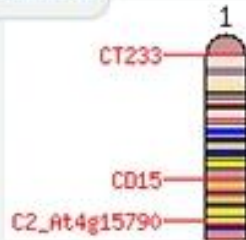


Using the Sol Genomics Network: The Marker Search Tool

Maps & Markers



Genes



Phenotypes



Dr. Heather L. Merk

The Ohio State University, OARDC

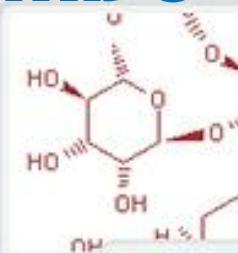
Breeders Toolbox



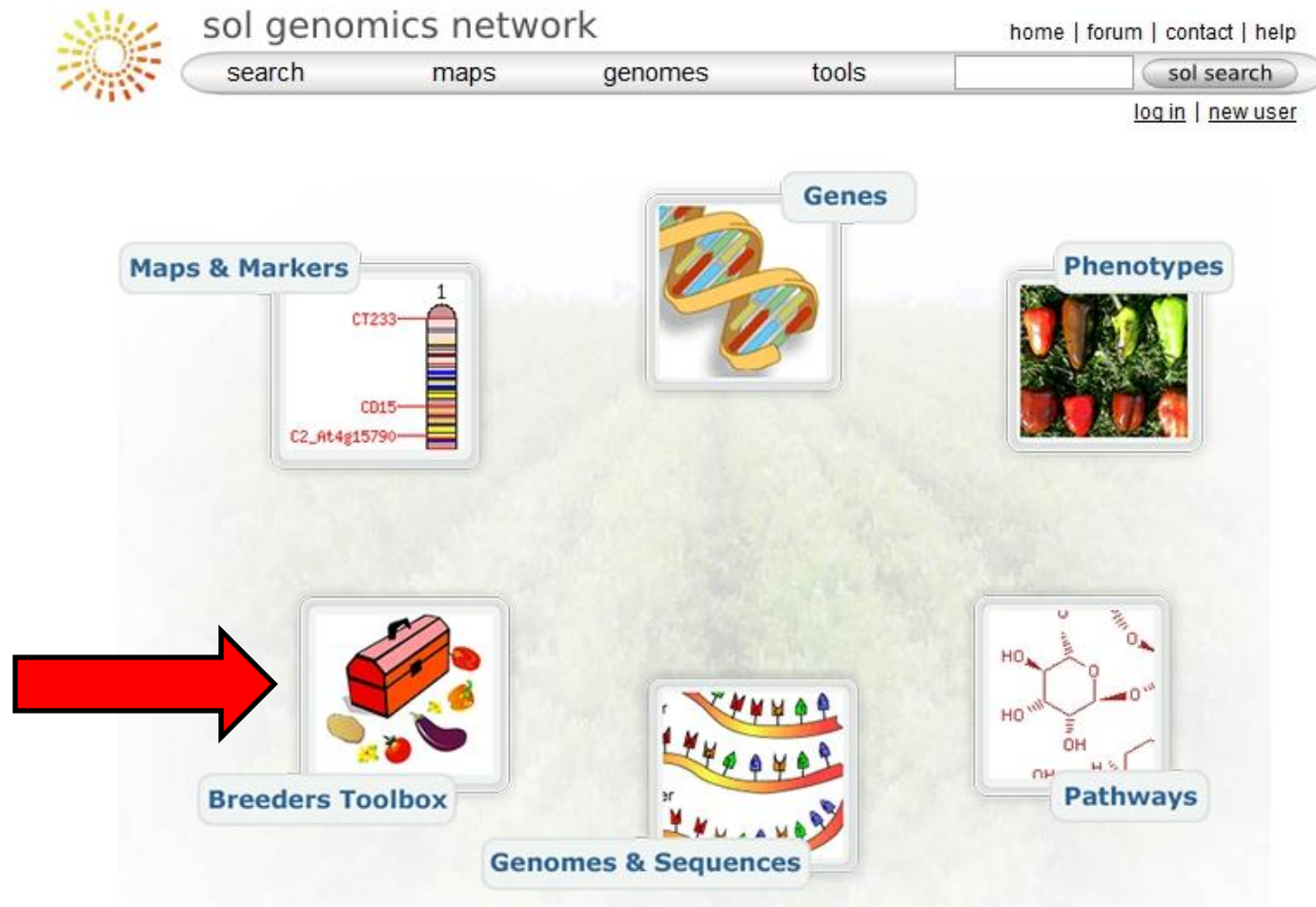
Genomes & Sequences



Pathways



Introduction to the Sol Genomics Network (SGN)



