

## Supplemental Materials

### Supplemental Methods:

The clinical study was approved by the Partners Human Research Committee. All patients signed written consent prior to enrolling in the study. Only patients with a functioning kidney transplant qualified. A General Electric Logiq E9 R5 Ultrasound System with a curvilinear 1-6MHz probe and contrast capabilities was used for all imaging. All imaging acquisition were performed in the clinical care area where routine kidney transplant biopsies take place. A physician was present for the full duration of all studies. Epinephrine was available at the bedside as is standard in the clinical radiology area. Contrast agent was kept in the secured investigational drug pharmacy where storage temperature (15-25 Celsius) was monitored continuously. Agent was transported directly to the radiology suite where each imaging study took place. Unenhanced ultrasound with color and power Doppler was performed first. 16 microliters of lyophilized contrast was re-suspended in 2 milliliters of sterile water. Re-suspended agent (0.06 microliter/kilogram) was then infused over 10 seconds. When contrast infusion was initiated, the phase-modulation harmonic mode was employed. Sonazoid contrast was infused through a peripheral venous access in the arm. Consecutive thirty second video clips of the ultrasound were recorded during and after infusion for at least 10 minutes. Patients were monitored for 30 minutes after the procedure. There were no adverse events reported with any enrolled patients. Post processing analysis was performed using ImageJ v1.52 software applying a 1cm<sup>2</sup> region of interest in the mid and lower poles for signal intensity quantification.

16 gauge kidney biopsy cores were obtained and processed using the Jones Silver stain techniques. Scale bar=200micrometers

**Video S1:**

Patient #1 undergoing CEUS using Sonazoid contrast media.

**Video S1.1**

Patient #1 undergoing Doppler ultrasonography without contrast.

**Video S2:**

Patient #2 undergoing CEUS with Sonazoid contrast media.

**Video S2.1**

Patient #2 undergoing Doppler ultrasonography without contrast.