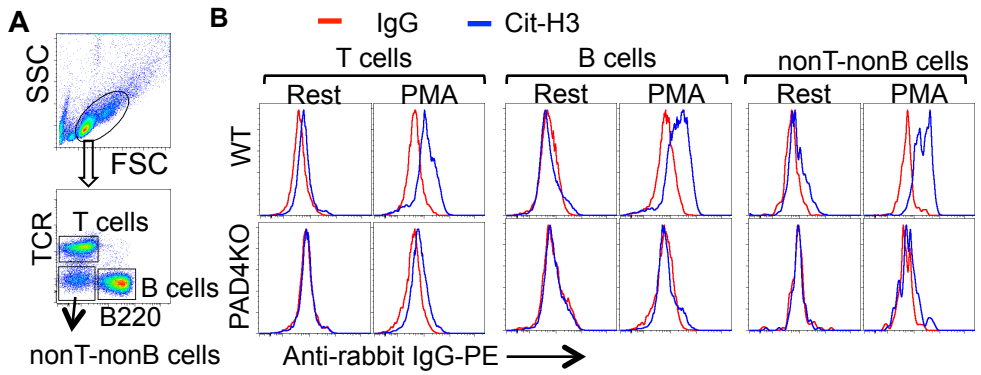
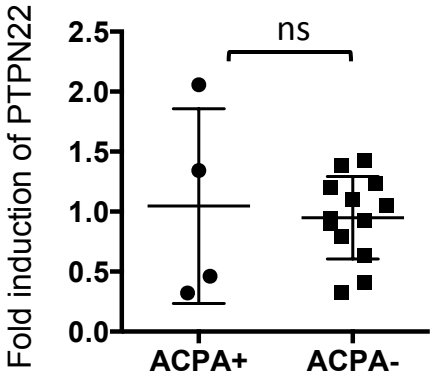
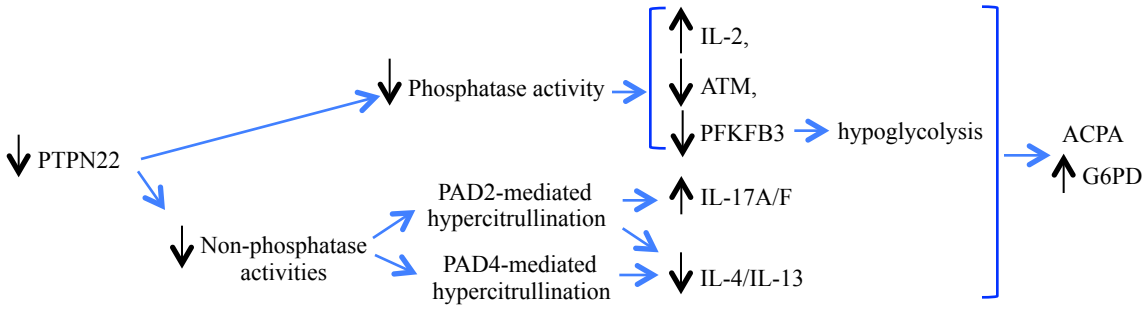


Supplemental Figure 1. Intracellular staining of citrullinated histone H3 (cit-H3). Wild type and PAD4-deficient (PAD4KO) splenocytes were left unstimulated or stimulated with PMA for 2 hours, then stained for TCRα and B220, fixed, and permeabilized. The cells were then blocked with BSA, stained with anti-cit-H3 or control IgG and then with PE-conjugated anti-rabbit IgG. The stained cells were analyzed with FACS. The gating of live cells, T cells, B cells, and nonT-nonB cells is shown in **A**. The histograms of PE channel of anti-cit-H3 were overlaid with those of control IgG. The overlay of each indicated population of WT and PAD4KO cells is shown in **B**.



Supplemental Figure 2. Induction of PTPN22 in PBMC of at-risk individuals (ARIs). The fold induction of PTPN22 from anti-citrullinated protein antibody (ACPA)+ and ACPA- ARIs shown in Figure 3F was compared with Student's t test.



Supplemental Figure 3: A proposed molecular signature of preclinical rheumatoid arthritis triggered by impaired induction of PTPN22, which is responsible for maintaining a normal phenotype of PBMC through its phosphatase and non-phosphatase activities.

Table S1: Sequences of real time PCR primers (except those used in Figure 6C)

Gene	**Forward primers**	**Reverse primer**
PTPN22	GCAGAAGTTCCTGGATGAG	TCAGCCACAGTTGTAGGATAG
IL-17F	GCGTTTCCATGTCACGTAACA	CAGCCCAAGTTCCTACACTGG
G6PD	GGCCGTCACCAAGAACATTC	TGGTCGATGCGGTAGATCTG
ATM	GGCATTTCTCTCATTAGCCCG	TTCATCCAACTCCAGCTCTCG
PFKFB3	CTCGCATCAACAGCTTTGAGG	TCAGTGTTTCCTGGAGGAGTC
b-Actin	GTGACAGCAGTCGGTTGGAG	AGGACTGGGCCATTCTCCTT

Table S2: PCR primers used in Figure 6C

Gene	**Forward primer**	**Reverse primer**
PAD2	ACCTCTGGACCGATGTCTACA	TCCCTTCCTCGTCATAGTAGTTG
IL-4	CCAACTGCTTCCCCCTCTG	TCTGTTACGGTCAACTCGGTG
IL-13	GCAATGGCAGCATGGTATGG	AAGGAATTTTACCCCTCCCTAACC
IL-17	AGATTACTACAACCGATCCACCT	GGGGACAGAGTTCATGTGGTA
IL-17F	GCTGTCGATATTGGGGCTTG	GGAAACGCGCTGGTTTTCAT
Actin	AGCGGGAAATCGTGCGTG	CAGGGTACATGGTGGTGC