



## Pharmacologist

**Pharmacologists** are scientists who investigate how drugs and chemicals interact with biological systems. Their aim is to understand drugs and their actions to enable their effectiveness and safety. They carry out research to aid drug discovery and development. They determine how biological systems function with the aim of identifying how components of the subsystem can be targeted by drugs and/or chemicals for therapeutic gain. Their role includes improving the diagnosis, prevention and treatment of physiological and psychological diseases. Areas of specialization include clinical pharmacology (carrying out work involving the effects of medicines on people within clinical trial studies), neuropharmacology (studying the effect of chemicals on the nervous system), chemotherapy (the study of drugs that kill cancer cells, germs or viruses without harming healthy cells), cardiovascular pharmacology (the study of drugs that affect blood flow and heart function) and regulatory pharmacology. Related occupations include toxicology (studying the effects of poisonous substances, such as chemicals and air pollutants), biochemistry, physiology, genetics, immunology, and cell biology. Much of their role is laboratory-based, working as part of a scientific research team with a focus on the design, planning and conduct of controlled experiments to improve understanding of a compound's activity. A pharmacologist may participate in or lead research studies and/or clinical trials.

**Learn more about the role of a Pharmacologist by downloading the full skills profile for free at [www.biotalent.ca/profiles](http://www.biotalent.ca/profiles).**



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## BioTalent Canada's Bio-economy Skills Profiles

Biotechnology's fusion of science and business creates unique requirements for jobs in the sector. Candidates often need skills suited both to the lab and the boardroom. As a result, occupational descriptions from other sources or sectors don't always fit the bio-economy exactly. That's why, in partnership with industry stakeholders, BioTalent Canada has developed skills profiles specific to the bio-economy—a project that will continue with the ongoing addition of other functions over time.

Each profile includes a definition of the occupation, a list of competencies and associated tasks, a summary situational analysis, language benchmarks, and essential skills.

## Who can use these profiles?

**Easy to use and interpret, our *Bio-economy Skills Profiles* were created to meet the needs of a wide range of audiences. Here's how you might use them if you're an:**

**Employer:** Develop job descriptions, performance evaluation criteria, professional development programs, succession plans, team building initiatives and recruitment plans.

**Job seeker:** Identify your professional development needs, tailor your resume for a specific position, prepare for interviews and interpret job descriptions.

**Educator:** Build industry-oriented curricula to help produce job-ready graduates.

**Student:** Grow your understanding of employers' expectations and choose the right educational programs to equip yourself with the skills for success.

## Validated by industry

BioTalent Canada created its *Bio-economy Skills Profiles* in consultation with industry to accurately capture the needs of biotechnology companies and produce truly practical, relevant resources. These profiles summarize the high-level skills required for each occupational profile and itemize in detail the common tasks associated with each function. Because the profiles are comprehensive, not every skill may be required for a single position: instead, the profiles present the full sets of skills that could be expected of a person in a given role within companies at various stages of development.

## Information you can trust

BioTalent Canada is the country's source for reliable, objective and accurate information on skills development and human resources in the bio-economy. Our aim as Canada's biotechnology sector council is to deliver the human resources tools, information and skills development resources industry needs to ensure an adequate supply of job-ready people.

## Understanding the bio-economy

Canada's bio-economy is engaged in the research, development, commercialization and manufacturing of biotechnology products. The bio-economy is constantly expanding as new technologies and techniques are applied to an ever-broader range of industries and sectors including:

Agriculture	Genomics
Aquaculture	Human and Animal Health
Bioenergy	Industrial
Bioinformatics	Life Sciences
Bioproducts	Medical Devices
Biosciences	Nanotechnology
Environment	Natural Resources
Food Processing	Nutraceuticals
Forestry	Pharmaceuticals

## Get started today

Even before you download the full **Pharmacologist** Skills Profile, get a sense of the information it contains and how you might use it in your work. Attached here is a quick-reference checklist that summarizes the core skills required for the position and the common tasks associated.



