



VII Microbial Genetics 1–7

1 Genotype & Phenotype, 2 Gradient Agar Plate, 3 Transformation, 4 Conjugation, 5 Restriction Enzymes, 6 PCR (Polymerase Chain Reaction), 7 Ames Test for Carcinogens

Genetics 1 Genotype & Phenotype

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Serratia marcescens
UV-irradiated

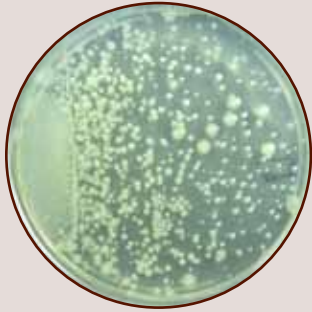
- Objectives/Key Words
- Genotype & Phenotype✓
- Ultraviolet Light
- Thymine Dimers
- Light Repair
- Dark Repair
- **Irradiating Cultures****✓**
- Mutation✓

- 12 interactive pdf pages
- 12 illustrations, 7 images of microbes
- * 2 techniques animations
- * 2 techniques videos
- ✓ 4 best practice animations

- **Genetics Quick Quiz 1A: Genotype & Phenotype**
- **Genetics Quick Quiz 1B: Best Practice**
- **Genetics Question Bank 1.1✓**

Genetics 2 Gradient Agar Plate

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E. coli gradient plate

- Objectives/Key Words
- Resistance to Aminoglycosides
- **Preparing a Gradient Agar Plate***
- **Labeling a Gradient Agar Plate✓**
- **Inoculating a Gradient Agar Plate**✓**
- Antibiotic Gradient Agar Plate✓
- **Gradient Single-Streak Plate**✓**
- Step-Wise Mutation✓

- 12 interactive pdf pages
- 9 illustrations, 4 images of microbes
- * 3 techniques animations
- ✓ 6 best practice animations

- **Genetics Quick Quiz 2A: Gradient Plate**
- **Genetics Quick Quiz 2B: Best Practice**
- **Genetics Question Bank 2.1✓**

Genetics 3 Transformation

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ampicillin-resistant transformants & satellites

- Objectives/Key Words
- Transformation in Bacteria✓
- Contrasting Phenotypes✓
- Griffith's Transforming Factor
- DNA Determines Heredity
- Transformation Molecular Biology
- *Acinetobacter* Transformation Protocol✓
- **Transformation Controls 1***✓-2✓**
- **Extracting *Acinetobacter* DNA**✓**
- ***Acinetobacter* Transformation 1*✓-2✓**
- *E. coli* Transformation Protocol
- **Micropipetter 1-2****
- ***E. coli* Competance 1*✓-2*✓**
- ***E. coli* Transformation 1*✓-2✓**

- **Genetics Quick Quiz 3A: Transformation**
- **Genetics Quick Quiz 3B: Best Practice**
- **Genetics Question Bank 3.1✓-3.2**

- 24 interactive pages
- 30 illustrations, 17 images of microbes
- * 7 techniques animations
- * 3 techniques videos
- ✓ 13 best practice animations

Genetics 4 Conjugation

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E. coli rif^r, chl^r recombinants

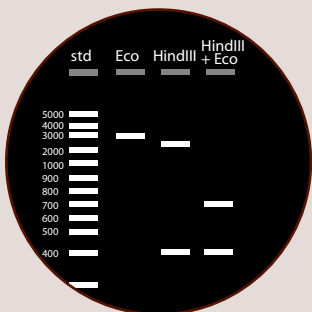
- Objectives/Key Words
- Bacterial Conjugation✓
- Donor Strain
- Recipient Strain
- **Growth of Donor & Recipient***✓**
- Antibiotic Susceptibility of Donor & Recipient✓
- **Recombination 1*✓, 2*✓, 3✓**

- 14 interactive pdf pages
- 13 illustrations, 7 images of microbes
- * 3 techniques animations
- * 2 techniques videos
- ✓ 7 best practice animations

- **Genetics Quick Quiz 4A: Conjugation**
- **Genetics Quick Quiz 4B: Best Practice**
- **Genetics Question Bank 4.1✓-4.2**

Genetics 5 Restriction Enzymes

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gel electrophoresis

- Objectives/Key Words
- *E. coli*, Lambda Phage & pUC18/19 DNA
- Restriction Enzymes
- Restriction Maps
- **Micropipetter 1-2****
- **Restriction Digests***
- Gel electrophoresis Chamber
- **Gel Electrophoresis 1***
- **Preparing an Agarose Gel 1*✓-2***
- **Gel Electrophoresis 2*-3****
- **Gel Electrophoresis 4****
- pUC18 Digest
- Standard Curve
- pUC Restriction Sites & Fragments
- Lambda Phage Digest

- **Genetics Quick Quiz 5**
- **Genetics Question Bank 5.1✓-5.4**

- 27 interactive pdf pages
- 27 illustrations, 5 images of microbes
- * 1 techniques animations
- * 10 techniques videos
- ✓ 2 best practice animations

- ◆ 2 scenic microbiology, 3 images
 - ◆ Genetic Engineering
 - ◆ Recombinant bovine somatotrophin (rBST) yoghurt

Genetics 6 PCR (Polymerase Chain Reaction)

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PCR cycle

- Objectives/Key Words
- MRSA (methicillin-resistant *Staphylococcus aureus*)✓
- PCR (polymerase chain reaction)
- **Standard Cell Suspensions (BSL2, DL, BSC)****✓**
- **Micropipetter 1-2****
- Nucleotide Primer Sequences
- **PCR Reaction Mixtures 1-2**✓**
- **Loading the Thermocycler***
- **PCR Temperatures & Times****
- Gel Electrophoresis Chamber
- **Gel Electrophoresis 1***
- **Preparing an Agarose Gel 1*-2/3*****
- **Gel Electrophoresis 2**✓, 3**✓, 4**✓, 5**✓**

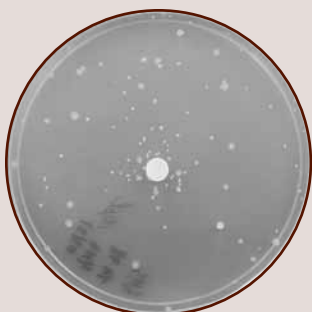
- 24 interactive pdf pages
- 20 illustrations

- * 6 techniques animations
- * 17 techniques videos
- ✓ 5 best practice animations

- **Genetics Quick Quiz 6A: PCR**
- **Genetics Quick Quiz 6B: Best Practice**
- **Genetics Question Bank 6.1✓-6.2**

Genetics 7 Ames Test for Carcinogens

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Ames spot test

- Objectives/Key Words
- Carcinogens
- Mutagens & Carcinogens
- *Salmonella typhimurium*✓
- Spontaneous Mutants
- Procarcinogens & Liver Enzymes
- Micropipetter 1-2**
- **Ames Tests✓**
 - Ames Spot Test 1*✓-2✓
 - Ames Plate Incorporation Test 1*✓-2✓

- 17 interactive pdf pages
- 14 illustrations, 8 images of microbes

- * 3 techniques animations
- * 1 techniques video
- ✓ 7 best practice animations

- **Genetics Quick Quiz 7A: Ames Test**
- **Genetics Quick Quiz 7B: Best Practice**
- **Genetics Question Bank 7.1✓**