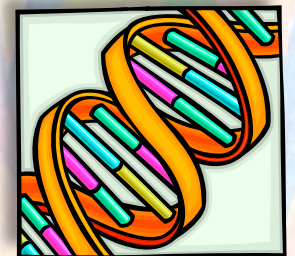


Welcome to the Markers Database Tutorial

The Markers Database will allow you to locate a specific marker based upon marker name, marker type or species.

Once identified, you will be able to view marker information, including ID, germplasm and genome positioning, as well as get marker-type specific information.

Markers also link to the Maps, Literature and Ontologies Databases.



Tutorial Tips



If you are viewing this tutorial with Adobe Acrobat Reader, click the "bookmarks" on the left hand side of the Reader for easier navigation.

Note! Although we continually work to make Gramene compatible with all browsers, there are problems with some browser versions. If you're having difficulty viewing Gramene, try using a different browser. Please report any problems with browsers through Gramene Feedback.

Gramene Home Page

The image shows the Gramene Home Page, a resource for comparative grass genomics. The page has a green header with the Gramene logo and the tagline "A Resource for Comparative Grass Genomics". The version is "V24 (March 2007)". A navigation bar contains links for Search, Genomes, Species, Download, Resources, About, Help, and Feedback. The left sidebar features a "Quick Search" box, a list of modules (Genomes-Ensembl, Maps-CMap, Markers, QTL, Diversity, Genes, Proteins, Pathways, Ontologies, Literature, Sequences-BLAST, All-GrameneMart), and a "Have Questions...?" section. The main content area has a "Quick Start" section. The right sidebar contains "Featured News" and "Visit with us at" sections. A purple callout box with the text "Click here to open Markers Page" points to the "Markers" link in the left sidebar.

GRAMENE *A Resource for Comparative Grass Genomics* V24 (March 2007)

Search | Genomes | Species | Download | Resources | About | Help | Feedback

Quick Search

Search

Search a single module or all available modules plus online documentation.

Diversity, Pathways, BLAST and Mart not available in this search.

Have Questions...?

- Gramene now has [tutorials](#) for every module, also recommended for experienced users.
- Ask questions through [Feedback](#) or [Email](#)

Genomes-Ensembl
Maps-CMap
Markers
QTL
Diversity
Genes
Proteins
Pathways
Ontologies
Literature
Sequences-BLAST
All-GrameneMart

Quick Start

enced genomes for [Rice](#), [Maize](#) & [Arabidopsis](#); Look
row your search with [GrameneMart](#); Search for
BLAST; search by [Gene Ontology](#).

am or [ProSite](#) or Browse by Gene Ontology using

phy...ns for [Rice](#), [Wild Rice](#), [Maize](#), [Wheat](#),
d other... or use the Comparative Map

MARKERS. Search for Gene...bes
(Primers, Overgos, etc.), Ge...and
Sequences (GSSs, ESTs, etc.),
Tool ([SSRIT](#)); or search by species, including [Rice \(Oryza sativa\)](#), [Maize](#),
[Sorghum](#) and [Others](#).

Featured News

- NEW** March 2007, V 24 [release notes](#).
- NEW** [Gramene Jan/Feb Newsletter](#)
- [Rice News Worldwide](#) from IRRI

Visit with us at

- March 15-18, 2007. [CSHL Plant Genome meeting](#)
- March 22-25, 2007. [Maize Genetics Meeting](#)
- April 16-20, 2007. [ITMI](#)
- May 8-12, 2007. [Biology of Genomes](#)
- July 7-11, 2007. [ASPB](#)

[View Previous Gramene](#)

Click here to open Markers Page

Markers Home Page

The screenshot shows the Gramene Marker Database home page. At the top is a navigation bar with links: [Markers Home](#), [Markers Search](#), [View Map Sets](#), [SSR Markers Resource](#), [Help](#), and [Tutorial](#). The [Markers Home](#) link is highlighted with an orange starburst. Below the navigation bar is the title "Gramene Marker Database". Underneath is a "Markers Quick Search" section with a text input field and a "Search" button. A callout points to this section, stating: "Use 'Quick Search' to find a marker name or click on 'Markers Search' for more advanced search options (see next slide).". Below the search section is a paragraph of text: "The markers database shows basic information about the different markers used for mapping. The but all markers will display the marker name, synonyms, source species, and a listing of map positions marker name. To search for markers by type and source species, as well as by name, click on 'Markers document'." A callout points to the "Markers document" link, stating: "Release Notes describe additions, updates, and changes for the latest release of the database." Below this paragraph is another line of text: "For more information about the current release, see the [Markers Release Notes](#)".

[Markers Home](#) | [Markers Search](#) | [View Map Sets](#) | [SSR Markers Resource](#) | [Help](#) | [Tutorial](#)

Gramene Marker Database

Markers Quick Search:

The markers database shows basic information about the different markers used for mapping. The but all markers will display the marker name, synonyms, source species, and a listing of map positions marker name. To search for markers by type and source species, as well as by name, click on [Markers document](#).

For more information about the current release, see the [Markers Release Notes](#)

"Release Notes" describe additions, updates, and changes for the latest release of the database.

Use "Quick Search" to find a marker name or click on "Markers Search" for more advanced search options (see next slide).

Markers Search

Markers Home | Markers Search | View Map Set

1. Type marker name. Use * for wildcards.

2. To refine search, specify a marker type and/or a species.

3. Click "search."

Or Click to run sample searches.

Clicking on a marker type lets you view a definition of that marker type.

