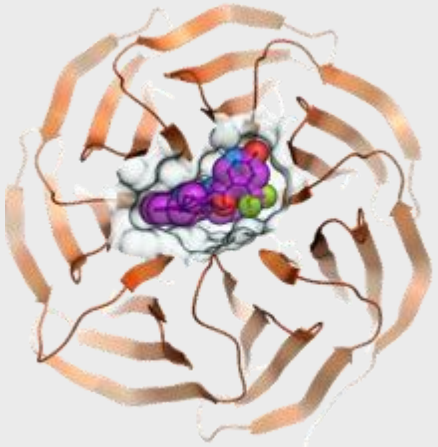


OPEN SCIENCE IN PUBLIC PRIVATE PARTNERSHIPS

BIO. INNOVATIONEN. STÄRKEN. – JULY 2, 2025

CLAUDIA TREDUP

The Structural Genomics Consortium (SGC)

SGC is a unique public-private partnership that aims to accelerate the discovery of new medicines through open science

- **International public-private partnership (PPP)** with a mission to understand the function(s) of all proteins encoded by the human genome and accelerate the discovery of new medicines.
- UK charity with 6 research sites in **Europe** and **N. America.**
- **SGC supports a network of ~250 scientists** plus a network of 350+ collaborators.
- **Global network of partners, and funders over 20 years,** including pharmaceutical companies, charities, and government agencies.
- **SGC co-authors ~25 peer-reviewed papers each year with industry.**
- **Main outputs:**
  - High Throughput Structural Biology
  - Renewable Antibodies/Binders
  - Patient-Derived Cell Assays
  - Chemical Probes

SGC

Why do we need the SGC?

Around $270 billion is invested annually in biomedical and health research.

No new medicines for schizophrenia since 1950's.

No new treatment for Alzheimer's since early 80's.

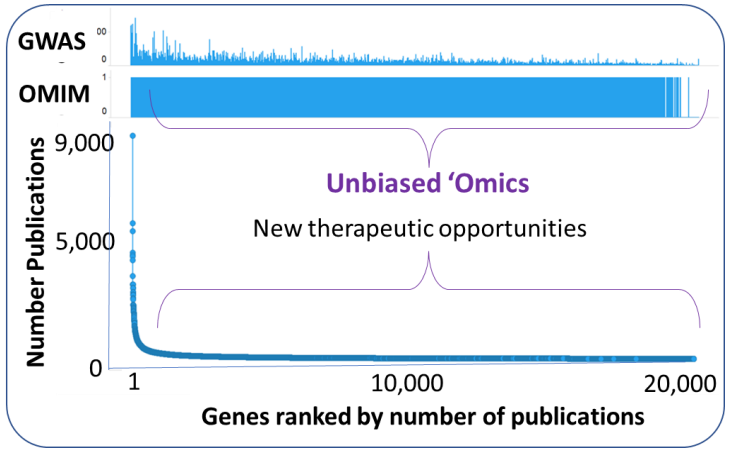
Medicines are not affordable for most people in the world

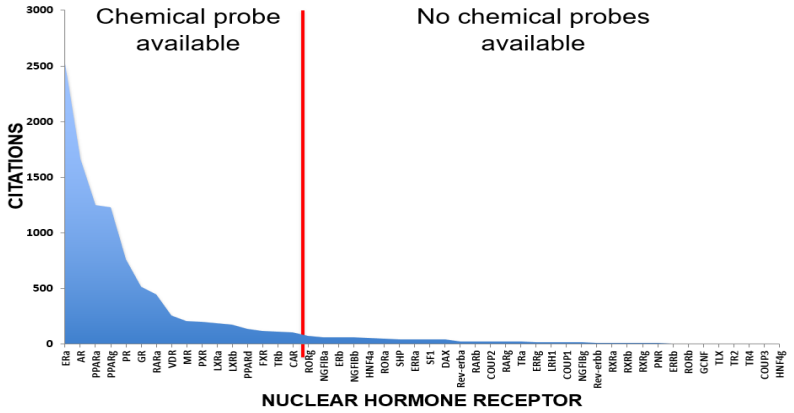
SGC

The Current Paradigm for Drug Target Discovery is not Sustainable

Most research focuses on a small percentage of the human proteome

- Many therapeutic areas focus on a **few known targets that were uncovered pre-human genome**—most new targets remain unexplored (‘dark genome’)
- New therapeutic opportunities remain unstudied
- **The availability of suitable chemical or biological probes drives research into new areas**



