A Contract Research Laboratory of Excellence

Our Mission

CIRION's mission is to provide unsurpassed excellence through its state-of-the-art Contract Research Laboratory and services enhanced by the scientific capabilities and know-how of a highly skilled research laboratory team. Our expertly trained scientists work in an environment supported by high-tech computerized management systems and laboratory equipment. Our team is committed to quality assurance exceeding industry standards to ensure reliable results and uncompromised service.

Our Vision

From the beginning, the vision of co-founders Dr. Sylvain Desrochers and Dr. Lise Dallaire was to design an organization able to offer to the biopharmaceutical industry the resources and know-how of a state-of-the-art research laboratory, a high-tech operational and standardized environment, uncompromised customer service and a commitment to quality assurance that exceeds industry standards.

Founding and History of the Company

CIRION Clinical Trial Services Inc. was founded by Dr. Sylvain Desrochers and Dr. Lise Dallaire, high-level researchers with a passion for innovation and research excellence. Dr. Desrochers obtained his Ph.D. in Biochemistry from Université de Montréal, a post-doctoral diploma (DEPD) in Clinical Chemistry and co-owns two patents. After spending five years as Head of Laboratory at Louis-H. Lafontaine Hospital, with a natural sense of entrepreneurship, Dr. Desrochers decided to focus entirely on the great adventure CIRION would become.

Dr. Lise Dallaire is also a graduate from Université de Montréal, where she obtained a Ph.D in Physiology with honors as well as a post-doctoral diploma (DEPD) in Clinical Chemistry. With a strong determination and exceptional organizational skills, Dr. Dallaire worked as a consultant for the diagnostics industry for several years. Motivated by the same determination and drive, Dr. Dallaire and Dr. Desrochers united their expertise and entrepreneurial skills to pull together all the key elements to start-up CIRION.

CIRION began operating at the Quebec Biotechnology Innovation Centre (QBIC) in Laval. This business incubator was awarded the Randall M. Whaley by the National Business Incubation Association. CIRION was the first company to be admitted into the select QBIC program and took advantage of that environment to develop its service portfolio, which includes advanced technologies such as cell based assay, flow cytometry, and molecular biology.

With these services, CIRION brings added-value to its clients by accelerating the drug development process as well as reducing time-to-market for their therapeutic products, thus contributing to their client's success and ultimately improving human health.

Since its inception in July 1994, CIRION has grown rapidly from 5 employees to over 70, of which more than 85% are university graduates. The team comprises a group of high-level researchers including several Ph.Ds, medical specialists and a network of renowned university researchers. CIRION's know-how, innovating services and commitment to quality have resulted in significant growth.

Accreditations

CIRION is one of few contract research laboratories in Canada to have accreditations from the **College of American Pathologists (CAP)**, which certifies our laboratories and procedures meet the quality assurance requirements of the Food and Drug Administration (FDA). As well, CIRION is accredited by the **Center for Disease Control (CDC)** as a reference laboratory and is certified as a **GLP facility** by the Standards Council of Canada (SCC), the Canadian Monitoring Authority for **OECD**. These accreditations, among others, are the end result of several years of intensive work involving the implementation and maintenance of over 300 Standard Operating Procedures (SOPs) and sustained efforts to maintain compliance with established proficiency testing programs.

As of Now

Over the years, CIRION has become one of the leading providers of Contract Research and Global Laboratory services to the biopharmaceutical industry worldwide and is proud to count top 10 biopharmaceutical companies among its clients. In the recent years, experienced executives have joined the company, bringing to the team the experience and know-how necessary to reach new heights of success.

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Research & Development

Assay Development & Validation

Development and validation for custom assay design, method adaptation, method transfer.

Sample analysis for large scale production for Phase II to IV, mid-scale production for pre-clinical and Phase I, low scale production for other exploratory analyses.

Expertise/Large Molecules

- **Biologics/Biosimilars**: We can support your product development and pre-clinical and clinical development by getting involved early in the development process:
  - PK assays (including ISR)
  - Immunogenicity testing (ADA, NAb) : Screening, Confirmatory and Neutralizing activity antibody
- **Biomarkers**: Over the years, for small or large molecules, CIRION's scientists have gained expertise and solid knowledge from various technologies. The 'Fit-For-Purpose' approach is used to adapt with your study protocol:
  - Exploratory assay
  - Partially validated assay
  - Full GLP validated assay