Clicking on "Search" lets you search for markers of that type.

These tables show a breakdown of markers in the database by marker type.

13,561,886 total

Currently in Database

Count	Type	Count
2,561,808	AFLP	8,150
4,459,675	Breakpoint interval	303
1,325,127	Centromere	49
19	deletion	895
	FPC	22,651
	Gene	9,764
	Gene Model	95,297
	insertion	686
	Size Bin	100
	QTL	11,210
	RAPD	174
	RFLP	17,739
	SSR	14,762
	SSR Primer Pair	16,883
	Undefined	68,879

Marker Search Result

[Markers Home](#) | [Markers Search](#) | [View Map Sets](#) | [SSR Markers Resource](#) | [Help](#) | [Tutorial](#)

Title identifies parameters of the search.

Search results for *Oryza sativa* matching "rm138*."

Name: Type: Species:

There are 146 results for this search.

E.g. "AG840697,AG841134", "rm*", Oat RFLPs like "CDO*", or view [help](#).

Markers 1 to 25 of 146. Page of 6. | [Next](#)

Name	Synonyms	Species	Type
RM138	D48106	Oryza sativa	SSR Primer Pair
RM138	D48106, OSR26	Oryza sativa	SSR
AUT13802	RM13802	Oryza sativa	SSR Primer Pair
RM13802		Oryza sativa	SSR
AUT13803	RM13803, RM6122	Oryza sativa	SSR
AUT13805	RM13805, RM3220	Oryza sativa	SSR
RM13807		Oryza sativa	SSR
AUT13808	RM13808	Oryza sativa	SSR Primer Pair
RM13808		Oryza sativa	SSR
AUT13809	RM13809	Oryza sativa	SSR
RM13809		Oryza sativa	SSR

Click on a marker name to view its details (see Slide 10).

Click on linked column titles to sort results by that column.

Click on species or type for more info on that species or marker type (Slides 7-8)

Search results include marker synonyms. If you don't know the name of a marker, you may search on its synonym.

Use Download link at bottom to view a tab-delimited file of entire result set (see Slide 9).

Species Detail

Title identifies parameters of the search.

[Markers Home](#) | [Markers Search](#) | [View Map Sets](#) | [SSR Markers Resource](#) | [Help](#) | [Tutorial](#) | [FAQ](#)

View Species "Oryza sativa"

Name:	Type:	Species:
<input type="text"/>	--Any--	Oryza sativa (Rice)
<input type="button" value="Search"/> <input type="button" value="Clear"/>		

E.g., "AG840697,AG841134", "rm*", Oat RFLPs like "CDO*", or

Click to search for all map sets linked to the species.

Click to search for all markers linked to this species.

Search for map sets Search for mappable entities	
Species:	Oryza sativa
Common Name:	Rice
Gene Taxonomy ID:	GR_tax:013681
Description:	N/A

Taxonomy Links to
Ontologies
Database. See
Ontologies Tutorial

Marker Type Detail

[Markers Home](#) | [Markers Search](#) | [View Map Sets](#) | [SSR Markers Resource](#) | [Help](#) | [Tutorial](#) | [FAQ](#)

View Type "SSR"

Name: Type:

E.g., "AG840697,AG841134", "rm*", Oat RFLPs like "CP" or view [help](#).

Type:	SSR
Description:	Simple Sequence Repeat; also known as microsatellites or simple sequence length polymorphisms (SSLP).
Search for all mappable entities of type "SSR"	

Title identifies parameters of the search.

Marker type detail shows what is known about a given marker type, such as its name, a description, and possibly some cross-references.

Click to **search for all the markers of this particular type.**

Results for all Oryza sativa SSR markers matching

Name: Marker Type: Species:

SSR

g., "AG020731,AG020732", "rm", Oat RFLP markers like "CDO", or view he

Markers 1 to 11 of 11

Marker Name	Marker Synonyms	Species	Marker Type
RM138	OSR26	Oryza sativa	SSR
RM1381	MRG0381.RGP0381	Oryza sativa	SSR
RM1381	MRG0381.HAU0381	Oryza sativa	SSR
RM1381	MRG0381.ARS0381	Oryza sativa	SSR
RM1384	MRG0384.ARS0384	Oryza sativa	SSR
RM1384	MRG0384.RGP0384	Oryza sativa	SSR
RM1385	MRG0385.ARS0385	Oryza sativa	SSR
RM1386	MRG0386.RT0386	Oryza sativa	SSR
RM1387	MRG0387.HAU0387	Oryza sativa	SSR
RM1388	MRG0388.ARS0388	Oryza sativa	SSR
RM1388	MRG0388.HAU0388	Oryza sativa	SSR

[\[Download Data \]](#)

Download data

For each search you may view a tab-delimited dump of entire result set by clicking the "download data" link.

