

User Guide

Version 1.0

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1. HOW TO DOWNLOAD CIRCVIEW AND TEST DATA

Download CircView application from

<http://github.com/GeneFeng/CircView/blob/master/CircView.tar.gz>

Download circRNAs test data from

<https://github.com/GeneFeng/CircView/blob/master/testdata/>

Download MRE data from

http://gb.whu.edu.cn/CircView/testdata/mre_human.tar.gz

Download RBP data from

http://gb.whu.edu.cn/CircView/testdata/rbp_human.tar.gz

2. BEST PRACTISE

2.1 Basic Feature: CircRNAs Visualization

2.1.1 Java Virtual Machine need be installed before running this program. See 6 HOW TO INSTALL JAVA VIRTUAL MACHINE.

2.1.2 Download and decompress “CircView.tar.gz” from

<http://github.com/GeneFeng/CircView/blob/master/CircView.tar.gz>

Double click “CircView.jar” to launch the program.

2.1.3 Download and decompress circRNA data from

<https://github.com/GeneFeng/CircView/blob/master/testdata/human.tar.gz>

2.1.4 Click “CircRNA”->”Load Data” to load circRNA files according species and tools.

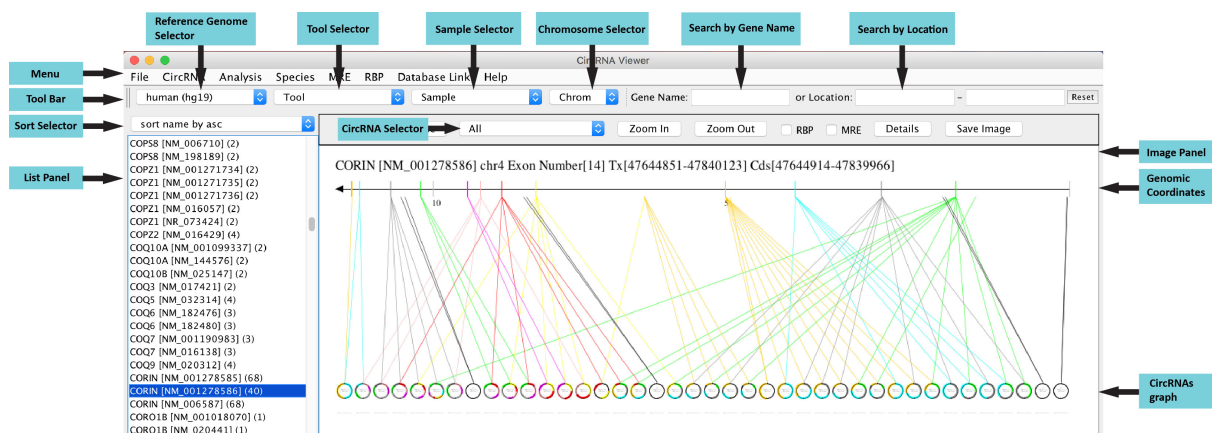
Load CircRNA files

human (hg19)CIRIAdd Files

Species	CircRNA Tool	File Name	File Path
human (hg19)	CIRCexplorer	heart_3.circexplorer	/Volumes/GENE/Proje...
human (hg19)	CIRCexplorer	heart_4.circexplorer	/Volumes/GENE/Proje...
human (hg19)	CIRCexplorer	heart_5.circexplorer	/Volumes/GENE/Proje...
human (hg19)	circRNA_finder	heart_1.circrna_finder	/Volumes/GENE/Proje...
human (hg19)	circRNA_finder	heart_2.circrna_finder	/Volumes/GENE/Proje...
human (hg19)	circRNA_finder	heart_3.circrna_finder	/Volumes/GENE/Proje...
human (hg19)	circRNA_finder	heart_4.circrna_finder	/Volumes/GENE/Proje...
human (hg19)	circRNA_finder	heart_5.circrna_finder	/Volumes/GENE/Proje...
human (hg19)	CIRI	heart_1.ciri	/Volumes/GENE/Proje...
human (hg19)	CIRI	heart_2.ciri	/Volumes/GENE/Proje...
human (hg19)	CIRI	heart_3.ciri	/Volumes/GENE/Proje...
human (hg19)	CIRI	heart_4.ciri	/Volumes/GENE/Proje...
human (hg19)	CIRI	heart_5.ciri	/Volumes/GENE/Proje...
mouse (mm9)	CIRCexplorer	heart_1.circexplorer	/Volumes/GENE/Proje...
mouse (mm9)	CIRCexplorer	heart_2.circexplorer	/Volumes/GENE/Proje...
mouse (mm9)	CIRCexplorer	heart_3.circexplorer	/Volumes/GENE/Proje...
mouse (mm9)	CIRCexplorer	heart_4.circexplorer	/Volumes/GENE/Proje...
mouse (mm9)	CIRCexplorer	heart_5.circexplorer	/Volumes/GENE/Proje...