The image shows the homepage of the Sol Genomics Network (SGN). At the top left is a sun-like logo. The header text reads "sol genomics network". To the right of the header are links: "home | forum | contact | help". Below the header is a navigation bar with buttons for "search", "maps", "genomes", and "tools". A search box with the text "sol search" is also present. Below the navigation bar are links for "log in" and "new user". The main content area features six icons representing different genomic resources: "Maps & Markers" (showing a chromosome with markers CT233, CD15, and C2_At4g15790), "Genes" (showing a DNA double helix), "Phenotypes" (showing various peppers), "Breeder's Toolbox" (showing a toolbox and vegetables, with a large red arrow pointing to it), "Genomes & Sequences" (showing a chromosome map), and "Pathways" (showing a chemical structure of a sugar molecule).

<http://solgenomics.net/>

The Breeders Toolbox



sol genomics network

[home](#) | [forum](#) | [contact](#) | [help](#)

[search](#)

[maps](#)

[genomes](#)

[tools](#)

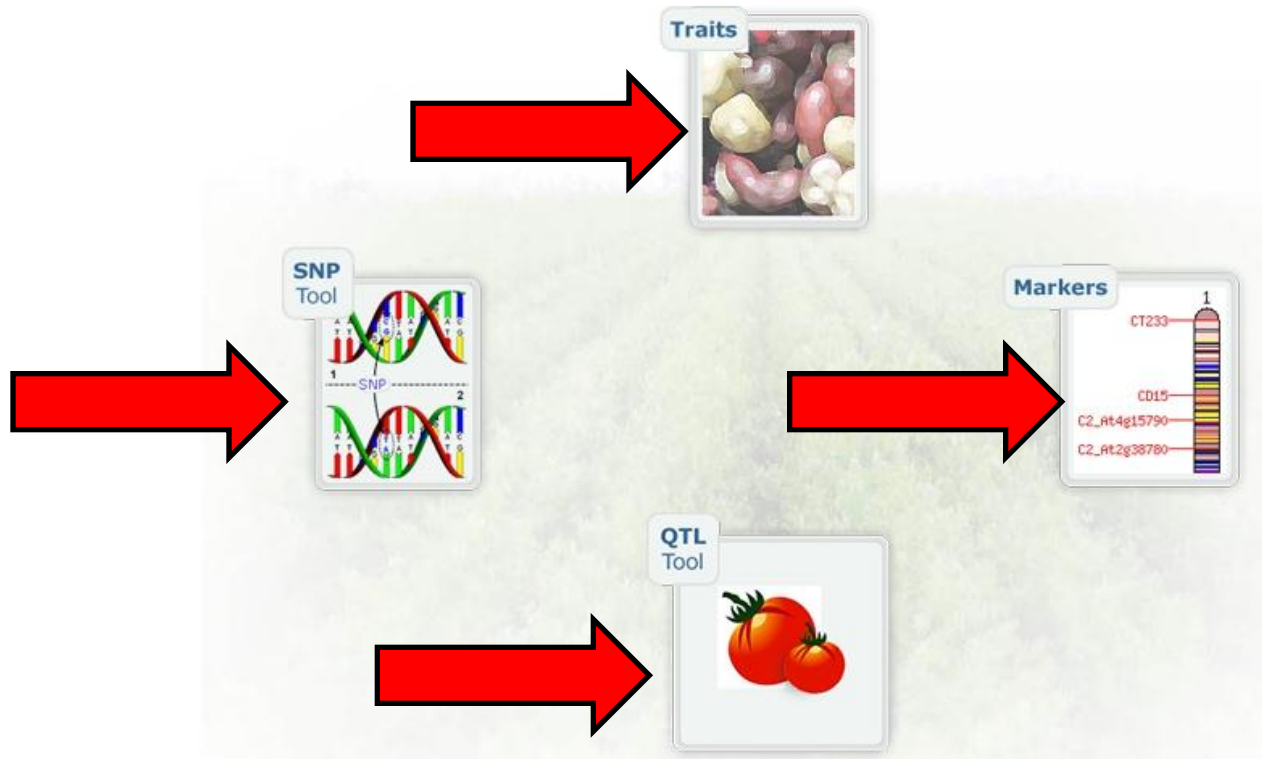
[sol search](#)