marker_id	marker_type	species	marker_name	marker_synonyms
6060	SSR	Oryza sativa	RM138	D48106,OSR26
5894143	SSR	Oryza sativa	RM13802	AUT13802
5902576	SSR	Oryza sativa	RM6122	AUT13803, RM13803
5902577	SSR	Oryza sativa	RM3220	AUT13805, RM13805
5894144	SSR	Oryza sativa	RM13807	AUT13807
5894145	SSR	Oryza sativa	RM13808	AUT13808
5894146	SSR	Oryza sativa	RM13809	AUT13809
7326	SSR	Oryza sativa	RM1381	AY018056, MRG0381.ARS0381
8608	SSR	Oryza sativa	RM1381	AY018056, MRG0381.RGP0381
8679	SSR	Oryza sativa	RM1381	AY018056, MRG0381.HAU0381
5894147	SSR	Oryza sativa	RM13817	AUT13817
5902578	SSR	Oryza sativa	RM450	AUT13818, RM13818
5894148	SSR	Oryza sativa	RM13819	AUT13819
5894149	SSR	Oryza sativa	RM13820	AUT13820
5894150	SSR	Oryza sativa	RM13821	AUT13821
5894151	SSR	Oryza sativa	RM13822	AUT13822
5894152	SSR	Oryza sativa	RM13823	AUT13823
5894153	SSR	Oryza sativa	RM13824	AUT13824
5894154	SSR	Oryza sativa	RM13825	AUT13825
5894155	SSR	Oryza sativa	RM13826	AUT13826
5894156	SSR	Oryza sativa	RM13830	AUT13830
5894157	SSR	Oryza sativa	RM13833	AUT13833
5894158	SSR	Oryza sativa	RM13834	AUT13834
5902579	SSR	Oryza sativa	RM1168	AUT13835, RM13835
5894159	SSR	Oryza sativa	RM13836	AUT13836
5894160	SSR	Oryza sativa	RM13837	AUT13837
5894161	SSR	Oryza sativa	RM13838	AUT13838
6975	SSR	Oryza sativa	RM1384	AY018059, MRG0384.ARS0384
8225	SSR	Oryza sativa	RM1384	AY018059, MRG0384.RGP0384
5894162	SSR	Oryza sativa	RM13849	AUT13849

Title identifies parameters of the search.

Marker Detail

Marker details vary with marker type!

Search

Name: Type: Species:

E.g., "AG840697,AG841134", "rm*", Oat RFLPs like "CDO*", or view [help](#).

View Rice SSR "RM138"

Tab identifies information displayed

Details	Source/Library	Map Positions (8)	Associations (3)	Images (0)
ID	17486174			
Name	RM138			
Synonyms (2)	OSR26 GENBANK_ACCESSION D48106			
Type	SSR			
Species	Oryza sativa (Rice)			
Germplasm	UNKNOWN			
Description				
Repeat Motif	(GT)14			
Anneal Temperature	55			
Expected PCR Product Size	233			
Sequence Source				
Remarks				
Database Cross-references	Gramene Literature	Akagi-H Yokozeki-Y Inagaki-A Fujimura-T, Microsatellite DNA markers for rice chromosomes, Theoretical and applied genetics, 93, 1996, pp. 1071-1077		

Info from search (see slide 6).

The germplasm from which the marker was derived, if available.

Cross-references in Gramene's literature database. See Literature tutorial.

Source/Library

 [Markers Home](#) | [Markers Search](#) | [View Map Sets](#) | [SSR Markers Resource](#) | [Help](#) | [Tutorial](#) | [FAQ](#)

Search

Name:	Type:	Species:
<input type="text" value="RM138"/>	<input type="text" value="SSR"/>	<input type="text" value="Oryza sativa (Rice)"/>
<input type="button" value="Search"/>		<input type="button" value="Clear"/>

E.g., "AG840697,AG841134", "rm*", Oat RFLPs like "CDO*", or view [help](#).

View Rice SSR "RM138"

Tab identifies information displayed

Details **Source/Library** **Map Positions (8)** **Associations (3)** **Images (0)**

Name	UNKNOWN
Center Name:	
Center Project:	
Development Stage:	
Tissue Type:	
Cell Type:	
Cell Line:	
Sex:	
Comments:	
Plant Ontology:	
Growth Ontology:	
Environment Ontology:	

Title identifies parameters of the search. (note: for display purposes this is different example than slide 10)

Mappings

These links go to the Maps module, where you can get more information on this marker. See Maps Tutorial.

View Rice SSR "RM138"

Details		Source/Library		Map Positions (8)		Associations (3)		Images (0)	
Species	Map Type	Map Set		Name	Map	Start	Stop	Map Link	Comment
Oryza sativa (Rice)	Genetic	Cornell SSR 2001		RM138	2	196.8 cM	196.8 cM	View Comparative Map	
		CNYU Bal/Nan//Bal BC1 QTL 2001		RM138	2	176.72 cM	176.72 cM	View Comparative Map	
				OSR26	2	176.73 cM	176.73 cM	View Comparative Map	
		Cornell IR64/Azu DH QTL 2001		RM138	2	196.8 cM	196.8 cM	View Comparative Map	
		IRRI Lem/Teq RI QTL 2001		OSR26	2	260.2 cM	260.2 cM	View Comparative Map	
		IRRI RD23/Olong F2 QTL 2003						View Comparative Map	
		IRRI RD23/Olong F2 QTL 2003						View Comparative Map	
		OSU EM93/SS18 BC QTL 2004						View Comparative Map	

Tab identifies information displayed

Map Name:	
Species:	Oryza sativa
Map Set Name:	Cornell SSR 2001
Map Type:	Genetic
Start Position:	0

Tab identifies information displayed

Click for Map Set info.
(As in Slide 17)

Map Name:	
Species:	Oryza sativa
Map Set Name:	Cornell SSR 2001
Map Type:	Genetic
Start Position:	0
End Position:	203.4
CMap Map Accession:	cu-dh-2001-2

Mappings by Type

Type	Num. Mappings	Restrict Mappings
SSR	57	Restrict Mappings
RFLP	12	Restrict Mappings
Gene	10	Restrict Mappings
Undefined	3	Restrict Mappings
Centromere	1	Restrict Mappings

