# SUPPLEMENTARY MATERIAL

# SHORT METHODS.

The research was approved by the Institutional Review Board at Meharry Medical College. De-identified sera from 32 patients with renal biopsy-proven proliferative (class III or IV) or membranous (class V) lupus nephritis (LN) were obtained from Kidney Translational Research Center (KTRC) biorepository at Washington University. This cohort comprised 56% African-Americans and 44% Caucasians, and 81% of patients were women. The median age at the time of serum collection was 34 years (range 11 to 76). Sera from normal donors used as negative controls were purchased from Innovative Research (Novi, Michigan). Anti-MPO positive sera were purchased from The Binding Site (San Diego, CA). Plasma exchange fluid from patients with GP disease was provided by Dr. Minghui Zhao.

Recombinant human peroxidasin was expressed in HEK293 cells and purified as described.S1,S2 Immunoassays were performed in Maxisorb 96-well polystyrene plates (ThermoFisher Scientific, Waltham, MA) in 100 μl volumes. Wells were coated with 200 ng peroxidasin in PBS. After blocking with 1% BSA (Millipore, Burlington, MA), sera diluted 1/100 were added to each well and incubated at room temperature for 1 hour. Bound IgG was detected with goat anti-human IgG conjugated with horseradish peroxidase (Sigma, St Louis, MO), followed by chromogenic substrate (TMB Microwell Peroxidase Substrate Kit). Color development was measured at 650 nm. The background OD determined from incubating the same dilution of serum in wells coated with BSA was subtracted from each sample measurement. Readings in different plates were normalized using a common positive control sample. Samples with an OD650 reading more than 3 SD above the mean of control sera were considered positive. For inhibition ELISA, sera diluted 1/1000 were incubated with various concentrations of soluble peroxidasin for 30 minutes at room temperature before addition to antigen-coated wells. Each assay was repeated two times.

**Supplementary References**

S1. Bhave G, Cummings CF, Vanacore RM*, et al.* Peroxidasin forms sulfilimine chemical bonds using hypohalous acids in tissue genesis. *Nature chemical biology* 2012; **8:** 784-790.

S2. McCall AS, Cummings CF, Bhave G*, et al.* Bromine is an essential trace element for assembly of collagen IV scaffolds in tissue development and architecture. *Cell* 2014; **157:** 1380-1392.