

## Description

**POPcorn is an ancillary project to MaizeGDB. It addresses the challenge of the proliferation of genetic data and online resources for maize researchers:**

- It is difficult to find all online resources relevant to one's research

**Solution:** *Project Search*

A hand-curated database of maize projects and online resources which is updated monthly.

- Locating all relevant sequence-based resources requires repeated BLAST searches at multiple sites

**Solution:** *POPcorn BLAST*

Permits BLASTing against sequence at multiple websites from one location.

- Sequence-indexed data can be challenging to search, especially if data is spread across multiple sites or databases

**Solution:** *Sequence-Indexed Data Search*

Carries out multi-step searches for sequence-indexed data.

- Data and web resources can disappear after project completion

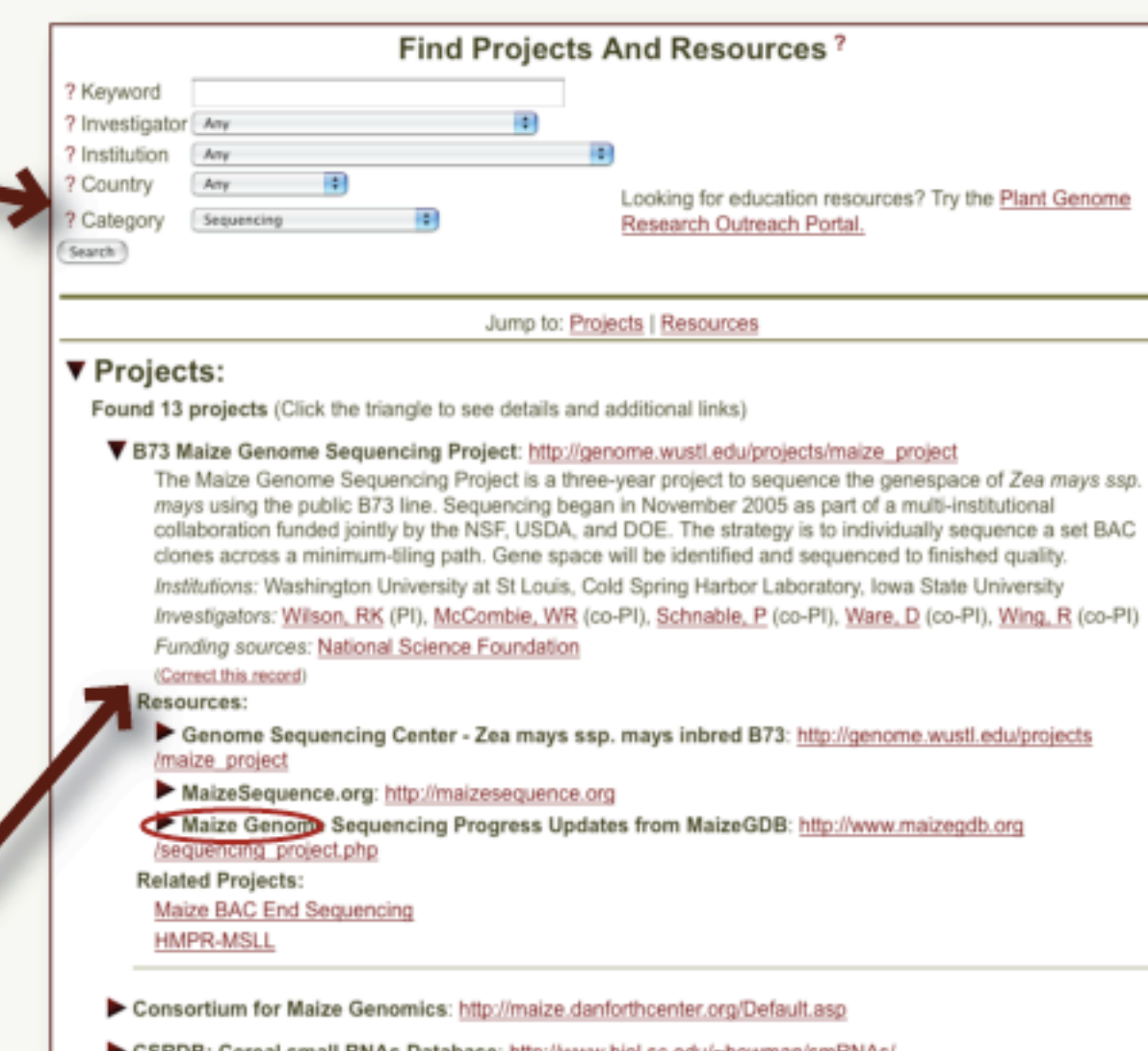
**Solution:** Processes and scripts to migrate data to MaizeGDB

When MaizeGDB is determined to be a reasonable location for long-term storage, data will be migrated to MaizeGDB using processes and pipelines developed as part of the POPcorn project.