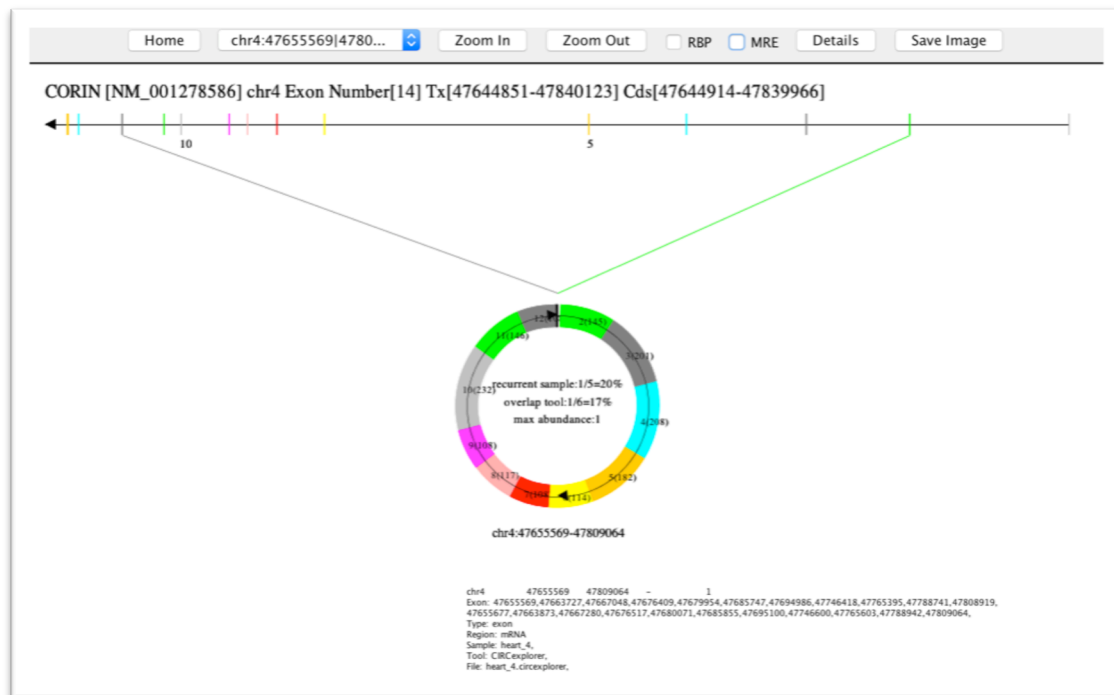
OpenClear

2.1.5 Click gene transcript name on left panel to view the image of the circRNAs.



2.1.6 Gene transcript can be searched by name or location.

2.1.7 Click one "Circle" to view details of each circRNA.



2.1.8 Detailed information and image of CircRNAs can be saved for further use.

2.1.9 Click "Analysis" -> "Comparison" to make a comparison between circRNAs with different samples and/or tools.

Genome Selector Sample Multiple Selector Comparison Setting Comparison Items 4月14日 周五 11:14:18

human (hg19) Compare Overlap 1 bp

Sample List Sample selected

heart_1.circexplorer
heart_1.circrna_finder
heart_1.ciri
heart_1.find_circ
heart_1.mapsplice

