Canadian Cancer Clinical Trials Network | Réseau canadien d'essais cliniques sur le cancer

# Annual Stakeholder Meeting 2024

## Session 1: Improving Access to Academic Cancer Clinical Trials

**Facilitators: Carla Bossart-Pletzer & Kathy Brodeur-Robb**


# Cancer Clinical Trials

# 3CTN - Forum Summary DRAFT ONLY

## Opening Remarks

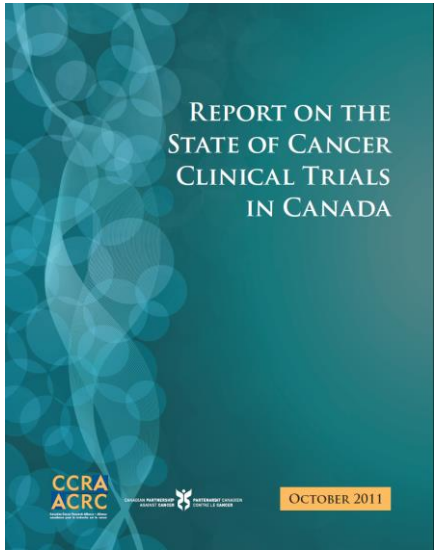
Research Consultant :
Don Wood

# BACKGROUND

Although cancer is the leading cause of death in Canada, people with cancer do not have equitable access to clinical trials testing innovative and potentially beneficial treatments.

Cancer accounts for approximately one-third of ongoing clinical trials by therapeutic area in the country. Cancer treatments face the most significant challenges due to the complexity of research undertaken and the volume of clinical trials.

CCRA report in 2011




Recommendation 1: Create a pan-Canadian infrastructure program that supports cancer clinical trials

Recommendation 2: Streamline the clinical regulatory environment

Recommendation 3: Consolidate or develop reciprocity in research ethics boards

Recommendation 4: Reduce non-value added steps in trial development and conduct

# WHY NOW?

In May 2024, CCS launched a series of stakeholder forums to hold consultations across the cancer community to address urgent issues in clinical trials in Canada

Through the series of stakeholder forums, CCS hopes to gather input on practical solutions and document in a “What We Heard” report and accompanying advocacy action plan.

This project is strategically timed,

- the federal government and its health system partners are currently working to overhaul Canada’s clinical trials system under the Biomanufacturing and Life Sciences Strategy introduced in Budget 2021
- Upcoming elections in provinces and at the federal government level.

# VISION AND GOAL

## Vision

Every person at risk of or living with cancer or serious illness deserves an opportunity to participate in research, if they choose, and that we, as a society, have a responsibility to provide that opportunity. Access to cancer clinical trials should be considered standard of care.

## Goal

To create a cancer clinical trials system that:

- Is equitable and accessible to all
- Can test and develop innovations, including diagnostics and therapeutics, for all people in Canada, in particular Canadian discoveries
- Establishes an ecosystem that is conducive for cancer clinical trials and encourage academic, industry-led and international trials to recruit in Canadian centres

# OBJECTIVE

With the aim of producing a final position paper that outlines solutions for cancer clinical trials that can then be used by all stakeholders to push for improvements in cancer clinical trials, CCS is holding forums with the following stakeholder groups:

- Trials, experts, federal health regulators, patient partners (held May 2024 in Ottawa)
- Pharmaceutical industry (January 2025)
- Cancer agencies (Fall 2024)
- Cancer research funders (Fall 2024)
- **Patients and caregivers (Fall 2024)**

Why is **THIS** Patient and Caregiver Forum important?

- You are the **RECIPIENTS** (or Consumers) of the service (the cancer clinical trial)
- ALL other groups are the **PROVIDERS** of the service (the cancer clinical trial)

# What is currently in the draft report?

The draft report is currently laid out into the following sections:

- Background on cancer clinical trials in Canada and common barriers to access
- Clinical trials environment domestically and abroad
- CCS's vision- four solutions for change (to date)

What we're currently saying to the federal government about clinical trials:

- Included in CCS federal pre-budget submission (high-level)
- Included in federal election outreach
- To be included at a high-level with all provincial and territorial budget submission cycles

# Solutions identified at the May Forum (all draft)

The report currently has 4 solution areas for change:

- **Better patient access to innovative care**: by ensuring clinical trials and research are integrated into Canada's healthcare system.
- **Comprehensive resources for health professionals and trial sponsors**: by investing in specialized training to support the next generation of clinical and research staff.
- **Stronger health system capacity**: by fostering a vibrant research ecosystem that promotes Canadian-made innovation and attracts international investments.
- **Greater public awareness about the benefits of clinical trials**: to allow people to have access to information about clinical trials and opportunity to seek participation regardless of where they live or who they are.

Over the next several slides I will take you through a validation exercise of what we've identified so far, and what is being added in after today. Please note that these "solutions" are currently targeted at the federal government only, an expanded scope will be provided in the final report.

# Patient and Caregiver Forum – DRAFT ONLY

Judy Needham
Co-founder, Canadian Patient Engagement Community of Practice

Antonia Palmer
Executive Director, Kindred Foundation

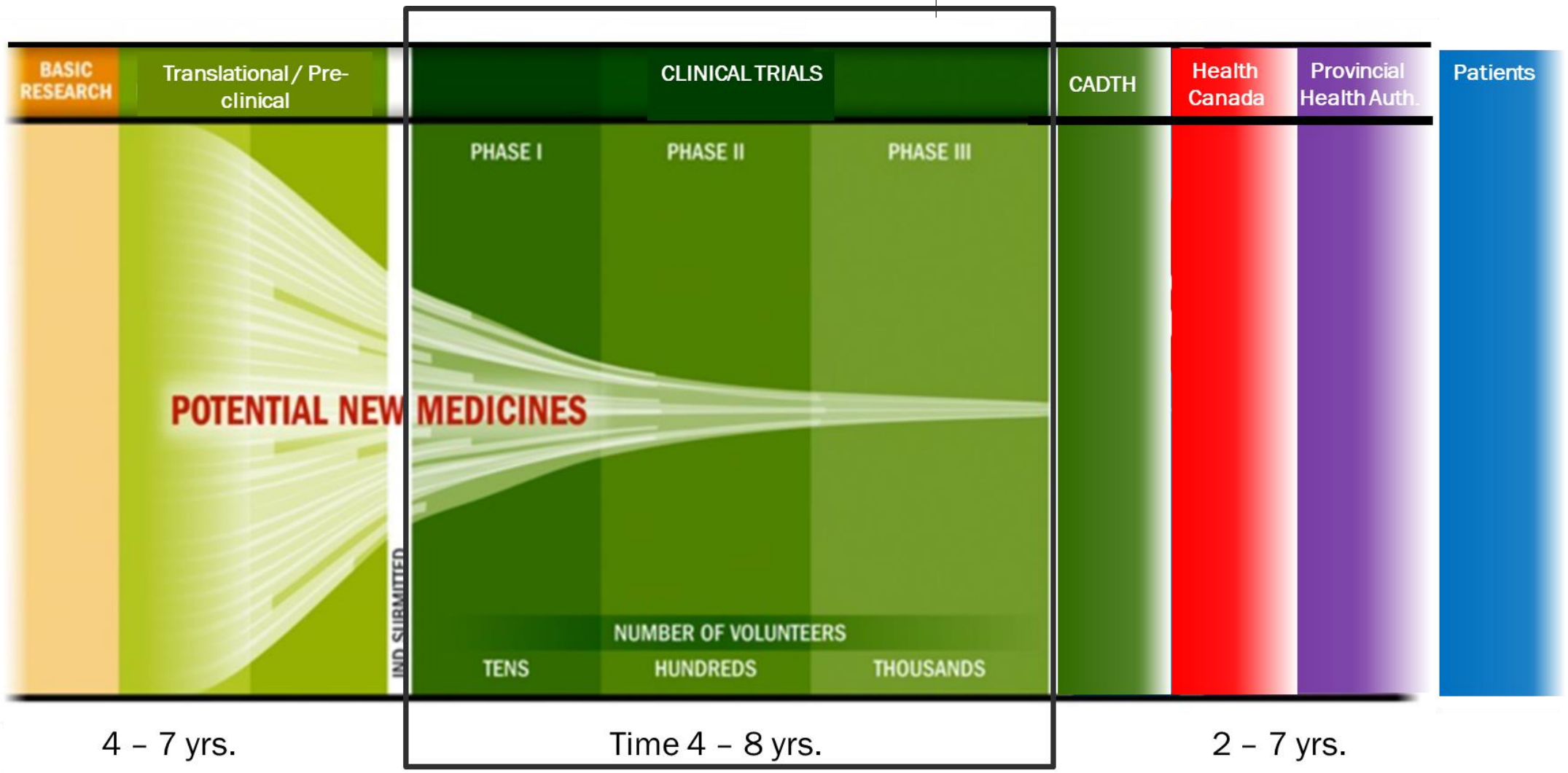
# PATIENT AND CAREGIVER FORUM

## Create a Vision of an Improved Cancer System

- Pre-Workshop Survey
- Workshop
  - Introduction & Background – Stuart Edmonds
  - Survey Results
  - Break out groups – Patient Reps drew on their lived experiences as patients and caregivers, patient participants and created lists of issues/challenges
  - Report out to the group by your breakout table lead – 10 min/each
  - As one group - Brainstormed what we as patients see as potential solutions/recommendations to be considered for each challenge
- Compared our draft set of recommendations to the cumulative recommendations from stakeholder forums held prior to this one
- Validate/reinforce those that may be duplicate
- Add new recommendations to the list