## Project Search

- 79 projects, 112 resources
- hand-curated and up-to-date
- goal: all major maize projects and resources

Search for projects and resources




Information about each project and resource is displayed

Please send corrections if you see errors!

## Is your project listed?

Check if your project is in our database. If it is not, or if there are errors in the description, please **let us know!**



### POPcorn: PrOject Portal for corn

POPcorn Home | Sequence Search | BLAST | Find a project | Ask a question | MaizeGDB Home

#### About POPcorn

Find a project or resource  
Recommend a resource

Sequencing projects  
Mapping projects  
Mutation projects  
Bioinformatics projects  
Breeding projects

Annotation resources  
Blogs & wikis

Search sequence-indexed data  
BLAST

Contact us

#### Welcome to POPcorn

The Project Portal for corn provides a single point of access for maize researchers by providing a searchable database of maize projects and resources, and by enabling researchers to retrieve data from multiple sources with one sequence query.

We are in the process of entering projects and resources into our database. If you are aware of maize projects or resources which are not yet in our database, please [let us know](#).

#### Input your sequence (raw or FASTA):

sample sequence

☒ Nucleotides  
☐ Peptides

Sequence → Sequence  
Simple BLAST against multiple databases

Sequence → Biology  
Search maize resources associated with sequence

BLAST against multiple data sets at:  
NCBI, MaizeGDB, PlantGDB, Grassius, PLEXdb, and more


Customized searches starting with sequence:

- Insertional mutants and seed stock (Ac/Ds, TILLING, UniformMu, ...)
- Transcription factors from Grassius
- Loci and phenotypes associated with sequence
- Transcript assemblies
- and more

#### Recent Updates

searchable projects: 73  
searchable resources: 113  
database updated 01-DEC-09

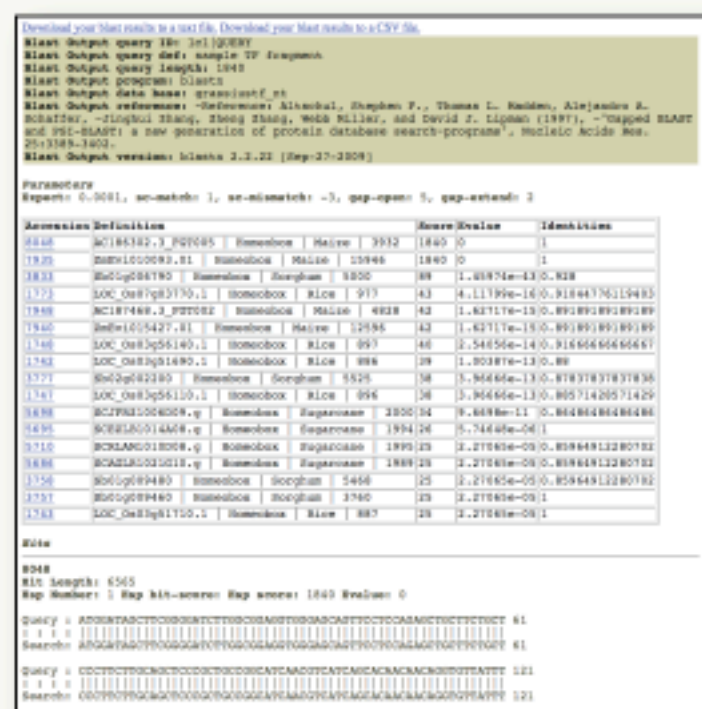
Photo of the day:



nr1 Tm1-N1597, torn leaves: in Tm1 plants, developing tissue sticks together so that leaf blades are torn as they emerge. Photo of Tm1 plant on right.