Recurrent Sample Number Overlap Tool Number

Sort Title

No.	Compare Overlap Value	chr	chromosome	donor site	acceptor site	junction rea...	strand	tissue name	tissue num	sample name	sample num	tool name	tool num	circRNA type	circRNA re...
51	7...	chr7	12175317...	12177379...	118(184)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
426	...	chr17	953289(9...	1003975(...	4(6)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
898	...	chr3	19502723...	19504154...	4(4)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
1016	...	chr1	14727004...	147273139...	34(34)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
1388	...	chr5	6446443...	64492978...	6(8)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
1527	...	chr3	12304416...	12305152...	10(13)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
1546	...	chr16	4029116(...	4033441(...	4(9)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
1659	...	chr15	73052747...	73067438...	12(33)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
1790	...	chr5	13222785...	13222881...	32(41)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
1818	...	chr18	12366963...	12371690...	41(42)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
2003	...	chr5	13222785...	13222881...	32(41)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
2005	...	chr5	13222785...	13222881...	32(41)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
2007	...	chr9	88190229...	88248289...	25(35)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
2016	...	chr9	88248289...	88248289...	17(49)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
2020	...	chr9	88248289...	88248289...	46(55)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
2026	...	chr9	88248289...	88248289...	81(129)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
2083	...	chr6	13562163...	13564446...	25(33)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
2263	...	chr6	10090727...	10090937...	9(12)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
2713	...	chr18	56240045...	56247780...	1078(1282)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
2749	...	chr2	20241026...	20244004...	74(99)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
2750	...	chr2	20241026...	20244694...	29(46)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
2752	...	chr2	20241026...	20246942...	14(18)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
2758	...	chr2	20241026...	20244004...	16(17)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
2869	...	chr8	61813947...	61813947...	174(151)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
2890	...	chr8	41518947...	41521260...	9(12)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
2962	...	chr10	61814415...	61874089...	6(7)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
2972	...	chr10	61844359...	61845011...	36(66)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
3224	...	chr1	70758070...	70781249...	42(48)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
3232	...	chr4	73944358...	73958017...	10(10)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
3233	...	chr4	73950965...	73958017...	29(37)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
3237	...	chr4	73950965...	73958017...	14(21)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
3246	...	chr4	73984404...	73981029...	22(35)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
3645	...	chr12	5908672(...	5963307(...	37(44)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
3665	...	chr12	60320205...	6031970(...	25(35)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
4486	...	chr1	94667275...	94697199...	6(7)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
5060	...	chr8	13116498...	13118131...	30(51)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
5061	...	chr8	13116498...	13119312...	80(101)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	
5082	...	chr8	13116498...	13119312...	75(102)	-	heart,	1	heart_1.he...	5	CircExplor...	6	exon	mRNA	

2.2 Advanced Feature: MRE and RBP sites Visualization on CircRNAs

2.2.1 MySQL need to be installed, see 7 HOW TO INSTALL MYSQL

2.2.2 Restart CircView.jar

2.2.3 Download and decompress MRE data from

http://gb.whu.edu.cn/CircView/testdata/mre_human.tar.gz

2.2.4 Click “MRE”->”Load Data” to load MRE file.

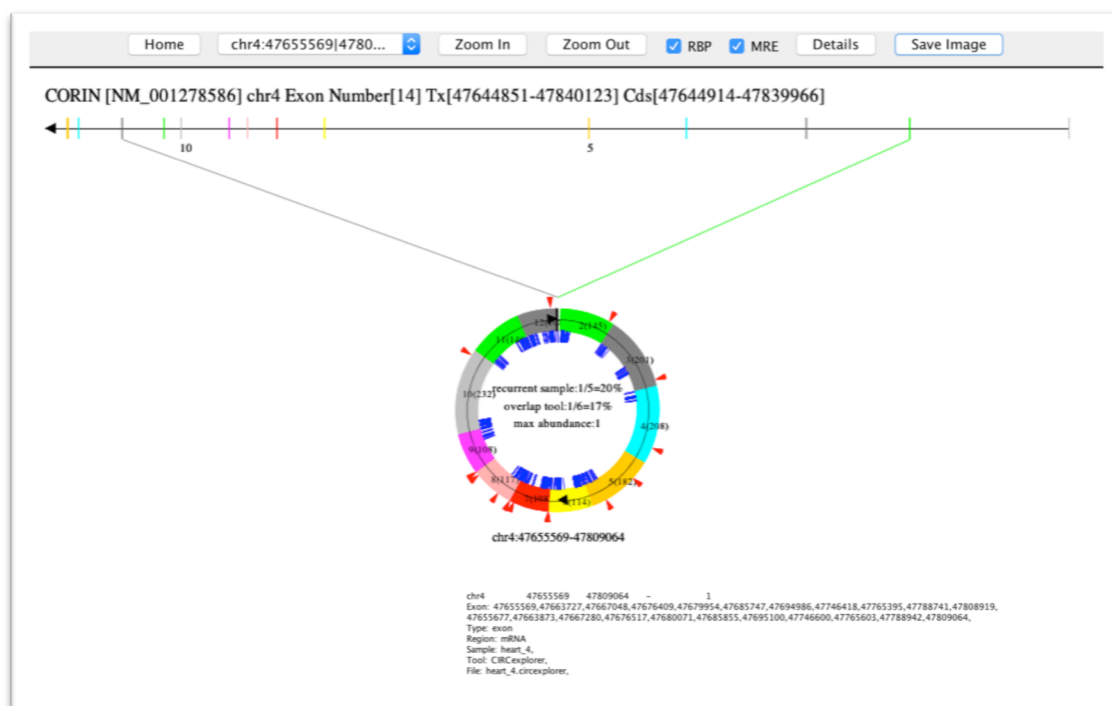
2.2.5 Download and decompress RBP data from

