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Press Release

EMBARGOED FOR RELEASE until November 2, 2017 – 5:30 PM (ET)

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RESEARCHERS IDENTIFY POTENTIAL AUTOANTIGEN IN AGGRESSIVE FORM OF KIDNEY DISEASE

Highlights

- A particular protein is found in abundance in the kidneys of patients with an aggressive form of kidney disease called fibrillary glomerulonephritis. The discovery may improve diagnosis, and eventually, treatment.
- The protein was identified by two research groups, working independently.

Washington, DC (November 2, 2017) — New research reveals the presence of abundant levels of a certain protein in the kidneys of patients with fibrillary glomerulonephritis (FGN). In FGN, large amounts of protein become trapped in the millions of filtering units—or glomeruli—that make up the kidney. The findings, which appear in two different studies in the *Journal of the American Society of Nephrology* (JASN), suggest that the identified protein may be a potential diagnostic and therapeutic target for FGN.

FGN is an aggressive kidney disease, and nearly half of patients become dependent on dialysis within several years of diagnosis. No unique clinical markers of FGN have been identified to help diagnose FGN, and current tests involve time-consuming analyses with light microscopy, immunofluorescence, and electron microscopy. Once a diagnosis is made, most patients are treated non-specifically with immunosuppressive therapy, which is often not effective and can be associated with significant adverse effects.

Working independently, research teams from the Mayo Clinic in Rochester, Minnesota, and the University of Washington, in Seattle, analyzed the protein content of glomeruli in patient biopsy specimens. Both groups detected DnaJ heat shock protein family member B9 (DNAJB9) as an abundant protein in FGN glomeruli, but not in glomeruli from healthy individuals. An accumulation of antibodies was also found along with DNAJB9 in glomeruli from patients with FGN, suggesting that DNAJB9 and antibodies that are likely directed against the protein contribute to the glomerular deposits that are a hallmark of FGN. Therefore, DNAJB9 may be an autoantigen, or a normal protein that is the target of an autoimmune response.

“Now that we know that large amounts of this protein are deposited in the kidneys of patients with FGN, future therapies that reduce the rate of deposition of this protein in the

kidney and/or dissolve the deposits from the kidney may prove to be effective in the treatment of this intriguing disease," said Samih Nasr, MD, co–senior author of the Mayo study. "The discovery of DNAJB9 as a putative autoantigen in FGN paves the way for the development of new diagnostic and therapeutic tools to help care for patients with this disease," said Kelly Smith, MD PhD, senior author of the University of Washington study.

Dr. Nasr's co-authors include Mariam Priya Alexander, MD, Surendra Dasari, PhD, Paul Kurtin, MD, Julie Vrana, Jason Theis, BS, Joh Mills, PhD, Vivian Negron, Sanjeev Sethi, MD, PhD, Angela Dispenzieri, MD, and W. Edward Highsmith Jr, PhD.

Dr. Smith's co-authors include Nicole Andeen, MD, Han-Yin Yang, BS, Dao-Fu Dai, MD PhD and Michael J. MacCoss, BS.

Disclosures: The authors reported no financial disclosures.

The articles, entitled "DnaJ Heat Shock Protein Family Member B9 Is a Novel Biomarker for Fibrillary GN" and "DnaJ Homolog Subfamily B Member 9 Is a Putative Autoantigen in Fibrillary GN," will appear online at http://jasn.asnjournals.org/ on November 2, 2017, doi: 10.1681/ASN.2017030306 and doi: 10.1681/ASN.2017050566. An accompanying editorial, entitled "Glomerular Disease Pathology in the Era of Proteomics: From Pattern to Pathogenesis," will also be published on November 2, 2017.

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findings, which appear in two different studies in the *Journal of the American Society of Nephrology*, suggest that the identified protein—called DNAJB9—may be a potential diagnostic and therapeutic target for FGN.

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