`ijtiff`: An R package providing TIFF I/O for *ImageJ* users

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Summary

ImageJ (Schindelin et al. 2015) is the image viewing and processing GUI of choice for many in the fields of biology and microscopy. It is free and open-source. `ijtiff` is an R package which can correctly import TIFF files that were saved from *ImageJ* and write TIFF files than can be correctly read by *ImageJ*. Due to the sometimes strange way that *ImageJ* writes TIFF files, the original R `tiff` package (Urbanek 2013) may not correctly recognise their channel structure. `ijtiff` also goes beyond `tiff` in facilitating the writing of floating point (real-numbered) TIFF files from R.

`ijtiff` reads TIFF pixel values in their native (usually integer) form, whereas `tiff` scales pixel values to the range [0, 1] by default. Hence and for other reasons, `ijtiff` should be viewed as a package with different capabilities and behaviours from the original `tiff` package, and not as an extension thereof.

TIFF files are not always enough: they have maximum allowed values and their 32-bit floating point real-number representation can lack precision. For these extreme cases, `ijtiff` also supports text image I/O. Text images have no such limitations and are completely compatible with *ImageJ*.

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