NSF | USDA | IOWA STATE UNIVERSITY | MaizeGDB

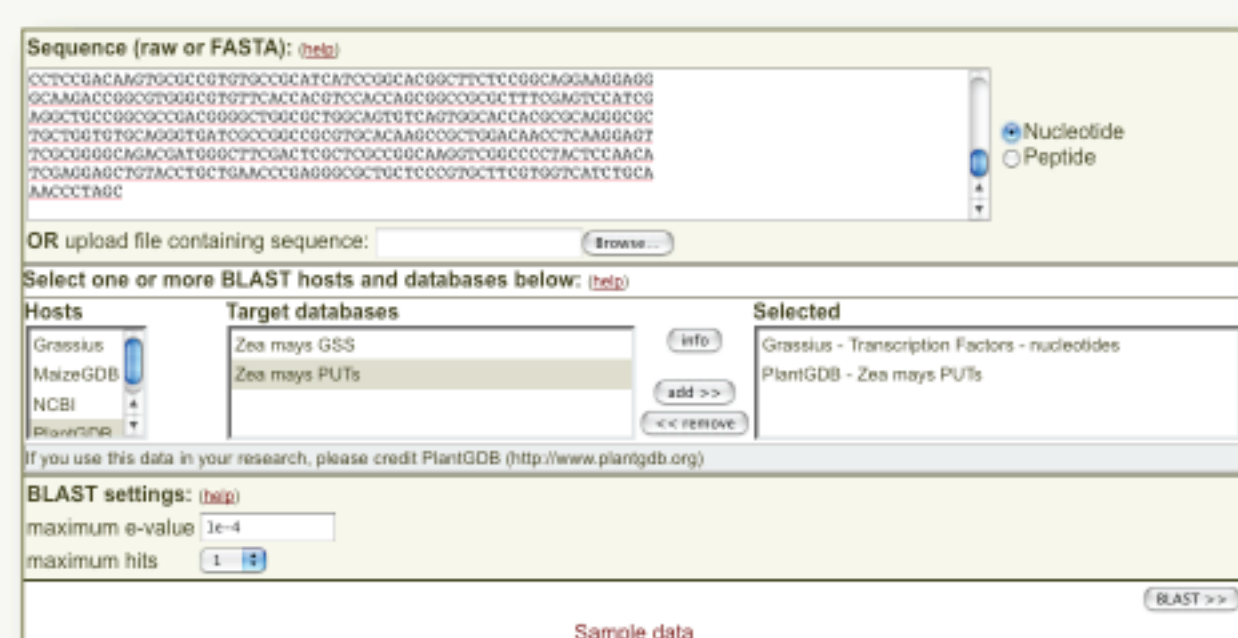
Complete search and BLAST details are viewable and downloadable



## POPcorn BLAST

Released for public comment in March, 2010

BLAST your sequence against multiple sequences. MaizeGDB, Grassius, Genbank, and PlantGDB sequences now available. More collaborator data sets will be added.



#### BLAST against Grassius - Transcription Factors - nucleotides

Input: E-value cutoff: 1e-4, max hits: 2

Description: BLAST was executed at Grassius, against the sequence database **grassius\_tf\_nt**, using BLAST program **blastn**.

Query sequence 1: gi|215269417|gb|FM252125.1|FM252125 PLN Zea mays mRNA for C2H2 zinc finger protein (mrpl-1 gene), cultivar A69Y.  
(Full BLAST results available [here](#))

#### BLAST against PlantGDB - Zea mays PUTs

Input: E-value cutoff: 1e-4, max hits: 2

Description: BLAST was executed at PlantGDB, against the sequence database **Zea\_Mays\_PUT**, using BLAST program **blastn**.