Mappings

Mappings 1 to 25 of 83.					
		Page	1	of 4.	Next
Name	Type	Species	Start	End	CMap Link
RM485	SSR	Oryza sativa	0	0	cu-dh-2001-2-2
OSR17	SSR	Oryza sativa	1.1	1.1	cu-dh-2001-2-3
RM154	SSR	Oryza sativa	4.8	4.8	cu-dh-2001-2-4
RM110	SSR	Oryza sativa	6.9	6.9	cu-dh-2001-2-5
OSR14	SSR	Oryza sativa	6.9	6.9	cu-dh-2001-2-6
RM211	SSR	Oryza sativa	14.4	14.4	cu-dh-2001-2-7

Click to get map info and view a list of all markers on this map.

Associations

View Rice SSR "RM138"

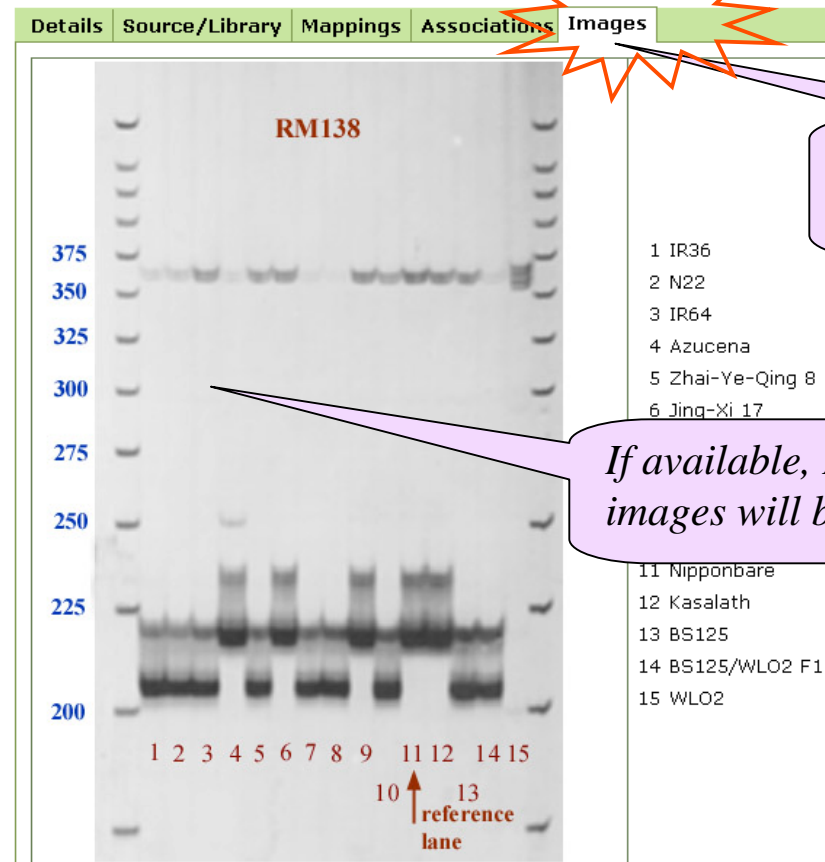
Details	Source/Library	Map Positions (8)	Associations (3)	Images (0)	
Direction	Name	Type	Species	Analysis	Assoc. Typ
From	RM138	SSR Primer Pair	Oryza sativa	primer_pair	primer_pair
From	RM138_forward	Primer	Oryza sativa	primer_pair	primer_pair
From	RM138_reverse	Primer	Oryza sativa	primer_pair	primer_pair

*Tab identifies
information displayed*

Title identifies parameters of the search. (note different example)

Images

View Rice SSR Primer Pair "RM138"




Tab identifies information displayed

If available, PCR images will be here.

Marker Info Varies

View Aegilops tauschii EST "BU808655"

Details	Source/Library	Sequence	Mappings	Associations	Images
ID	3730135				
Name	BU808655 (GENBANK_ACCESSION )				
Synonyms (2)	23850419 (GENBANK_GI) BU808655.1 (GENBANK_VERSION)				
Type	EST				
Species	Aegilops tauschii				
Germplasm	UNKNOWN				
Description	EST000007 Aegilops tauschii RWA induced cDNA library Aegilops tauschii cDNA clone ABC000009 3', mRNA sequence.				
Clone	ABC000009				
Comment	Contact: Botha-Oberholster AM Department of Genetics and Forestry and Agricultural Biotechnology Institute, Faculty of Agriculture and Natural Science, University of Pretoria 74, Private Bag 243, Hillcrest, Pretoria, Gauteng, ZA0002, South Africa Tel: 27 11 350 3945 Fax: 27 12 420 3947 Email: ambothao@post.ub.ac.za Obtained from Russian wheat aphid induced cDNA libraries. PCR primers FORWARD: T7 BACKWARD: SP6 Insert Length: 0.00 High quality sequence start: 50 High quality sequence stop: 772				
Date Created	2002-10-11				
Date Updated	2002-10-11				
Lab Host					
Map					
Note	mRNA/cDNA TAG_TISSUE=Not found				
Origin					
Ref Authors	Lacock,L., Van Niekerk,C., Loots,S., Du Preez,F. and Botha,A>M.				
Ref Location	Unpublished (2002)				
Ref Medline					
Ref Pubmed					
Ref Title	Isolation and Characterization of cDNA Sequences from Russian wheat induced Aegilops tauschii				
Ref Year	2002				

Marker details vary with marker type!