**Go to [www.biotalent.ca/profiles](http://www.biotalent.ca/profiles) and download the complete Pharmacologist Skills Profile.**

## Bio-economy Competency Profile Checklist

**Pharmacologists augment their graduate-level university education**—a master's degree is the minimum—with experience in investigating how drugs and chemicals interact with biological systems.

Building on these, a **Pharmacologist** must be able to:

### A. Develop a research hypothesis

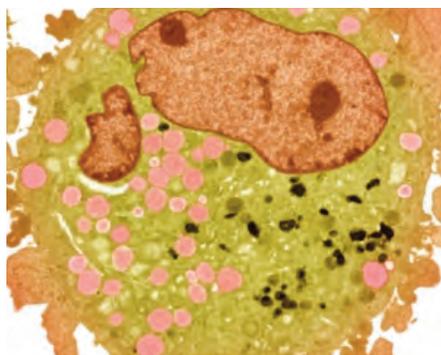
- 1. Identify potential research areas appropriate to company goals and objectives
- 2. Review research trends and directions
- 3. Develop a research hypothesis
- 4. Assess hypothesis from a business perspective

### B. Develop the research plan

- 1. Develop a research plan for the initiative
- 2. Develop a research business plan
- 3. Develop key performance indicators

### C. Execute the research plan

- 1. Secure funding for the research plan
- 2. Organize to support the research plan
- 3. Complete the research
- 4. Evaluate performance to research and business plan
- 5. Analyze data and interpret results
- 6. Report findings



### D. Plan for the trial

- 1. Develop a trial plan
- 2. Develop trial protocol
- 3. Develop trial documents
- 4. Confirm supply of test material
- 5. Develop test population
- 6. Co-ordinate the Investigational New Drug (IND) submission and approval

### E. Monitor the trial

- 1. Monitor trial progress
- 2. Collect trial data/information
- 3. Verify integrity of trial site data/information
- 4. Review trial data/information
- 5. Evaluate performance to trial plan and protocol
- 6. Report trial results

### F. Advance the research agenda

- 1. Assess research/trial outcomes
- 2. Contribute to the registration dossier
- 3. Present results to the scientific community

### G. Provide expert/advisory services

- 1. Serve as an in-house consultant
- 2. Participate in peer reviews
- 3. Maintain status as a 'recognized' authority
- 4. Mentor and coach peers and the management team
- 5. Assume the role as the 'scientific face' of the organization

### H. Demonstrate generally accepted management capabilities

- 1. Apply generally accepted management principles and techniques
- 2. Apply project management leading practices
- 3. Identify and protect intellectual property
- 4. Protect sensitive/confidential information
- 5. Use computers to analyze/manage data and information
- 6. Manage work activities
- 7. Establish effective working relationships
- 8. Encourage team-building

### I. Administer subcontractor relationships

- 1. Develop subcontractor relationship
- 2. Monitor subcontractor performance
- 3. Manage issues and risks on a proactive basis
- 4. Authorize payment to subcontractors
- 5. Report on subcontractor performance

### J. Supervise team members

- 1. Recruit team members
- 2. Assign and monitor work and responsibilities
- 3. Identify team member development needs



- 4. Evaluate team member performance
- 5. Address other human resource (HR) responsibilities

### K. Apply professional practices

- 1. Comply with established policies, procedures and protocols
- 2. Comply with all applicable regulations, legislation and Good Clinical Practices (GCPs)
- 3. Demonstrate scientific and laboratory knowledge and skills
- 4. Demonstrate medical and research and development (R&D) experience
- 5. Take appropriate safety measures
- 6. Ensure quality of work practices
- 7. Demonstrate professional integrity

### L. Demonstrate personal competencies

- 1. Demonstrate leadership
- 2. Demonstrate critical thinking/problem solving
- 3. Set priorities
- 4. Organize work
- 5. Demonstrate attention to detail
- 6. Build networks internally and externally
- 7. Communicate well and clearly
- 8. Embrace continuous learning and development