Query sequence 1: gi|215269417|gb|FM252125.1|FM252125 PLN Zea mays mRNA for C2H2 zinc finger protein (mrpl-1 gene), cultivar A69Y.  
(Full BLAST results available [here](#))

ID:	PUT-163a-Zea_mays-0122511
Definition:	No definition line found
E-value:	0
ID:	PUT-163a-Zea_mays-028468
Definition:	No definition line found
E-value:	0

## Sequence-Indexed Data Search

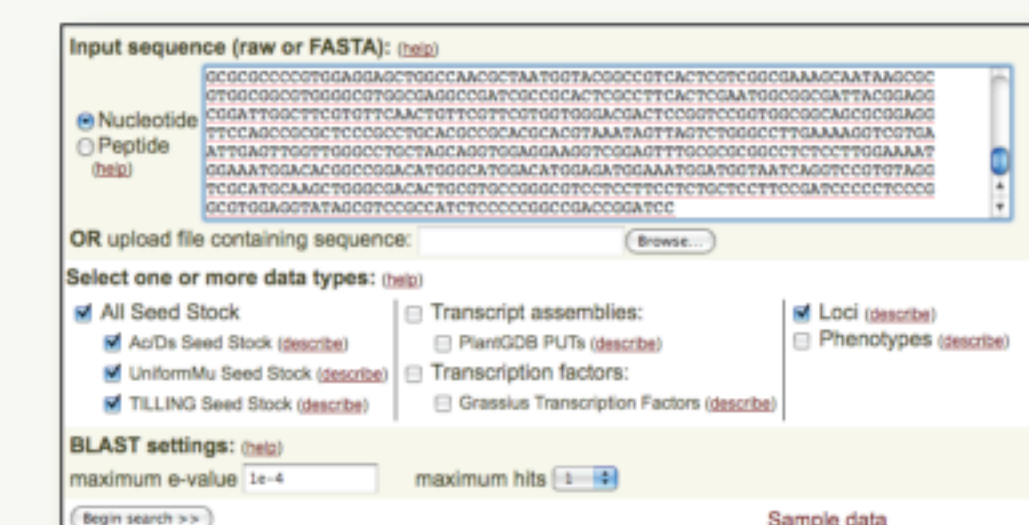
Released for public comment in March, 2010

POPcorn will carry out complex, multi-step searches, within one database or across multiple databases. More types of searches will be added in the coming year.

### Example of a sequence-indexed data search

Find UniformMu seed stock containing a particular mutation:

- BLAST query sequence against NCBI GSS
- Parse definition line to get UniformMu locus name
- Get locus record at MaizeGDB
- Get variation records for that locus at MaizeGDB
- Get UniformMu stock records for each variation at MaizeGDB
- Construct links to MGC Stock Center for each stock found.



#### Ac/Ds Seed Stock

#### UniformMu Seed Stock

Input: E-value cutoff: 1e-4, max hits: 5

Search process: Sequence BLASTed at NCBI. The locus name is extracted from the definition for each hit and used to find the corresponding UniformMu seed stock and locus information at MaizeGDB.

BLAST description: BLAST was executed at NCBI, against the sequence database **Nucleotide collection (nr/nt)**, using BLAST program **blastn**, with entrez search string **"Mu transposon insertion AND zea mays [ORGANISM]"**.

Query sequence 1: gi|226918646|gb|J11420.1|Zea mays subsp. mays Mu transposon insertion Mut010748 flanking sequence (Full BLAST results available [here](#))

Genbank accession: **E\_011450** (3) Zea mays subsp. mays V. **4** transposon insertion Mut010748 flanking sequence

Stock information: Locus: **mu10748**, Variation: **mu10748-Mu**, Stock: **UFMu-0468** (6)

Hit details: E-value: 2.1239e-47, Query range: 1..108, Hit range: 1..108

Query sequence 2: gi|563234|gb|U15964.1|U15964 PLN Zea mays xyloglucan endo-transglycosylase homolog gene, complete cds (Full BLAST results available [here](#))

Query sequence 3: gi|104295727|gb|DXS7321.1|DXS7321 MTP\_B73\_0103 Maize TILLING Project Target Sequences B73 Zea mays genomic, genomic survey sequence (Full BLAST results available [here](#))

#### TILLING Seed Stock

#### Phenotypes

Input: E-value cutoff: 1e-4, max hits: 5

Search process: Sequence BLASTed at MaizeGDB against sequence for all maize genes. Information about each locus, its variations and its phenotypes for each hit is retrieved from MaizeGDB.

BLAST description: BLAST was executed at MaizeGDB, against the sequence database **Maize genes**, using BLAST program **blastn**, with entrez search string **"\*\*"**.

Query sequence 1: gi|226918646|gb|J11420.1|Zea mays subsp. mays Mu transposon insertion Mut010748 flanking sequence (Full BLAST results available [here](#))