Canadian Cancer Society / Société canadienne du cancer

# WHAT'S IN SCOPE




The Drug Approval Process. Image Credit, PhRMA based on FDA graph by GOA. "Canadianized" by JN

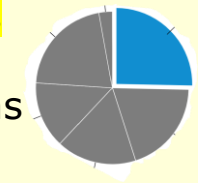
# SUMMARY - DRAFT

## Overall Summary

- Awareness and access
- Inclusivity and outreach
- Patient engagement
- Decentralization
- Misconceptions and stigma
- Eligibility criteria
- Financial and logistical barriers
- Streamlining processes
- Funding and support
- Communication and results transparency
- AI integration and innovation

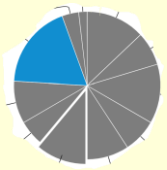
### Trial Participation

- Awareness of clinical trials
- Availability and Access
- Perceptions/Misconceptions
- Eligibility
- Burdens for Participation



### Trial Development and Timelines

- Access to innovative drugs
- Trial design
- Trial funding
- Regulatory burden
- Trial accrual and retention
- Trial launch
- Trial closure and reporting



### Other

- Government Oversight
- Patient Altruism
- Inclusivity Barriers
- Need for AI Integration
- Access and Speed
- Urgency in Brain Cancer Research
- Platform Trials and Collaborative Efforts
- Shortening Trial Launch Timelines
- Funding and Political Awareness

# Some of what we heard - DRAFT

**What we heard today:**

- Centralized virtual clinical trials team to support trials at multiple small satellite sites.
- Consider trial designs that support the above model.
- Elimination of profit centre model for CTU's – core staff included in overall health care hospital funding
- Elimination of multiple REB reviews.
- Elimination of repeat contracts for every trial – create a standard template for basic credentials that don't need to be repeated for every basic trial.
- Exploration of innovative trial decentralization – i.e. the Walgreen's model being tested in the US.
- Better funding model to eliminate researchers needing to be applying for multiple grants to fund their research.
- Better use of AI in trial designs to eliminate placebo arms, ease language translations, etc.
- Better and earlier patient engagement in clinical trial development.


# Thank you.

info@cancer.ca (cancer information and support)
connect@cancer.ca (demandes générales)

1-888-939-3333
1-800-268-8874 (donate)

# Merci.

info@cancer.ca (information sur le cancer et soutien)
connect@cancer.ca (demandes générales)

1 888 939-3333
1 800 268-8874 (faire un don)

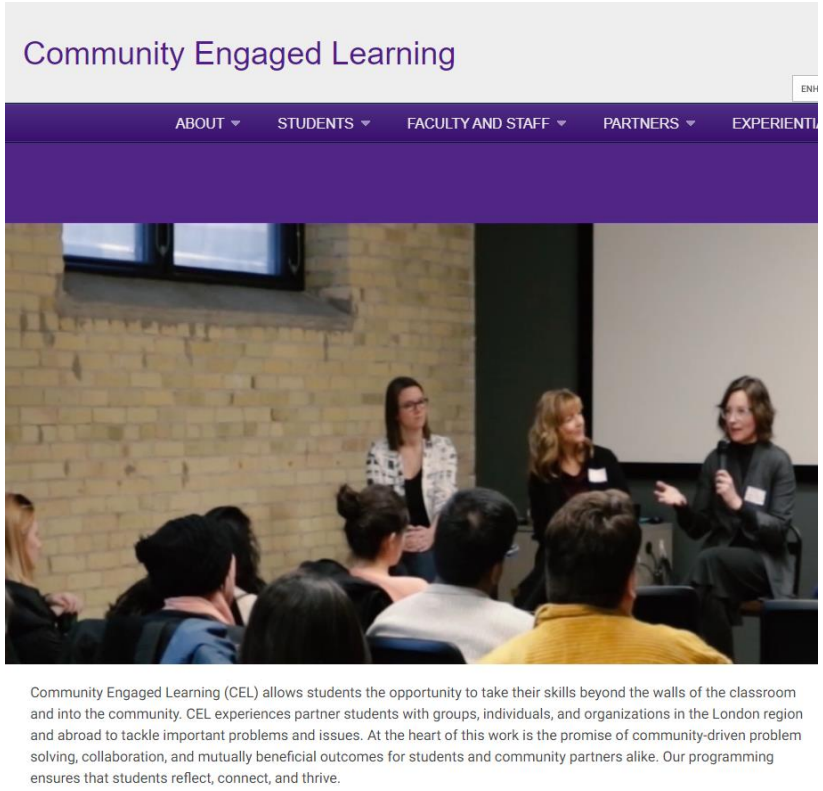
# International Best Practices for Trial Recruitment

Richard McClelland

London Health Sciences Centre
Research Institute

# Community Engaged Learning

## Program Information http://cel.uwo.ca




Community Engaged Learning (CEL) allows students the opportunity to take their skills beyond the walls of the classroom and into the community. CEL experiences partner students with groups, individuals, and organizations in the London region and abroad to tackle important problems and issues. At the heart of this work is the promise of community-driven problem solving, collaboration, and mutually beneficial outcomes for students and community partners alike. Our programming ensures that students reflect, connect, and thrive.

### Partner with Western CEL to:

- Recruit extraordinary volunteers and potential future employees
- Build a strong connection to the university
- Gain access to resources (ex. researchers, grants, space)
- Bring new ideas and insights to your organization
- Mentor students and contribute to their learning
- Create greater community impact

London Health Sciences Centre Research Institute

# 2024 CEL Project

**Project Goal:**

**An environmental scan to gain a comprehensive understanding of up-to-date clinical trial recruitment strategies and illustrate actionable insights that can be leveraged by researchers, healthcare providers, and institutions to increase patient participation.**

# 2024 CEL Project

**Approach:**

**Online resources such as Google, Open Evidence, PubMed and Google Scholar to search through a combination of research articles and published information available on the internet.  Onsite meetings with key stakeholders at the Verspeeten Family Cancer Centre.**

# 6 Key Categories

- Clinical Trial Design
- Screening/Referral/Recruitment
- Technology / Virtual Resources
- Patient Perspective / Awareness
- Physician Perspective / Awareness
- Community Outreach

# Clinical Trial Design Recommendations

- More pragmatic trials to combat the restrictive inclusion/exclusion criteria and feasibility assessment volumes and timelines.
- Patient feedback to reduce trial activities that are burdensome on patients
- Unblinded vs blinded to minimize the patient stigma of placebo
- Improve initial design to reduce the number of  amendments

# Screening/Referral/Recruitment Recommendations

- Artificial Intelligence software to mine electronic medical record data
- Referral process – ‘plant seed’ with patients
- Invitation process – website, advertising, social media, portal
- Clinical trial navigator/concierge services
- Patient monetary incentives

# Technology / Virtual Resources Recommendations

Decentralized clinical trial options

Telehealth

Interactive information provision methods

# Patient Perspective / Awareness Recommendations

Value return (WIFM)

Trained site patient partners

Lay summaries

# Physician Perspective / Awareness Recommendations

Communication of existing and upcoming new clinical trials

Time to activation

Celebrating first patient at site

Accrual comparison to other sites

# Community Outreach Recommendations

Social Media platforms

Well designed website

App creation

Community clinic partnership

# Conclusion

**What strategy was the most effective?**

**Technology and virtual resources, along with initiatives addressing the patient perspective, demonstrated the highest accrual to target rates.**

# QUESTIONS?

# Reseau-HECO-Network

## Launching a collaborative network of resource-families and resource-clinicians for the improvement of clinical research informed consent prodedures

CHU Sainte-Justine
Le centre hospitalier universitaire mère-enfant

Université de Montréal

# Réseau – HECO – Network

## **H**umanization – **E**thics – **C**ollaboration - **O**rientation

**Dr Michel Duval**

**Claude-Julie Bourque, Phd**

Centre de recherche Azrieli
CHU Sainte-Justine
Le centre hospitalier universitaire mère-enfant
Université de Montréal

# BACKGROUND

- Many questions remain to reach socially and ethically acceptable understanding of aspects related to consents in pediatrics.
- New trends to consider when conceptualizing concept processus in pediatric.
- Interesting ideas-original framework necessary.
- Network of different partners and collaborators appropriate for co-conception of consent forms and procedures.

