MacVector 14.0.6

for Mac OS X

The online updater for this release is 44.1 MB in size

System Requirements

MacVector 14 runs on any Intel Macintosh running the **64-bit** version of **Mac OS X 10.6** or higher. There are no other specific hardware requirements for MacVector – if your machine can run the 64-bit version of OS X 10.6 or above, it can run MacVector. A complete installation of MacVector 14 uses approximately 175 MB of disk space. If you are running Mac OS X 10.6, please be sure to read the section below on **OS X 10.6 Limitations**.

ASSEMBLER NOTE: If you are performing contig assembly using MacVector with Assembler, we recommend you have **at least** 1 GB of RAM installed on your machine. For any serious NGS work using phrap, velvet or bowtie, you should have at least 8 GB and preferably 16 GB or more for satisfactory performance.

Installation and License Activation

You can choose to install MacVector in one of two ways; if you want to install MacVector for all users of the computer, simply drag the MacVector folder onto the Applications folder. You will be prompted for a system administrator account and password during this copy. If you don't have administrative privileges, or if you want to install it for just your own use, you can install MacVector in the /Applications/ folder in your own personal home directory. To do that, double-click on the **OpenUserApplicationsFolder** icon to open the folder in a separate window, then drag the MacVector folder into that window.

Once installation is complete, you must run MacVector and enter a valid license owner, serial number and activation code if one does not already exist on your computer. This information is usually sent by e-mail but is also printed on the inside of the CD sleeve if you opted to receive MacVector on physical media. If you previously installed an earlier version of MacVector and have a serial number with a maintenance end date of February 1st 2015 or later, MacVector 14 will automatically use your existing license and you will not be required to enter the details again. NOTE: one important change for MacVector 14 is that you can now activate a license for your own use without requiring Administrative privileges.

Changes for MacVector 14.0.6

Bug Fixes

The fix to the "one-out" RE site numbering in MacVector 14.0.5 inadvertently caused a problem where the junction of cloning events was not correct if the sticky ends were generated by different, but compatible, enzymes. This has now been fixed.

Changes for MacVector 14.0.5

Bug Fixes

A "one-out" bug in the displayed numbering of Restriction Sites in the Map tab has been fixed.

You can now correctly activate licenses running OS X 10.6.8

A bug resulting in bootstrap phylogenetic reconstruction trees having branch values of greater than 100% has been fixed.

A hang whilst opening sequence files containing certain combinations of features has been resolved.

Circular sequences no longer open in linear mode if the last sequence you opened was a linear molecule.

Zooming a circular sequence no automatically longer maxes out at 9.8" radius.

Changes for MacVector 14.0.4

Bug Fixes

A crash when selecting from the first residue in a multiple sequence alignment has been fixed.

A problem with "ghost highlighting" in the multiple sequence alignment editor has been resolved.

Any **phrap** parameter changes you make are now remembered in the preferences file to simplify repeated analyses of similar datasets.

A number of minor changes have been made to the **Find** dialog, **Feature Editor** and some Analysis dialogs to smooth out certain common workflows.

The green "zoom" button has been removed from the floating **Graphics Palette** to prevent you accidentally clicking on it and ending up with a giant window that cannot be easily resized.

Using **File | Export** to export contigs from an assembly project in Fasta or Fastq format now only includes the consensus sequence of each contig.

Changes for MacVector 14.0.3

Bug Fixes

A bug where importing fasta files into the multiple sequence alignment editor would leave the last sequence blank has been fixed.

You can now **Digest** a product from the primer results **Map** tab and the predicted product will be placed on the **Cloning Clipboard**.

The Free-form feature editor input edit box now wraps.

/label features are now displayed in the Map tab as per version 13.5.5.

You can now use apostrophes in feature qualifier values

Changes for MacVector 14.0.2

Minor Enhancements

There is a new setting in the **Preferences->Colors** pane that gives you more control over

the coloring of Features in the **Editor** tab.

Bug Fixes

The **ORF Analysis** text result view now correctly displays the detected ORF translations.

/label has been restored as a valid GenBank qualifier. Note that this qualifier is no longer endorsed by the NCBI but has been extensively used by MacVector users so we now consider it to be a MacVector extension of the official format.

Changes for MacVector 14.0.1

Bug Fixes

Application "hangs" when invoking **Select All** in the **Contig Editor** and when deleting a segment of a **Feature** have been resolved.

A minor glitch in the **Restriction Enzyme** editor has been fixed – in some cases that could cause a crash when displaying the non-cutters results.

You can now paste sequence data into an empty **Map** tab without MacVector crashing.

