Research: A Better Heart Valve with Tissue Engineering

One aspect of Leigh Griffiths’ cardiology research program is to produce a better heart valve for dogs with mitral valve disease using a type of tissue engineering designed to be applicable in dogs and humans. “Our research examines what the immune system reacts to and how we can remove those things from the tissue—at which point we would have a tissue-based material appropriate for making valves for dogs,” Griffiths states.

Tissue valves made from either bovine pericardium or porcine aorta are already being used for heart valve replacement in humans. “The goal, for either human or canine application, is to remove from the tissue everything to which the immune system would react,” Griffiths explains. “In dogs this material alone would be sufficient to form a valve which would function for the life of the patient. In humans, you would take stem cells from the patient and grow them into the material to provide the additional ability for long-term growth and repair of the tissue.”

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