# PROJECT GOALS

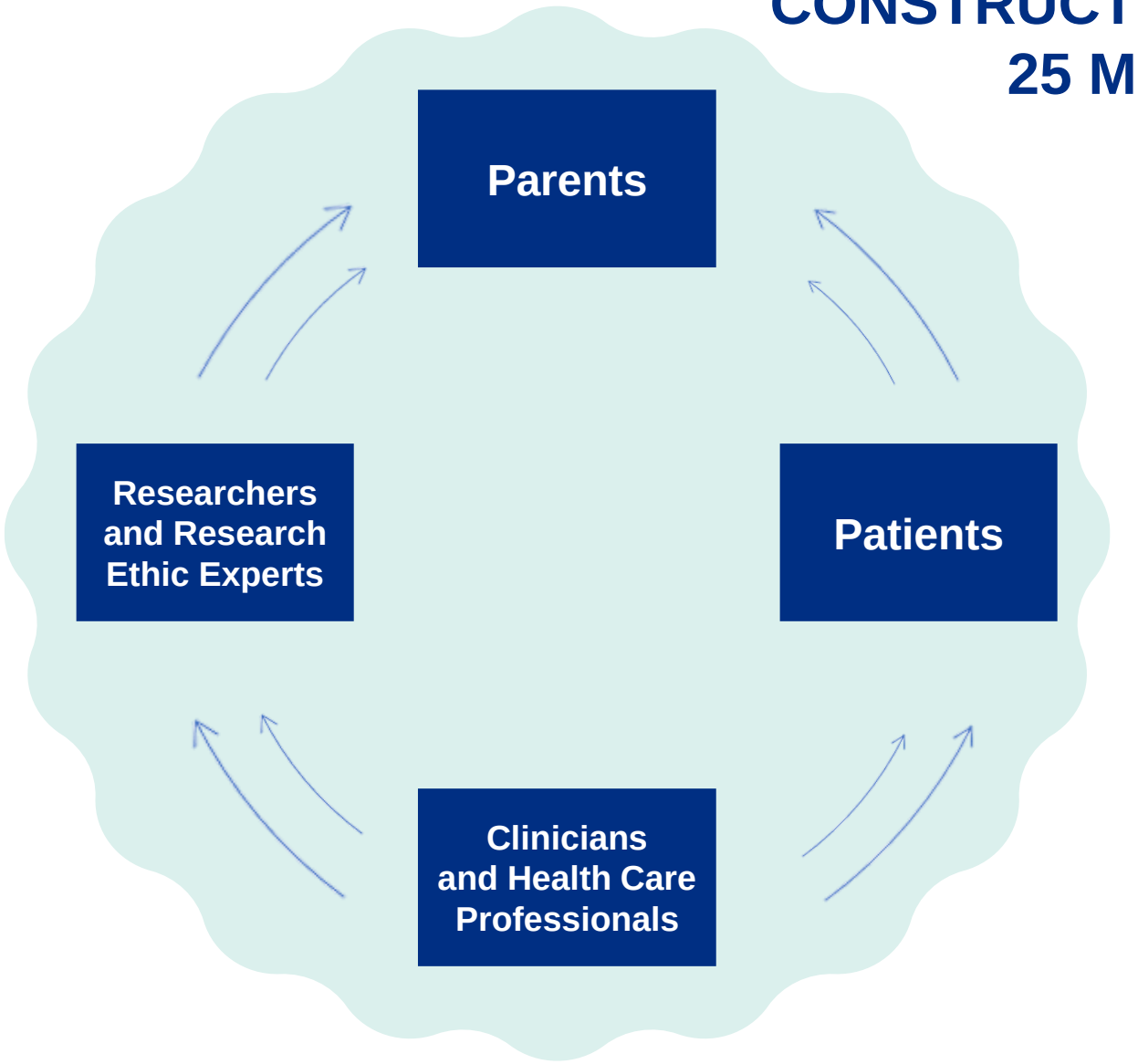
## General Objective

Establish a network of stakeholders to review the information and consent processes, along with related documents, to enhance understanding, recruitment, participation, engagement, and participation satisfaction.

## Specific Objectives

1. Recruit members to participate in this initial project within various working groups to establish the foundation of the HECO Network (patient/caregiver partners, clinician resources, external collaborators, experts, researchers).
2. Clarify the functions of consent and define the key information to include in a ICF.
3. Co-develop procedures, tools, and resources to optimize the ongoing informed consent process in the ThINKK program.

# CONSTRUCTIVIST APPROACH
# 25 MEETINGS



# MEETING SUMMARY
# 34 PARTICIPANTS

| GROUPS | MEETINGS |
|---|---|
| Researchers and ethic experts<br>N=12 | Project Start-up<br>Selection of topics and questions<br>2 Co-construction workshops |
| Parents<br>N=9 | 3 focus groups<br>1 online questionnaire<br>2 Co-construction workshops |
| Clinicians and health care workers<br>N=8 | 1 focus groups<br>1 online questionnaire<br>2 Co-construction workshops |
| Patients<br>N=5 | 3 focus groups<br>1 online questionnaire<br>2 Co-construction workshops |

# PROCESS OVERVIEW

## Themes discussed during the focus groups and workshops:

1. Initial meeting to give information on the research project
2. Communication throughout trial
3. Style and structure of the ICF
4. Comprehension of the consent
5. Consent as a process

# PROCESS OVERVIEW FOLLOWING FOCUS GROUPS

1. **Mid-course online questionnaire**
2. **2 co-construction workshops**

<u>Workshop 1: Proposals</u>

→ Review and vote on existing proposals

→ Reformulate contradictory or complex proposals

<u>Workshop 2 : Consent Process Timeline</u>

→ Discuss key stages in the consent process

→ Review and synthesize proposals

→ Explore specific points in depth

# TIME POINTS

1. **Before informed consent (ICF)**
2. **ICF & consent procedures**
3. **During the research project**
4. **End of research project**

# TIME POINT A : BEFORE ICF

## *Building a relationship to the project and research team*

- Personalize the initial contact
- Clarify the patient’s level of engagement
- Highlight the research context
- Detail the selection criteria
- Explain important concepts using video capsules
- Provide an accessible communication channel with the research team

# TIME POINT B : INFORMED CONSENT AND CONSENT PROCESS

## *Informed Consent: Acceptance or refusal to partcipate*

- Present a more visually appealing document *(clear, light and simplified)*
- Explain the legal section of the consent form in a more accessible language for families
- Present a consent version for parents/adults and a version for the child
- Include a list of specialists to contact if needed
- Formalize various forms of acknowledgment for the family
- Incorporate a "playful" validation process

# TIME POINT C: DURING THE PROJECT

## *Throughout the Research*

- Provide a timeline or an plan of interventions
- Follow-up of what is discussed in the consent
- Ensure privileged access to information
- Establish a communication platform between the research team and participants to transfer knowledge
- Create a support group

# TIME POINT D : END OF RESEARCH PROJECT

- From this exploratory step emerged the notion of **PROTECTED ENGAGEMENT** which will be used in the next steps.
- Inform participants of the project's conclusion
- Share the main results
- Thank and recognize participants

# WHY PARTICIPANTS GET INVOLVED IN A CLINICAL TRIALS

- To help others;
- Put their experience to good use;
- Make sense of life threatening challenges they face;
- Want to feel a sense of belonging and genuinely engage in a research project.
- From this exploratory step emerged the notion of **PROTECTED ENGAGEMENT** which will be used in the next steps.

# WHAT'S IMPORTANT FOR PARTICIPANTS

- Need **timely access** to information that is readily available to learn about the project, the team, the concepts and consent process;
- Want to receive news about the project and its outcomes;
- Appreciate care given to ensure their **protection and free will** throughout the process;
- Want their **personality and identity recognized** and not feel like an anonymous number on a list of participants.