When appropriate, there will be a tab for sequence

View Aegilops tauschii EST "BU808655"

Details	Source/Library	Sequence	Mappings	Associations	Images
<pre> TTTTATCTCATCCCNCTATGCATCCAACGCGTTGGGAGCTCTCCCATAT GGTCGACCTGCAGGCGGCCGGAATTCAGTAGTGATTGGAATGGGTGGTG TGGGAAAAGACAGCTCACAGAAGCTGCTGCGACGAGTAGAACCAATAGAGTG TTGTATATATGATGCTGAGAAAAGGAGGACAAAAGAGCTAGCAGTAAATA ATTGGCTTGGTCAATTGAGAGATATTATATATGATGTAGATGAAATCTTG GACGTGGTTAGATGTAAAAGGAAGCAAGCTACTGCCTAATTATCCTTCATC ATCATCAAGCAAAATCATTGTCATGTAAAGGCCTTTCAGTTTCCTCTTGTT TTTGTAACATTGGGTCACGTCGTCATGTTGCTGTCACACTACAAGAAATATG TCAACTAGTGACCTTCTGTCCGTGACCCTGGAAGAATTGGTCATAGATCT ATGACCATTTCAGACCAATTGGTCGAAAAGCTATTTCGGGGGGCTCCAAACC CTAAACCATTACGACCATTTTGGTCAGAAAAGGTCATAATTCCTTACACG AAAAGGTCATAAAAGCAAAACAGCGCTAGTCCGCTGCCTTACTTCTAGTTGT TAACGACCAATATAGATGGTCATAGCCTTGTAATTTGTGGTGGGTTGCTA TGACTAGGCCCCACCTCATCAATTTTACCCACCCCCCATTNCAATCGAAT TCCCGCNGGCCGNCATGGCGGG </pre>					

(Length = 722)

View Map Sets

[Markers Home](#) | [Markers Search](#) | [View Map Sets](#) | [SSR Markers Resource](#) | [Help](#) | [Tutorial](#) | [FAQ](#)

View Map Sets

Name: Type: Species:

E.g., "AG840697,AG841134", "rm*", Oat RFLPs like "CDO*", or view [help](#).

Restrict to:

Map Type: Species:

Map Sets 1 to 25 of 203. Page of 9. | [Next](#)

Map Type	Species	Map Set Name	CMap Accession	Num. of Maps	
Bin	Zea mays	Bins	maize-bins	10	View
Deletion	Triticum aestivum	wEST 2003	west	21	View
Genetic	Avena sativa	Cornell Diploid 1995	cu-diploidoat-1995	7	View
Genetic	Avena sativa	Oat, KxO, 2003	wic2003a	29	View
Genetic	Hordeum vulgare	Barley consensus - 1995	lap1995a	7	View
Genetic	Hordeum vulgare	Barley consensus 2 - 1996	qix1996a	7	View
Genetic	Hordeum vulgare	Barley consensus 2003	kaz2003a	7	View
Genetic	Hordeum vulgare	Barley genes 2 - 1997	lap1997a	7	View
Genetic	Hordeum vulgare	NABGMP SxM 1993	abgmp-1993	7	View
Genetic	Oryza sativa	CIAT SSR 2006	lom2006	12	View
Genetic	Oryza sativa	Cornell	cu-dh-2001	12	View

Select hyperlinked headings to sort table by that column.

Click for Map Set info.
(See next slide)

Map Set Info from Markers db

View Hordeum vulgare Genetic Map Set "Barley consensus - 1995"

Name: Type: Species:

E.g., "AG840697,AG841134", "rm", Oat RFLPs like "CDO", or view help.

Map Set Name:	Barley consensus - 1995
Species:	Hordeum vulgare
Map Type:	Genetic
Description:	
Published On:	31 December 1995
Distance Unit:	cM
CMap Map Set Accession:	lap1995a
Database Cross-references	GrainGenes Map Data: Barley consensus
	Gramene Literature: Langridge-P Karakousis-A Collins-N Kretschmer-J Manning-S, <i>A consensus linkage map of barley</i> , <i>Molecular Breeding</i> , 1, 1995, pp. 389-395

[View CMap Map Set Info](#)

Maps Mappings by Type Mappings by Map and Type

Name	No. Mapping	CMap Link
1H	78	View in CMap
2H	117	View in CMap
3H	100	View in CMap

Mappings by Type Mappings by Map and Type

Map Name	Type	Num. Mapping
1H	RFLP	68
	Gene	7
	Undefined	2
	Centromere	1
2H	RFLP	110
	Gene	5
	Centromere	1
	Undefined	1
3H	RFLP	93
	Gene	4

Maps Mappings by Type Mappings by Map and Type

Type	Num. Mapping
RFLP	536
Gene	31
RAPD	9
Undefined	9
Centromere	7
Clone	2

SSR Markers Resource

[Markers Home](#) | [Markers Search](#) | [View Map Sets](#) | [SSR Markers Resource](#) | [Help](#) | [Tutorial](#) | [FAQ](#)

Microsatellite Markers

For your convenience, we have listed below some useful hyperlinks to references and downloadable information about rice microsatellite (SSR) markers.

