



GenomeCanada



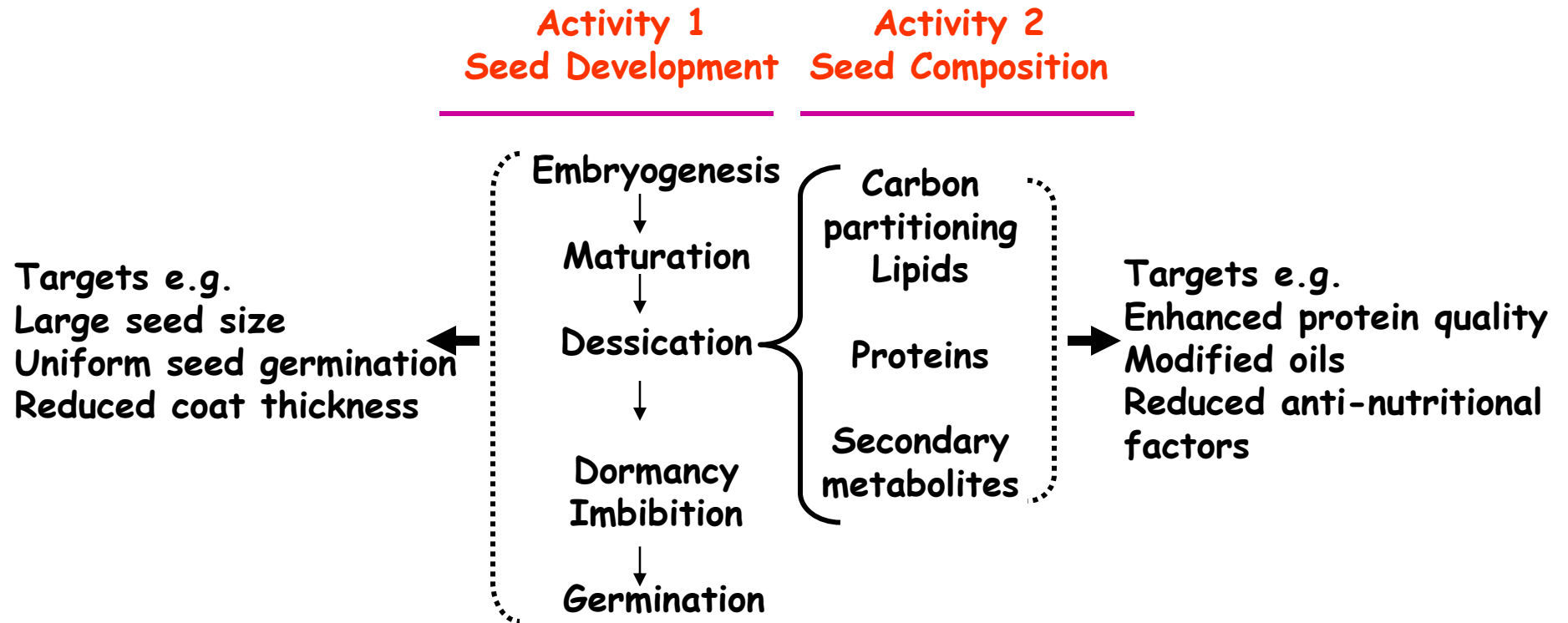
GenomePrairie

Enhancing Canola Through Genomics

Wilf Keller

**Agriculture and Agri-Food