# NEXT STEPS FOR HECO NETWORK PROJECT

Implementation and recommendations will be part of a pilot study

- ❖ Selection of priority areas
- ❖ Collective working workshops
- ❖Production of videos and newsletters
- ❖ Funding ideas

- *The results of the preliminary step were presented at scientific conferences in 2024 (ICCEC-CBS, ACFAS, McGill International Palliative Care Congress), and articles are currently being written.*

# ACKNOWLEDGEMENTS

Laurence Cloutier, Claude Julie Bourque and Marie-France Langlet

A warm thank you to all participants involved in this project and an additional thanks for those who gave permission to use their photos in this presentation.


Centre de recherche Azrieli
CHU Sainte-Justine
Le centre hospitalier universitaire mère-enfant
Université de Montréal

# Improving Patient Matching to Therapy (PMATCH)

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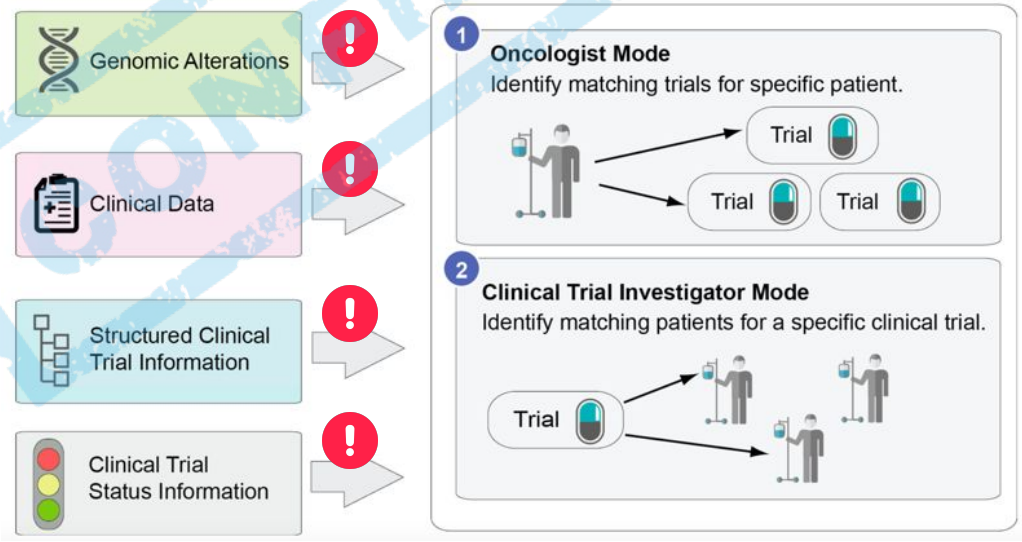
*In collaboration with Janet Dancey, Stephen Sundquist (3CTN/CCTG), Bo Wang (UHN), Cancer Digital Intelligence Program, Philippe Bedard (Princess Margaret), Janessa Laskin (BC Cancer)*



## Clinical trials are increasingly **complex**, involve **multiple sites** and **technologies**, and lack a **systematic infrastructure** for matching patients



## Clinical trials are a cornerstone of precision oncology but the current system is failing the patients

TORONTO STAR

Newsletters | Today's Paper

GTA CANADA POLITICS WORLD OPINION LIFE SPORTS REAL ESTATE ENTERTAINMENT BUSINESS INVESTIGATIONS

Star Columnists Editorials Contributors Letters To The Editor Editorial Cartoons

Opinion / Contributors

CONTRIBUTORS OPINION

**Canada needs a national system for cancer clinical trials**

Clinical trials are the most effective means of ensuring we have better cancer treatments. Such an investment would help overcome many hurdles facing clinical trials – from underfunding and suboptimal testing capacity to inefficient and costly regulatory processes.

By Janet Dancey Contributor

Monday, February 19, 2024 | 2 min to read

Article was updated Feb 19, 2024

*Ever-increasing regulatory requirements and the **expanding range of scientific questions** being addressed in each trial also contribute to higher costs. The result is fewer trial opportunities for patients.*

THE GLOBE AND MAIL

CANADA WORLD BUSINESS INVESTING WATCHLIST PERSONAL FINANCE OPINION POLITICS SPORTS LIFE

**Our clinical trials system is failing Canadians with cancer**

REBECCA AUER
CONTRIBUTED TO THE GLOBE AND MAIL
PUBLISHED FEBRUARY 3, 2024
UPDATED FEBRUARY 5, 2024

31 COMMENTS SHARE BOOKMARK

LISTEN TO THIS ARTICLE

*Rebecca Auer is a surgical oncologist and director of cancer research at the Ottawa Hospital Research Institute.*

*Hospital leaders must **recognize the value of research and integrate it into their care paradigms** and deliverables, so more patients have access to innovative cancer treatments.*

## Clinical trials are not easily accessible to all patients

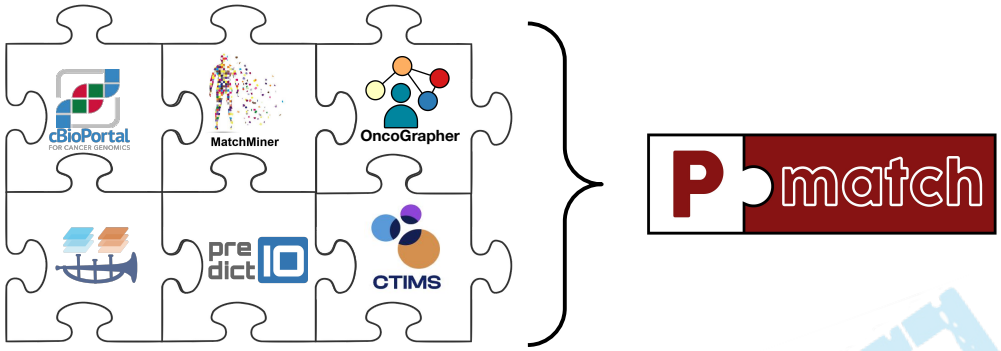
Bias

Clinical trials disproportionately serve patients in the vicinity of large, well-resourced cancer centres, leaving a **gap in care** for Canadians outside those areas

An **automated system** that can be deployed at any centre **regardless size** will provide long term benefits to underrepresented Canadians in remote and rural areas

## Opportunity: Molecular Tumour Board in a Box

Increase **efficiency** and **matchability** by interlinking all of the data systems needed for systematic, data-driven clinical trial decision making




## Partnership with the **Canadian Cancer Clinical Trials Network (3CTN)**

1. Improve the **visibility of all clinical trials** active and ongoing within the Canadian Cancer Clinical Trials Network
2. Markedly **increase the number of patients matched to clinical trials** through systematic matching and drug response predictions that optimize clinical decision-making

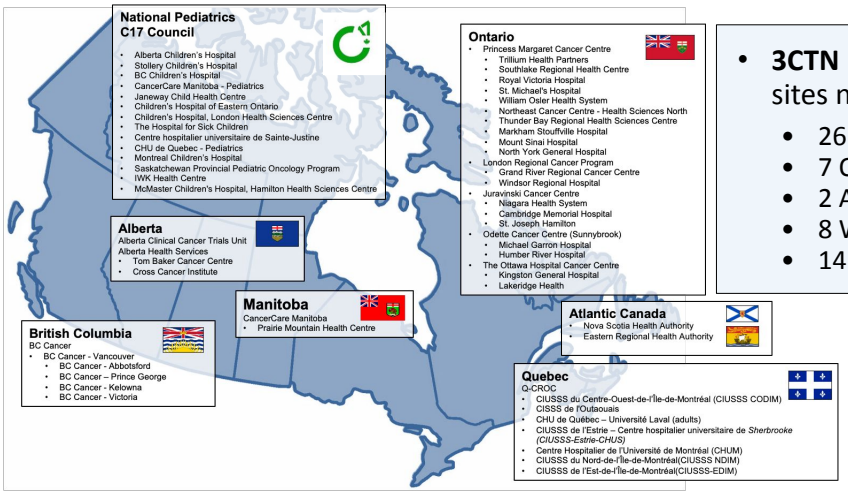
**Phase 1: Automate matching based on eligibility criteria**

**Phase 2: Pilot PMATCH within the Princess Margaret Cancer Centre**

**Phase 3: Deployment for clinical and research use cases across 3CTN**

## Partnership with the **Canadian Cancer Clinical Trials Network (3CTN)**

3CTN is well suited to spearhead deployment of PMATCH on a national level




- **3CTN** has a broad reach, with 57 sites nationally.
  - 26 Ontario
  - 7 Quebec
  - 2 Atlantic
  - 8 Western Canada
  - 14 Pediatric

## Alignment with the goals of the **3CTN EDI Framework**

### Trial Awareness

- Streamline notification of patients & clinicians about trial matches
- Improve visibility of clinical trials between institutions