Technologies

- **Cell based assays:**
  - Neutralizing antibody assay (NAb)
  - Activity/Potency assay
  - Cell proliferation
  - Cell Line conditioning and characterization
- **Immunology:**
  - RIA, IRMA, EIA, ELISA, ELISPOT and binding assays
  - Single and multiplex assays by Electrochemi-luminescence (ECL) (Meso Scale® platform)
  - Single and multiplex assays by xMAP technology (Luminex® platform
  - Immunophenotyping by Flow Cytometry
  - Biosensor technology on Biacore® platform
- **Molecular Biology:**
  - Real time RT-PCR
  - Viral quantification
- **Microbiology:**
  - Antibiotic susceptibility (MIC assay and E-test)
  - Microorganisms identification (API test)

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Large Molecules/Immunogenicity

CIRION Contract Research Laboratory is a leading provider of Global Central Laboratory and R&D services for development/transfer & validation **PK** and **Immunogenicity** assays in support of pre-clinical and clinical programs of **biologic** and **biosimilar** drug products.

The complex nature of biologic and biosimilar drug products (also known as large molecules) present analytical challenges different than the chromatography-mass spectrometry based techniques used for small molecules. CIRION is capable to withstand the challenges. We have many years' experience working with large molecules; CIRION performed the **PK** and **Immunogenicity** work (pre-clinical and clinical trials) of the first European approved biosimilar drug product. At a scientific level, our R&D project managers hold a graduate and post-graduate degree in immunology, virology, molecular biology, microbiology and the majority of our research staff holds a master's degree.

The validation of **PK assays** at CIRION is in adherence with current industry practices (The AAPS Journal 2007; 9(1) Article 4, pages E30-E42) and FDA Guidance document on Bioanalytical Method Validation (May 2001). In summary, the validation consists of the following evaluations:

- **Specificity & Selectivity**
- **Precision and Accuracy**
- **Dilution linearity**
- **Parallelism**
- **Stability**
- **Incurred sample re-analysis (ISR) performed during study sample analysis**

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Large Molecules/Immunogenicity

Based on the fact that biologic or biosimilar drug products can induce an immune response to the patient, regulatory agencies require immunogenicity testing to ensure patient safety and efficacy of treatment. The immunogenicity testing will determine whether there is production of anti-drug antibodies (ADA) and whether they have a neutralizing effect on the drug product (efficacy) or the endogenous counterpart (safety). Immunogenicity is a fast evolving area and CIRION keeps abreast of the newest developments and industry practices by participating at immunogenicity meetings in Europe and North America.

In accordance with the current industry practices and regulatory agencies (EMEA, FDA), immunogenicity testing at CIRION is performed using a multi-tiered approach:

1. **ADA Screening assay**
2. **ADA Confirmatory assay**
3. **Neutralizing cell based antibody assay**

CIRION has the capacity and flexibility to perform small and large scale analysis of study samples in a GLP compliant environment for all phases of the drug development program including pharmacovigilance for the post-marketing phase. The PK and immunogenicity assays are performed using various technologies such as electrochemiluminescence (ECL/MSD), ELISA, Luminex and surface plasmon resonance (BIAcore).

CIRION provides Central Laboratory and Assay Development & Validation services for pre-clinical and clinical studies. We offer a complete range of project management, logistical and analytical services, and a broad portfolio of assays including biomarker assays, mass spectrometry, cell based assays, immunology, microbiology and molecular assays.

Over the years, our expert R&D team has gained uncompromised expertise and experience in development and validation of complex assays.

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Best Practices

Accreditations – Good Clinical and Laboratory Practices

CIRION provides **Global Central Laboratory** services in support of multi-countries and multi-sites clinical studies with a full range of services designed exclusively for the pharmaceutical and biotechnology industries as well as clinical contract research organizations.

As a **contract research facility**, CIRION establishes and maintains the highest level of quality. **Quality is a tangible item**. Our scientific professionals ensure that all analytical systems perform optimally in compliance with NCCLS guidelines.

Licenses and Accreditations:

- College of American Pathologists (CAP)
- GLP certified facility (OECD)
- Center for Disease Control – Standardization in Lipidology
- NGSP HbA1c Level II certification
- Department of Health and Social Services Quebec: Clinical Chemistry, Hematology, Microbiology; Quality Assurance Program in Medical Biology, Microbiology Laboratory
- Canadian Nuclear Safety Commission – Nuclear substances and radiation devices

Proficiency Testing Programs:

- Antinuclear Antibody (Survey ANA)
- Cardiac Markers (Survey CRT)
- Clinical Chemistry and Immunochemistry (Quebec)
- Clinical Chemistry Calibration Verification/Linearity (Survey LN-2, CDC)
- Clinical Chemistry General (Survey CN-3, CEQAL)
- Clinical Chemistry of Lipids, Enzymes, Cal V/L (Survey LN2)
- Clinical Microscopy (Survey CM, CEQAL)
- Coagulation-Limited (Survey CGL)
- Flow Cytometry Lymphocyte Phenotyping (Survey FL1)
- Fructosamine (Survey FT)
- Glycohemoglobin (Survey GH2, CEQAL)
- Gram stain (Survey D5)
- Hematology (Quebec)
- Hematology Automated Differentials (Survey FH3P, CEQAL)
- Hepatitis C Viral Load (Survey HCVN)
- High Sensitivity C-Reactive Protein (Survey HSCRP)
- HIV Viral Load (Survey HIV)
- Immunology, general (Survey IG)
- Immunology-special (Survey S2)
- Insulin (Survey ING)
- Ligand-genl,siu (Survey KN)
- Microbiology (Quebec)
- Molecular Oncology (Survey MO)
- Reticulocyte-Abtt Cell-Dyn3500 (Survey RT2)
- Tumor Markers (Survey TM)
- Urine chemistry-GENL (Survey U)
- Urine Drug Testing (Screening) (Survey UDS)
- Viral Markers-series 1 (Survey VM1, Health Canada)

Quality Control Programs:

- Health Canada- Serology evaluation of HIV
- Canadian External Quality Assessment Laboratory for Biochemistry, Hematology and Urinalysis

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Global Central Laboratory Services

Services Overview

CIRION is a knowledge-based GLP certified Contract Research Laboratory. Among our services, we are providing project management services and scientific expertise for Phase I to IV global clinical studies.

We have developed expertise in the management of complex clinical research projects. Whether your project includes investigative sites around the world or involves specialized testing, CIRION delivers within your timelines.

Global Network

CIRION has qualified partner Central Laboratories in **Europe**, **South America**, **Asia** as well as in **Australia/New Zealand**. Standardization is an on-going process with our partners and involves: Analytical Platforms, Reference ranges, Standard Operating, Procedures (SOPs), Courier & Logistic and Data Management.

Full Service Central Laboratory with Global Reach

- Management of complex study logistics and international site support
- Experienced project management team
- IATA-compliant specimen collection kits
- Customized project documentation, material and reports
- Worldwide shipment management and tracking through CIRION Center™
- GLP compliant specimen storage (-20°C, -80°C and liquid nitrogen)
- Data Management with real-time data cleaning
- Flexible Electronic Data Transfer capabilities
- Analytical services with rapid turnaround time
- Broad portfolio of specialized assays
- Global standardized results and database
- Web tools and remote data access

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Global Central Laboratory Services

Logistical Services

The logistical aspect of any clinical project should be handled with care. At CIRION, we take the sting out of managing global complex clinical research projects. We are dedicated to finding solutions and optimizing timelines.

- We always assign a **dedicated and experienced Project Manager** to set-up and oversee the project's quality of services and deliverables
- **Standardized** logistics and results throughout our **Global Network**
- Our **data management** team is committed to delivering clean data, on time and in the format you have requested
- Our **laboratory reports** are available in various formats: paper, NCR, fax and PDF
- Thanks to our **real-time data cleaning** procedure, there is no need to wait to the end of your project to obtain complete data. As the samples come in, we employ our data quality control checks to detect and resolve any inconsistencies.
- Our **visit-specific specimen collection kits** are IATA compliant and include collection supplies, tubes and aliquots, bar-coded labels for each tube and pre-printed laboratory requisition forms
- A **protocol-specific Laboratory Manual** is developed as a training and reference tool by the investigators.
- We have established preferred partnerships with major courier companies for **worldwide specimen transportation**.
- We offer **long term specimen storage** at -20°C, -80°C and liquid nitrogen with security features such as "at temperature" units always available and a stand-by generator.
- When your supplier faces difficulties and can no longer deliver the services, you can count on CIRION's **project rescue services** allowing you to move forward with your project.

About the CIRION Center™

The CIRION Center™ is a highly efficient computerized GLP compliant platform, unique to CIRION, specifically designed to allow our Project Managers and Coordinators to monitor critical project parameters in a rigorously controlled environment. Thus, all information, communications, tasks and specifics of your clinical research projects are integrated into one comprehensive system.

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Global Central Laboratory Services

Analytical Services

CIRION's laboratories are equipped with the latest high-tech instrumentation and offer a customized service for efficient processing of samples.

Clinical Safety Testing

Reports for safety testing are issued to the investigational sites within 24 hours of sample reception.