Changes for MacVector 14.0

64-bit Architecture

MacVector is now a fully 64-bit application. The main utility of this is that MacVector can take full advantage of all of the memory installed on your computer, allowing it to handle larger sequences and alignments. This is most noticeable in the **Multiple Sequence Alignment**, **Align To Reference** and **Assembler** functions where longer reference sequences and increased numbers of (e.g.) fastq-formatted Reads can be imported and aligned.

The move to 64-bit has also allowed much longer sequences to be viewed in the **Align To Reference** editor – previously, sequences would not display properly when scrolling horizontally past about 2,000,000 base pairs.

MacVector14 is no longer dependent on the deprecated "CarbonLib" compatibility library. This helps ensure that MacVector will continue to work with future releases of OS X where this library is likely to be removed.

Primer Database Support

MacVector now directly supports the concept of a "Primer Database". There is a new **Primer Database.nsub** file installed in the `/MacVector/Subsequences/` folder, populated with a number of common universal primers. This is used as the default database file, but you can easily choose any file of your own, or add your own primers to this file, or to a copy of it. The Analyze menu has been streamlined to remove the old **Primers** submenu.

Primer Database Search – this is a new function in the **Analyze** menu. Its is similar to the **Nucleic Acid Subsequence** search function, except that it uses **Primer Database.nsub** as the default search file and has a few extra settings to simplify handling primers with tails and/or mismatches to the target sequence.

Quicktest Primer – this now lets you save primers direct into the current primer database and also lets you retrieve primers from the database via a simple popup scrolling menu.

Primer Design (Primer3) – you can now select primers in the spreadsheet result window and add them to the primer database and select primers from the database using the popup scrolling menu.

Restriction Enzyme Methylation Sites

All of the enzyme files have been updated to include methylation information. The way this works is that there is both an (e.g.) XbaI and an XbaI-DAM representing the subset of Xba sites that are blocked by methylation. So if an XbaI site is displayed on a map with an XbaI-DAM site immediately above it, you know that site will be blocked by the Dam methylase.

Assembler Bowtie Improvements

Bowtie has been updated to support version 2 which can handle gaps in the aligned reads. This allows the use of much longer input reads (which typically have more indels) and provides far more accurate coverage information because, with the older version, reads with indel mismatches would be discarded even if they were "real" matches.

Miscellaneous Enhancements

The **Primer Design (Primer3)** "Test" mode now has a text output similar to the old **Test PCR Primer Pair** functionality, allowing you to view details of all of the possible products generated by the pair of primers.

There are some cool new "Rounded Rectangle" feature graphics types.

You can now directly select residues in the **Map** view in the default "zoom" mode. This lefts you use the **Map** tab for all editing operations except for actually typing residues (but you can select then click on the **Editor** tab to do that).

MacVector now supports the new *Regulatory* GenBank feature type.

You can import features into a sequence with files formatted using the Sequin Table format.

More options in the way the sequence **Editor** and **Map** views are initialized are now saved to preferences so that MacVector "remembers" how you like to view your sequences.

The cut sites and recognition sequences of restriction enzymes and now listed in the text outputs.

Colored residues or background in the single sequence Editor tab are now only displayed if the underlying feature is located on the sequence line. This provides much finer control over which regions of the sequence you would like to see highlighted in color.

MacVector 14 Limitations on Mac OS X 10.6

In order to take advantage of many of the built-in enhancements in more recent releases of OS X, if you run MacVector 14 on OS X 10.6, you will find there are certain limitations;

(i)   The mouse pointer does not change in a context-sensitive way when moving over different interface graphical items.

(ii)   Tool tips within the editors do not display.

(iii)   The Feature tab lists only display the first qualifier for each feature (but if you double-click to open the editor, you will see that all of the qualifiers are present).

(iv)   The Primer Database selection popup scrolling menus are not available – you should instead open the actual .nsub file and copy the primer sequence from there.

(v)   The Sparkle automatic online updater is non-functional.

.

Support information

For assistance with MacVector, please contact your local MacVector, Inc office. You will need a current MacVector maintenance contract to be eligible for technical support other than for basic installation problems. New sales of MacVector include 12 months of support that also entitles you to any upgrades to MacVector released during the maintenance period.

USA

Toll Free: (866) 338 0222

Telephone: (919) 303 7450

Fax: (919) 303 7449

E-mail: support@macvector.com

Europe

Telephone: + 44 (0)1223 410552

Fax: +44 (0)1223 709429

E-mail: support@macvector.com

Worldwide

Telephone: + 1 919 303 7450

E-mail: support@macvector.com

When contacting Customer Support with a technical problem, please be prepared to give your product serial number as well as a detailed description of your problem and any error messages you encounter. Visit the MacVector Web site for details of any available updates, and any relevant information that could not be added to these release notes in time for publication:

```
http://www.macvector.com
```

MacVector, Inc.
Software for Scientists