Canada (AAFC)
National Research Council of Canada (NRC)**

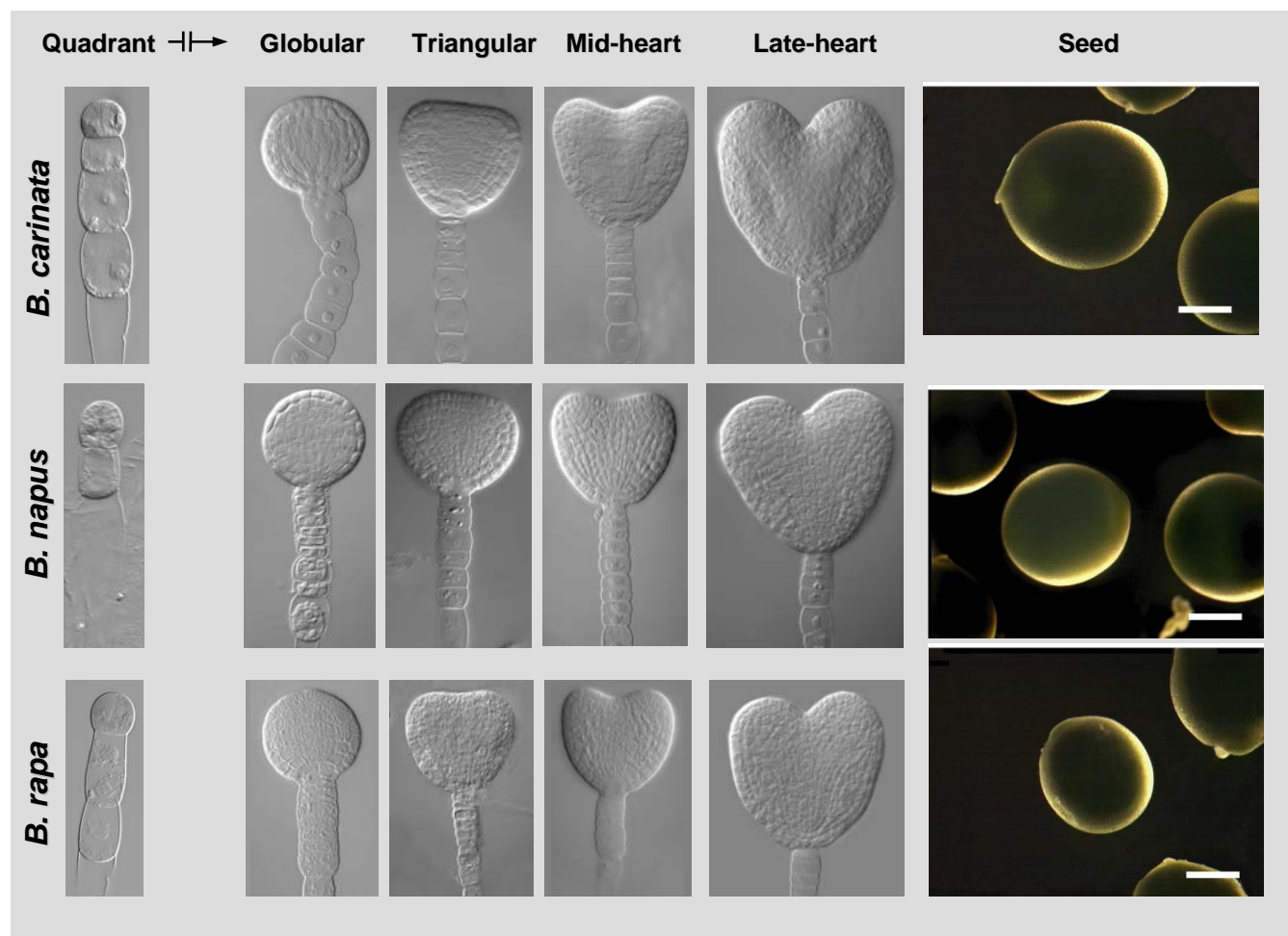
Project Overview



Contribution to seed biology knowledge base