[log in](#) | [new user](#)

SGN Breeders Toolbox

The purpose of this page is to give breeders direct links to breeder-relevant tools and data on SGN. It is a work in progress and your feedback or suggestions are welcome to build this into a comprehensive, easy to use and breeder-friendly resource.

We love feedback! Please contact [Joyce van Eck](#) with suggestions for improvements!



<http://solgenomics.net/breeders>

Tutorials for Breeders



Tutorials

- Plant Breeding and Genomics at the [eXtension](#) site
- Tomato Genome Browser [Webinar](#) presented at the 2010 Tomato Disease Workshop by [Heather Merk](#)
- Designing a CAPS Marker From a SNP Using The [SGN CAPS Designer](#) by [Heather Merk](#)

SGN tools

- Browse the [SGN Markers database](#)
- Browse available controlled vocabularies using the [SGN Ontology browser](#)
- Develop CAPS markers using the [CAPS Designer](#)
- Check intron locations in transcript data using the [Intron Finder](#)
- [QTL data submission](#) and on-the-fly QTL analysis for [Solanaceae traits](#)
- [SGN gene and phenotype submission guide](#)

Tools in development

- SNP discovery tool. This will be part of the [SolCAP](#) project.

Links

- [TomatoMap.Net](#) - a site for Tomato Genetics at Ohio State University.
- [SolCAP](#) - the official SolCAP website at Michigan State University.
- [Tomato Analyzer](#) - software for scoring fruit shape and other shapes.
- [Submitting data to SGN](#) - instruction for data submissions to SGN.

The Breeders Toolbox



sol genomics network

[home](#) | [forum](#) | [contact](#) | [help](#)

[search](#)

[maps](#)

[genomes](#)

[tools](#)

[sol search](#)

[log in](#) | [new user](#)

SGN Breeders Toolbox

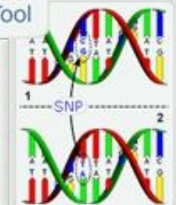
The purpose of this page is to give breeders direct links to breeder-relevant tools and data on SGN. It is a work in progress and your feedback or suggestions are welcome to build this into a comprehensive, easy to use and breeder-friendly resource.

We love feedback! Please contact [Joyce van Eck](#) with suggestions for improvements!

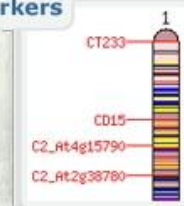
Traits



SNP
Tool



Markers



QTL
Tool



The Marker Search Tool



sol genomics network

[home](#) | [forum](#) | [contact](#) | [help](#)

[search](#)

[maps](#)

[genomes](#)

[tools](#)

[sol search](#)

[log in](#) | [new user](#)

Marker name
or SGN-M #:

starts with ▾

☒ Find only markers that are mapped

Advanced search options

(Questions? See the [help page](#))

[\[Select a marker at random\]](#)

Marker options

☐ Show only markers with
BAC associations

☐ Overgo associations

[\[About the overgo process\]](#)

☐ Manual associations

☐ Computational
associations

Show
markers
mapped in
species

Any
Apple of Sodom
Arabidopsis

Show markers
mapped by

Any
AFLP
CAPS

Show markers in
group

Any
COS
COSII

Map locations

Show only markers on chromosomes

Any
A
1

Position between cM and cM

Confidence at least uncalculated ▾

On
maps

Any
Eggplant-COSII
Eggplant-LXM 2002

<http://solgenomics.net/search/markers/markersearch.pl>

Searching by Marker Name



sol genomics network

[home](#) | [forum](#) | [contact](#) | [help](#)

