



Valve Control System for Decellularization and Recellularization of Organs (20130112, Dr. Angela Panoskaltsis-Mortari)

Efficient Tissue Engineering Process

The valve control system results in more consistent decellularized tissue while allowing those working in the lab to effectively cut large amounts of time and effort out of the decellularization and recellularization process of organs. In the process of tissue engineering a large amount of time is spent on changing fluids and carbos manually while the decell/recell process takes place, time that could be spent elsewhere. This technology effectively takes the manual process of changing necessary fluids and automates it to allow for reduction in researcher's time spent on the manual labor this step calls for. It is invaluable to researchers with limited budgets and time to have an automated valve control system for decellularization/recellularization.

Decellularization and Recellularization Optimization

The valve control system opens up the possibility of running the decellularization/recellularization process through the night. Typically, researchers in a lab have to spend at least five hours of intermittent tech time manually changing tanks to ensure the process is not running on dry tanks. Workers must be available to manually operate the valve system at non-optimal times. The valve control system for the decell/recell process helps to eliminate two to four days from the entire process with the capability to run throughout the night and the time saved on manual labor allows researchers to reduce costs by not having to hire an undergraduate lab assistant to oversee the process.

Licensing the Valve Control System Software

The Valve Control System Software runs on the Windows platform and can be licensed from the University of Minnesota. At the end of the licensing process you can download both the source code and the executable. The license allows the Licensee to use the software in a lab to control the fluids required in the decellularization / recellularization process. The software cannot be distributed or used to create a commercial product. The software requires that a microcontroller be connected to the computer. The microcontroller can be purchased at <http://www.microchipdirect.com/programming/login.aspx?returnUrl=/programming/UploadPart.aspx> (you will need to upload the code) or at <http://www.microchip.com/Developmenttools/ProductDetails.aspx?PartNO=PG164130> if you want to program it yourself.

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