

HyPhy - Title TBD

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Authors

- **Ryan D Velazquez**

-  [rdvelazquez](#)

Institute for Genomics and Evolutionary Medicine, Temple University

Abstract

Here we announce the latest release of the HyPhy comparative sequence analysis software package. HyPhy is widely used, actively supported, open source and freely available on a multitude of platforms. The codebase is available at <http://github.com/veg/hyphy>. Documentation, tutorials and downloads are available at <http://hyphy.org>.

Introduction

HyPhy (Hypothesis testing using Phylogenies) is an open source software package for comparative sequence analysis using stochastic evolutionary models. Since its initial release in 2005 [1] HyPhy has become an integral tool for the bioinformatics community with over 10,000 registered users, over 2,000 peer-reviewed citations and approximately 1,000 HyPhy jobs processed each week on the datamonkey web server [2,3,4]. Extensions and improvements to the HyPhy package have been ongoing since its inception, with active feedback between users and developers producing new features tailored to the specific needs of the research community. Here we announce the release of the newest version of HyPhy (version 2.4.0) and document how the software has been (1) packaged for easy use in a variety of settings (2) optimized for larger datasets (3) redesigned to follow modern bioinformatics best practices and (4) extended to include common methods out of the box.

Packaged for Easy Use in a Variety of Settings

The users of HyPhy vary greatly in their technological proficiency, spanning the spectrum from biologists unfamiliar with the command line to bioinformaticians who want to incorporate HyPhy into their own software. To meet the needs of this diverse user set, HyPhy has been packaged and distributed for use in multiple different forms. These include: - Standard command line tool (Download: github.com/veg/hyphy; Tutorial: {to be written}) - Interactive command line prompt (Download: github.com/veg/hyphy; Tutorial: hyphy.org/tutorials/current-release-tutorial/) - Online web-service (datamonkey.hyphy.org) - Desktop GUI application (Download: github.com/veg/hyphy-gui; Tutorial: hyphy.org/tutorials/current-release-tutorial_gui/) - Galaxy [5] Tools (Installable from the galaxy tool-shed; available pre-installed at galaxy.hyphy.org) - Integration with the Python Programming Language (Download: github.com/sjspielman/phyphy; Tutorial: sjspielman.org/phyphy/) [6] - MEGA [7] Integration

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