[search](#)

[maps](#)

[genomes](#)

[tools](#)

[sol search](#)

[log in](#) | [new user](#)

Marker name
or SGN-M #:

starts with

SSR74



Find only markers that are mapped

Advanced search options

(Questions? See the [help page](#))

[\[Select a marker at random\]](#)

Marker options

☐ Show only markers with
BAC associations

☐ Overgo associations

[\[About the overgo process\]](#)

☐ Manual associations

☐ Computational
associations

Show
markers
mapped in
species

Any
Apple of Sodom
Arabidopsis

Show markers
mapped by

Any
AFLP
CAPS

Show markers in
group

Any
COS
COSII

Map locations

Show only markers on chromosomes

Any
A
1

Position between cM and cM

Confidence at least uncalculated

On
maps

Any
Eggplant-COSII
Eggplant-LXM 2002

Search

SSR74 Search Results



sol genomics network

[home](#) | [forum](#) | [contact](#) | [help](#)

[search](#)

[maps](#)

[genomes](#)

[tools](#)

[sol search](#)

[log in](#) | [new user](#)

Marker search results

1 results found in 1.09 seconds

Showing results 1 [\[Or download these results as a text file\]](#)

« Prev 30 | Next 30 »

Marker	Protocol	Map	Chromosome	Position	Confidence
SSR74	SSR	Tomato-EXPEN 2000	10	74.00	I(LOD2)

Search again

Marker name or SGN-M #: ☒ Find only markers that are mapped

Detailed SSR74 Search Results

SGN-M747

SSR info

Annealing temperatures: Low: 45 High: 50
Repeat motif: TCT Repeat number: 7
Forward primer: ACTCACCATGGCTGCTTCTT
Reverse primer: TTTCCTGAAGGTCITTTCCC
Predicted size: 199

Derivations

This marker was derived from EST read SGN-E157993

Mapped locations

Map: Tomato-EXPEN 2000 v52 Loc. ID 39295

Chromosome

10

Position

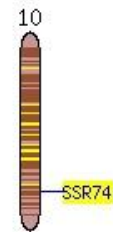
74.00 cM

Confidence

I(LOD2)

Protocol

SSR



Tomato-EXPEN 2000

Other PCR data

PCR data Exp. ID 14146

Forward primer (5'-3')

ACTCACCATGGCTGCTTCTT

Reverse primer (5'-3')

TTTCCTGAAGGTCITTTCCC

Accessions and product sizes

S. pimpinellifolium LA1589: 199+203
S. lycopersicum LA925: 199+200

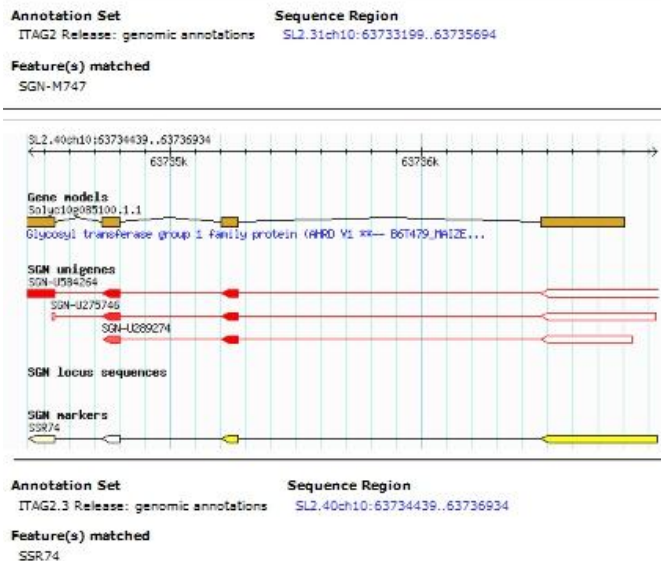
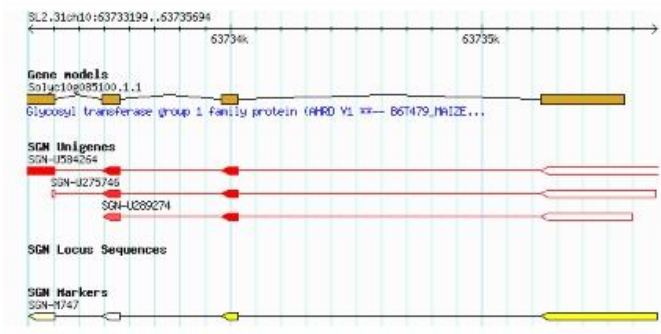
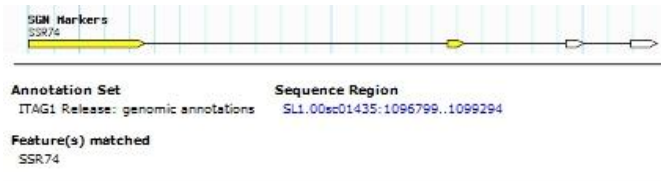
Approximate temperature

