

### A Problem

- Your lipase-producing strain grows slowly in a small-scale fermenter.
- Yield of lipase, a primary metabolite, is low.
- How can you improve the yield?

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### Objectives

1. Compare and contrast each of the following pairs:
  - a. Natural selection and artificial selection
  - b. Selective breeding and recombinant DNA
2. Explain how each of the following is used to improve a product: selection; high-throughput screening; enrichment; mutation; directed evolution.
3. Describe the process of making rDNA using a plasmid vector.

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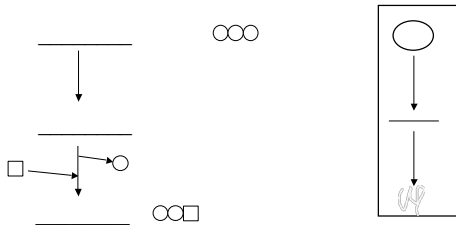
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### Semi-synthetic products



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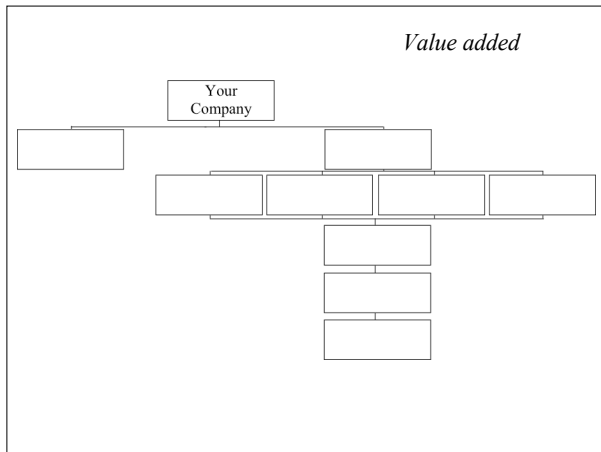
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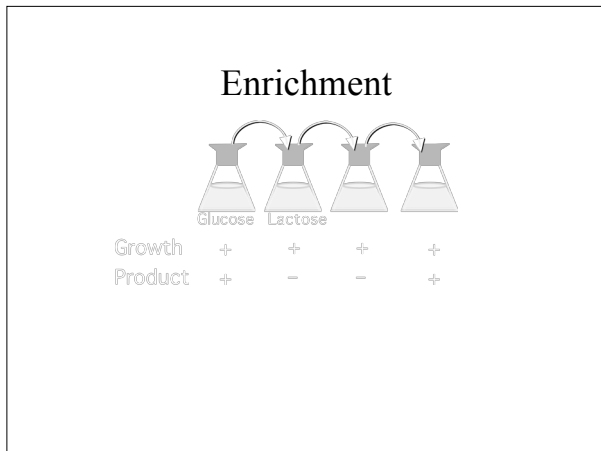
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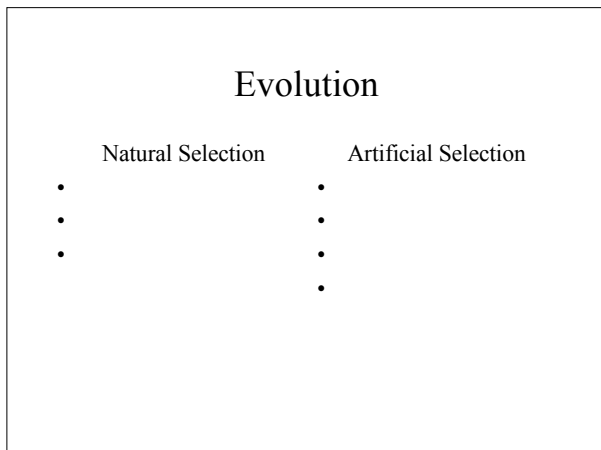
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