

CURING COLORECTAL CANCER WITH IMMUNO-ONCOLOGY

John J. Priatel, PhD, Founder MIT IDEA2 Presentation October 2019

COLORECTAL CANCER

Massive potential

- ~140,000 new cases of colorectal cancer (CRC) and 51,000 deaths in US (2018)
- Metastatic CRC 5 year survival rate ~14%
- No curative therapies
- Immuno-oncology (IO) is a new class of cancer therapy with ability to treat metastatic cancers with potential for a cure
- IO drugs are not effective in CRC
- Our lead drug being developed to make IO effective in metastatic CRC



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IO FOR COLORECTAL CANCER

New target to enhance responsiveness to IO

- Immuno-Oncology (IO) or Immunotherapy has curative potential in extremely difficult cancers
- Metastatic CRC is heavily underserved by IO
 - Suppressive immune environment
- Data suggests target called G-CSF key in generating suppressive environment
- Combine checkpoint with G-CSF targeting therapy to increase response rate
 - Allow more patients to benefit from IO
 - Cure CRC in subset of patients
 - Target large unmet need

The Promise for Immunotherapy in Colorectal Cancer



Time from Treatment

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PRODUCT

Overcome resistance – boost activity



Humanized antibody targeting G-CSF

- Therapeutic antibody against key driver of myeloid cell immune suppression in CRC called G-CSF
- Only drug targeting G-CSF in clinical development for cancer
- High affinity drug which is ideal for therapeutic
- Patented
- Advanced stage of development
- Ready to test in combination with current IO in CRC
 - Combination may unlock potential of IO in CRC and allow for a cure in some patients

TECHNOLOGY

Multifaceted role of G-CSF in immune suppression

- Data shows that G-CSF:
 - Strongly associated with poor survival
 - Creates a suppressive tumor environment
 - Promotes metastases
 - Causes resistance to targeted cancer therapies (VEGF inhibitors)
- Anti-G-CSF therapeutic has excellent drug characteristics
 - Patented (composition and use)
- Overlooked target due to feared on-target toxicity (neutropenia)
 - G-CSF targeting drug proven safe in arthritis patients in clinic

G-CSF Disease Specific Survival in CRC



Anti-G-CSF treatment reduces tumors in mouse model of colon cancer



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Current targets not effective in CRC

- Standard of care
 - Chemotherapy with Cetuximab (anti-EGFR) or Bevacizumab
 - Not curative only modest extension of survival
- IO drugs
 - Keytruda or Opdivo (approved for only 5% of patients with MSI high tumors)
- Drugs under development
 - Growth factor receptor targeting drugs (similar to Cetuximab and Bevacizumab)
 - CSFR targeting drugs in combo with Keytruda/Opdivo (IO) Limited efficacy so far



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Humanized G-CSF blocking antibody

- Several key publications supporting G-CSF as a potential target in colorectal cancer
- Received commercialization grant from Michael Smith Foundation for Health Research (Oct 2019) – validating science
- Worldwide patents filed (composition and use) on 2 lead antibodies
- IP 100% owned by ME Therapeutics Inc





Proven expertise in cancer immunology



Dr. Salim Dhanji, Ph.D. CEO & Founder. Former Director of Preclinical Research at Qu Biologics with 10+ years industry experience. **Expertise in lymphocyte biology, cancer, and autoimmunity**



Dr. Ken Harder, Ph.D. Founder.

Associate Professor, Department of Microbiology & Immunology Expertise in cancer, biochemistry, hematopoiesis, and innate immunity



Dr. John Priatel, Ph.D. Founder. Assistant Professor, Department of Pathology and Laboratory Medicine. Expertise in T cell biology of infection, autoimmunity, and cancer Founders have over 90 scientific publications and patents and >\$2 million in funded research

Member of Massachusetts Institute of Technology IDEA2 Startup Incubator Program



Recipient of 2019 Innovation To Commercialization

Competition Award



BC's health research funding agency



Improving patient outcomes in CRC

- Colorectal cancer represents a huge unmet need with large world-wide market potential
- Immuno-oncology has the potential to cure late-stage cancers but currently applied modalities are not effective for colorectal cancer
- New combinations are necessary to improve immuno-oncology responses to colorectal cancer
- Targeting G-CSF may improve immune-oncology response rates to colorectal cancer by modulating the tumour environment

CONTACT

Dr. Salim Dhanji, PhD, CEO and founder

Address

3540 – 2350 Health Sciences Mall Vancouver, BC, Canada V6T 1Z3

🖂 Contact Info

Email: salim@metherapeutics.com