55°C

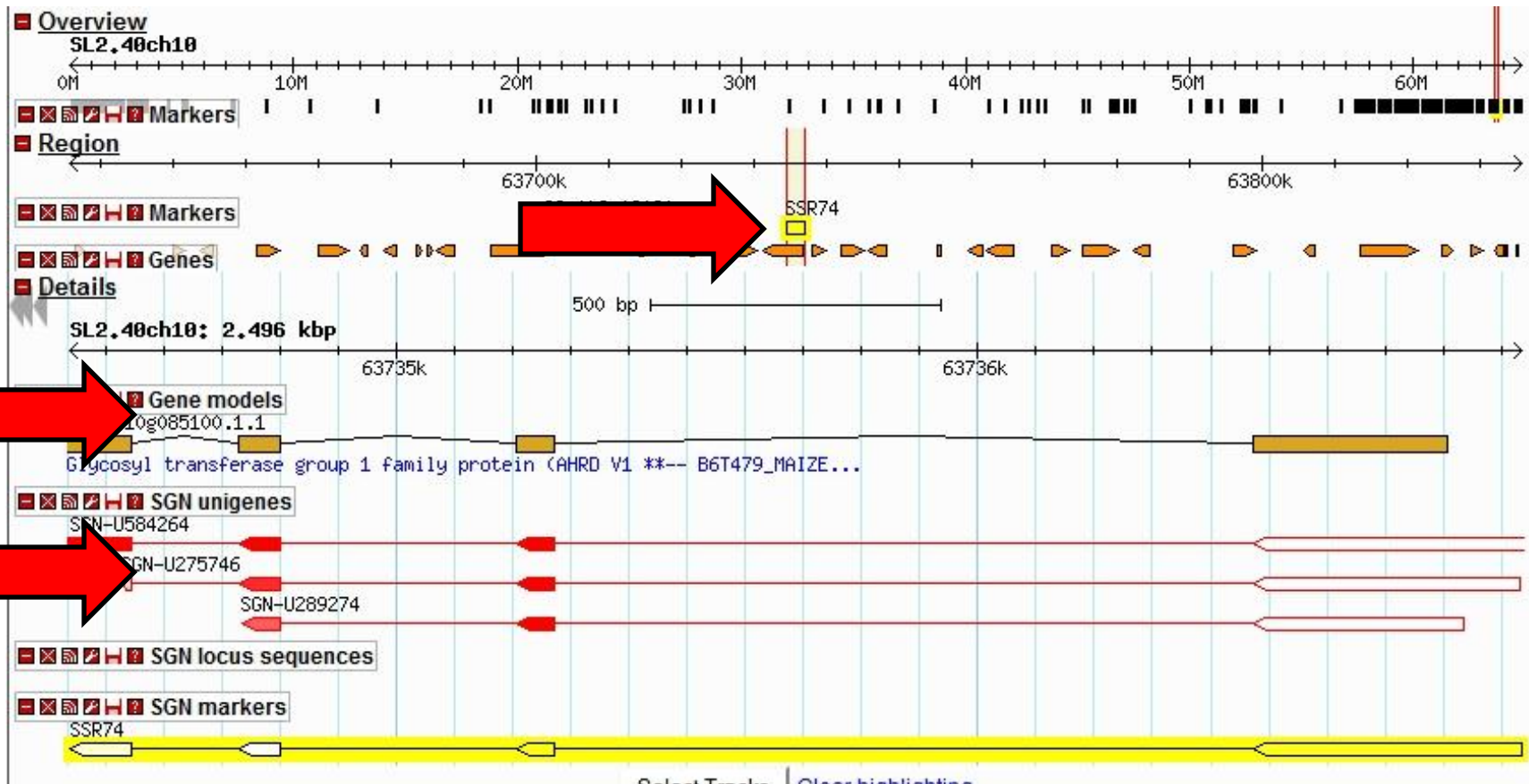
Mg²⁺ concentration

Unknown

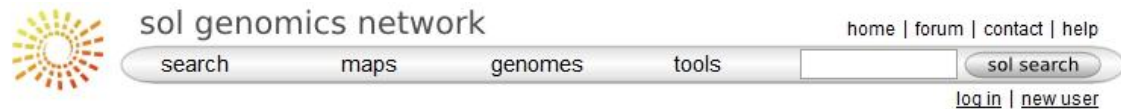
Information from the Tomato Genome Sequence



Information from the Tomato Genome Browser



Searching by Marker Criteria



Marker name or SGN-M #: ☒ Find only markers that are mapped

Advanced search options

(Questions? See the [help page](#))

Marker options

- ☐ Show only markers with BAC associations
 - ☐ Overgo associations [\[About the overgo process\]](#)
 - ☐ Manual associations
 - ☐ Computational associations

Show markers mapped in species
Apple of Sodom
Arabidopsis

Show markers mapped by
AFLP
CAPS

Show markers in group
COS
COSII

Map locations

Show only markers on chromosomes
A
1

Position between cM and cM

Confidence at least

On maps
Eggplant-COSII
Eggplant-LXM 2002

<http://solgenomics.net/search/markers/markersearch.pl>

SGN Marker Search Help



sol genomics network

[home](#) | [forum](#) | [contact](#) | [help](#)

[search](#)

[maps](#)

[genomes](#)

[tools](#)

[sol search](#)

[log in](#) | [new user](#)

The [marker search](#) is a tool for locating markers in SGN's database.