1. [SSRIT - The Simple Sequence Repeat Identification Tool](#) identifies perfect simple sequence repeats (SSRs) in any given sequence(s). If you find this tool useful, we kindly request that you cite [Temnykh et al. \(2001\)](#).
2. [Panel of 50](#) standard SSR markers used by the Rice Microsatellite Initiative.
3. Table of SSR Primers from McCouch et al. (2002)
The table is extremely large. Please be patient while it loads.
 - [HTML table](#)
 - [Tab-delimited](#) (save to your local hard drive and open with a spreadsheet)
4. References and downloadable information:

McCouch et al. (2002) Development and Mapping of 2240 New SSR Markers for Rice (<i>Oryza sativa</i> L.). DNA Res 9:199-207.	Reprints, supplements, and other information from 2240 new RM markers developed by the International Rice Microsatellite Initiative (IRMI) as well as 500 previously-described RM markers.	
Coburn et al. (2002) Development and application of microsatellite marker panels for semiautomated genotyping of rice (<i>Oryza sativa</i> L.). Crop Sci 42:2092	Reprint and fluorescent panel information	Gramene ref
Chen et al. (2002) Sequence divergence of rice microsatellites in <i>Oryza</i> and other plant species. Mol Gen Genomics 258: 331-343	Reprint	Gramene ref
Temnykh et al. (2001) Computational and experimental analysis of microsatellites in rice (<i>Oryza sativa</i> L.): Frequency, length, transposon associations, and genetic marker potential. Genome Res 11:1441.	Reprint, genotype data, map positions, and high-resolution map images for the Rice Cornell SSR 2001 map.	Gramene ref
Temnykh et al. (2000) Mapping and characterization of microsatellite sequences in rice	Reprint describes older version of the Cornell SSR map.	Gramene ref

Use the SSRIT to search for repeats of your own data. (see slide 19)

Click to view a panel of 50 common SSRs (see slide 20)

Click to view this table of SSR Primers. (see slide 21)

Get citation information, or link to the original article.

SSRIT - Simple Sequence Repeat Identification Tool

This tool finds all *perfect* simple sequence repeats (SSRs) in a given sequence.

For source code for a stand-alone version please click [here](#).

For citation, please use this reference [Temnykh et al. \(2001\)](#).

Search parameters

maximum motif-length group you wish to find (2 or greater, or IE 4.0 or greater required)

Search for motifs of length: (Rs up to and including pentamers (meaning, you'd like to search for dimers, trimers, tetramers, and pentamers) you should select 5 or greater)

b) Enter the minimum number of repeats you will allow: (for more motif repeats, such as ag-5 ('agagagagag').)

Select group length

Select number of repeats

2) Paste/Enter your sequence of interest into the textarea

The sequence(s) must be in FASTA format - meaning, there must be a title line with a '>' at the beginning for each sequence.

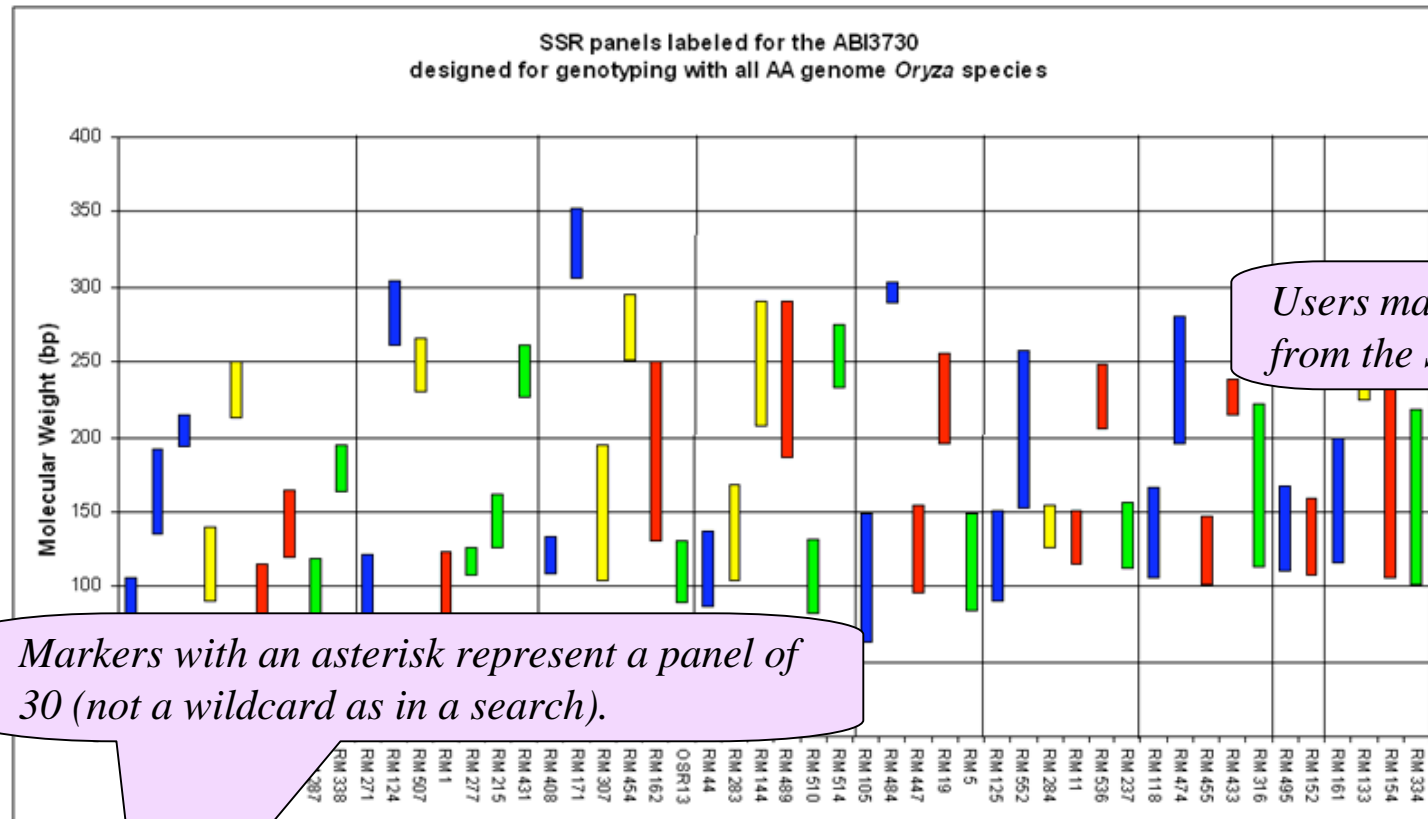
FOR EXAMPLE,

```
>seq1
agagattaggatcgatcgctctctctctctcgatcgagatcgat
ggccatcatcatcatcatgagatagcgcatcgagagatctc
agaatagatcgctatagagagatcgagagagagtaga
>seq2
agagatagggaatatgagatagcgggggggggggcgctatagcgctcg
gagagagatctctctctcttatagagatcgactagctagatata
agactcactcactcactcactcactcagcgcat
```