http://gb.whu.edu.cn/CircView/testdata/rbp_human.tar.gz

2.2.6 Click “RBP”->”Load Data” to load RBP file.

2.2.7 Load circRNAs data, see 2.1.4

2.2.8 Check MRE or RBP to add MRE sites (blue lines) or RBP sites (red triangles) to CircRNAs



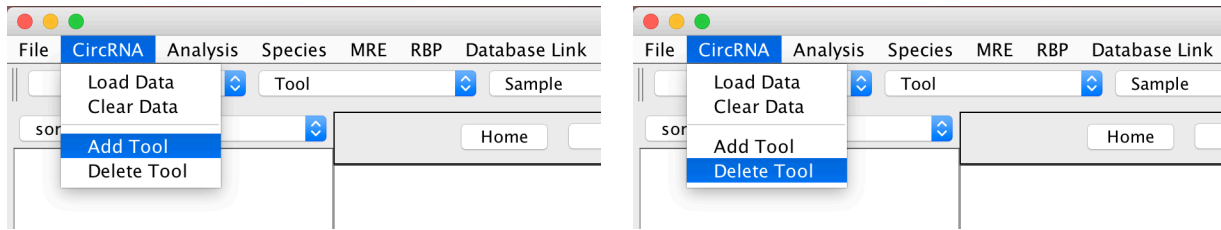
3. HOW TO MANAGE CIRCRNAs DATA

3.1 CircRNAs Identification Tool Management

CircView integrates 6 CircRNAs identification tools (CIRCexplorer, circRNA_finder, CIRI, find_circ, Mapsplice, and UROBORUB) by default.

Users can add or delete tool by using menu “CircRNA”->”Add Tool” or “CircRNA”->”Delete

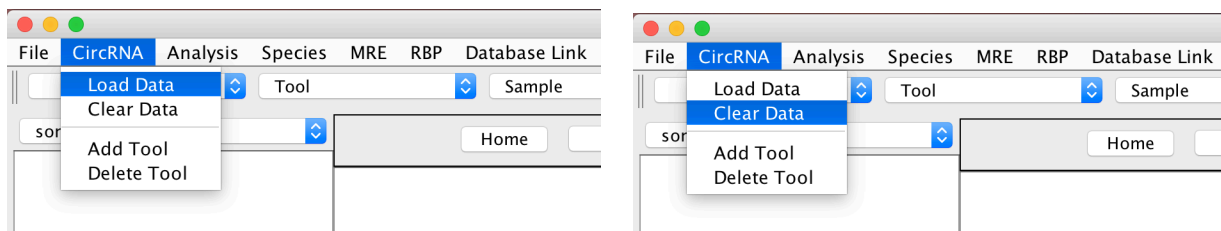
Tool”.



3.2 CircRNAs Data Management

CircView can load CircRNAs data directly from output of default 6 CircRNAs identification tools.