The screenshot shows the SGN Marker Search interface. At the top, there is a search bar with a dropdown menu set to 'starts with' and a 'Search' button. A checkbox labeled 'Find only markers that are mapped' is checked. Below this is the 'Advanced Search Options' section, which is divided into two tabs: 'Marker Options' and 'Map Locations'. Under 'Marker Options', there are four checkboxes: 'Show only markers with BAC associations', 'Overgo associations [What's this?]', 'Manual associations', and 'Computational associations'. There are also three dropdown menus: 'Show markers mapped in species' (set to 'Any'), 'Show markers mapped by' (set to 'Any'), and 'Show markers in group' (set to 'Any'). Under 'Map Locations', there is a dropdown menu 'Show only markers on chromosomes' (set to 'Any'), a text input 'Position between' followed by 'cM and' followed by another text input, a dropdown menu 'Confidence at least' (set to 'uncalculated'), and a dropdown menu 'On maps' (set to 'Any'). A 'Search' button is at the bottom right. Numbered callouts 1 through 9 point to various elements: 1 points to the search bar, 2 points to the 'Marker Options' tab, 3 points to the 'Show markers mapped in species' dropdown, 4 points to the 'Show markers mapped by' dropdown, 5 points to the 'Show markers in group' dropdown, 6 points to the 'Show only markers on chromosomes' dropdown, 7 points to the 'Position between' text input, 8 points to the 'Confidence at least' dropdown, and 9 points to the 'On maps' dropdown.

