

**ONLINE REVIEW CHAT: IB BIOLOGY HL 1**  
**3.28.2010**  
**TOPIC: Protein Synthesis**

8:04:05 PM **Annie Chien**: ok im gonna start

8:04:17 PM **Annie Chien**: Describe the structure of a ribosome and how its structure support its function

8:04:56 PM **Sam**: two subunits. smaller one that attaches to mRNA, and larger which produces amino acids?

8:05:14 PM **Annie Chien**: the larger one does not produce amino acids...

8:05:23 PM **Sam**: i was told that

8:05:35 PM **Annie Chien**: nope

8:05:40 PM **Annie Chien**: heard wrong

8:05:46 PM **Adam**: it consists of 2 units one small and one large, and the smaller one is where the mRNA first binds and the larger one is where the majority of translation happens

8:05:54 PM **KAREENA**: the larger one has two binding sites built from ribosomal proteins and rRNA

8:06:06 PM **Sam**: what are the binding sites?

8:06:12 PM **Sam**: A & E

8:06:21 PM **Annie Chien**: what happens in the larger subunits and proteins???

8:06:27 PM **Annie Chien**: the binding sites are mainly in the smaller one

8:07:08 PM **Sam**: the larger one allows holds the amino acid chain, created from translation

8:07:14 PM **Annie Chien**: yes thats it

8:07:25 PM **Adam**: dont the tRNA molecules put the amino acids in?

8:08:00 PM **Sam**: yeah but the large subunit holds the amino acid chain in place until the whole polypeptide is complete

8:08:01 PM **Annie Chien**: it brings the amino acids yes

8:08:02 PM **Adam**: they bond to the codon with the anticodon and attach the amino acids to the large unit

8:08:07 PM **Annie Chien**: sam yes

8:08:21 PM **Adam**: am i right

8:08:22 PM **Adam**: >

8:08:24 PM **Adam**: ?

8:08:24 PM **Sam**: why does that make sense though?

8:08:56 PM **Annie Chien**: adam yes

8:09:02 PM **Annie Chien**: sam what do you mean????

8:09:20 PM **Sam**: you asked how its structure support its function

8:09:25 PM **Sam**: i don't how?

8:09:30 PM **Annie Chien**: for the larger subunit??????

8:09:42 PM **Adam**: yeah, i dont get that either

8:09:53 PM **Annie Chien**: the larger subunit its on top of the smaller one

8:10:04 PM **Sam**: oh thats all we need to know?

8:10:05 PM **Annie Chien**: as the amino acid chain is growing, it holds the protein in place

8:10:08 PM **Annie Chien**: yeah

8:10:09 PM **Adam**: how soes that support stucture

8:10:20 PM **Adam**: ok

8:10:24 PM **Adam**: i think i got it

8:10:29 PM **Annie Chien**: ok

8:10:52 PM **Annie Chien**: Define the three stages of translation

8:11:22 PM Sam: A- the tRNA sees if it can connect to the codon, and connects  
8:11:35 PM Sam: P- the amino acid attaches to the amino acid chain  
8:11:49 PM Sam: E- the tRNA disconnects from the codon  
8:12:08 PM Adam: ok i wasnt sure about those  
8:12:11 PM Annie Chien: those are the three sites, but it still works  
8:12:55 PM KAREENA: ? so you ment the three sites?  
8:12:55 PM Sam: i forgot the steps  
8:12:55 PM Annie Chien: questions questions?  
8:13:12 PM Annie Chien: no the three sites are basically where the three stages happens  
8:13:13 PM Annie Chien: ?  
8:13:16 PM Annie Chien: get it?  
8:13:18 PM KAREENA: ok  
8:13:21 PM Adam: alright  
8:13:25 PM Adam: so what sam said was right  
8:13:28 PM Annie Chien: yes  
8:13:33 PM Annie Chien: what happens when the protein is made?  
8:13:33 PM Sam: yeah what are the three stages again though  
8:13:38 PM Annie Chien: you said it!  
8:14:42 PM Annie Chien: get it?????????????????????????????  
8:14:47 PM Annie Chien: questions???  
8:15:03 PM Sam: yeah  
8:15:19 PM Annie Chien: what happens to the protein once its made?  
8:15:30 PM Sam: no idea  
8:15:36 PM Adam: it is shipped to the part of the body that needs it by the golgi apparatus  
8:15:51 PM KAREENA: are you going to make us to that translation thinggy on the test?  
8:15:59 PM Annie Chien: adam yes  
8:16:04 PM Annie Chien: yes and no kareena  
8:16:08 PM Annie Chien: GTA  
8:16:13 PM Annie Chien: what does that translate into?  
8:16:24 PM KAREENA: CAU?  
8:16:31 PM Annie Chien: kareena good  
8:16:41 PM Adam: crap  
8:16:44 PM Adam: we have to know that  
8:16:47 PM Annie Chien: ok if there are 9 bases, how many amino acids does that translate into  
8:16:54 PM Adam: 3?  
8:16:57 PM Annie Chien: its COMPLEMENTARY BASE PAIRING!  
8:16:58 PM Annie Chien: adam yes  
8:17:09 PM Annie Chien: TGC  
8:17:11 PM Sam: 3  
8:17:13 PM Adam: cause codons are in threes  
8:17:13 PM Annie Chien: translates into....  
8:17:17 PM Sam: acg  
8:17:18 PM Annie Chien: adam good  
8:17:23 PM Annie Chien: adam no  
8:17:26 PM Annie Chien: wait sam no  
8:17:27 PM Annie Chien: not adam  
8:17:34 PM Sam: ?  
8:17:36 PM Annie Chien: TGC  
8:17:44 PM KAREENA: y is that wrong?