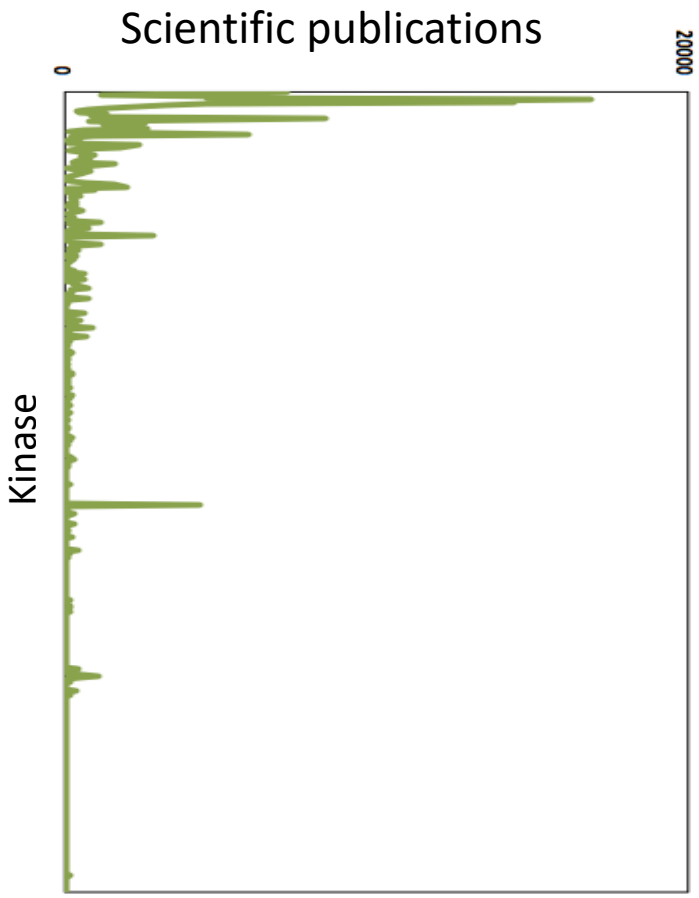


Chemical probes are drug-like small molecules that serve as essential tools for both research and drug discovery but there are not nearly enough available today.

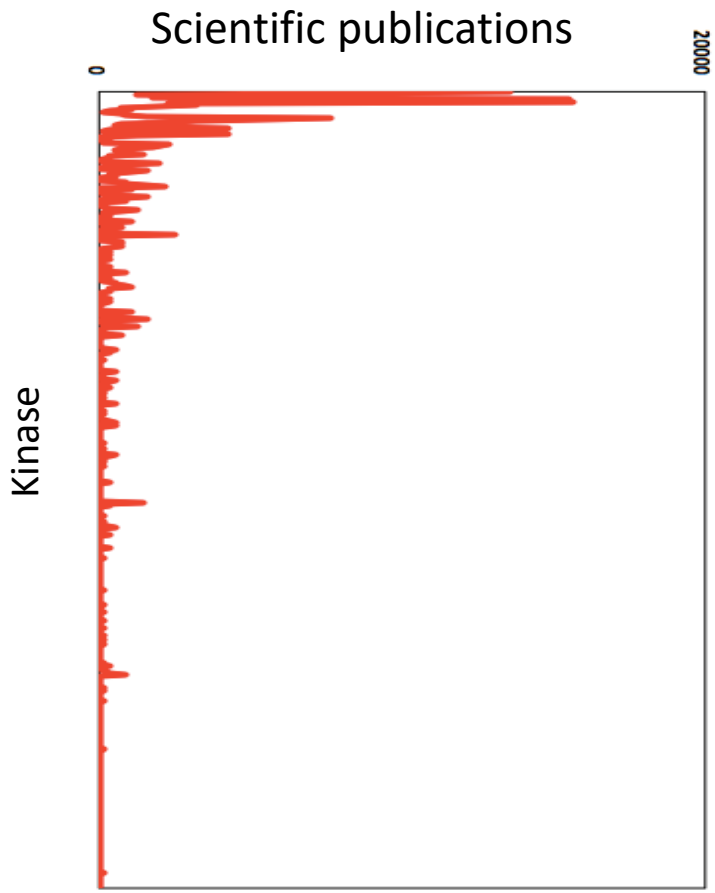
SGC

Most science is redundant

Global Effort (2019)



German Effort (2019)



COMMENT

ANTHROPOLOGY Call for unity in the science of human beings p.180

GENETICS Reviewed: two primers on personal genomics p.189

POLICY Sanitation, not vaccination, is most important in Haiti p.175

OBITUARY Jack Oliver, key player in proof of plate tectonics, remembered p.176

Too many roads not taken

Most protein research focuses on those known before the human genome was mapped. Work on the slew discovered since, urge **Aled M. Edwards** and his colleagues.