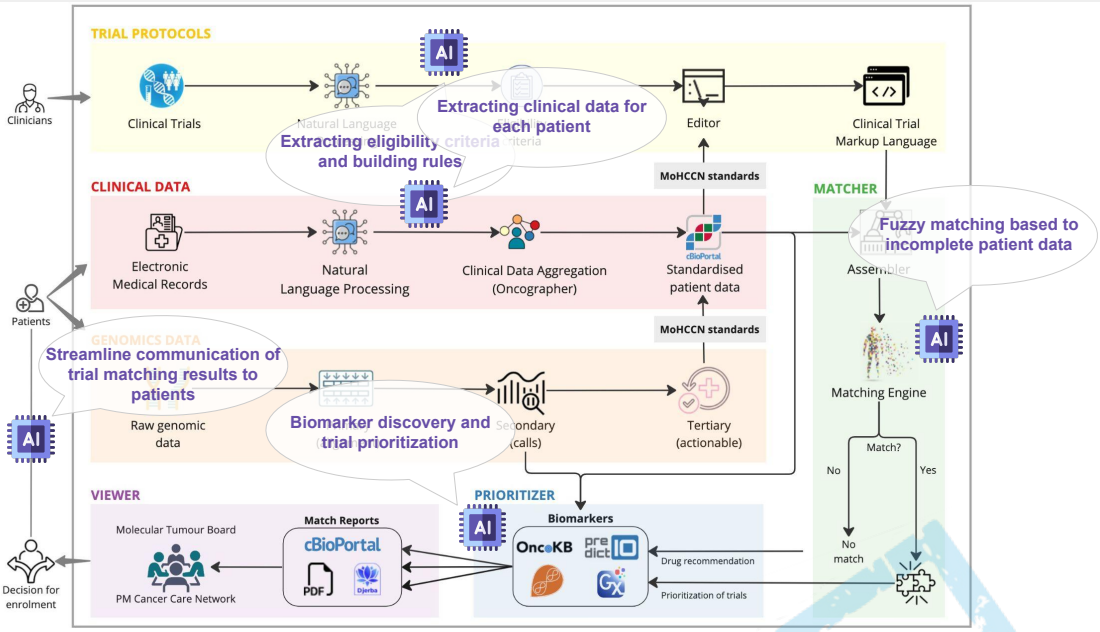
### Trial Access

- Promote establishment of additional sites by providing tools for proactive scoping and feasibility studies

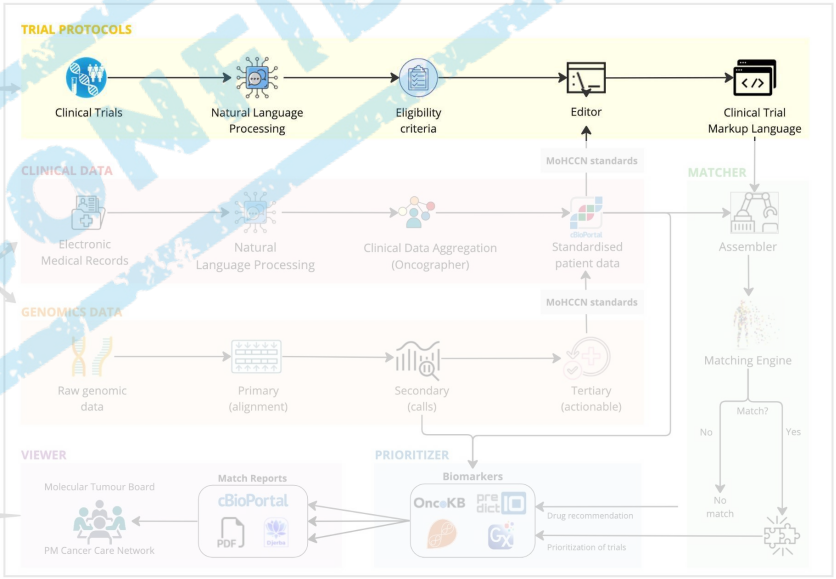
### Trial Design

- Improve trial design by providing trial coordinators tools to proactively test and tune eligibility criteria

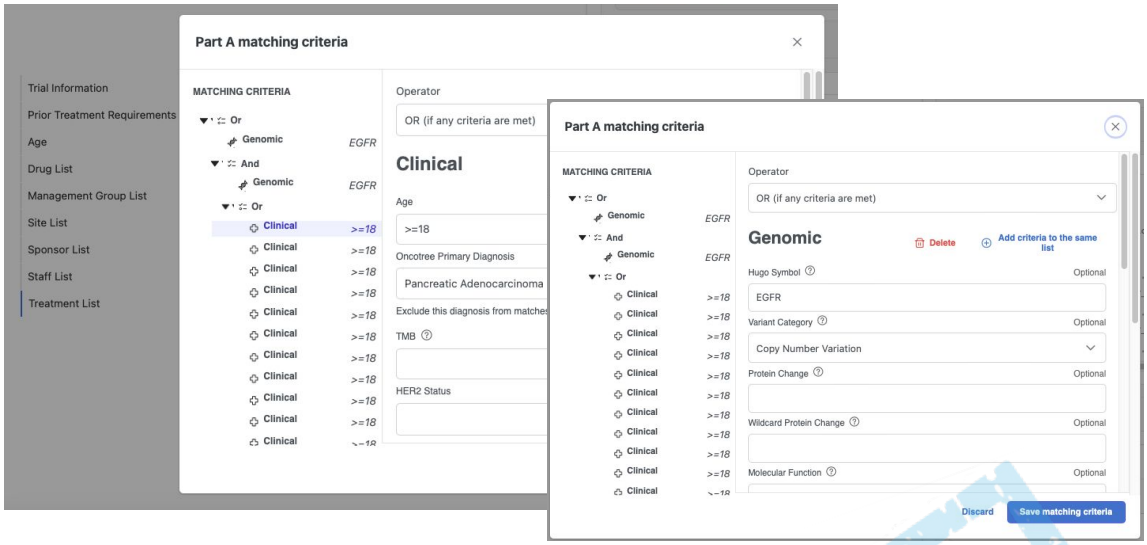
## PMATCH interlinks data needed for clinical trial matching & learning




## Trial protocols are ingested with the Clinical Trials Information Management System (**CTIMS**)



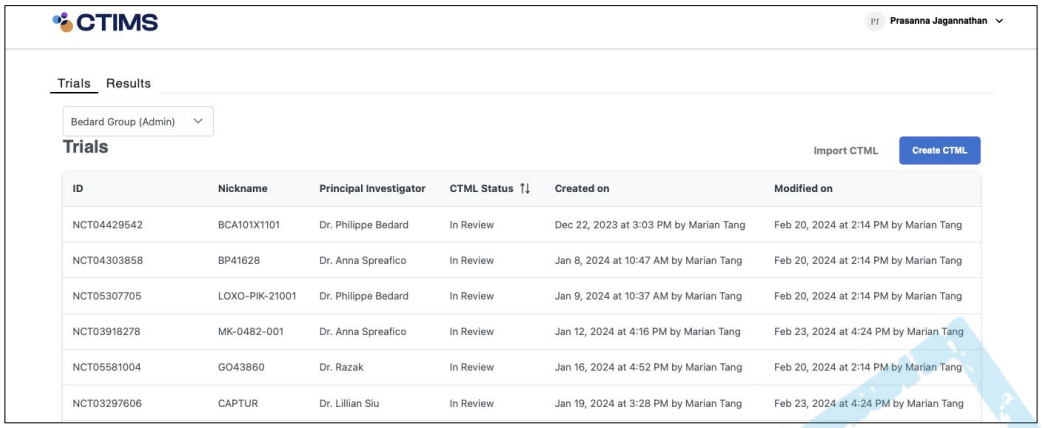
## **CTIMS** Editor enables abstraction of matching criteria into a standardized, machine-readable file (CTML = Clinical Trials Markup Language)




## **CTIMS** Editor enables abstraction of matching criteria into a standardized, machine-readable file (CTML = Clinical Trials Markup Language)