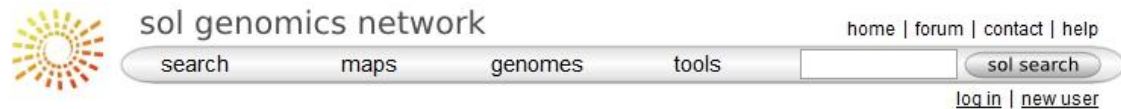
1. Marker name

If you know the name of your marker, type it in. By default, the database will be searched for all markers with a name that *starts with* what you type in. For example, if you type in "TG1", your results might include TG1, TG10, TG11, TG150, etc.

To search for an exact name, choose "exactly" from the menu. Or choose "contains" if you don't know the beginning of the marker's name. For example, a "contains" search on "T16" will include CT16, T1600, T1601, etc.

http://solgenomics.net/help/marker_search_help.pl

Searching by Marker Criteria



Marker name or SGN-M #: ☒ Find only markers that are mapped

Advanced search options (Questions? See the [help page](#))

Marker

- ☐ Show only markers with BAC associations
- ☐ Overgo associations
[\[About the overgo process\]](#)
- ☐ Manual associations
- ☐ Computational associations

Show markers mapped in species
Apple of Sodom
Arabidopsis

Show markers mapped by
AFLP
CAPS

Show markers in group
COS
COSII

Map locations

[\[Select a marker at random\]](#)

Show only markers on chromosomes
A
1

Position between cM and cM

Confidence at least

On maps
Eggplant-COSII
Eggplant-LXM 2002

<http://solgenomics.net/search/markers/markersearch.pl>

Marker Options

Marker options

- ☐ Show only markers with BAC associations
 - ☐ Overgo associations [\[About the overgo process\]](#)
 - ☐ Manual associations
 - ☐ Computational associations

Show markers mapped in species

Any	▲
Apple of Sodom	▬
Arabidopsis	▼

Show markers mapped by

Any	▲
AFLP	▬
CAPS	▼

Show markers in group

Any	▲
COS	▬
COSII	▼

Map Options

Map locations

Show only markers on chromosomes

Any
A
1

Position between cM and cM

Confidence at least

On maps

Any
Eggplant-COSII
Eggplant-LXM 2002

Sample Search

Advanced search options

(Questions? See the [help page](#))

[Select a marker at random]

Marker options

- ☐ Show only markers with BAC associations
- ☐ Overgo associations [\[About the overgo process\]](#)
- ☐ Manual associations
- ☐ Computational associations

→ Show markers mapped in species

Pepper
Potato
Tobacco

→ Show markers mapped by

Any
AFLP
CAPS

Show markers in group

Any
COS
COSII

Map locations

Show only markers on chromosomes

Any
A
1

Position between cM and cM

Confidence at least uncalculated

On maps

Any
Eggplant-COSII
Eggplant-LXM 2002

Search

Search Results

Marker search results

4827 results found in 1.75 seconds

Showing results 1 to 30 of 4827. [Or [download these results as a text file](#)]

« [Prev 30](#) | [Next 30](#) »