8:17:46 PM Adam: ACG  
8:17:48 PM Annie Chien: wait  
8:17:49 PM Adam: yeah  
8:17:52 PM Sam: yeah  
8:17:53 PM Annie Chien: sam is right  
8:17:53 PM Adam: sam was right  
8:17:54 PM Annie Chien: forget it  
8:17:58 PM Sam: thats what i though  
8:18:22 PM Annie Chien: describe the process of transcription  
8:18:43 PM Sam: rna polymerase breaks unravels dna  
8:18:43 PM KAREENA: an enzym unwinds the dna stand and makes mrna  
8:18:54 PM Annie Chien: which enzyme  
8:18:55 PM Sam: that bases come in to form mrna  
8:19:02 PM Annie Chien: good  
8:19:07 PM KAREENA: and repalzes t w/ u  
8:19:11 PM Sam: with completmentary base pairs replacing thymine with uracil  
8:19:17 PM KAREENA: ummm Rna polymerase??  
8:19:24 PM Annie Chien: kareena good  
8:19:25 PM Adam: RNA polymerase breaks apart the DNA and copies the sense strand of the DNA into a strand of MRNA  
8:19:26 PM Annie Chien: sam good  
8:19:26 PM KAREENA: yay!  
8:19:27 PM Annie Chien: good  
8:19:27 PM Sam: yeah  
8:19:32 PM Annie Chien: which direction adam?  
8:19:37 PM Adam: 5 to 3  
8:19:40 PM Sam: 5 to 4  
8:19:46 PM ANISA: hello!  
8:19:46 PM Sam: \*5 to 3  
8:19:50 PM Sam: yo dawg  
8:19:51 PM KAREENA: and then the marn leaves detaches from the dna and leaves the nucleaus  
8:20:07 PM Adam: which is called termination  
8:20:07 PM ANISA: What was the question?  
8:20:19 PM Annie Chien: describe trasciption  
8:20:27 PM Annie Chien: why is transcription even necessary??????  
8:20:37 PM Sam: no idea  
8:21:13 PM Annie Chien: sam - slap  
8:21:20 PM KAREENA: o0o because you need to have a copy of the direction...and use that copy for translation  
8:21:28 PM KAREENA: how do you make that sound smart?  
8:21:33 PM Adam: so the ribosome will have the portion of DNA that can be copiesd to facillitate specific protien replenishing throughout the body  
8:21:37 PM Annie Chien: kareen agood  
8:21:42 PM Annie Chien: good  
8:21:47 PM Annie Chien: why dont the DNA do it ?  
8:21:49 PM Annie Chien: why make a copy?  
8:22:04 PM Adam: because the DNA is too important  
8:22:06 PM Adam: ?

8:22:16 PM ANISA: hold on. ill brb.

8:22:23 PM Adam: it cant get damaged or bad things happen

8:22:24 PM Annie Chien: ok so.... why doesnt it go out and do translation itself

8:22:26 PM Annie Chien: Adam good

8:22:46 PM Annie Chien: Where are most ribosomes located in a cell? AND WHY?

8:22:56 PM Adam: the rough er

8:23:00 PM KAREENA: near the endoplasmic reticulum

8:23:03 PM Adam: because it is close to the nucleus

8:23:15 PM Adam: easy to rach'

8:23:18 PM Adam: reach

8:23:21 PM Sam: rough er so they are close to the nucleus so mRNA are ingested by lysosomes

8:23:22 PM Annie Chien: what kinds of proteins are made there

8:23:36 PM Sam: external proteins?

8:23:40 PM Annie Chien: sam yes

8:23:52 PM Annie Chien: sam: rewrite this--rough er so they are close to the nucleus so mRNA are ingested by lysosomes

8:24:08 PM Sam: \*aren't

8:24:12 PM Annie Chien: good

8:24:13 PM Sam: is what i meant

8:24:17 PM Annie Chien: and what about the free ribosomes

8:24:20 PM Annie Chien: what do they do

8:24:35 PM Sam: create proteins needed within the cell/

8:24:36 PM Sam: ?

