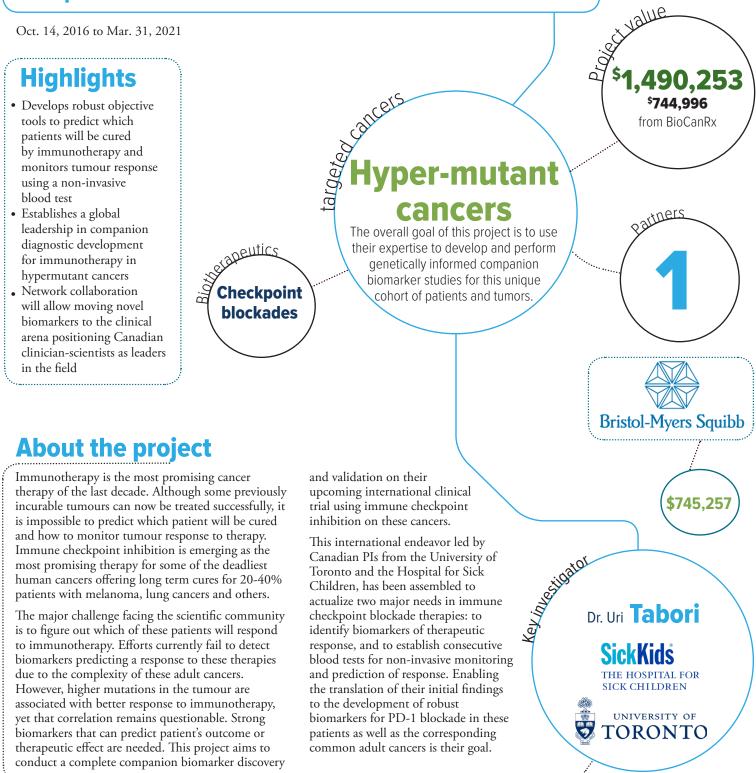


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# **Enabling Studies Program**

## Development of predictive companion biomarkers and therapeutic monitoring for hypermutant cancers to immune checkpoint inhibition



# Enabling Study Investigators

#### About, continued...

In a previous project, the team uncovered a unique group of patients with ultrahypermutant cancers. They discovered that these cancers respond dramatically to immune checkpoint inhibition and will be perfect to study tumour and host related mechanisms responsible for the development of effective biomarkers for immunotherapy. The discovery that bMMRD cancers have the highest mutational load and respond favourably to immune checkpoint inhibition, puts this project in a unique and advantageous position to create a platform which will lead to advanced therapeutic applications in other common hypermutant cancers.

Based on this exciting data, they are performing an international clinicaltrial, using the anti-PD-1 biologic called Nivolumab to treat these "hypermutant" cancers. This first-of-its-kind trial includes patients enrolled from all over the world and all genetic data is gathered and processed in Toronto. Data from this project will position the team as leaders in the field and will allow for the development of robust biomarkers for future immunotherapies in common adult cancers.

Finally, the ongoing blood monitoring assays, using the novel tools, will allow this project to develop non-invasive tools which will transform the therapeutic and clinical approaches to these cancers. This project will spearhead future international clinical trials and position Canadian clinician-scientists as leaders in the field.

### The power to kill cancer lies within us. Let's tell our bodies how.

#### Toronto

The Arthur and Sonia Labatt Brain Tumour Research Centre, The Hospital for Sick Children, University Health Network, University of Toronto Dr. Uri Tabori Dr. Eric Bouffet Dr. Cynthia Hawkins Dr. Adam Shlien Dr. Alberto Martin Dr. Pam Ohashi Dr. Trevor Puqh

#### Cambridge

*Foundation Medicine Inc.,* Dr. David Fabrizio

Dr. David Fabrizio

Cambridge, Massachussets

#### Target 1

Tumour tissue companion biomarker development

- Year 1: Sequencing and TIIL in operation
- Year 2: Successful establishment of data form trial subjects
- Year 3: Move into validation of target 3

#### Target 2

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- Non-invasive therapeutic monitoring:
- Year 1: TRC, immunophenotype and Protoarray protocols in operation
- Year 2: Successful establishment of data from trial subjects
- Year 3: Move into validation of target 3

#### Target 3

Data analysis and validation

- Year 1: Analyze data from target 1 and 2
- Year 2: Initiate validation of biomarkers with data from adult trials from BMS and UHN trials
- Year 3: Validation in animal models and complete validation against previous trial data

