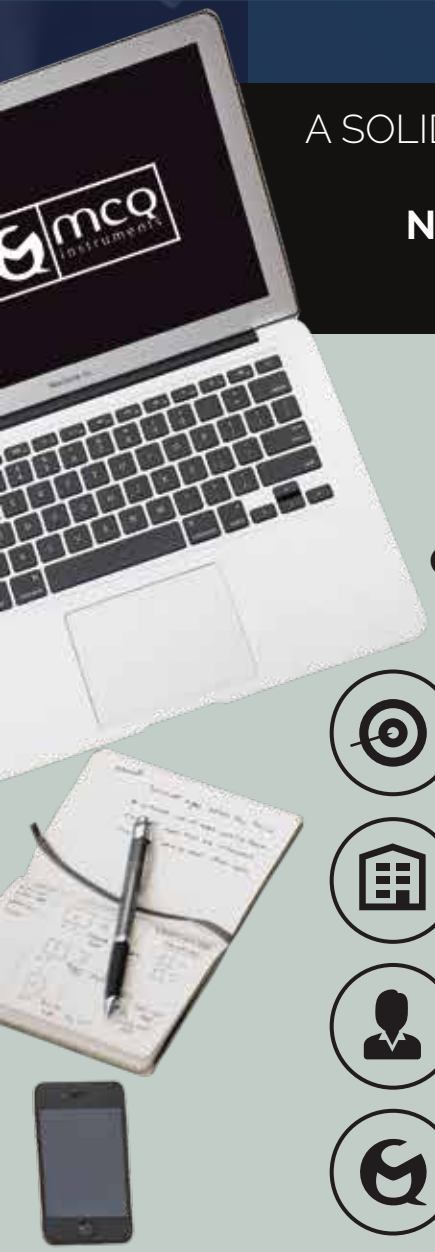
National Institutes of Health

- OXYGEN REGULATED PERFUSION SYSTEM
- ONCOLOGY RESEARCH
- EASY TO USE AND FLEXIBILITY



A SOLID BUSINESS CASE IN COLLABORATION WITH

NIH - NATIONAL INSTITUTES OF HEALTH
NCI - NATIONAL CANCER INSTITUTE

GENERAL INFORMATION ABOUT THE PROJECT

TARGET OF THE PROJECT:
Normothermic Ex Vivo Liver Perfusion

DEPARTMENT:
Surgical Oncology Program

HEAD OF PROJECT MANAGEMENT:
Allen Luna

ROLE OF MCQ INSTRUMENTS:
To provide a stable Gas Flow and precise Gas Mixtures

MORE INFORMATION ABOUT THE COMPANY

The National Institutes of Health (NIH), a part of the U.S. Department of Health and Human Services, is the nation's medical research agency — making important discoveries that improve health and save lives.
The National Cancer Institute (NCI) is the federal government's principal agency for cancer research and training.
https://www.nih.gov/about-nih/who-we-are
https://www.cancer.gov/about-nci/overview

DESCRIPTION OF THE APPLICATION AND THE TARGET

NIH-NCI lab perfuses human and porcine livers on an automated machine which recapitulates all vital human organ systems. These systems include a cardiovascular system (consisting of centrifugal pumps and infusions of vasoactive substances), a pulmonary system (consisting of a diaphragm that provides compression to the liver to prevent edema and pressure necrosis), an endocrine system (consisting of a continuous glucose monitor with automated insulin and glucagon infusions), a renal system (consisting of an in-line dialysis circuit), and a central nervous system (consisting of a repository of Python code that integrates each system together to allow for automated perfusions). The system is also fitted with a variety of pressure, flow, and blood gas sensors to monitor perfusions. NIH-NCI goal is to maintain viability of the liver ex vivo for as long as possible to study the effects of oncotherapeutics on tumors in the liver. NIH-NCI are currently optimizing the machine using porcine livers. Once fully optimized, they will move on to perfusing whole human livers deemed unfit for transplant. Finally, NIH-NCI will perfuse tumor-bearing human liver segments from patients undergoing clinically indicated resections in the OR.

BENEFITS AND SAVINGS

MCQ Instruments provided an efficent solution for an Easy and Precise Blending of the needed Gas Mixtures. NIH reported also the benefit pf spending less time titrating adequate gas mixtures.

GAS MIXER VS GAS CYLINDER

The ability to blend O2 simulations on-demand is an incredibly powerful tool in the development and provides a level of flexibility that gas cylinders cannot provide.

TIME SAVINGS: -70%

Easier setup management of the hardware. Easier setup management of the software.
Less time spent titrating adequate gas mixtures.

MICRO FLOW RATES: NO CUT-OFF

Our Gas Blenders allow NIH-NCI to control the flow in all the calibration range, from 0,1 ml/min to 500 ml/min with NO cut-off.

AUTOMATION:

Easy blending of gases, runs without user input.

EASY TO USE SOFTWARE:

Thanks to our Software PRO Version and its easy-to use user interface, now NIH/NCI can easy set all the experiment through our software. Easy blending of gases, runs without user input.

SUCCESSFUL ACHIEVEMENT:

Our Gas Blenders offer a more flexible and user-friendly option to deliver custom gas mixtures to an oxygen regulated microscope perfusion system..

READY TO TALK ABOUT YOUR SOLUTION?

info@mcqinst.com - www.mcqinst.com