

# BIOPROCESS SECTOR

Biotechnology Research Institute

INFORMATION

[www.irb-bri.cnr-cnrc.gc.ca](http://www.irb-bri.cnr-cnrc.gc.ca)



## THE BRI BIOPROCESS SECTOR

Our expertise covers a wide range of activities that encompasses everything from gene expression to purified, characterized products ready for preclinical trials. Our scientists are highly experienced in vector design that employs several organisms, including bacteria, yeast, insect and mammalian cells, as well as vectors for gene therapy research (adenovirus, adeno-associated virus, retrovirus, baculovirus, plasmids). These scientists are internationally known for their skill in optimizing process variables during scale-up in order to achieve both high yields and high biological activities.

### OUR PRODUCTS AND SERVICES

- ▶ RESEARCH REAGENTS
- ▶ PRECLINICAL MATERIALS
- ▶ BIOPROCESS DEVELOPMENT/OPTIMIZATION
- ▶ BIOPROCESS SCALE-UP
- ▶ PRODUCT PURIFICATION AND CHARACTERIZATION
- ▶ CELL LINES AND EXPRESSION SYSTEM DEVELOPMENT
- ▶ CELL SORTING BY FACS
- ▶ CELL MICROSCOPY



### MICROBIAL AND ENZYME TECHNOLOGY

- ▶ Development of new expression vectors
- ▶ Recombinant strain development/selection
- ▶ Bioprocess development, optimization and scale-up (up to 1500 L)
- ▶ Handling of methylotrophic microorganisms
- ▶ Small-scale BSL-2 laboratory
- ▶ Hydrolases in condensation reactions
- ▶ Enzyme production, purification and characterization

### DOWNSTREAM PROCESSING

- ▶ Primary recovery (centrifugation, microfiltration)
- ▶ Chemical or mechanical cell breakage
- ▶ Ultrafiltration to 1000 L scale
- ▶ Purification by conventional and expanded bed chromatography technologies (mg- to kg-quantities)
- ▶ Analysis and protein/product characterization
- ▶ Lyophilization

### INSECT AND MAMMALIAN CELL CULTIVATION

- ▶ Development of versatile and commercially viable expression vectors
- ▶ Baculovirus-based bioprocesses for recombinant protein production
- ▶ Large-scale transfection technology (HEK293 cells) for recombinant protein production
- ▶ High-density mammalian cell cultivation
- ▶ Suspension and serum-free cultivation
- ▶ Cell and metabolic engineering
- ▶ Process monitoring and control
- ▶ Development of industrial cell lines

### VIRAL VECTOR TECHNOLOGY

- ▶ Development of viral libraries
- ▶ Viral vector technology: adenovirus, retrovirus, adeno-associated virus
- ▶ Development of improved adenoviral vectors
- ▶ BSL-2 viral vector production facility (to 100 L) to support gene therapy research



*"If your biopharmaceutical company needs to develop and scale up processes for preclinical research or simply lacks the capacity to produce your promising bioactive compounds, then BRI's bioprocessing expertise and facilities can provide the solution to your problem!"*

#### Contact Persons

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