

UK-*Brassica* Research Community

(UK-BRC)

May 21, 2007

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Welcome to the UK-BRC

The UK *Brassica* research community (UK-BRC) consists of a wide range of research groups, breeders and other end-users, holds annual meetings of academic and industry-based scientists, and operates a mailing list of >180 members. This website provides details of research projects, resources and interests of its members.. The UK-BRC plays a prominent role in the international *Brassica* research community, including via the [Multinational *Brassica* Genome Project](#).

Brassica crops are major components of the UK 's arable agriculture and horticulture. Oilseed rape, the primary source of vegetable oil in Northern Europe , is high in polyunsaturates with huge potential to provide new nutritional and renewable non-food products. Brassica vegetables contain beneficial nutrients, with elevated amounts of anti-oxidants, vitamins and anti-carcinogenic compounds, as well as uptake of minerals such as zinc and iron.

The close relationship between *Brassica* and the reference species *Arabidopsis* provides exciting opportunities to translate fundamental information about gene function to understanding and manipulating crop traits, and the UK-BRC has many interactions with the UK *Arabidopsis* research community, including through [GARNet](#).

UK-BRC ANNUAL MEETING, Rothamsted, May23rd

The Annual UK-BRC meeting will be at Rothamsted Research on Wednesday May 23rd 2007. Please notify sue.steele@bbsrc.ac.uk that you wish to attend. A [programme](#) for the day is being prepared - suggestions welcome.

AdVaB Project starts

The BBSRC Innovations in Crop Science Project "[Adding Value to the UK *Brassica* crop science community \(AdVaB\)](#)" commenced Jan 8th 2007.

UK *B. rapa* sequencing

The BBSRC has announced funding for the UK contribution to Phase 2 sequencing of the Multinational *Brassica rapa* genome sequencing project. (Dec 06)

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Site edited by: [Graham King](#)

Adding Value to the UK *Brassica* Crop Science Community

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A BBSRC Innovations in Crop Science Project

The AdVaB consortium will fill gaps in information and technology to enable research findings relating to *Brassica* genetics and genomics to be translated more rapidly into practical outcomes, particularly through genetic crop improvement. Researchers and plant breeders will be provided with tools and information to enable explicit understanding of crop traits in terms of the function of underlying genes. This will capitalise on the BBSRC-funded UK contribution to the multinational effort to sequence the complete *Brassica* 'A' genome, and previous investment in the related reference plant species *Arabidopsis*.

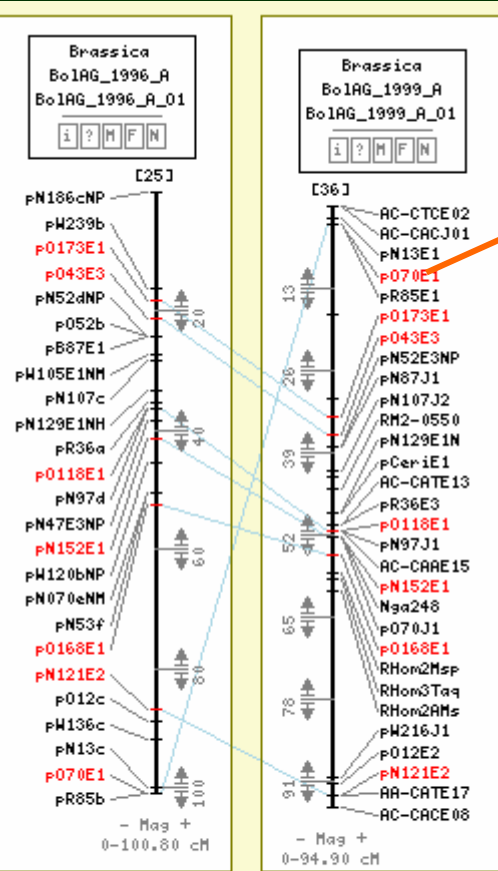
Brassica crops are major components of UK arable agriculture and horticulture, with opportunity to exploit their vast genetic diversity. Oilseed rape, the primary source of vegetable oil in Northern Europe, is high in polyunsaturates with huge potential to provide new nutritional and renewable non-food products. Brassica vegetables contain beneficial nutrients, with elevated amounts of anti-oxidants, vitamins, anti-carcinogenic compounds, as well as uptake of minerals such as zinc and iron



Adding Value to the UK *Brassica* Crop Science Community

1. Identify and secure a comprehensive integrated set of public domain ***Brassica* experimental resources and data**
2. Adopt **agreed standards** for data description, curation and exchange
3. Provide **access to experimental materials and datasets** for forward genetics, including integrated linkage maps and trait data
4. Establish **reverse genetics tools** that maximise the ability to translate information from the complete *B. rapa* sequence to UK-relevant crop traits.