- Hematology – including reticulocytes and reticulated platelets
- Coagulation
- Biochemistry – over 250 parameters validated
- Urinalysis
- Drug screen
- Serology
- Endocrinology

Specialized Testing

- **Cell Biology**. We collaborate with many clients who require cell-based assays such as neutralizing antibodies, cell proliferation, cell line conditioning and characterization to determine the toxicity, safety and/or efficacy of their compound.
- **Immunology**. We offer a wide range of immunoassays including detection of cytokines, chemokines, antibodies and other biomarkers in multiple matrices, different species and multiple platforms.
- **Molecular assays**. We have extensive know-how in specialized molecular assays such as genetic assays to detect genetic abnormalities, molecular assays to detect and quantify infectious and opportunistic pathogens, HLA genotyping, DNA and RNA extractions.
- **Virology**. CIRION has developed a strong expertise in standard and quantitative PCR assays to detect and quantify many common viruses.
- **Microbiology**. We can support your projects with microbiology testing such as culture and banking of bacteria, fungi and yeast; culture, identification, semi-quantification and/or quantification of microorganisms; determination of minimum inhibitory concentration (MIC).

CIRION is your scientific partners for your development and validation programs. Our menus extend to GLP and non-GLP services.

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CIRION Net™

Secure Web Access

Since 2008, CIRION has implemented a secure proprietary web-based tool, CIRION Net™. The portal allows viewers to access information and data related to a clinical study anytime and anywhere internet access is available. Below is a list of features through CIRION Net™:

- **Key Study Contacts and corresponding information**
- **Study Documents:**
  - Clinical protocol and amendments
  - Laboratory manual
  - Study reference ranges and alerts
  - Investigator list
  - Sponsor questionnaire
  - Site questionnaires
  - Study memos
  - Study DQFs (Data Query Forms)
  - Laboratory form templates
- **Site Information:** Study-specific site information
- **Shipment of Supplies:** Status of site supplies shipments from CIRION to the sites. Each shipment has the corresponding courier tracking number which allows the CIRION Net user easy access to the shipment status. The information can be filtered by site providing a snapshot of data for each site. The shipment list can be exported to Excel.
- **Data Blinding:** User has pre-defined access rights to allow blinded or un-blinded results only.
- **Laboratory Report:** Signed preliminary and/or final laboratory reports per patient per visit.
- **Cumulative Reports:** Subject cumulative summary test results includes corresponding sample collection date, sample reception date and report generation date. Visits of a chosen subject are grouped, allowing the reviewer to follow the progress and profile of testing. This report can be exported in different software such as Excel, HTML etc.
- **Subject Enrollment:** The user is able to visualize the status of enrolled subjects. It summarizes the subject's information (ID, initials, sex and birthday if applicable) together with the subject's visits and corresponding sampling dates. This report can be exported in Excel.
- **Subject Cycle Status:** Allows visualization and sorting of study subjects by any of the information on the report (accession number, subject ID, initials, visit, collection date, etc.). This report can be exported in Excel.
- **Site Status Summary:** Provides the user the study site status per the most recent information received at CIRION.
- **Top Recruiting Sites:** Allows the user to see which sites are the most active or successful in recruiting subjects.
- **Country Enrollment:** Shows per country the number of sites and the corresponding number of subjects screened and randomized. This report can be exported in different software such as Excel, Word, HTML, etc.
- **Electronic Data Transfers (EDT):** Allows the user access to the most recent EDT sent.

Spec requirements: MS Internet Explorer Version 6 and above with Cipher Strength 128-bit and above or Mozilla Firefox version 3.5 and above.

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CIRION CENTER™

Intelligent Project Management and Logistical Control System

CIRION provides **Global Central Laboratory** services in support of multi-countries and multi-sites clinical studies with a full range of services designed exclusively for the pharmaceutical and biotechnology industries as well as clinical contract research organizations.

The **management** of the study **logistics** is paramount if the sites are to be well supplied and productive. In order to streamline the logistical processes associated with central laboratory operations, the CIRION Center™ was developed. Our **highly efficient computerized GLP-compliant platform**, unique to CIRION, allows your dedicated project manager to access, in real-time, critical information related to your study:

- **Sample Collection Kit** ordering, production quality control, global delivery tracking, confirmation of receipt and expiration date tracking
- Live **inbound specimen tracking** with complete status information
- Subject **lab reports available electronically** and configuration utilities for e-mailing or fax routing of your study reports with confirmation of reception – completely flexible reporting options based upon your needs
- **Standardized electronic datasets** for transmission to designated parties
- **Standardized study reports** – Patient Status Report, Sample Management Report, Laboratory Report Status and Communication Reports
- **Central Laboratory Quality Control** processes – Each study report has more than **14 different validation steps** before the report is final, all occurring in the background in real time

CIRION is able to provide a higher level of customer service thanks to the quality of our infrastructure and the support systems we have built. CIRION Center™ demonstrates our commitment to delivering our very best. We invite you to see for yourself the CIRION difference.

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