When a draft of the human genome was announced in 2000, funders, governments, industry and researchers made grand promises about how genome-based discoveries would revolutionize science. They promised that it would transform our understanding of human biology and disease, and provide new targets for drug discovery. Yet more than 75% of protein research still focuses on the 10% of proteins that were known before the genome was mapped — even though many more have been genetically linked to disease.

We performed a bibliometric analysis to assess how research activity has altered over time for three protein families that are central in disease and drug discovery: kinases, ion channels and nuclear receptors. For all three, we found very little change in the pattern of research activity — which proteins are associated with the highest number of publications — over the past 20 years[1]. Even those proteins that have been directly associated with disease remain 'hidden in plain sight,' with scientists proving very reluctant to study them.

Where there has been a shift in research activity, it was often spurred by the emergence of tools to study a particular protein, not by a change in the protein's perceived importance. We believe that ensuring high-quality tools are developed for all the proteins discovered may be all that is needed to drive research into the unstudied parts of the human genome — even within funding and peer-review systems that are inherently conservative.

We searched for mention of every human ▶

NATURE.COM
Protein mapping gains a human focus:
go.nature.com/vbqctf

SGC

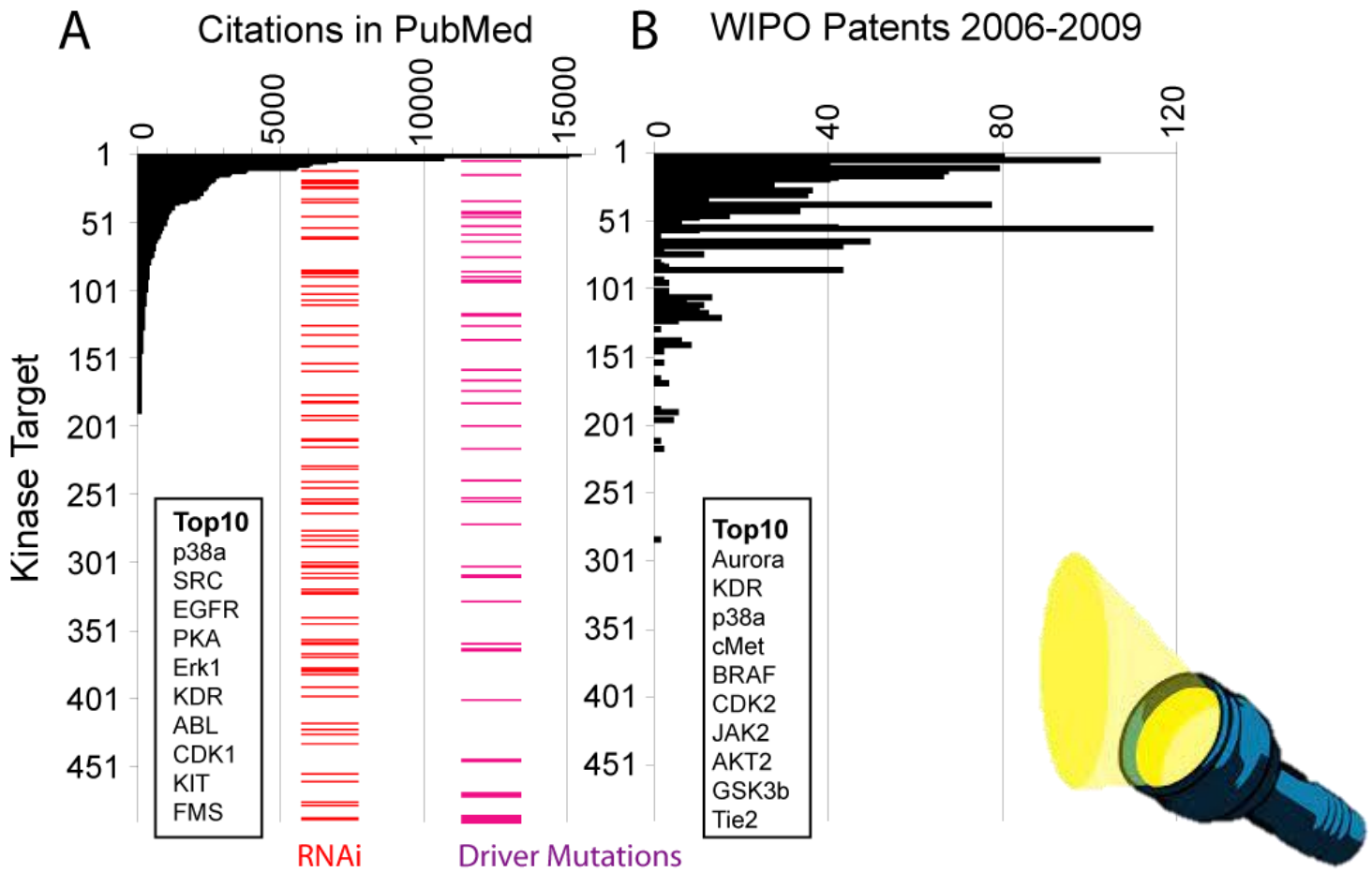
The system is the problem

- Funding based on published results
- Lack of funding for truly innovative ideas
- Small increments
- Agreements/IP – time consuming

charitably, mixed. A recent Bloomberg report shows how quickly university patent incomes plunge once we look beyond the megastars. In 2014, just 15 US universities earned 70% of all patent royalties. British science policy researchers Paul Nightingale and Alex Coad conclude that 'Roughly 9/10 US universities lose money on their technology transfer offices... MIT makes more money from selling T-shirts than it does from licensing'. A report from the Brookings institute

SGC

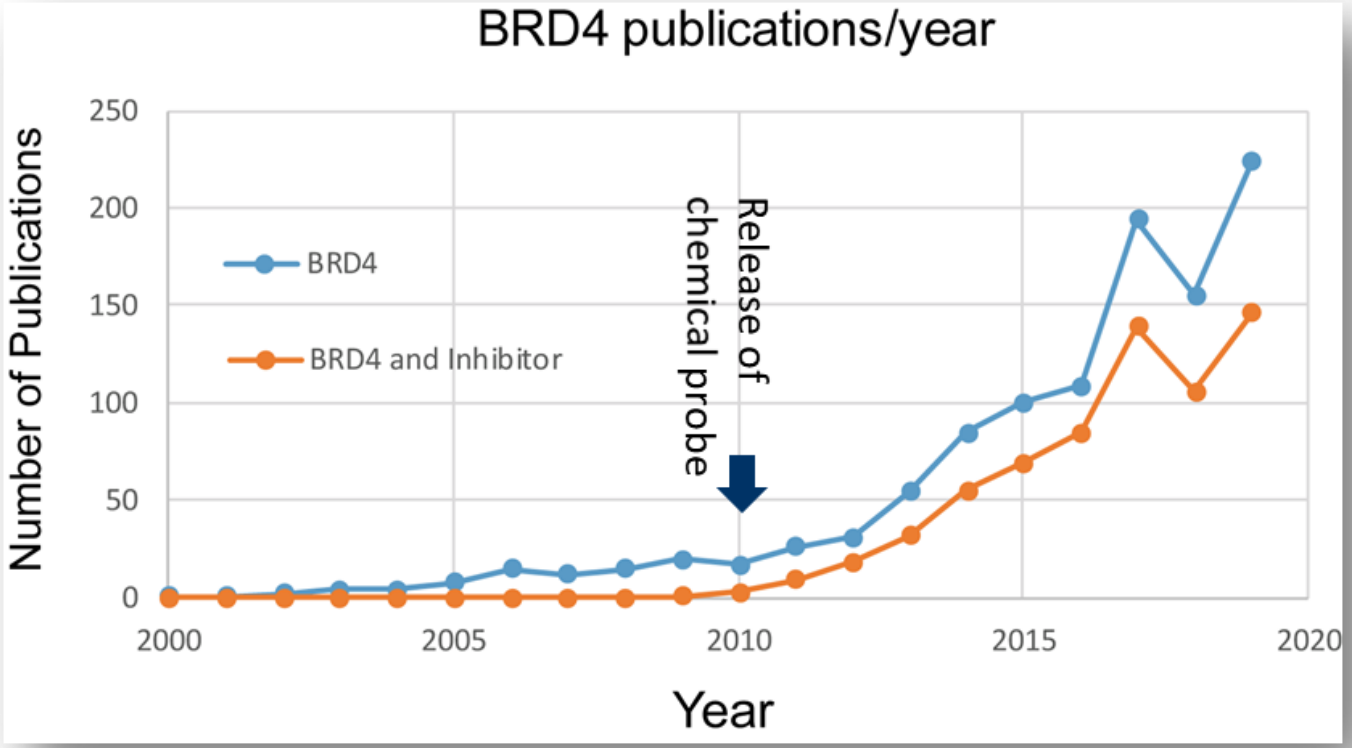
Where academia shines light, industry searches