Paste/Enter your sequence(s) here:

Enter sequence in FASTA format

Panel of 50 standard SSR markers



Markers with an asterisk represent a panel of 30 (not a wildcard as in a search).

Marker	Chr	Position cM	TIGRv3	Forward Primer (Labeled)	Reverse Primer	Anneal temp	PCR Cycles	Panel	Label	Color	Pooling conc.	Min Allele	Max Allele
RM495*	1	2.8	213775	aatccaaggtgcagagatgg	caacgatgacgaacacaacc	55	30	8	6FAM	blue	1x	148	160
RM1	1	29.7	4633595	gcgaaaacacaatgcaaaaa	gcgttggttgacctgac	55	30	2	PET	red	1x	67	119
RM283*	1	31.4	4883717	gtctacatgtaccctgtgtgg	cggcatgagagctgtgtatg	61	30	4	NED	yellow	1x	130	176
RM259	1	54.2	7443424	tggagtttgagaggaggg	ctgttgcatggtgccaatgt	55	30	1	6FAM	blue	2x	133	186
RM312	1	71.6	14890771	gtatgcataattgataagag	aagtcaccgagtttaccttc	55	30	1	6FAM	blue	1x	86	106
RM5	1	84.9	23952076	tgcaactctagctgctcga	gcacccgatcttgatggg	57	30	5	VIC	green	1x	94	138
RM237*	1	115.2	26795365	tgcaactctagctgctcga	tggaagagagcactacagc	55	30	6	VIC	green	1x	105	153
RM431*	1	178.3	3887	ggttcac	gggtcac	55	30	2	VIC	green	1x	233	261
RM154*	2	4.8	108	ccgtcc	ccgtcc	61	30	9	PET	red	1x	148	230

Click to access marked detail information.

3/22/07

20

Table of SSR Primers from McCouch et al. (2002)

Locus Name	Primer Name	Forward Primer	Reverse Primer
OSR13	OSR13	catttgctgcgtcacggagta	agccacagcgcccatctctc
OSR14	OSR14	aaatccacgcacactttgcg	aggtaaacgagcttgaattc
OSR16	OSR16	aaaactagcttgcaaagggga	tgccggctg
OSR17	OSR17	gctggttgattcagctagtc	gcctcgttgt
OSR21	OSR21	atttctttggccacaggcga	cccagattc
OSR23	OSR23	tgatacgtggtacgtgacgc	taatcgcttc
OSR28	OSR28	agcagctatagcttagctgg	actgcacatgagcagcga
RM1	RM1	GCGAAAACACAATGCAAAAA	GCGTTGGTTGGACCTGAC
RM10	RM10	TTGTCAAGAGGAGGCATCG	CAGAATGGGAAATGGGTCC
RM100	RM100	CATGGAGAGGAACTGGTGTT	CTCTGATTCTACCTCTCTC
RM1003	MRG0003.HAU0003	GATTCTTCCTCCCCTTCGTG	TTCCTGTCAGAACAGGGAGC
RM1004	MRG0004.HAU0004	ACGACCCCTCCTGGTTCGTG	CTCGTGGTTCCTGGTCACAAC
RM101	RM101	GTGAATGGTCAAGT	
RM1018	MRG0018.IRR10018		
RM1019	MRG0019.RGP0019	GTTTGAACAGTAC	
RM102	RM102	AACTTTCCCACCACT	
RM1022	MRG0022.IRR10022	CATGGGATGAGGG	
RM1024	MRG0024.IRR10024	GCATATAACCATGGC	
RM1026	MRG0026.IRR10026	GCCTCTGGCAGAATAGC	
RM103	RM103	CTTCCAATTCAGGCCGGCTGGC	CGCCACAGCTGACCATGCATGC
RM1031	MRG0031.HAU0031	GTGAAGGCACACCAACCG	GACGAGGATCGAATTCGAAG
RM1032	MRG0032.RT0032	TGGCACTTCACGTAGCAAAC	TGGTTCGTCTTGTGGCTG
RM1036	MRG0036.HAU0036	CTCATTTGTCGATTGCCGTC	ATGGGAGGAGTGATCAAACG

The table is extremely large. Please be patient while it loads.