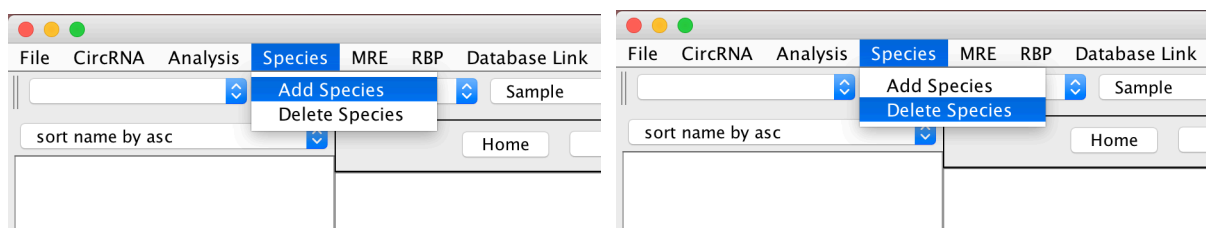
Users can also import circRNAs identified by other tools with six tab delimited columns, including chromosome, start position, end position, running number/name, junction reads and strand.



4. HOW TO MANAGE SPECIES DATA

CircView provides 7 species (Human (hg19), Human (hg38), Mouse (mm10), Mouse (mm9), Zebrafish (zv9), Fly (dm6), C.elegans (ce10)) by default.

Users can also add or delete species annotation data with compatible format by using menu “Species”->”Add Species” or “Species”->”Delete Species”.

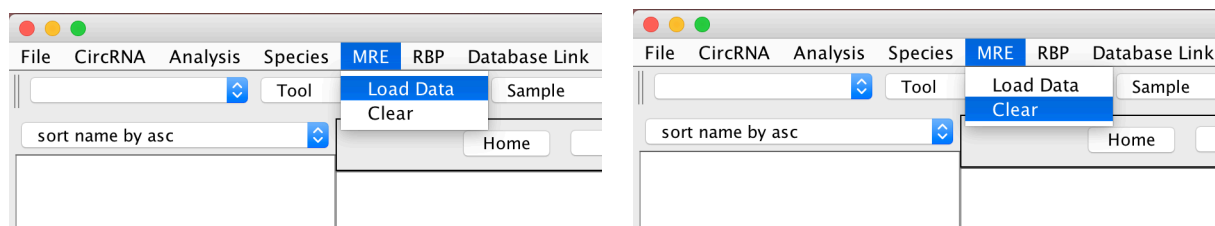


5. HOW TO MANAGE MRE AND RBP DATA

CircRNAs mainly function as sponges for the regulatory elements, such as miRNA respond elements (MREs) and RNA binding proteins (RBPs). CircView provides advanced features to display regulatory elements.

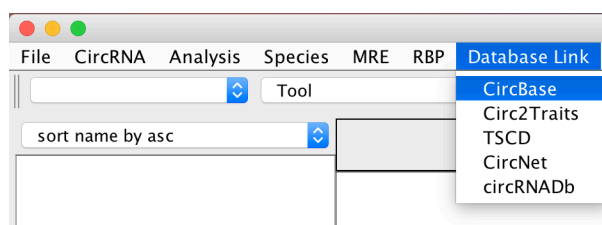
This module requires the users to install MySQL locally, see **7 HOW TO INSTALL MYSQL**. Users can load and display the MRE data identified by TargetScan (<http://targetscan.org/>) and/or the RBP data identified by starBase (<http://starbase.sysu.edu.cn/>) or any other software. The format requires five tab delimited columns, including chromosome, start position, end position, MRE/RBP name and description.

Load MRE or RBP file will create table and deposit data into MySQL database, and Clear MRE or RBP will remove data from the database. As the data are persistent, users should not load the same data for more than once.



6. HOW TO FIND CIRC RNA DATABASES

CircView provides links to some circRNA databases.



7. HOW TO INSTALL JAVA VIRTUAL MACHINE

Java Virtual Machine need to be installed before running this program. Simply

access <http://www.java.com>, download Java, and install it.

8. HOW TO INSTALL MYSQL

8.1 For Windows

8.1.1 Download and decompress MySQL Installation file from

http://gb.whu.edu.cn/CircView/MySQL/mysql_windows.tar.gz

8.1.2 Double click “NDP46-KB3045557-x86-x64-AllOS-ENU.exe” to install .NET Framework.

8.1.3 Double click “mysql-installer-community-5.7.16.0.msi” to install MySQL. Please create password “12345” for user root during installation.

8.2 For Mac OS

8.2.1 Download MySQL Installation file from

http://gb.whu.edu.cn/CircView/MySQL/mysql-5.7.17-macos10.12-x86_64.dmg

8.2.2 Double click “mysql-5.7.17-macos10.12-x86_64.dmg” to install MySQL. Please create password “12345” for user root during installation.