The (un)targeted cancer kinome. Fedorov O, Müller S, Knapp S.Nat Chem Biol. 2010 Mar;6(3):166-169.

Open Science as a solution

- Encourage innovation
- Engage industry
- Accelerate science
- Increase reproducibility
- Reduce redundancy
- Engage patients
- Mobilize funding
- Develop new technologies through crowed sourcing



SGC

SGC's Open Science Model

A unique model that eliminates inefficiencies inherent to legacy early-stage drug development research

The Principle

Pre-competitive, protein-based open science to enhance and accelerate early-stage drug discovery

How it works

All research output is made public without any restrictions of use or patent protection.

Benefits to our partners

- De-risking drug targets by shared research
- Access to new research knowledge, reagents and resources
- Freedom to operate
- Nomination of targets, and collaborative work on specific drug targets
- Co-authorship of peer-reviewed scientific publications
- Access to clinically relevant cell assays with patient-derived samples
- Access to datasets that are essential inputs to machine learning tools aimed at accelerating new drug discovery

SGC

Our Track Record in Probe Development

SGC is a global leader in probe development with demonstrated impact

DISCOVERED

200+

Novel chemical probes developed in collaboration with industry and academic partners

DISTRIBUTED

50,000+

Samples of chemical probes distributed globally by SGC and trusted vendors

CITATIONS

13,000+

SGC chemical probes used by scientists around the world

CLINICAL TRIALS

100+

Clinical trials and late-stage preclinical programs based on therapeutic hypotheses generated with SGC chemical probes

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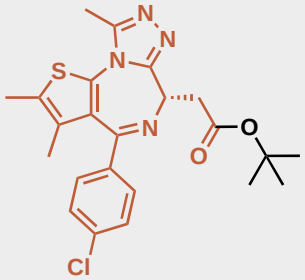
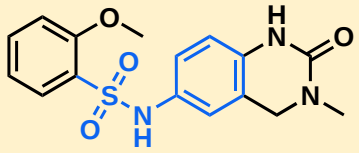
SGC Chemical Probes Seed Drug Discovery

Examples of SGC Chemical Probe-Enabled Clinical Programs (more than 85)

