Mehrotra_Supplemental Fig. 1

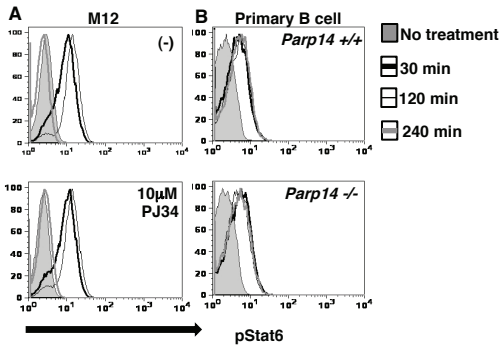

Figure S1: The phosphorylation of Stat6 is independent of PARP-14 expression and the enzyme activity associated with it. (A) M12 cells were untreated or treated with 10 μM PJ34 for 30 min and then further treated with IL-4 as indicated. The phosphorylation status of Stat6 was determined by flow cytometry. (B) Splenocytes isolated from either *Parp14 +/+* or *Parp14 -/-* mice were incubated with IL-4 as indicated. These cells were then stained with antibodies directed against B220 and pStat6 and analyzed by flow cytometry.

Mehrotra_Supplemental Fig. 2

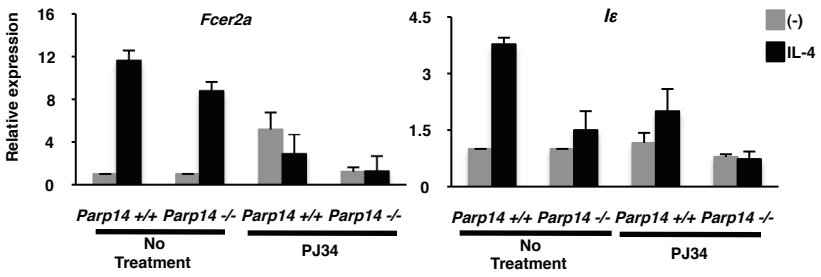

Figure S2: Stat6 dependent gene expression is dependent on PARP-14 and the enzyme activity associated with it. B cells isolated from *Parp14* +/+ or *Parp14* -/- mice were treated with IL-4 and PJ34 as indicated. The expression of *Fcer2a* and *Iε* in these samples was determined by qRT-PCR similar to Fig. 2b. Mean (±SEM) from three independent experiments are plotted.

Mehrotra_Supplemental Fig. 3

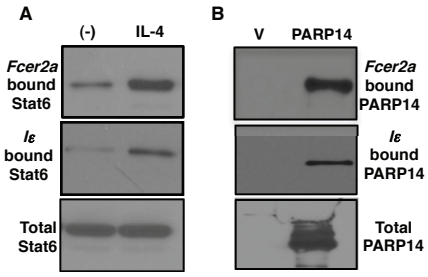

Figure S3: PARP-14 binds to the same 50 bp DNA region as Stat6. (A) M12 cells were untreated or treated with IL-4 as indicated and cell extracts were prepared. Equal amounts of protein was then used for DAPA with 50 bp double stranded biotinlyated oligonucleotides corresponding to the *Fcer2a* and *Iε* promoter regions. The proteins bound to the oligonucleotides were probed with anti-Stat6. (B) 293T cells transfected with an empty vector or one containing PARP-14 were lysed and used for similar DAPA experiments as in (A). The proteins bound to the DNA were probed with anti-PARP-14.

Mehrotra_Supplemental Fig. 4

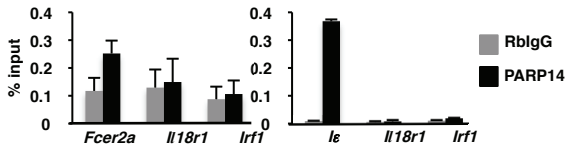

Figure S4: PARP-14 specifically associates with Stat6 but not Stat1 or Stat4 responsive promoters. Nuclear extracts from M12 cells were subjected to ChIP with either a rabbit isotype control antibody or one directed against PARP-14. qPCR were performed on the immunoprecipitated DNA with primers corresponding to the indicated gene promoters. The panel on the right are ChIP results of M12 cells that were treated with anti-CD40. The data plotted are mean (±SEM) from three independent experiments.

Mehrotra_Supplemental Fig. 5

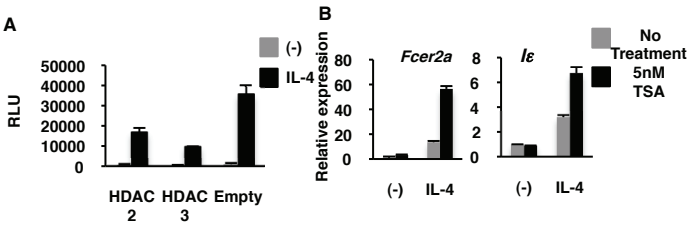

Figure S5: HDAC 2 and 3 regulate Stat6 and IL-4 induced transcription. (A) A Stat6 responsive reporter construct was co-transfected into M12 cells with the indicated HDAC expression plasmids and a constitutively active β-galactosidase reporter. The transfected cells were treated with nothing or IL-4 and the resulting cell extracts were used for luciferase and β-galactosidase assays. The data plotted are mean (±SEM) relative luciferase units which is the luciferase activity normalized with β-glactosidase activity from three independent experiments. (B) M12 cells were untreated or treated with TSA in the absence or presence of IL-4. The transcripts for either *Fcer2a* or germline epsilon (*Iε*) were quantified by qRT-PCR like before.

Technique	Gene	Sequence
ChIP	*Fcer2a* (F)	GCTGACTCTCCAACAGTTTGC
	Fcer2a (R)	TTTTGGTGCTCCCTAGAACCT
	Iε (F)	CTCACCTGAGACCCCACTGT
	Iε (R)	GCCTTAGCAGCCTTGGAAGT
Expression	*Fcer2a* (F)	GTGGCAAAGCTGTGGATAGAGA
	Fcer2a (R)	TAGTAGCACTTCTGTTGGAAATGGA
	Iε (F)	TGGGCATGAATTAATGGTTACTAGAG
	Iε (R)	TGGCCAGACTGTTCTTATTCGAA
	Iε Probe	CACAACGCCTGGGAGCCTGC
	Hprt (F)	TATGTCCCCCGTTGACTG
	Hprt (R)	TTGCTGACCTGCTGGATTA
	Gapdh	ABI Biosystem
DAPA	*Fcer2a* (F)	(Biotin)GACTCTCCAACAGTTTGCTTACCTGAGAAAT AGGTAATAATAGCCCGG
	Fcer2a (R)	CCGGGCTATTATTACCTTTATTTCTCAGGTAAGCAA ACTGTTGGAGAGTC
	Iε (F)	(Biotin)CCCCACTGTGCCTTAGTCAACTTCCAAGAACA GAATCAAAAGGGAACTTC
	Iε (R)	GAAGTTCCCTTTTGATTCTGTTCTTGGAAGTTGACT AAGGCACAGTGGGG