Marker	Protocol	Map	Chromosome	Position	Confidence
C2_At1g14810	CAPS	Tomato-EXPEN 2000	1	0.00	I
CT233	CAPS	Tomato-LXCHM 2007	1	0.00	uncalculated
C2_At1g01090	CAPS	Arabidopsis COSII	1	0.05	uncalculated
C2_At1g14810	CAPS	Kazusa F2-2000 pseudomolecule map	1	0.19	uncalculated
C2_At1g01730	CAPS	Arabidopsis COSII	1	0.27	uncalculated
C2_At1g01830	CAPS	Arabidopsis COSII	1	0.30	uncalculated
C2_At1g01920	CAPS	Arabidopsis COSII	1	0.32	uncalculated
C2_At1g01940	CAPS	Arabidopsis COSII	1	0.32	uncalculated
C2_At1g02065	CAPS	Arabidopsis COSII	1	0.37	uncalculated
C2_At1g02090	CAPS	Arabidopsis COSII	1	0.39	uncalculated
C2_At1g02100	CAPS	Arabidopsis COSII	1	0.39	uncalculated
C2_At1g02120	CAPS	Arabidopsis COSII	1	0.40	uncalculated
C2_At1g02140	CAPS	Arabidopsis COSII	1	0.40	uncalculated
C2_At1g02150	CAPS	Arabidopsis COSII	1	0.41	uncalculated
C2_At1g02170	CAPS	Arabidopsis COSII	1	0.41	uncalculated
C2_At1g02180	CAPS	Arabidopsis COSII	1	0.41	uncalculated
C2_At1g02330	CAPS	Arabidopsis COSII	1	0.46	uncalculated
C2_At1g02400	CAPS	Arabidopsis COSII	1	0.49	uncalculated
C2_At1g02410	CAPS	Arabidopsis COSII	1	0.49	uncalculated
C2_At1g02475	CAPS	Arabidopsis COSII	1	0.51	uncalculated
C2_At1g02560	CAPS	Arabidopsis COSII	1	0.54	uncalculated
C2_At1g02680	CAPS	Arabidopsis COSII	1	0.58	uncalculated
C2_At3g12685	CAPS	Kazusa F2-2000 pseudomolecule map	1	0.60	uncalculated
C2_At1g02870	CAPS	Arabidopsis COSII	1	0.64	uncalculated
C2_At1g02910	CAPS	Arabidopsis COSII	1	0.66	uncalculated
C2_At1g03110	CAPS	Arabidopsis COSII	1	0.75	uncalculated
C2_At1g03150	CAPS	Arabidopsis COSII	1	0.76	uncalculated
C2_At1g03180	CAPS	Arabidopsis COSII	1	0.77	uncalculated
C2_At1g03250	CAPS	Arabidopsis COSII	1	0.79	uncalculated
C2_At1g03310	CAPS	Arabidopsis COSII	1	0.82	uncalculated

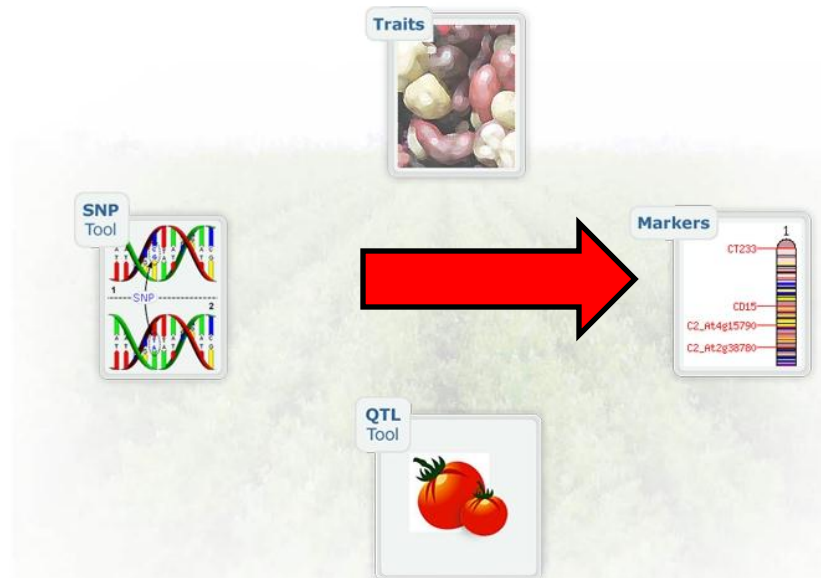
Summary

We can use the marker search tool of the SGN breeders toolbox to search for markers by their name or other criteria such as the marker location



The purpose of this page is to give breeders direct links to breeder-relevant tools and data on SGN. It is a work in progress and your feedback or suggestions are welcome to build this into a comprehensive, easy to use and breeder-friendly resource.

We love feedback! Please contact [Joyce van Eck](#) with suggestions for improvements!



Funding Statement

Development of this tutorial was supported in part by the National Institute of Food and Agriculture (NIFA) Solanaceae Coordinated Agricultural Project, agreement 2009-85606-05673, administered by Michigan State University. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the United States Department of Agriculture.