

Additional file 3: Supplementary figures S1, S2, S3 and S4

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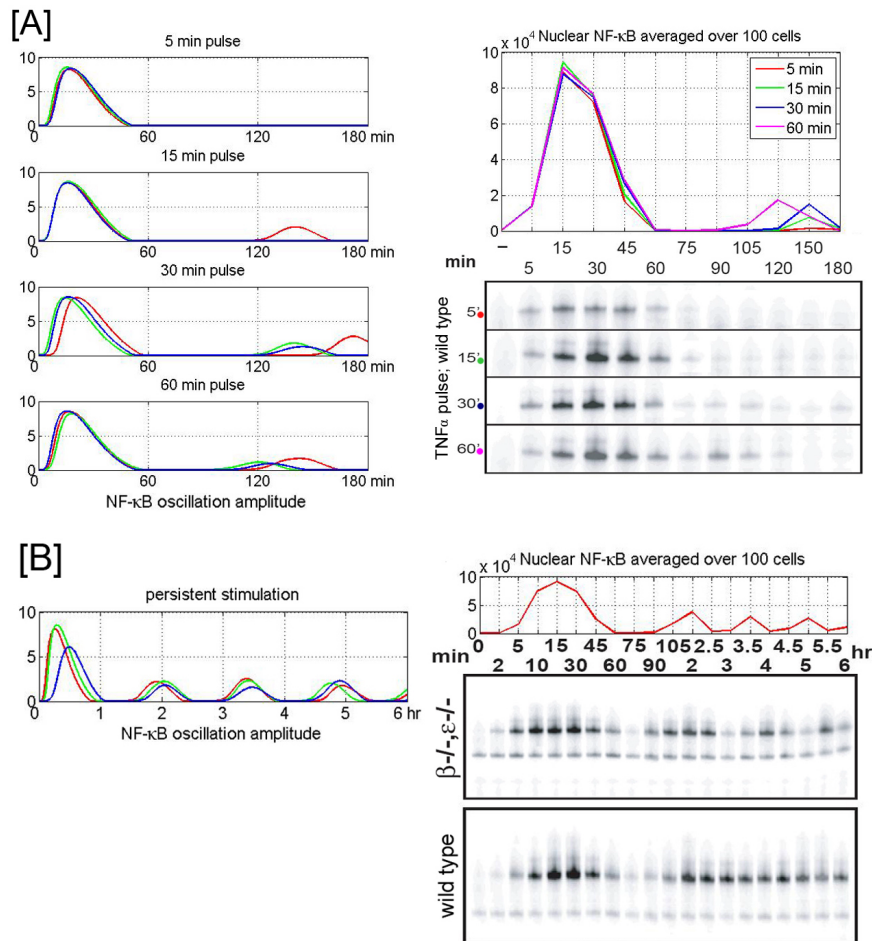


Fig. S1. Pulse and persistent stimulation by a high TNF α dose (10ng/ml). Amplitude of nuclear to cytoplasmic NF- κ B oscillations in single cells, and nuclear NF- κ B averaged over 100 cells compared with the experiment on mouse embryonic fibroblast (Hoffmann et al. *Science* 2002, **298**:1241-1245). Panel A, 5, 15, 30 and 60 min. long pulse stimulation. Panel B, persistent stimulation. Nuclear NF- κ B averaged over 100 cells compared with data from I κ B ϵ and I κ B β deficient and wild-type fibroblast (Hoffmann et al. *Science* 2002, **298**:1241-1245).

