

# Package ‘viridisLite’

May 3, 2023

**Type** Package

**Title** Colorblind-Friendly Color Maps (Lite Version)

**Version** 0.4.2

**Date** 2023-05-02

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**Description** Color maps designed to improve graph readability for readers with common forms of color blindness and/or color vision deficiency. The color maps are also perceptually-uniform, both in regular form and also when converted to black-and-white for printing. This is the 'lite' version of the 'viridis' package that also contains 'ggplot2' bindings for discrete and continuous color and fill scales and can be found at <https://cran.r-project.org/package=viridis>.

**License** MIT + file LICENSE

**Encoding** UTF-8

**Depends** R (>= 2.10)

**Suggests** hexbin (>= 1.27.0), ggplot2 (>= 1.0.1), testthat, covr

**URL** <https://sjmgarnier.github.io/viridisLite/>,  
<https://github.com/sjmgarnier/viridisLite/>

**BugReports** <https://github.com/sjmgarnier/viridisLite/issues/>

**RoxygenNote** 7.2.3

**NeedsCompilation** no

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**Repository** CRAN

**Date/Publication** 2023-05-02 23:50:02 UTC

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viridis *Viridis Color Palettes*

### Description

This function creates a vector of  $n$  equally spaced colors along the selected color map.

### Usage

```
viridis(n, alpha = 1, begin = 0, end = 1, direction = 1, option = "D")
viridisMap(n = 256, alpha = 1, begin = 0, end = 1, direction = 1, option = "D")
magma(n, alpha = 1, begin = 0, end = 1, direction = 1)
inferno(n, alpha = 1, begin = 0, end = 1, direction = 1)
plasma(n, alpha = 1, begin = 0, end = 1, direction = 1)
cividis(n, alpha = 1, begin = 0, end = 1, direction = 1)
rocket(n, alpha = 1, begin = 0, end = 1, direction = 1)
mako(n, alpha = 1, begin = 0, end = 1, direction = 1)
turbo(n, alpha = 1, begin = 0, end = 1, direction = 1)
```

### Arguments

|           |  |
|-----------|--|
| n         | The number of colors ( $\geq 1$ ) to be in the palette.  |
| alpha     | The alpha transparency, a number in $[0,1]$ , see argument alpha in <a href="#">hsv</a> .  |
| begin     | The (corrected) hue in $[0,1]$ at which the color map begins.  |
| end       | The (corrected) hue in $[0,1]$ at which the color map ends.  |
| direction | Sets the order of colors in the scale. If 1, the default, colors are ordered from darkest to lightest. If -1, the order of colors is reversed.   |
| option    | A character string indicating the color map option to use. Eight options are available: <ul style="list-style-type: none"> <li>• "magma" (or "A")</li> <li>• "inferno" (or "B")</li> </ul> |

- "plasma" (or "C")
- "viridis" (or "D")
- "cividis" (or "E")
- "rocket" (or "F")
- "mako" (or "G")
- "turbo" (or "H")

## Details

Here are the color scales:



`magma()`, `plasma()`, `inferno()`, `cividis()`, `rocket()`, `mako()`, and `turbo()` are convenience functions for the other color map options, which are useful when the scale must be passed as a function name.

Semi-transparent colors ( $0 < \alpha < 1$ ) are supported only on some devices: see [rgb](#).

## Value

`viridis` returns a character vector, `cv`, of color hex codes. This can be used either to create a user-defined color palette for subsequent graphics by `palette(cv)`, a `col =` specification in graphics functions or in `par`.

`viridisMap` returns a `n` lines data frame containing the red (R), green (G), blue (B) and alpha (`alpha`) channels of `n` equally spaced colors along the selected color map. `n = 256` by default.

**Author(s)**

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**Examples**

```
library(ggplot2)
library(hexbin)

dat <- data.frame(x = rnorm(10000), y = rnorm(10000))

ggplot(dat, aes(x = x, y = y)) +
  geom_hex() + coord_fixed() +
  scale_fill_gradientn(colours = viridis(256, option = "D"))

# using code from RColorBrewer to demo the palette
n = 200
image(
  1:n, 1, as.matrix(1:n),
  col = viridis(n, option = "D"),
  xlab = "viridis n", ylab = "", xaxt = "n", yaxt = "n", bty = "n"
)
```

---

viridis.map

*Color Map Data*

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**Description**

A data set containing the RGB values of the color maps included in the package. These are:

- 'magma', 'inferno', 'plasma', and 'viridis' as defined in Matplotlib for Python. These color maps are designed in such a way that they will analytically be perfectly perceptually-uniform, both in regular form and also when converted to black-and-white. They are also designed to be perceived by readers with the most common form of color blindness. They were created by [Stéfan van der Walt](#) and [Nathaniel Smith](#);
- 'cividis', a corrected version of 'viridis', 'cividis', developed by Jamie R. Nuñez, Christopher R. Anderton, and Ryan S. Renslow, and originally ported to R by Marco Sciaini. It is designed to be perceived by readers with all forms of color blindness;
- 'rocket' and 'mako' as defined in Seaborn for Python;
- 'turbo', an improved Jet rainbow color map for reducing false detail, banding and color blindness ambiguity.

**Usage**

viridis.map

### **Format**

A data frame with 2048 rows and 4 variables:

- R: Red value;
- G: Green value;
- B: Blue value;
- opt: The colormap "option" (A: magma; B: inferno; C: plasma; D: viridis; E: cividis; F: rocket; G: mako; H: turbo).

### **Author(s)**

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### **References**

- 'magma', 'inferno', 'plasma', and 'viridis': <https://bids.github.io/colormap/>
- 'cividis': <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0199239>
- 'rocket' and 'mako': <https://seaborn.pydata.org/index.html>
- 'turbo': <https://ai.googleblog.com/2019/08/turbo-improved-rainbow-colormap-for.html>

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