# Acceleration Consortium

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### Transforming discovery

Capacity to accelerate materials discovery

#### Talent development

Developing a diverse and inclusive AIliterate workforce

# Ecosystem building

Convening academia, government, and industry to support translation

### Ethical solutions









### SELF-DRIVING LABS ACCELERATING MATERIALS DISCOVERY

















#### Scientific Leadership Team G Allen Inorganic SDL Hattrick-Simpers Sinton





Organic- Sustainability SDL

Aspuru-Guzik





Rousseaux

MedChem Drug Discovery SDL

Arrowsmith

Tran

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Polymer SDL



von Lilienfeld



Goldfarb

Murphy



Shkurti

Social Science Lab









Berlinguette



AI & Automation Lab



**Biocompatibility SDL** 

Formulation SDL



Gu

Radisic





Scale-up SDL







#### **Core Facility Development**









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### Training Platforms



Hands on experiential learning

Upskilling

Academic training











The Autonomous Systems for Discovery Certificate provides short, hands-on courses to familiarize SDL terminology, principles, and tools

	Course Title	Learning Outcome
	Introduction to AI for Discovery using Self-driving Labs	Recreate a color-matching SDL from scratch using LEDs and a light sensor
7	Al and Materials Databases for Self-driving Labs	Write Python scripts to iteratively optimize materials and log results
\$	Autonomous Systems for Self-driving Labs	Write Python scripts to control robots and orchestrate workflows
	Software Development for Self-driving Labs	Leverage software development tools and implement best practices
	AC Training Lab Design Project	Develop, defend, and execute a project proposal







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Partners	Community	ami	CIFAR	•••• CREATIVE •••• Destruction	
Net Generation Manufacturing Canada	R RADICAL VENTURES	<b>O</b> SGC		Global Acceleration Network	JA3MD
Riter Rexmanse	BIG-MAP	C-CAS Center for Computer Assisted Synthesis		DigiFAB	LEVERHULME RESEARCH CENTRE
MATERIALS INNOVATION FACTORY	MOLECULE MAKER LAB INSTITUTE	NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY U.S. DEPARTMENT OF COMMERCE	ORD	Government	Mitacs
Canadă NRC·CNRC	Natural Resources Canada	Vendors		Industry	Merck KGaA Darmstadt, Germany
<b>Genentech</b> A Member of the Roche Group	IBM	ر <sup>ال</sup> Bristol Myers Squibb ّ	ARCTORIS		Solvay
AMGEN	Academic	UBC THE UNIVERSITY OF BRITISH COLUMBIA	College	McMaster University	Toronto General Toronto Western Princess Margaret Toronto Rehab Michener Institute









#### Fully self-sustainable by 2030

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- \$36 million per year expected revenues
- \$32 million per year expected costs





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#### **Ethical and Sustainable Solutions**

Challenges	Guiding Values
Acceleration	Care and reciprocity
Regrettable substitution	Processual consent
Dangerous substances	Harm reduction
Ethical substances	Community governance, data justice, social justice obligations
Sustainability	Environmental care, indigenous relations to sustainability
Open science / Democratizing knowledge	Safety







11 CANADA FIRST RESEARCH EXCELLENCE FUND



APOGÉE CANADA FONDS D'EXCELLENCE EN RECHERCHE

### **Realizing Economic Benefits**

- Reimagining entrepreneurship and company creation
- Supporting the adoption of AI & automation by Canadian companies
- Understanding the impact of Al-driven discovery on the scientific discovery process











CORONTO

BC THE UNIVERSITY OF BRITISH COLUMBIA



### Accelerate 24 - August 6-9, 2024 @ UBC

350+ attendees	170+ community/industry	16+ countries
ncluding:	Including:	Including:
150+ students, postdocs, trainees 125+ academia/govt 20+ startups	Apple, BASF, Chemix, Covestro, Dow, Estee Lauder, EMD, Meta, IBM, Microsoft, Intel, Thermofisher, L'Oreal, Lewis and Clark, Lubrizol, Mesosil, Micron, Nokia, Genentech, Roche, P&G, PVD Products, Solvay, Svante, Heritage Group, TRI, Unchained labs, Unilever, Sekisui, vsparticle	Canada, USA, Switzerland, Denmark, Australia, Germany, Singapore, UK, Spain, Mexico, India, Sweden, Israel, Finland, South Korea, Austria

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