Brassica linkage maps linked to Genome data



Feature Types:
 — Locus
 Features in red have correspondences

Evidence Types:
 Lightblue line denotes Automated name-based

CMap Home | Maps | Map Search | Feature Search | Matrix | Map Sets | Feature Types | Map

Feature "p070E1"

Feature Name: p070E1
 Aliases: N/A
 Accession ID: 4
 Feature Type: Locus
 Map: Brassica-BoIAG_1999_A-BoIAG_1999_A_01
 Start: 3.20 cM
 Stop:

Cross-references: [Genbank sequence]
 [Brassica Ensembl at WHRI]

Feature	Map	Map Type	Aliases Evidence
p070E1	Brassica-BoIAG_1996_A-BoIAG_1996_A_01	Population Mapping	None

WHRI Ensembl Brassica C genome Feature View

WHRI Ensembl v32 - Jul 2005

Display Feature

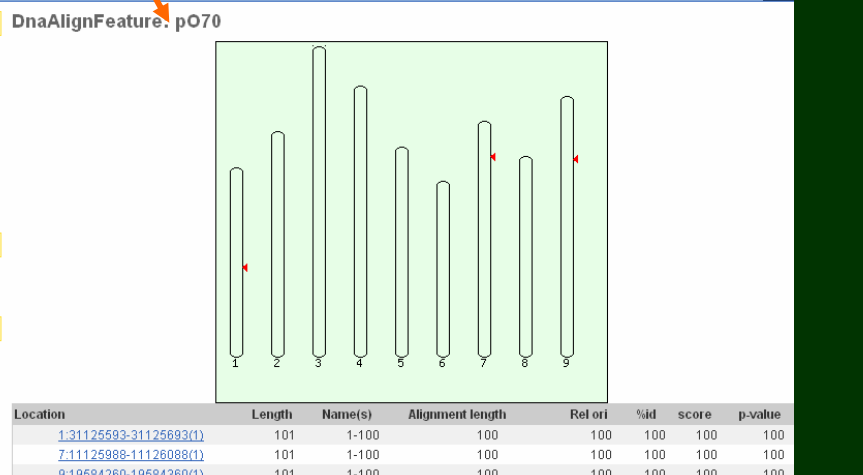
- Select another feature to display
 - Gene
 - AffyProbe
 - Sequence Feature
 - Protein Feature
- Display your own features on a karyotype

Use Ensembl to...

- Export data

Docs and downloads

- Information
- What's New
- About Ensembl
- Using Ensembl data
- Software



Project Partners:

Graham King (co-ordinator): Rothamsted Research

Lars Ostergaard, Judith Irwin : John Innes Centre, Norwich

Dave Pink, Graham Teakle: Warwick HRI, University of Warwick



Reference populations

Reference *Brassica* mapping populations will be made available together with the associated key data sets (genetic linkage map, provenance and quality assurance validation). Seed will be provided in the form of quality assured 'starter packs'. DNA from founder lines of species-specific diversity sets will be made available for molecular allelic screening.

Integrated genetic maps

Integrated consensus linkage maps for the *Brassica* A and C genomes with sequence tagged markers and reference 'conserved synteny block' nomenclature will be developed based on existing screening of SSR markers on parent lines. Mapping populations will be scored with polymorphic markers and the data used to generate reference maps based on consensus conserved synteny blocks in common with *Arabidopsis*.

The CropStore data schema

The CropStore relational database has been developed to address the need for low maintenance, explicit curation and management of integrated datasets for crop plant genetics. [detail](#)

Reverse genetics tools

Exploitation of *Brassica* genome sequence through reverse genetic approaches requires access to TILLING and RNAi capability. *B. rapa* EMS - TILLING and radiation populations will be developed for induced variation. An RNAi pipeline for down regulation of multiple gene copies will be established initially in *B. oleracea* and *B. napus*, and a *B. rapa* transformation system developed for UK researchers.

Collation of QTL data

To underpin ongoing trait-led genetic and genomic projects QTL datasets will be collated and prioritised, and converted to a consensus format for comparative analysis. This will also assist in making direct connections between fundamental research and crop-related traits selected in breeding programmes.

Validation of technologies

Validation of the reverse genetic technologies will focus on specific genes with well characterised phenotypic effects, and will allow comparison of the different approaches in polyploid brassicas.