## **CTIMS** in use at Princess Margaret Cancer Centre

- **71 clinical trials** have been abstracted using the CTIMS Editor
  - out of 89 clinical trials (350 arms) open at Princess Margaret since 2013 (25 completed/terminated, 21 recruiting, 41 active)
  - 34 have been validated for matching in the PMATCH pipeline




| ID | Nickname | Principal Investigator | CTML Status | Created on | Modified on |
|---|---|---|---|---|---|
| NCT04429542 | BCA101X1101 | Dr. Philippe Bedard | In Review | Dec 22, 2023 at 3:03 PM by Marian Tang | Feb 20, 2024 at 2:14 PM by Marian Tang |
| NCT04303858 | BP41628 | Dr. Anna Spreafico | In Review | Jan 8, 2024 at 10:47 AM by Marian Tang | Feb 20, 2024 at 2:14 PM by Marian Tang |
| NCT05307705 | LOXO-PIK-21001 | Dr. Philippe Bedard | In Review | Jan 9, 2024 at 10:37 AM by Marian Tang | Feb 20, 2024 at 2:14 PM by Marian Tang |
| NCT03918278 | MK-0482-001 | Dr. Anna Spreafico | In Review | Jan 12, 2024 at 4:16 PM by Marian Tang | Feb 23, 2024 at 4:24 PM by Marian Tang |
| NCT05581004 | GO43860 | Dr. Razak | In Review | Jan 16, 2024 at 4:52 PM by Marian Tang | Feb 20, 2024 at 2:14 PM by Marian Tang |
| NCT03297606 | CAPTUR | Dr. Lillian Siu | In Review | Jan 19, 2024 at 3:28 PM by Marian Tang | Feb 23, 2024 at 4:24 PM by Marian Tang |

## **Clinicaltrials.gov** is an important resource of information about trials

Automated extraction of eligibility criteria from trial protocols is technically feasible…

**BUT**

Access to **full** trial protocols is a major limitation

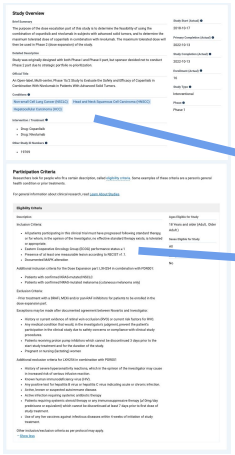
Eligibility criteria should not contain sensitive information and should be listed on **clinicaltrials.gov**

## **Clinicaltrials.gov** is an important resource of information about trials

**An Study to Evaluate the Safety and Efficacy of Copanlisib in Combination With Nivolumab in Patients With Advanced Solid Tumors**

**VLS-101 Trial**

ClinicalTrials.gov ID NCT03735628



Some studies listed on clinicaltrials.gov provide detailed eligibility criteria and study information that can be programmatically extracted into CTML format

Inclusion paragraph lists specific cancer types

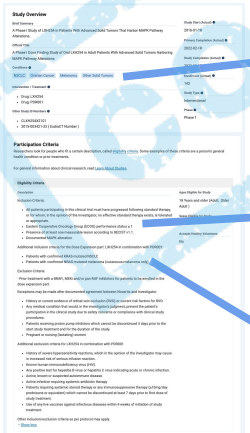
Details provided for each individual phase and arm

## **Clinicaltrials.gov** entry is not always sufficient

**Phase I Study of LXH254 in Patients With Advanced Solid Tumors Haboring MAPK Pathway Alterations**

**LXH254 Trial**

ClinicalTrials.gov ID NCT02607813

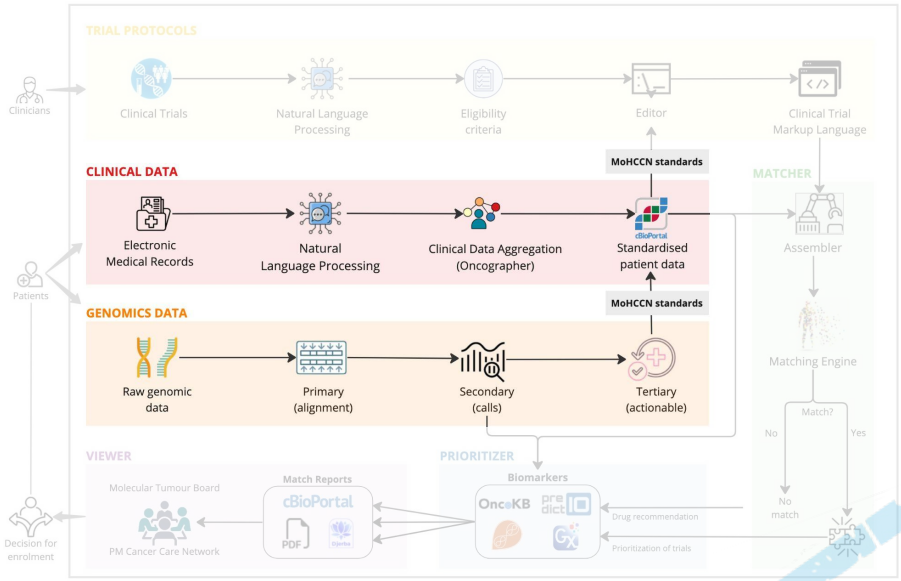


Does not explicitly state specific cancer type – just general cancer type - and does not specify which cancer type applies for which arm

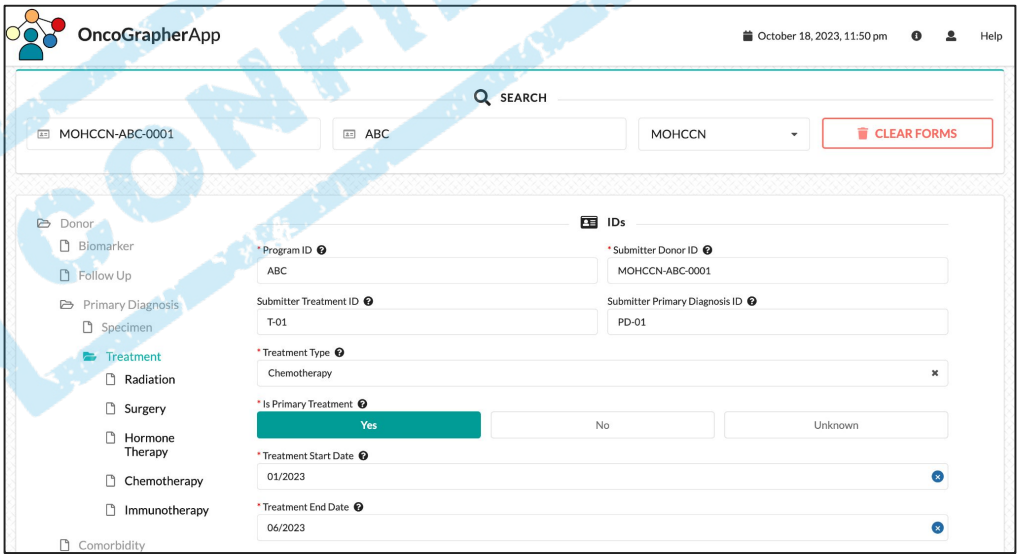
Refers to the MAPK Pathway Alterations but does not list the genes for them, let alone the specific alterations to apply. **But** full protocol provides a table of the exact MAPK pathway genes and specific alterations

Lacks detail about arms (‘Dose Expansion part: LXH254 in combination with PDR001’ arm - only arm that is detailed)

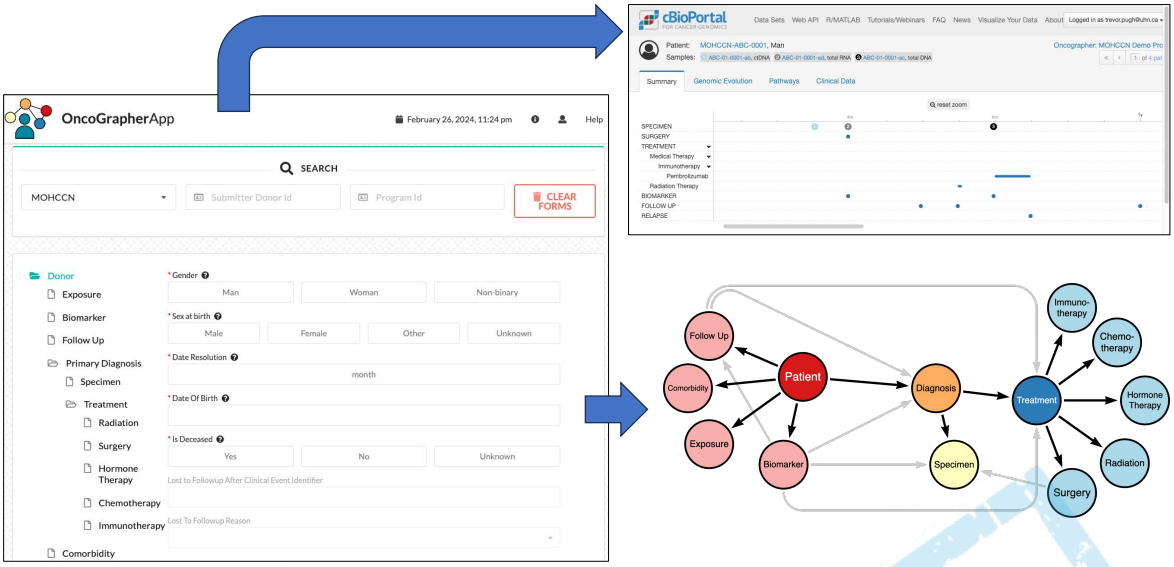
## Clinical & genomic data use MoHCCN standards for import into **cBioPortal.ca**



