), or 10 μM NU6102 (CDK1 and CDK2 inhibitor, lane 6). Asynchronous cells were also treated with 10 μM NU6102 for 2 and 3 days (lanes 7 and 8), or 10 mM hydroxyurea for 1.5 and 3.5 hrs (HU, lanes 9 and 10) to arrest at G1/S phase. Protein extracts were analyzed by western blot for phosphorylation of C/EBPα on serine 21. All samples were loaded on the same gel but were noncontiguous.

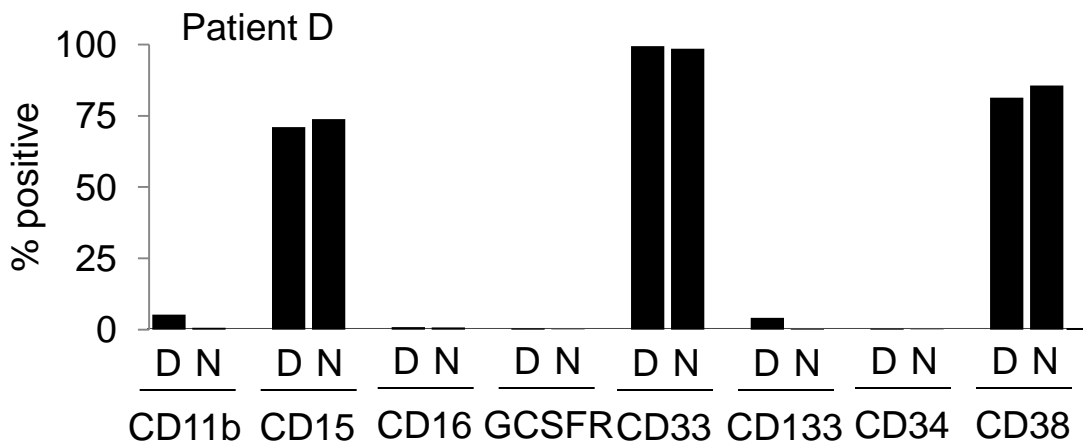
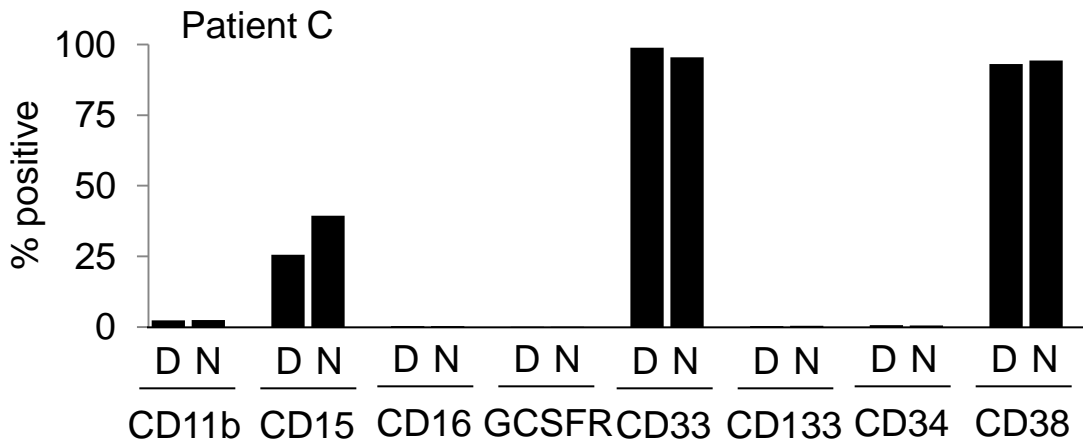


**Supplemental Figure 2**  
 Inhibition of CDK1 induces granulocytic differentiation of MOLM-14 cells more potently than inhibition of ERK pathway. (A) Cells were treated with MEK1 inhibitor, PD98059 (100mM; PD), CDK1 inhibitor, NU6102 (10mM; NU), or vehicle control, DMSO (0.2%). Cells were withdrawn at times indicated and analyzed for the expression of c-myc protein by western blot. Signals were quantified and shown below. (B) Cells were treated as in (A) for 4 days and analyzed for mRNA expression of MPO (upper panel) and lysozyme (lower panel) genes by Real Time-PCR. Y-axis indicates relative expression as percentage of *GAPDH*. (C) Surface expression of CD11b on MOLM-14 cells cultured in the presence of inhibitors for 3 days. The top panel shows the percentage of CD11b-expressing cells and the bottom panel shows mean fluorescence intensity (MFI). (D) Wright-Giemsa stained cytopspins of MOLM-14 cells treated as above for 4 days showing morphological maturation in response to MEK1 and CDK1 inhibitors.



