<table>
<thead>
<tr>
<th><strong>First Name:</strong></th>
<th>John</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Last Name:</strong></td>
<td>Doe</td>
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<tr>
<td><strong>Session Title:</strong></td>
<td>Translation</td>
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<tr>
<td><strong>Description:</strong></td>
<td>Protein translation is the final step in the central dogma: DNA makes RNA makes protein. Three different RNA species are involved: mRNA that carries the information for assembling the peptide in the form of 3 base codons, tRNA that facilitates placement of the amino acids in proper order based on codon-anticodon interaction, and rRNA that, along with many proteins, forms the ribosome where translation occurs. The ribosome structure supports the acquisition of charged aminoacyl tRNAs, each of which carries a covalently bound amino acid that is matched to the anticodon, a process facilitated by tRNA synthetase enzymes. The process of translation begins with initiation and proceeds through elongation, ending at termination. Translation can give rise to proteins in the cytosol, the membrane, or the lumen of membranous organelles. Translation can be regulated in many different ways that can be general (phosphorylation of initiation factors), cell-specific (insulin stimulated elongation, or heme-dependent inhibition), or protein specific (tubulin dimer feedback). In addition, translation can be blocked by small molecule inhibitors, toxins, viral gene products, or antibiotics.</td>
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<td><strong>Learning Objectives:</strong></td>
<td>Describe ribosome structure and function; Explain tRNA structure and function; Summarize regulation of translation; Discuss the interactions between host cells and viruses relating to translation; Describe the logic of developing antibiotics that interfere with prokaryotic translation; Identify protein translation in the context of cell structure and function;</td>
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<td><strong>Topics:</strong></td>
<td>mechanism of antibiotic action; protein synthesis inhibitors; protein synthesis on membranes and in the cytosol; ribosome structure and function; tRNA structure and function; translation initiation, elongation, termination;</td>
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### Key Words:

Type 10 or more key or "search" words, i.e., more specific terms involved in your session, preferably alphabetized separated by a semicolon (;) and followed by a line break (enter/return key).

- aminoacyl site (A site);
- aminoacyl tRNA;
- antibiotics;
- anticodon;
- codon;
- cycloheximide;
- eukaryotic elongation factors (eEF);
- eukaryotic expression vector;
- eukaryotic initiation factors (eIF);
- eukaryotic release factors;
- genetic code;
- internal ribosome entry site;
- leaky scanning oocyte injection;
- peptidyl site (P site);
- polyribosome;
- protein synthesis inhibitor;
- release factor;
- ribosome;
- ricin;
- rough endoplasmic reticulum;
- rRNA;
- shigella toxin;
- tRNA;
- wobble hypothesis;