

# MacVector 14.5.3

## for Mac OS X

*The online updater for this release is 44.1 MB in size*

### System Requirements

MacVector 14.5 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 14.5 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 September 1<sup>st</sup> 2015 or later, MacVector 14.5 will automatically use your existing license and you will not be required to enter the details again. NOTE: one important change for MacVector 14.0 and later is that you can now activate a license for your own use without requiring Administrative privileges.

### Changes for MacVector 14.5.3

#### Bug Fixes

An occasional crash in the **Align To Folder** function has been fixed.

A rare crash when testing pairs of primers has been fixed.

## Changes for MacVector 14.5.2

### Bug Fixes

**Align To Folder** now correctly handles searches using a segment of a sequence that crosses the circular origin.

Turning “Automatic RE Searching” on/off in the **Map Preferences** now correctly updates all open windows.

## Changes for MacVector 14.5.1

### Bug Fixes

When you try to enter out of range values in sequence analysis dialogs, the error messages are now more informative.

You can now correctly export Genbank files containing the “between” location identifier (e.g. 123^124) and the **Map** tab now correctly displays the exact location for all feature appearance types.

The “Segmented Hollow Arrow” feature appearance type now draws correctly for features on the complementary strand.

An extra residue was getting included when copying the product of a **Primer3** amplification – this has been removed.

Users can now override the file extension when exporting in a different format (e.g. you can now export Genbank files with a .txt extension).

You can now **Export Tab Contents As** agarose gel images in formats other than PDF.

Agarose Gel images now print correctly in black-bands-on-a-white-background mode.

The **Align To Reference** Editor has had some work to clear up some hangs and allow more consistent editing behavior when attempting to modify the reference sequence.

Some problems when trying to linearized plasmids by selecting a restriction enzyme and clicking on **Digest** have been resolved.

Filtering **Restriction Enzyme Search** results using “End Structure” now works as expected.

## Changes for MacVector 14.5

### Simulated Agarose Gels

By far the coolest new feature is a completely new interactive interface that lets you preview lifelike images of agarose gels. You create an agarose gel window by choosing **File | New | Agarose Gel** and then simply drag restriction enzymes from and Map views and onto the **Agarose Gel** window to view the banding patterns.

There are settings to control the percentage of agarose in the gel, the length of time the gel is run for, the level of graphical realism, the approximate position of marker dyes and the display of band sizes superimposed on the gel.

We include a collection of common DNA size markers that you can easily add to the gels, but you can also create your own with a simple text editor.

All gels can be saved to disk and printed in white on black or, to save ink, black on white formats.

### Miscellaneous Enhancements

The **Align To Reference** editor has been rewritten to allow the import and alignment of much larger fastq files containing NGS reads. It is now practical to import 20 million+ reads into the document and align them reasonably quickly – 20 million 50nt reads will align against a 2kb reference in less than 5 minutes with the appropriate settings.

You can now run **Align To Folder** searches against paired-end Fastq or Fasta formatted NGS data files. When you subsequently retrieve matching reads from the *Description List*, both reads of a pair will be retrieved into a pair of “hit” files. This dramatically simplifies e.g. “cloning” of genes from RNASeq data or finding reads to extend the ends of a contig.

The **Graphics Palette** now contains a control displaying the current magnification factor and a stepper control allowing you to easily increase or decrease the radius of circular vectors.

You can now jump to alphabetically listed RE sites in the **Results** section of the **Graphics Palette** by typing the first letter of the name of the enzyme.

There is a new **Edit | Remove Gaps** function to remove gaps in single sequences and also in the **Align To Reference** and **Contig** editors.

The contents of the Cloning Clipboard can now be copied as a graphical PDF object – great for creating drawings in e.g. Adobe Illustrator outlining the derivation of a construct.

There are new **Options | Fonts | Bigger/Smaller** menu items that change the font sizes in most text-based windows. These include the **Editor** tabs, all of the plain text output windows and not also the table-based views (e.g. the **Features** and **Annotations** tabs). You can use <command>-“minus” and <command>-“plus” as shortcuts. Note you need to hold down the <shift> key to type “plus” as <command>-“equals” re-runs the last used analysis function.

The “Frame” option has been restored to the sequence **Find** function. This is particularly useful if you are looking for the location of specific codons in a coding region.

The Map tab has been reworked so that you can now zoom into a smaller region of a sequence without losing any existing selections.

### **MacVector 14.5 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 14.5 on OS X 10.6, you will find there are certain limitations;

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

Tool tips within the editors do not display.

The Feature tab list 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).

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.

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.

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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>