

From Crisis to Opportunity: HemoShear Continues to Obtain Tissue to Advance Research

Hemoshear was created around a technology that enables us to gain unprecedented insight into diseases by obtaining human tissue to recreate diseases in our drug discovery lab. Our team has to go through exhaustive efforts for the rare opportunities to obtain tissue from patients with our target diseases.

On a Friday last Fall, HemoShear’s Director of Tissue Procurement, Jeanine Fogarty, RN, was informed that a patient with a chronic liver disease we are targeting was in urgent need of a liver transplant. The patient was a young woman in her 20s whose doctors thought she had only 48 to 72 hours to live. Fortunately, a donor was found for the patient and she was scheduled for a liver transplant in a midwestern hospital over the next few days.

Once Jeanine was informed that a transplant was imminent, she was connected with the family. She spoke with them about donating the patient’s explanted liver so that our researchers could learn something from her cells. The patient and her family graciously agreed to do that despite everything else going on around them.

With the family’s cooperation secured, Jeanine sprang into action. She hopped on a plane across the country and arrived at the operating room to recover and preserve the liver on the night of the transplant. She quickly flushed the liver to remove blood, preserved, and packaged it to fly back early the next morning. Jeanine was fortunate to meet a supervisor who happened to have received a kidney transplant working for the airline who helped her get cleared to travel with the package. Jeanine arrived back to HemoShear and provided the explanted liver to the lab team.



HemoShear scientist Austin Payne flushing a donated liver

Liver Studied in Our Lab

“When the liver arrived in our lab, we flushed it again and used enzymes to break down the connective tissue and free up the hepatocytes,” says M. Sol Collado, PhD, head of discovery biology. “After we isolated the hepatocytes, we cryopreserved them so we can store them frozen for a long time and use them to create in vitro human models to assess biomarkers of the target disease and test the efficacy of potential treatments.”

“Each disease is a different story. In diseases where the liver is sick, it can be cirrhotic and fibrotic – it is more of a challenge to get healthy cells out of these livers so we are constantly tweaking our protocols based on the type of tissue we get,” says Jeanine. “We were able to get some cells from the liver, but we knew that the yield would be low given how sick the patient was. So we tried something new with this liver. In addition to the mature cells, which often do not bear the disease well, we are collaborating with another lab in to see if we can retrieve stem cells. We are waiting to see if the stem cells will be useful for our studies.”

HemoShear’s Tissue Procurement Program Enables Potential Therapies

Hemoshear has identified treatment targets and advanced proprietary and collaboration drug candidates through the company’s REVEAL-Tx™ drug discovery platform. REVEAL-Tx was created around our technology that applies principles of physiological blood flow to human tissue, like the donated liver we recently received, to recreate diseases in our laboratory for research.

The company continues to obtain human tissue to advance our research programs. Jeanine has spent several years building a network to obtain explanted healthy and diseased tissue under IRB-approved protocols. Jeanine’s experience with organ donation goes back 25 years when she served as an organ recovery coordinator for a state agency.

Locating transplant patients with rare diseases in real time is extremely challenging. Jeanine has been able to work with a federally appointed organization that maintains an ongoing list of rare disease transplant candidates. This enables her to contact transplant center administrators where these patients are located and establish contracts with their ethics committees to clear the way for obtaining diseased organs.

Over the past several years, we have obtained more than 10 livers from patients with methylmalonic or propionic acidemia, enabling us to model these complex diseases, target mechanisms to lower the toxins associated with these disorders and advance development of our therapeutic drug candidate HST5040. We are now working to procure organs from patients with an undisclosed liver disease for our discovery partnership with Takeda. Thanks to Jeanine’s determination and the generosity of patients and their families, we have been able to obtain donations of these precious tissues for research. We hope to continue this fundamental research in the future through additional tissue donations.

“We are grateful to the patients and families who agree to donate their organs at a very challenging time,” says Jeanine. “We have been able to gain unprecedented insights into disease using this tissue in our research platform. We look forward to continuing to make important progress as we obtain more patient tissue.”

About HemoShear Therapeutics

HemoShear Therapeutics, Inc. is a privately held clinical stage company developing treatments for rare diseases with significant unmet patient need. HemoShear’s drug discovery platform, REVEAL-Tx™, enables the Company’s scientists to create best-in-class, biologically relevant human disease models to uncover the underlying mechanisms of disease, translate those discoveries into drug targets, and select candidates that may treat patients successfully. HemoShear completed an exclusive partnership identifying two novel therapeutic approaches in nonalcoholic steatohepatitis (NASH) for [Takeda](#) in 2021. The Company has ongoing collaborations with Takeda in a rare liver disease and with [Horizon Therapeutics](#) in gout. For more information visit www.HemoShear.com.