

PROFESSOR: Hi. In this clip, we're going to discuss the numbering and labeling conventions of RNA and of protein. Here we have a nucleoside triphosphate or NTP. This NTP is numbered on each carbon. And we're going to start here to the right of this oxygen and label one prime and proceed two prime, three prime, four prime, and this last, five prime carbon.

This means that when we polymerize two or more of these NTP's to get an RNA chain, it becomes apparent why one end is labeled five prime and the other end is labeled three prime.

On this end, the extending atom is the five prime carbon. And on this side, the other end, the extending atom is the three prime carbon attached to this oxygen. This three prime carbon is where you would attach another NTP if you would wish to extend this chain.

And so we label the ends of RNA five prime to three prime. And RNA is always polymerized in the five prime to the three prime direction.

Now with our amino acid, we label this end, which is our amino terminus, as N and this end which is our carboxy terminus as C. As before, when we polymerize three amino acids into this short protein chain, I'm going to label this end which has a protruding amino terminus as N and this end which has a protruding carboxy terminus as C.

So that's how the conventions are in science to label and number amino acids and proteins. Thanks for watching.