JEFFERSON INSTITUTE for BIOPROCESSING:

Advancing Biologics R&D

A JIB employee sets up a 2 L bench scale bioreactor for CHO cell culture.

BELOW: JIB is the kind of facility you see in a manufacturing setting—and it is unique among academic institutions.

JIB will help **advance research** and development of biologics, supporting both academia and industry.

BIOLOGICS REPRESENT ABOUT 40 PERCENT OF DRUGS IN THE therapeutics development pipeline, and currently account for more than $200 billion in annual global revenue. It is an area primed for extraordinary growth. But research and development by pharmaceutical companies and manufacturers—and academic research centers—are limited by the lack of trained professionals in this field.

To meet these critical workforce needs, Jefferson established **Jefferson Institute for Bioprocessing (JIB)**. It is the first—and only—specialized education and training institute for biopharmaceutical processing in North America that combines commercial single-use processing equipment with a curriculum created in collaboration with the Ireland-based National Institute for Bioprocessing Research and Training (a joint effort of University College Dublin, Trinity College Dublin, Dublin City University and the Institute of Technology, Sligo). JIB—which opened its 25,000 square foot training and education facility in May 2019—provides training to industry professionals through workshops and certificate programs and hands-on education of new bioprocessing engineers at the undergraduate and graduate levels. "This is the kind of facility you see in a manufacturing setting," says **Parviz Shamlou, PhD**, JIB's executive director. "It is, we believe, unique among academic institutions."

Different Manufacturing Process Means Challenges

The growth of biologics represents a major industry shift from traditional chemical synthesis techniques. Biologic pharmaceuticals are manufactured in a living system, such as a microorganism, plant or animal cell, often using recombinant DNA technology. However, with a complex manufacturing process and lengthier regulatory approval process compared to traditional small-molecule drugs, biologics remain challenging to produce.

"Biomanufacturing is going through an unprecedented period of innovation in new products and growth in legacy therapeutics," says Dr. Shamlou. "JIB will help advance research and development of biologics, supporting both academia and industry." ■