

## Event

For the first time in its funding history, Genome Canada requires all research proposals submitted to the competition on Applied Genomics Research in Bioproducts or Crops (ABC) to have an integrated GE<sup>3</sup>LS (iGE<sup>3</sup>LS) component. Of the twelve projects funded through the ABC competition, eleven science and technology projects have an iGE<sup>3</sup>LS component and the twelfth project, VALGEN, is a stand-alone GE<sup>3</sup>LS project.

## Significance

New opportunities for cross-project collaborations between the network of iGE<sup>3</sup>LS components and VALGEN have been created, enabling researchers to leverage value in multiple iGE<sup>3</sup>LS projects through VALGEN-supported collaborations.

## Analysis

The iGE<sup>3</sup>LS components of ten ABC projects science and technology projects and VALGEN were analysed. Based upon the original proposals, the iGE<sup>3</sup>LS research objectives have been organized into the following categories: intellectual property (IP); regulatory and governance; democratic engagement; economics of science; environmental review; and ethics.

Eight projects are undertaking IP research aspects, involving IP landscape evaluations and assessing alternative IP strategies. Several projects identified that patents could act as barriers to research. To ensure commercialization of the research, an assessment of existing patents would be required.

Seven projects have regulatory and governance objectives, focusing on how the existing Canadian regulatory system applies to products and services arising from ABC research. For example, several projects take innovative approaches to biofuel research and development, but the regulatory response cannot be reliably predicted. Reviews of existing regulations are being undertaken, but researchers are collaborating to open a dialogue process with the federal regulatory agencies so that insights and information can be shared.

Four projects include aspects of democratic engagement, focusing on surveys to study public attitudes toward potential new products and services. In addition to surveys, more deliberative approaches to engagement are being undertaken.

The economic value of specific genetic traits and the potential returns to agricultural research is studied in two projects. This research will provide an impact analysis for novel traits identified by scientists to determine which of the traits has the highest potential economic value.

Life cycle analyses are being conducted in three projects that have specific environmental objectives. Climate change mitigation is an important component of biofuel projects and a detailed examination of the biomass contribution to climate change will be completed within these projects, providing insights into the carbon footprint of biofuels.

One project has an ethical focus on the food-versus-fuel debate. This project will undertake a survey that includes questions of an ethical nature regarding the development and transfer of biofuel technologies to developing nations.

The methodological approaches being applied vary considerably, including: patent landscape assessments (six projects); public surveys (three projects); life cycle analysis (three projects); regulatory impact evaluations (three projects); data analysis (three projects); empirical modeling (three projects); and bibliometric/literature scans (four projects).

## Conclusion

Opportunities for cross-project collaborations between the network of iGE<sup>3</sup>LS components and VALGEN are evident. A recent workshop for all ABC investigators established that synergies between the network of iGE<sup>3</sup>LS projects and VALGEN exist. As the example of GE<sup>3</sup>LS research on biofuels suggests, researchers are pursuing opportunities to leverage value from collaboration, and VALGEN is taking the lead in coordinating and supporting these research collaborations.