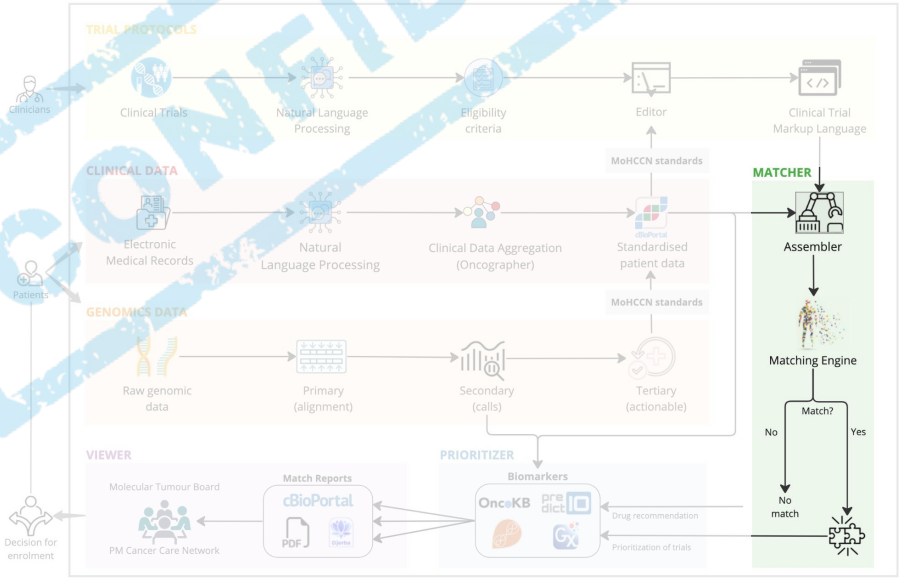

## Oncographer links clinical data collection to MOHCCN data standard compatible with cBioPortal & stores as a scalable graph database



## **Oncographer** links clinical data collection to MoHCCN data standard compatible with cBioPortal & stores as a scalable graph database




## The **MATCHER** assembles data and identifies potential trial matches for each patient



## The **PRIORITIZER** ranks therapeutic options based on additional biomarkers and published *signatures*

- Molecular tumour boards review the clinical and molecular data before assigning patients to trials
- Literature review is part of the process to guide decision in case of uncertainty

- When a patient is eligible to <u>multiple</u> trials, which trial to ***prioritize***?

- When a patient is <u>not matched</u> to any trial, what evidence can one use to guide the treatment decision?

Leverage clinically-approved biomarkers and candidate molecular signatures relevant for the trials, but are not used in the eligibility criteria

OncoKB Precision Oncology Knowledge Base + predict IO

Predict response to **C**hemo, **T**argeted and **I**mmuno-**O**ncology therapies

## Case #1: Patient matched to multiple trials with OncoKB hits

Need to prioritize

OncoKB hits ✅
Published signatures in PrediCTIO

→ do not suggest a PD/L1 trial
but rather based on OncoKB therapy

→ Can prioritize the trial with the treatment suggested by OncoKB

Matched to 23 trials

Patient ID: OCT-01-0093 Lung

| Condition for clinical validation | Hugo Symbol | Alteration | Type of analysis ↓ | Levels of confidence ↓ |
|---|---|---|---|---|
| Bemcentinib, Pembrolizumab + Lung | STK11 | A225Pfs*62 | cancer specific | 4 |

# Predicting response to immunotherapy (PD/L1 and CTLA4 inhibitors) based on DNA and RNA signatures

**Meta-analysis of tumor- and T cell-intrinsic mechanisms of sensitization to checkpoint inhibition**

February 4, 2021 Cell

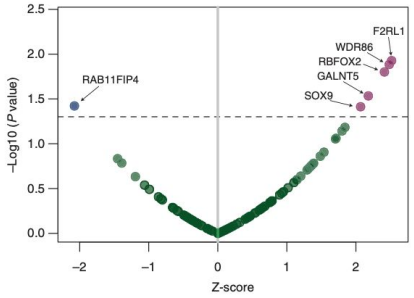
Kevin Litchfield,[1,3,13] James L. Reading,[2,3,13] Clare Puttick,[1,13] Krupa Thakkar,[1,3] Chris Abbosh,[3] Robert Bentham,[3] Thomas B.K. Watkins,[1] Rachel Rosenthal,[1] Dhruva Biswas,[1] Andrew Rowan,[1] Emilia Lim,[1] Maise Al Bakir,[1] Virginia Turati,[4] José Afonso Guerra-Assunção,[4] Lucia Conde,[5] Andrew J.S. Furness,[6] Sunil Kumar Saini,[7] Sine R. Hadrup,[7] Javier Herrero,[1] Se-Hoon Lee,[8,9] Peter Van Loo,[10] Tariq Enver,[2] James Larkin,[6] Matthew D. Hellmann,[11] Samra Turajlic,[4,12] Sergio A. Quezada, PhD,[2,3,*] Nicholas McGranahan,[2,*] and Charles Swanton[1,3,14,*]

ANNALS of ONCOLOGY Volume 33 ■ Issue 12 ■ 2022

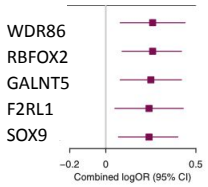
**Leveraging big data of immune checkpoint blockade response identifies novel potential targets**

Y. Bareche[1,2†], D. Kelly[3†], F. Abbas-Aghababazadeh[4†], M. Nakano[4], P. N. Esfahani[4], D. Tkachuk[4], H. Mohammad[4], R. Samstein[5], C.-H. Lee[5], L. G. T. Morris[7], P. L. Bedard[3], B. Haibe-Kains[4,6,8,9,10,11,12,13*†] & J. Stagg[1,2*‡]

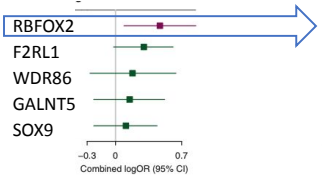
T-cell dysfunction score tested in The Cancer Genome Atlas data




Discovery cohorts

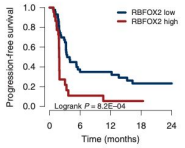



Validation cohorts

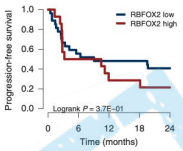



**Trials**

INSPIRE




GIDE



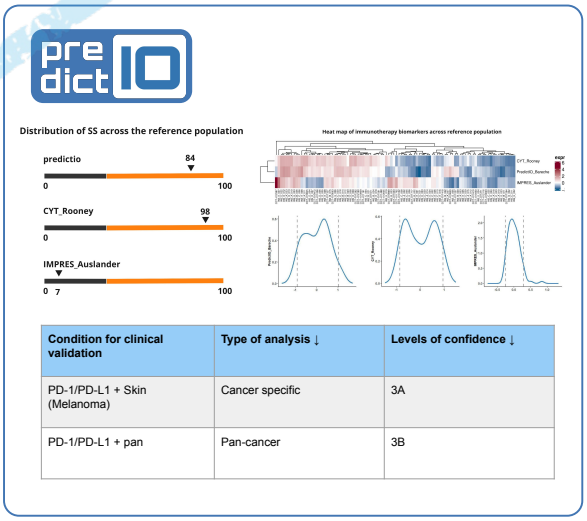

# Case study: Patient matched to multiple trials

Patient OCT-01-0845 matches to **24** trials


No OncoKB hits

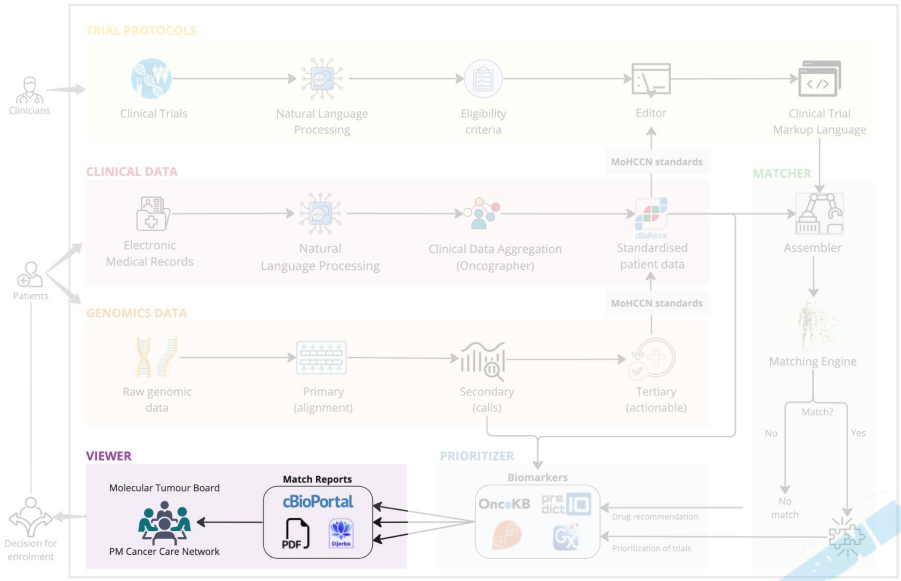
Tumour profile matches to published signatures in PrediCTIO