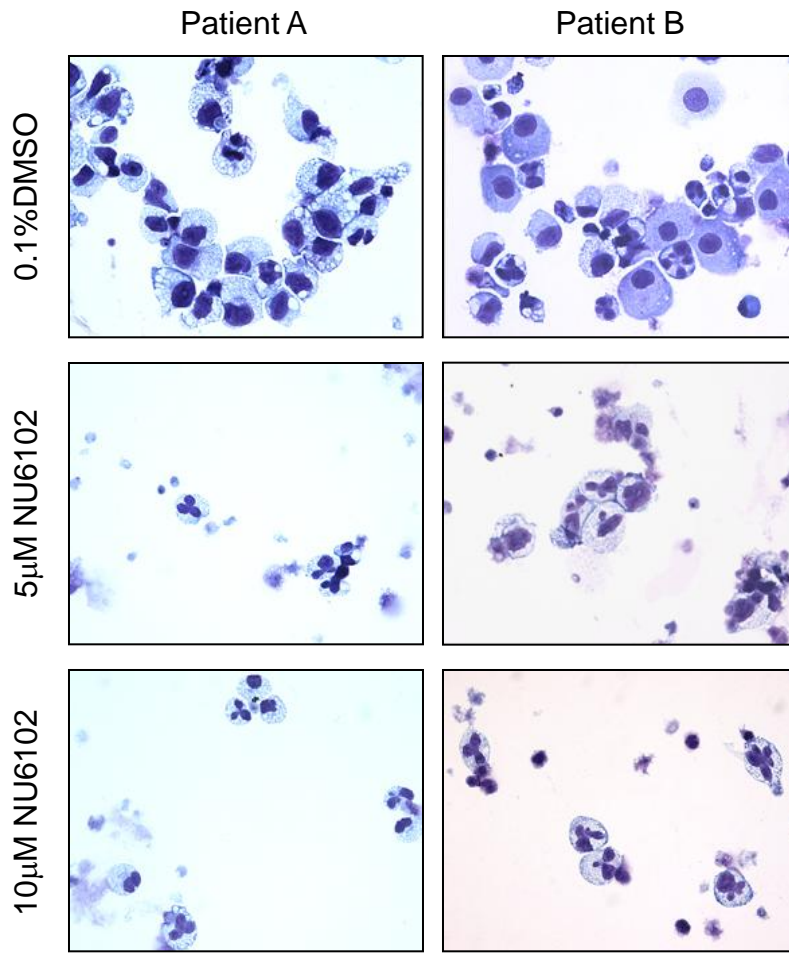
### Supplemental Figure 3

C/EBP $\alpha$  silencing by a specific C/EBP $\alpha$  shRNA lentivirus. Western blot analysis of HL60 cells, which do express high levels of C/EBP $\alpha$ , either non-infected (n.i), transduced with a non-silencing control lentivirus (NSC) or transduced with a shRNA lentivirus specifically targeting C/EBP $\alpha$  (shRNA). Blots were stained with C/EBP $\alpha$  antibody or HSP90 as a loading control.



**Supplemental Figure 4**

Inhibition of CDK1 in patient samples with wild type FLT3 receptor does not induce granulocytic differentiation. Blood specimens from AML patients with wild type FLT3 receptor (Pat C and Pat D; same as shown in Fig. 7) were cultured in the presence of 0.1% DMSO (D), or 10 $\mu$ M NU6102 (N) for 7 days. Cell aliquots were stained with anti-CD11b, CD15, CD16, G-CSF-R, CD33, CD133, CD34, and CD38 antibodies and analyzed by flow cytometry. Y axis indicate the percentage of positive cells.



**Supplemental Figure 5**

Primary FLT3ITD cells acquire granulocyte-like morphology following the treatment with CDK1 inhibitor, NU6102. Samples from patients A and B (same as in Fig. 7) were cultured for 7 days with 5 or 10μM NU6102, or 0.1%DMSO, as indicated on the left. Cytospin preparations were stained with Wright-Giemsa method.