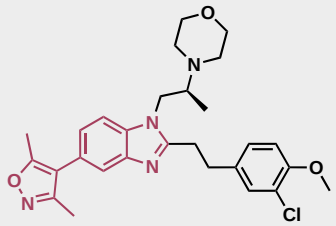
SGC Probe



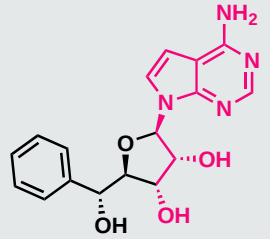
JQ1



PFI1

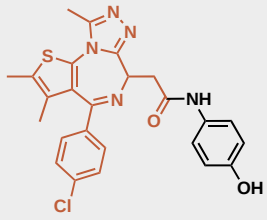


CBP-30



LLY-283

Clinical Candidate

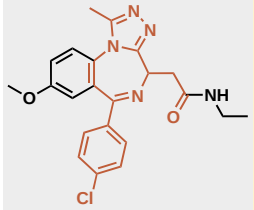


OTX015

Phase 2b

Solid Tumors

MSD/ Mitsubishi Tanabe

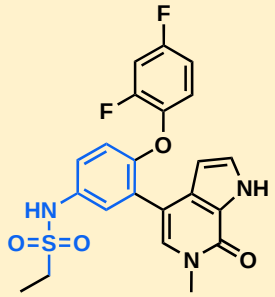


Molibresib

Phase 1

Advanced Lymphoma

GSK

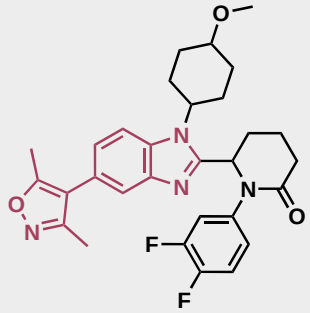


Mivebresib

Phase 1

Advanced Lymphoma

GSK

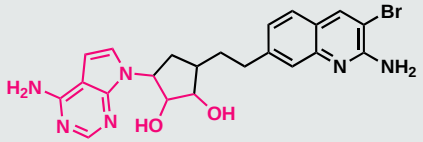


CCS1477

Phase 1/2

Prostate Cancer

CellCentric



JNJ64619178 – Phase 1

Phase 1

Advanced Lymphoma

Solid Tumors

Janssen

SGC

DOI: 10.1039/D1CB00016K

The Evolution of SGC

Following the science and mobilizing the community

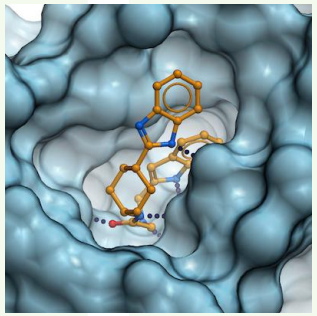
2004 | 2007 | 2011 | 2015 | 2020 | 2025

Phase I → **Phase II** → **Phase III** → **Phase IV** → **Phase V** → TARGET 2035

Structural Genomics

Human Protein Families
Human Parasite Proteins

Chemical Biology



Bio-active Chemical Tools

Data Generation

Patient-derived disease assays

Scientific Focus

Industry Members

GSK

GSK, Pfizer, MSD, Novartis

GSK, Takeda, Pfizer, Janssen, Lilly, abbvie, Boehringer Ingelheim, Bayer, Novartis

Takeda, Boehringer Ingelheim, Janssen, Merck, Pfizer, abbvie, Bayer, MSD, Novartis

Genentech, Janssen, Merck, Pfizer, Boehringer Ingelheim, Takeda, Bayer, Bristol Myers Squibb

SGC

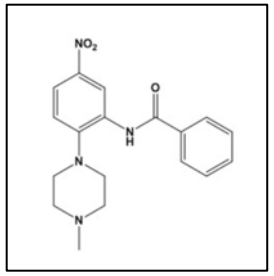
Precompetitive Research – from lab to patients?

$1 Billion Deal Catalyzed by SGC Open Science Research

- SGC's discovery of inhibitors to WDR5, and demonstration of their efficacy against cellular models of leukemia and breast cancer, emboldened the Ontario Institute for Cancer Research (OICR) to rapidly develop their lead series and commercialize it
- OICR's spin-out company, Propellon, partnered with Celgene to develop the first-in-class WDR5 inhibitor - a $1 billion deal

OPEN COLLABORATION

HIT



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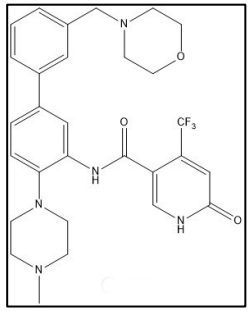
OICR Ontario Institute for Cancer Research

PROBE



OICR Ontario Institute for Cancer Research

LEAD

FACIT Fight Against Cancer Innovation Trust

Propellon THERAPEUTICS INC.

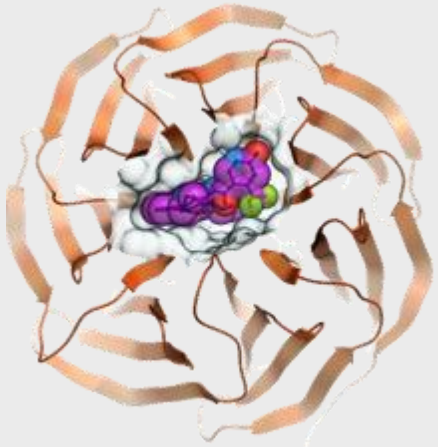
Celgene

triPHASE

- $40 million investment
- $1 billion milestone payments
- Clinical development

SGC

SGC



www.thesgc.org