7.344 Directed Evolution: Engineering Biocatalysts
Spring 2008

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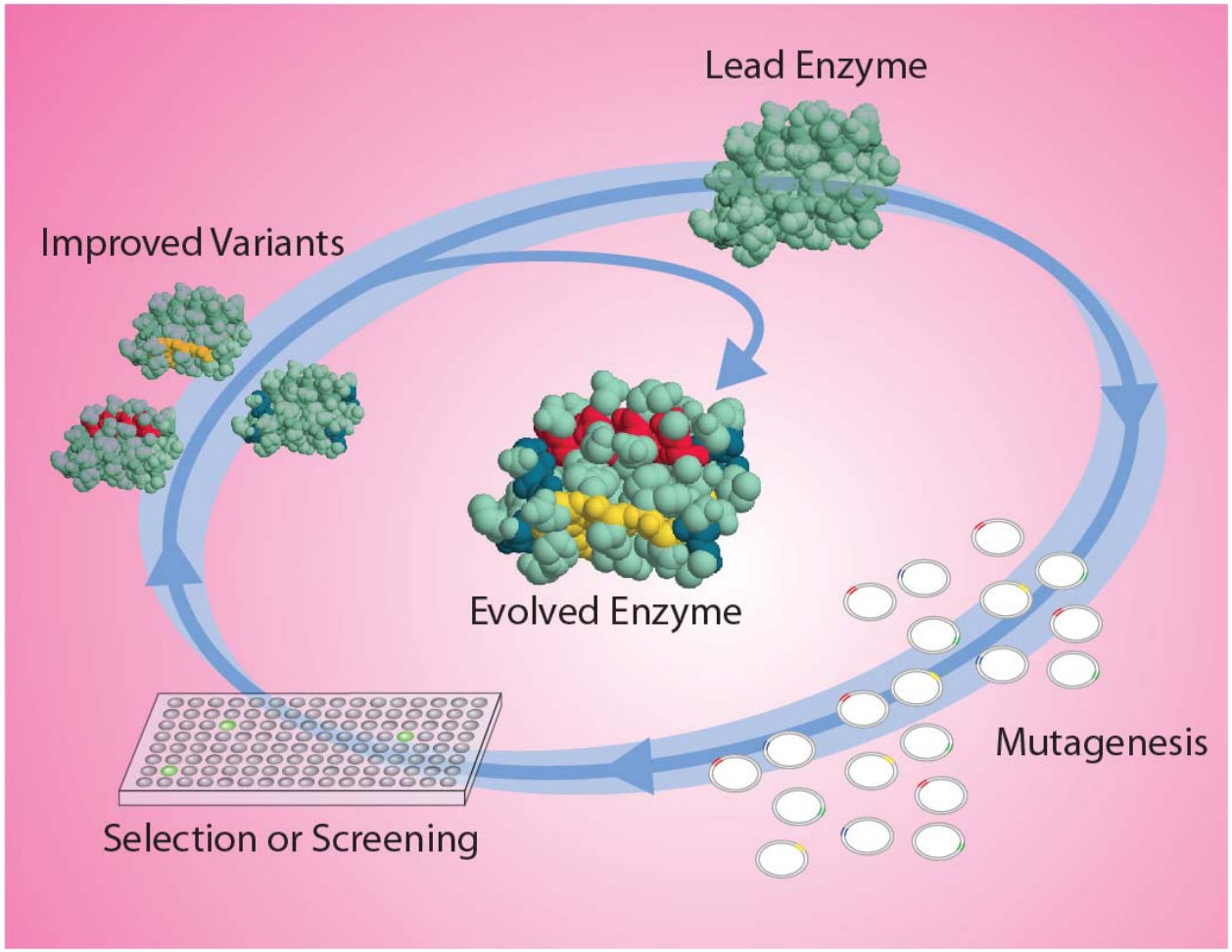
Kerry Love (Instructor)

Feb 7th class overview

- Introductions
- Class day/time
- How to read a scientific journal article?
- Directed evolution overview
- Concepts for next week
- Handout papers / website

The paradigm of directed evolution



Directed evolution

- Why do we want to evolve enzymes?
- What are the two main steps in the evolution process?
- Which of these steps is more challenging/important?

Polymerase chain reaction (PCR)

Image of PCR scheme removed due to copyright restrictions.

- Transitions versus transversions

Molecular cloning

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Please see
http://www.accessexcellence.org/RC/VL/GG/plasmid.php

1. PCR amplify gene of interest (insert restriction sites)
2. Digest bacterial vector (plasmid DNA) and gene of interest
3. Ligate digested DNA and vector
4. Transform bacteria with vector
5. Select for bacteria containing gene of interest