- PrediCTIO predictions can be used to ***prioritize*** trials

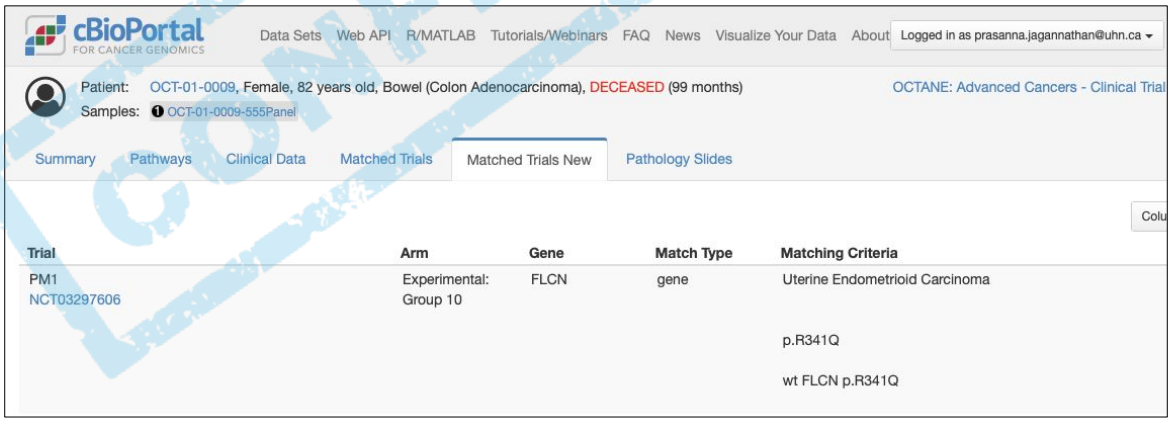



| Condition for clinical validation | Type of analysis ↓ | Levels of confidence ↓ |
|---|---|---|
| PD-1/PD-L1 + Skin (Melanoma) | Cancer specific | 3A |
| PD-1/PD-L1 + pan | Pan-cancer | 3B |

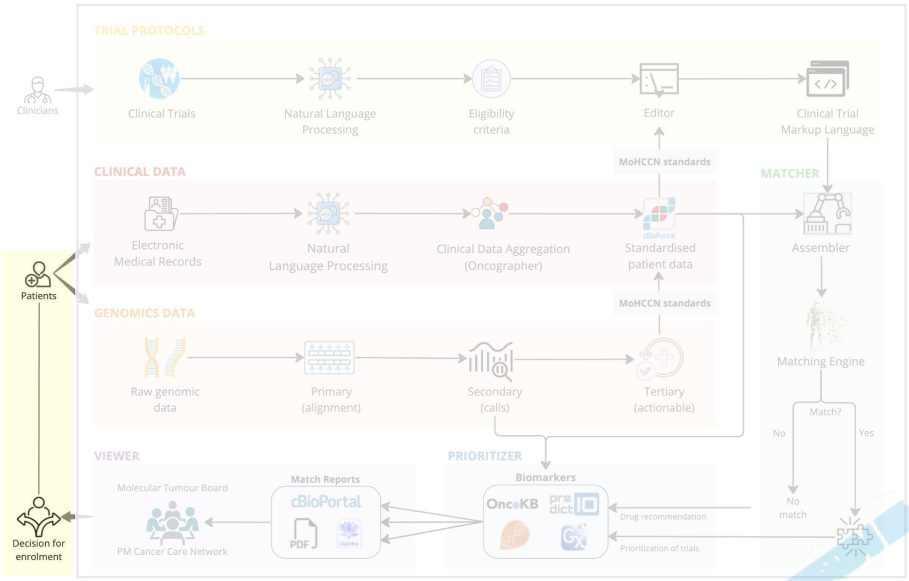
## Match information is accessible by clinicians and Molecular Tumour Boards



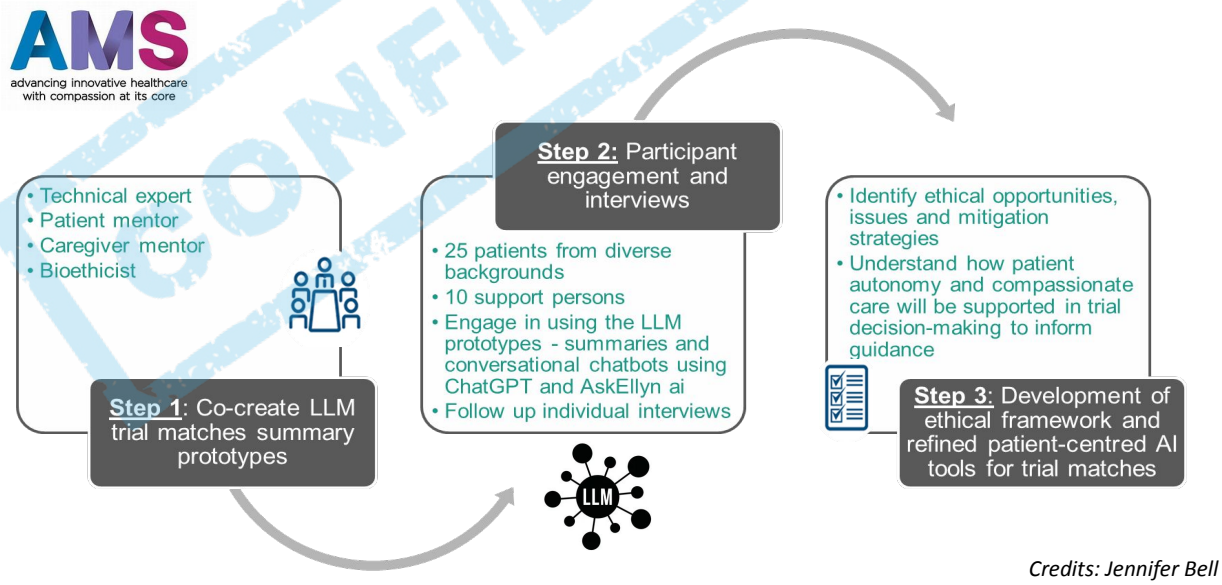

## Clinical Trials tab built within cBioPortal.ca Patient View to summarize matched trials not yet connected to CTIMS or displaying to users, pending validation of match accuracy



## Optimizing the communication of matching results to clinicians and patients




## Research to inform how matching results can best be communicated to patients using LLM chatbots, with attention to ethical considerations




*Credits: Jennifer Bell*

# Acknowledgements


**Benjamin Haibe-Kains' Lab**
Farnoosh Babazadeh
Matthew Boccalon
Sisira Nair
Julia Nguyen
Kevin Wang

**Bo Wang's Lab**
Bo Wang
Rex Ma
Reza Azakereh

**MatchMiner (DFCI)**
Tali Mazor
James Lindsay
Ethan Cerami

**Trevor Pugh's Lab**
Marian Tang
Prasanna Jagannathan
Suluxan Mohanraj
Jose Urbina
Julia Sobotka
Dheeraj Gavini

**Cancer Digital Intelligence**
Tran Truong
Kelly Lane
Ben Grant
Sharon Narine
Anton Sukhovatkin
Mickey Ng
Pietro Andreoli
Srimathi Jayasimman

**3CTN/CCTG**
Janet Dancey
Stephen Sundquist

**Cancer Genomics Program**
Philippe Bedard
Sophie Cooke
Eoghan Malone

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