

# Evoqua Meets Stringent Water Quality for New Research Laboratory

Providing Type I ultrapure water for HIV research at the University of Alabama

## Challenge

The University of Alabama at Birmingham needed high-purity water for its new research laboratory, which could reliably meet the stringent water quality requirements needed for human immunodeficiency virus (HIV) research. The lab needed water that was RNase and DNase free and with low levels of total organic carbon (TOC).

“In our research, we are examining the thermodynamics and kinetic mechanisms of HIV Integrase binding to nucleic acid substrates in vitro, including both RNA and DNA substrates, therefore, it is imperative that we have a source of water that is free of RNases and DNases,” says Aaron L. Lucius Ph. D., assistant professor of chemistry. “We use fluorescence techniques including fluorescence resonance energy transfer (FRET), polarization, anisotropy, and static and dynamic light scattering. Because water sources often contain organic compounds, and organic compounds fluoresce, maintaining the TOC at a very low level is critical for maximizing our signal-to-noise ratio.”



## Solution

To meet his high-quality needs, Dr. Lucius chose a PURELAB® Option-R system and a PURELAB® Ultra system. The Option R incorporates reverse osmosis (RO), deionization (DI), ultraviolet (UV) sterilization technologies, and recirculation in one compact unit. It is designed for standard laboratory techniques and for pretreating ultrapure water polishing systems such as the PURELAB Ultra system.

The PURELAB Ultra system incorporates DI, UV, ultrafiltration (UF), and microfiltration technologies, and is designed to provide American Society for Testing and Materials (ASTM) Type I ultrapure water for critical biological and analytical applications. It monitors TOC in real time, reporting the level every 2 seconds.

## Results

Overall, I have been happy with the system. It provides water that is RNase and DNase free with TOC levels less than 3 parts per billion. "

**AARON L. LUCIUS PH. D., ASSISTANT PROFESSOR OF CHEMISTRY**

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## **CUSTOMER**

University of Alabama, Birmingham, AL, USA

## **CHALLENGE**

University needed a high-purity water system for its new research lab that was able to meet stringent water quality requirements

## **KEYS TO SUCCESS**

Solution must meet water quality requirements and provide real-time TOC monitoring

## **SOLUTION**

PURELAB® Option-R and Ultra system

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## **TECHNOLOGIES**

**Lab Water Systems**