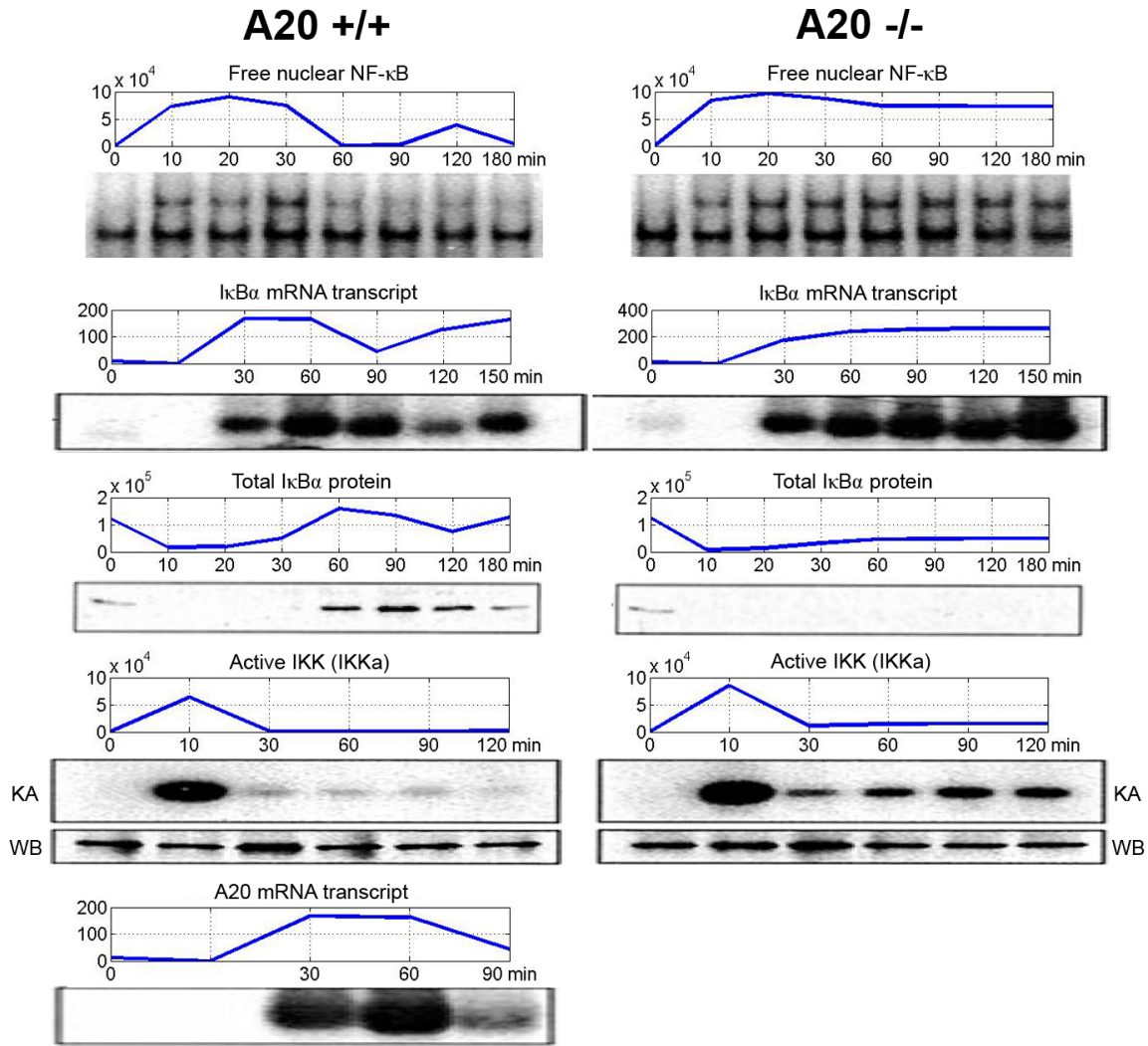


Fig. S2. The role of A20 negative feedback control in persistent TNF α stimulation. Model predictions versus experiment for wild type and A20 $^{-/-}$ mouse embryonic fibroblast (Lee et al. *Science* 2000, **289**:2350-2354).