e.g. seeds as biofactories

Seed development

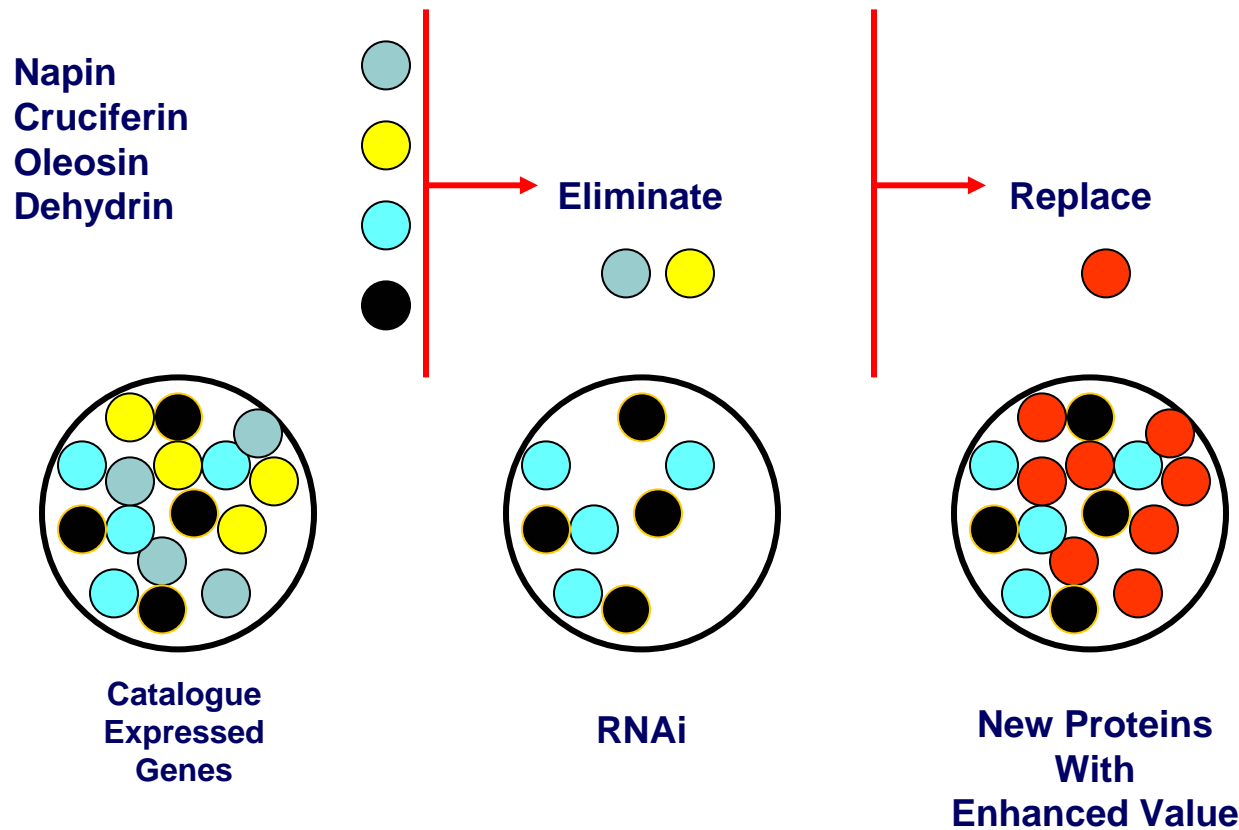
Comparative Developmental analysis of Embryogenesis



