



Process Chromatography Applications Laboratory

An Invitation





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A Warm Welcome

Bio-Rad Laboratories welcomes you to our pilot-scale development laboratory for process chromatography. Located at Bio-Rad corporate headquarters in Hercules, California, on the southeastern shore of the San Pablo Bay, the laboratory offers access to state-of-the-art chromatography equipment and media and to the expertise of our team of separations scientists and engineers. Working with laboratory staff, you will have the opportunity to operate chromatography hardware, optimize your packing procedures, and review optimal solutions for your manufacturing processes.

Description of Laboratory

The pilot-scale process chromatography applications laboratory occupies 1,400 square feet (130 m²) of dedicated space in Bio-Rad's facility at 925 Alfred Nobel Drive. The large open floor plan of the laboratory offers maximum flexibility for connecting and configuring downstream purification equipment. The space is designed as a nonclassified environment to allow engineers and technicians easy and complete access to equipment and media. The process applications laboratory is supported by a fully equipped analytical lab, conference rooms, and classrooms.

The laboratory is staffed with scientists and engineers from the biopharmaceutical industry who have extensive experience working in the field of biotherapeutic manufacturing and in regulated environments.

Available Equipment and Media

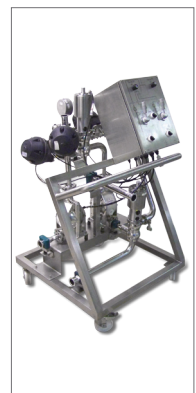
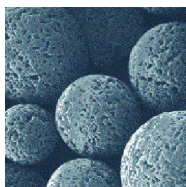
The laboratory contains the following equipment:

- Bio-Rad process skid, size 03 (flow rate range 0.5–20.0 L/min), fully configured with all instrumentation options, in-line dilution capability, and software options
- Bio-Rad® InPlace™ columns in 450 mm and 200 mm diameters for packing and unpacking in place
- Bio-Rad® media transfer device for media transfer operations
- Bio-Rad® MainFrame™ lifting accessory for hoist-free column operations, such as flow adaptor removal, maintenance, and cleaning
- New equipment in advanced stages of development for innovative solutions to process issues

At the laboratory, customers are offered the opportunity to pack the complete line of Bio-Rad's chromatography media, including:

- CHT™ ceramic hydroxyapatite — for superior mixed-mode resolution
- UNOsphere™ ion exchange media — for high-capacity, high-flow rate separation
- Macro-Prep® ion exchange media — methacrylate-based macroporous media

In addition, packing with media from other suppliers can be demonstrated.



Scope of Activities

The process chromatography applications laboratory offers the following services:

- Demonstration of Bio-Rad's chromatography hardware equipment across a wide range of operating conditions
- Pack-in-place, unpack-in-place, clean-in-place, and slurry-in-place operation of column systems
- Evaluation of process operating software, including customized capability for alarm limits, gradients, in-line buffer dilutions, recipe programming, batch sequencing, process monitoring, and manual operations
- Demonstration of onboard HETP and asymmetry calculation capability for testing of column packing efficiency
- Assistance in developing and writing standard operating procedures; training in standard operating procedures and best practices
- Demonstration of maintenance procedures on columns and skids
- Execution of packing studies with customer collaboration
- Execution of factory acceptance testing (FAT) protocols
- Classroom and laboratory training in basic and advanced chromatographic separation techniques, tailored especially for engineers, technicians, and scientists

Optimized Procedures

The opportunity to engage in hands-on operation and maintenance of Bio-Rad InPlace chromatography columns, other hardware, and software before or at the time of purchase offers a great benefit to customers. Our experienced team of engineers, scientists, and technicians shares best practices and procedures for all routine column operations. The process chromatography applications team welcomes collaboration with customers and the opportunity to engineer appropriate and value-added product solutions. At Bio-Rad, we recognize that your time is valuable, and we will work diligently to maximize the lab experience. Before your visit, we will cooperate closely with you to detail the scope of activity and define success criteria.

How to Access the Process Chromatography Applications Laboratory

Contact your Bio-Rad sales specialist to arrange a discussion with our laboratory management team. We look forward to working with you.

BIO-RAD

**Bio-Rad
Laboratories, Inc.**

Life Science
Group

Web site www.bio-rad.com **USA** 800 4BIORAD **Australia** 61 02 9914 2800 **Austria** 01 877 89 01 **Belgium** 09 385 55 11 **Brazil** 55 21 3237 9400 **Canada** 905 364 3435 **China** 86 21 6426 0808 **Czech Republic** 420 241 430 532 **Denmark** 44 52 10 00 **Finland** 09 804 22 00 **France** 01 47 95 69 65 **Germany** 089 318 84 0 **Greece** 30 210 777 4396 **Hong Kong** 852 2789 3300 **Hungary** 36 1 455 8800 **India** 91 124 4029300 **Israel** 03 963 6050 **Italy** 39 02 216091 **Japan** 03 6361 7000 **Korea** 82 2 3473 4460 **Mexico** 52 555 488 7670 **The Netherlands** 0318 540666 **New Zealand** 0508 805 500 **Norway** 23 38 41 30 **Poland** 48 22 331 99 99 **Portugal** 351 21 472 7700 **Russia** 7 495 721 14 04 **Singapore** 65 6415 3188 **South Africa** 27 861 246 723 **Spain** 34 91 590 5200 **Sweden** 08 555 12700 **Switzerland** 061 717 95 55 **Taiwan** 886 2 2578 7189 **United Kingdom** 020 8328 2000