This is the html table. You should select the tab-delimited file if you want to save it to your computer to put in a spreadsheet.

Help

 [Markers Home](#) | [Markers Search](#) | [View Map Sets](#) | [SSR Markers Resource](#) | **Help** | [Tutorial](#) | [FAQ](#)

Markers Help

Markers Search

Use the "[Markers Search](#)" tool to search for markers. When you first visit this tool, you are presented with a simple form for searching the marker database. Immediately below this form are some examples of what you could search for. Clicking on any of these search examples will initiate a search for that example and return the results. Below the search examples is a summary of the number of markers by each type with a link to "[See all markers](#)".

To conduct a search, you can enter any number of marker names in the "Marker Name" search box. You can use commas or spaces to separate the names. If you are searching for a marker with a space in the name you must enclose the entire name between double quotes (e.g., "C742 (K)"). You may use the wildcard character "*" to substitute for zero or more of any character in the search string (e.g., "RM*" will search for all markers with "RM" in the name). If you do not enter any text in the search form without supplying any parameters, a search for "*" (i.e., all markers) is performed.

To further refine your search query, you may specify a marker type (e.g., "RFLP") with any other parameter. For instance, you may wish to search for [all markers with RFLP conditions](#).

After performing a searching, the results page will indicate how many, if any, markers match your search. For example, the results for the search "RM*" are summarized in text, like *Search results for all SSR markers matching "RM*."*

Help files help the user to conduct a search, as well as defines the available information from the module.

Tutorials

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Mappings Tutorial

Select your preferred format:

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[Release Notes](#)

You may select between a powerpoint version or a pdf version of the tutorial.

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FAQ

The screenshot shows the GRAMENE website interface. At the top, a navigation bar contains links: [Markers Home](#) | [Markers Search](#) | [View Map Sets](#) | [SSR Markers Resource](#) | [Help](#) | [Tutorial](#) | [FAQ](#). The [FAQ](#) link is highlighted with a red starburst. Below this is the GRAMENE Cache header with a search bar and a navigation menu: [Search](#) | [Genomes](#) | [Download](#) | [Resources](#) | [About](#) | [Help](#) | [Feedback](#). The main content area is titled 'Gramene FAQ' and lists subcategories: [Maps and CMap](#), [BLAST](#), [Proteins](#), [Ontologies](#), [Genomes](#), [Markers](#), [QTL](#), [Genes](#), [Literature](#), [Data Curation](#), [Gramene Program](#), [Diversity](#), [GrameneMart](#), and [Pathways](#). A callout points to the 'Markers' link, stating 'Click here for Marker FAQ'. Another callout points to the 'Feedback' link, stating 'Use Feedback to submit a question.' A third callout points to the search bar, stating 'Click to search FAQ by keyword'. The 'Markers' FAQ section is expanded, showing a moderator, a description, subcategories, and a list of questions with answers. A fourth callout points to the search bar in the 'Markers' section, stating 'Click to search FAQ by keyword'. The footer includes a date '3/22/07' and a page number '24'.

FAQ

[Markers Home](#) | [Markers Search](#) | [View Map Sets](#) | [SSR Markers Resource](#) | [Help](#) | [Tutorial](#) | [FAQ](#)

GRAMENE Cache

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Gramene FAQ

- ♦ Moderator: [cer17@cornell.edu](#)
- ♦ Gramene FAQ's of page)
- ♦ Subcategories:
 - [Maps and CMap](#)
 - [BLAST](#)
 - [Proteins](#)
 - [Ontologies](#)
 - [Genomes](#)
 - [Markers](#)
 - [QTL](#)
 - [Genes](#)
 - [Literature](#)
 - [Data Curation](#)
 - [Gramene Program](#)
 - [Diversity](#)
 - [GrameneMart](#)
 - [Pathways](#)

Answers in this category:
[New Item](#)

♦ 2006-Aug-15 9:45am

This document is: <http://dev.gramene.org/cgi-bin/>
[\[Search\]](#) [\[Appearance\]](#) [\[Show This Entire Category\]](#)

Species

Last modified: Tue Aug 15 13:45:35 2006

Gramene FAQ : Markers

- ♦ Moderator: [cer17@cornell.edu](#) (inherited from parent)
- ♦ FAQ for the Markers Module
- ♦ Subcategories:

Answers in this category:

- [I need to get the GenBank accession numbers from such markers in a batch mode, rather than individually.](#)
- [Why can't I find the genome position for well-known marker in Gramene?](#)
- [I want to know what the sequence of the product amplified by a certain marker.](#)

♦ 2006-May-05 3:35pm

Previous: [Genomes](#)
Next: [QTL](#)

This document is: <http://dev.gramene.org/cgi-bin/>
[\[Search\]](#) [\[Appearance\]](#) [\[Show This Entire Category\]](#) This is a [Faq-O-Matic 2.721](#).

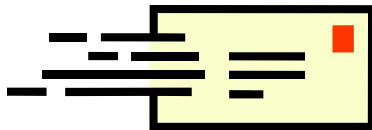
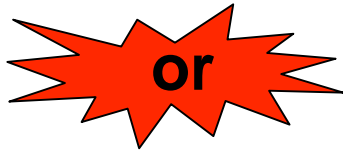
3/22/07

24

Contact Gramene



Use the feedback button, located at the top of every page, to provide feedback or to ask questions about Gramene.



Email Gramene at gramene@gramene.org