Seed Composition

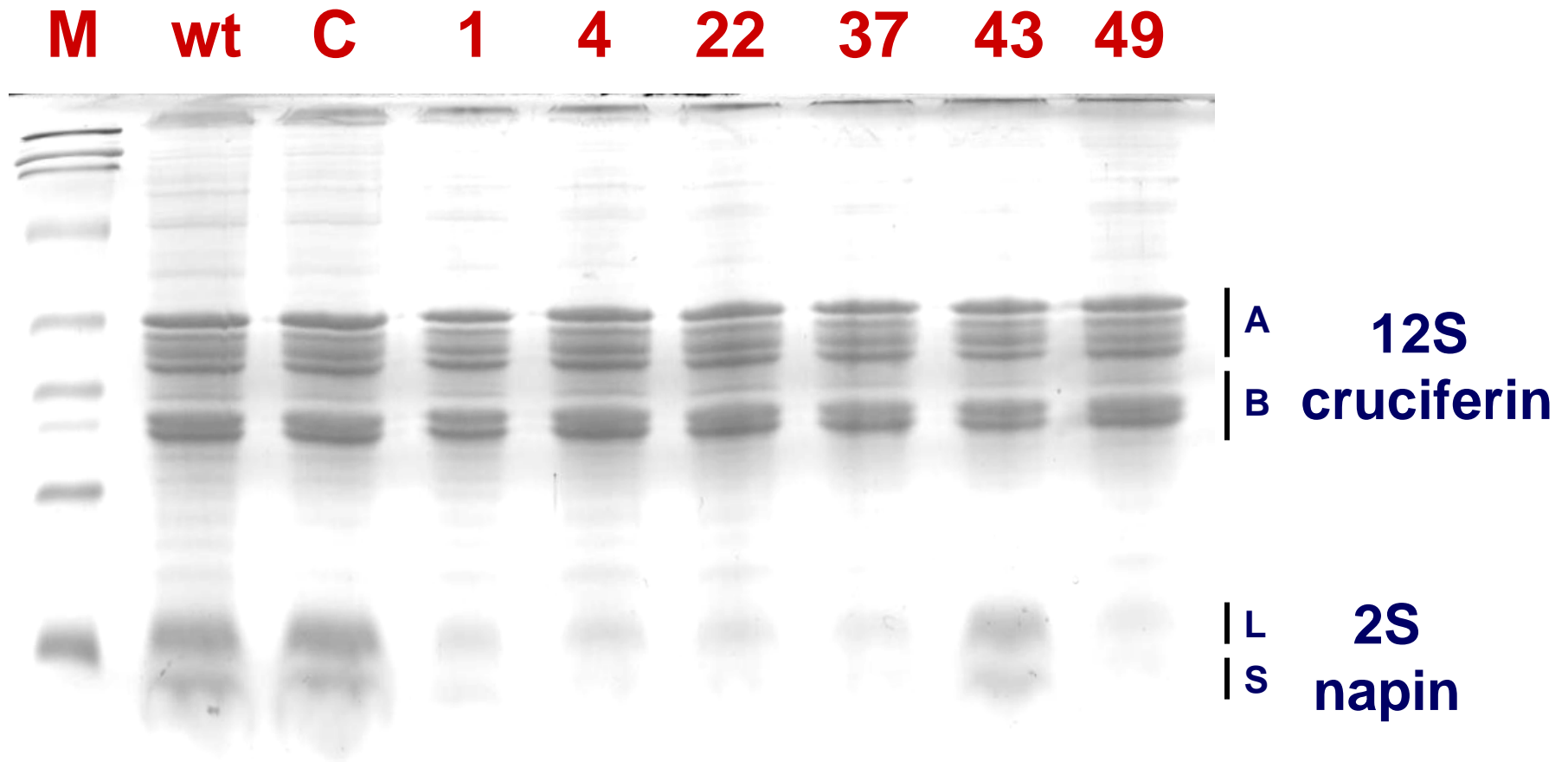
Improvement of protein and meal quality by modifying protein accumulation

“Empty” Seed Protein Repository



Seed Composition

Depletion of Napin via RNAi



Summary of deliverables to Date

- Progress towards key scientific milestones
 - > 50 *Brassica* embryo and seed specific cDNA libraries
 - > 100,000 ESTs have sequenced and annotated
 - Expression of several genes confirmed by proteomic analysis
 - Brassica microarray for 10K seed specific genes in preparation
 - Metabolite profiling technology (HPLC / MS)
 - Fingerprinting and contiging for > 20,000 *B. napus* BAC clones
 - Mutants characterized in sinapine and lignin biosynthesis
 - Suppression of napin accumulation in *Arabidopsis* by RNAi

Expected results

Seed Development

- Mature more rapidly and avoid frost damage
- Mature synchronously
- Seed coats of reduced thickness
- Large seeds

Seed composition

- Novel or improved proteins at high levels
- Modified oils for food and industrial applications
- Specific products suited to niche markets
- Increased levels of desirable micro-nutrients
- Reduced levels of anti-nutritional chemicals

The team

- **Seed Development** : Sue Abrams, Adrian Cutler, Raju Datla, Alison Ferrie, Fawzy Georges, Wilf Keller, Joan Krochko, Don Palmer, Gopalan Selvaraj, Jas Singh, Ed Tsang
- **Seed Composition**: Yuhai Cui, Abdelali Hannoufa, Dwayne Hegedus, Derek Lydiate, Isobel Parkin, Martin Reaney, Kevin Rozwadowski, Andrew Sharpe, Dr. David Taylor, Neil Westcott, Jitao Zou
- **Platform Technologies Support**: Chris Lewis, Chad Matsalla, Jacek Nowak, Larry Pelcher, Andrew Ross, Albana Zeko
- **Steering Committee Members**: Faouzi Bekkaoui, Adrian Cutler, Raju Datla, Dwayne Hegedus, Wilf Keller, Derek Lydiate, Gijs van Rooijen
- **Advisory committee**: Steve Barnes, John Thompson, John Harada

Additional information / Contacts

Additional information

Project Website and Newsletter

<http://www.genomeprairie.ca/canola/>

Contacts

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