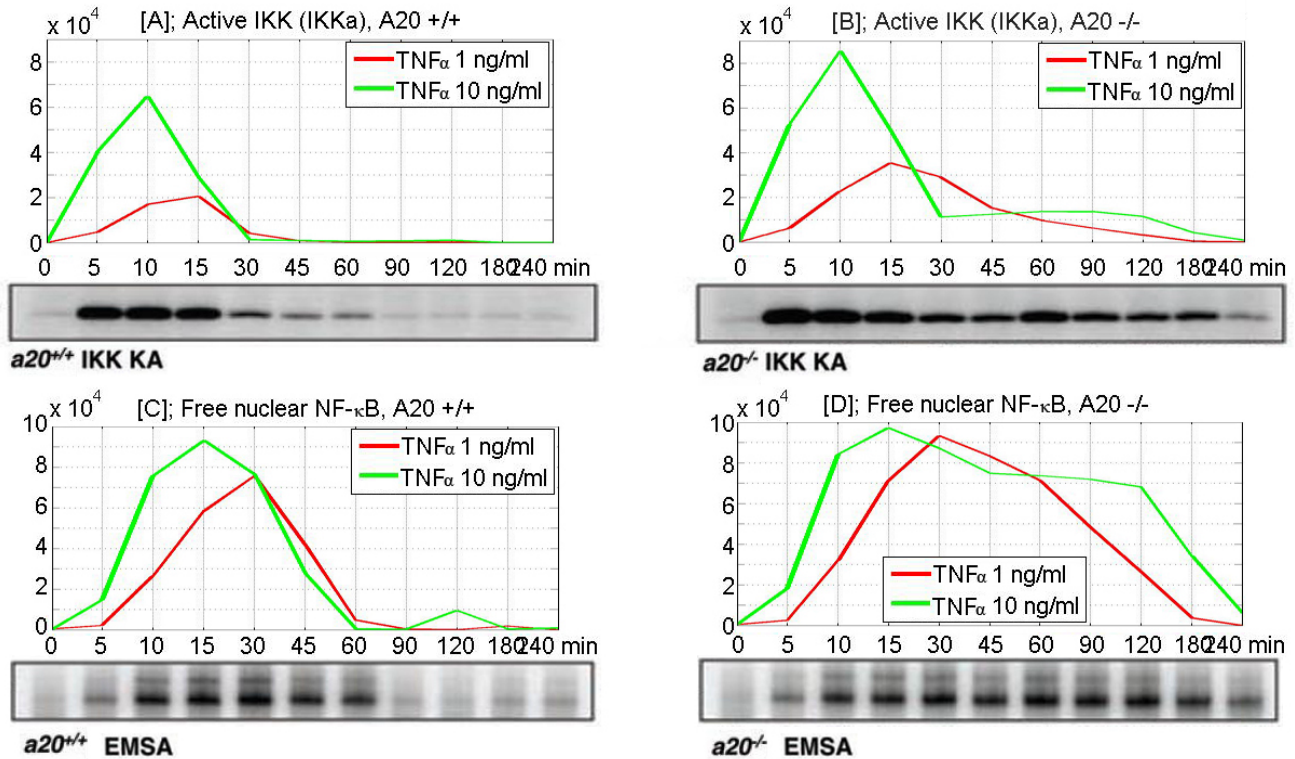


Fig. S3. The role of A20 negative feedback control in pulse TNF α stimulation. Experiment on 3T3 (Werner et al. *Science* 2005, **309**:1857-1861) stimulated by a 45 min. pulse of 1= ng/ml TNF α , versus model predictions for TNF α =1ng/ml and TNF α =10ng/ml (a better agreement with the experiment is achieved when in the numerical simulation TNF α concentration is set at 10ng/ml). Panel A, IKK activity of wild type cells in response to 45-min stimulation. Panel B, IKK activity of A20-/- cells. Panel C, nuclear NF- κ B of wild-type cells. Panel D, nuclear NF- κ B of A20-/- cells.

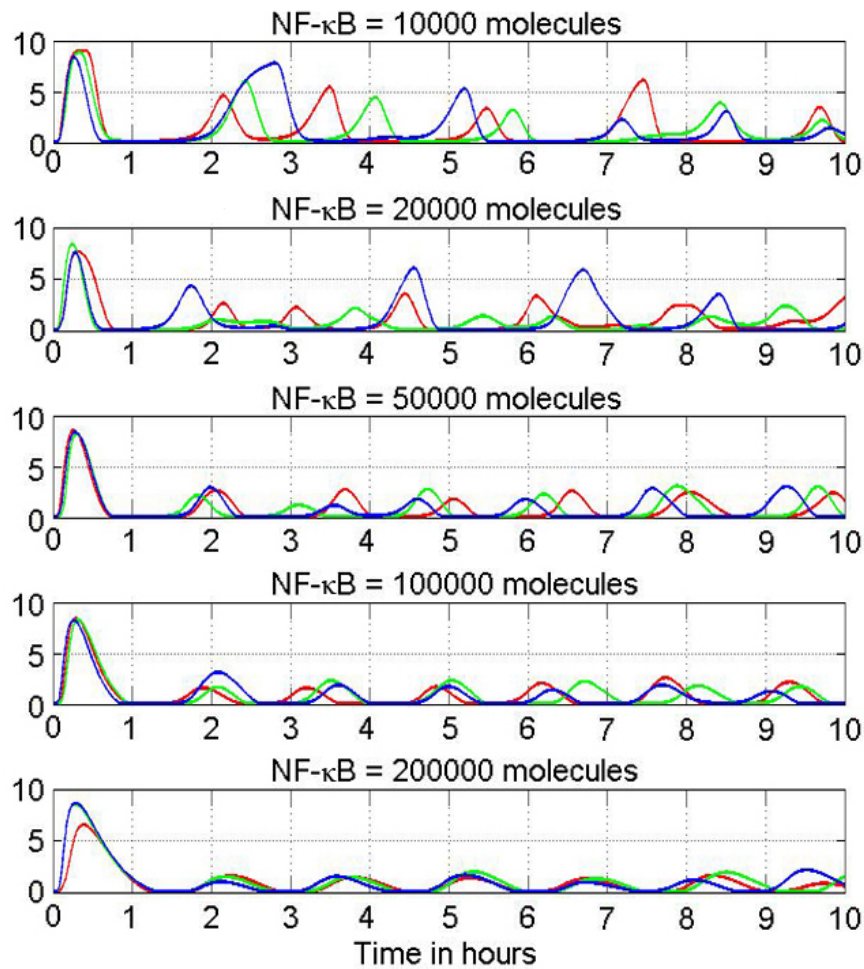


Fig. S4. Nuclear to cytoplasmic NF- κ B oscillations during persistent treatment by 10ng/ml TNF for 5 levels of total NF- κ B, 10000, 20000, 50000, 100000, 200000 molecules. The figure shows weak dependence of oscillation period to the total amount of NF- κ B, in agreement with the single cell experiment (Nelson et al. *Science* 2005, **308**:52b).