8:24:40 PM Adam: they make protiens to be used in the cell

8:24:42 PM Annie Chien: good

8:25:00 PM Annie Chien: how many amino acids does this seuqnece make: ACCAAATCGTTC

8:25:12 PM Sam: 4

8:25:35 PM Adam: 4

8:25:38 PM KAREENA: yea 4

8:25:44 PM Annie Chien: good

8:26:21 PM Annie Chien: what is removed out of the sequences before the mrna goes out of the nucleus?

8:26:33 PM Adam: introns, or junk DNA

8:26:33 PM Alexis: the introns.?

8:26:34 PM KAREENA: introns??

8:26:36 PM Annie Chien: good

8:26:37 PM Sam: introns

8:26:38 PM Annie Chien: why?

8:26:45 PM Adam: because they are unneeded

8:26:46 PM Alexis: because they aren't needed

8:26:49 PM Annie Chien: why?

8:26:54 PM Sam: because they don't code for anything

8:26:58 PM Annie Chien: sam good

8:27:12 PM Adam: ok

8:27:15 PM Annie Chien: there are only 9 questions on the test

8:27:21 PM Annie Chien: 6 of which are multiple choice

8:27:32 PM Adam: hibachi?

8:27:44 PM Sam: word

8:27:49 PM **Annie Chien**: not this one  
8:28:04 PM **KAREENA**: hmm...do we get anything??  
8:28:06 PM **Adam**: damn  
8:28:14 PM **Annie Chien**: you get a higher grade!  
8:28:16 PM **Sam**: a good grade  
8:28:20 PM **Sam**: i got you miss chien  
8:28:29 PM **Annie Chien**: wink wink  
8:28:32 PM **Annie Chien**: whats a promoter?  
8:28:44 PM **Sam**: starts the process of transcription  
8:29:10 PM **Adam**: it unwinds the DNA section so that transcription can take place  
8:29:27 PM **Annie Chien**: sam good  
8:29:42 PM **KAREENA**: does the promotor start with the trna matching the codon correctly??  
8:30:05 PM **Annie Chien**: kareen yes  
8:30:14 PM **Annie Chien**: every seuqnece has a start/promoter  
8:30:22 PM **Annie Chien**: someone get sam back in  
8:31:04 PM **Adam**: hes offline  
8:31:20 PM **Alexis**: yeah  
8:32:13 PM **Annie Chien**: Whats tRNA?  
8:32:22 PM **Alexis**: transport rna  
8:32:31 PM **Adam**: transport rna  
8:32:31 PM **Alexis**: ?  
8:32:37 PM **Adam**: yeah  
8:32:46 PM **Adam**: it transports amino acids  
8:32:47 PM **Annie Chien**: tell me about its structure and how it supports its function  
8:33:01 PM **Alexis**: it has specific amino acids attached to it  
8:33:20 PM **Annie Chien**: ok  
8:33:23 PM **Annie Chien**: keep going  
8:33:36 PM **Adam**: it is shaped like a t, and on one of the ends it has an anticodon. this allows it to bind to a strand of MRNA's codons, and then attach the amino acid that it is carrying to the large ribosome unit  
8:33:41 PM **Alexis**: and it binds with mrna in a ribosome  
8:33:57 PM **Annie Chien**: where? what part?  
8:34:40 PM **Annie Chien**: Describe its shape!  
8:34:40 PM **Alexis**: and the ribosome binding sites.. the small and the large binding sites?  
8:34:50 PM **Annie Chien**: describe the trna shape  
8:34:55 PM **Alexis**: isn't it shaped like a clover  
8:35:02 PM **Alexis**: ?  
8:35:05 PM **Annie Chien**: alexis good  
8:35:06 PM **Annie Chien**: !  
8:35:14 PM **Annie Chien**: where would the sequence and amino acids on it?  
8:36:03 PM **Annie Chien**: are the  
8:36:05 PM **Annie Chien**: where are they?  
8:36:35 PM **Alexis**: on the trna.?  
8:36:47 PM **Adam**: they are on one of the four ends  
8:36:49 PM **Adam**: right?  
8:36:52 PM **Annie Chien**: yeah where is the anticodons and amino acids on the trna?  
8:36:58 PM **Annie Chien**: adam: yes!  
8:37:03 PM **Adam**: they are on the ends of teh t  
8:37:08 PM **Annie Chien**: yeah

8:37:25 PM Annie Chien: what happens to the tRNA when it completes its job  
8:37:45 PM Alexis: it leaves the ribosome  
8:37:48 PM Alexis: ?  
8:37:50 PM KAREENA: it gets detached  
8:38:50 PM Adam: and another one moves in to take its place  
8:39:09 PM Annie Chien: good  
8:39:21 PM Annie Chien: good  
8:39:23 PM Annie Chien: i think thats it  
8:39:28 PM Annie Chien: are there questions  
8:39:45 PM KAREENA: yea..so the trna that takes its place has to be attached to a codon too?  
8:40:20 PM Annie Chien: yes  
8:40:23 PM Annie Chien: eventually they will  
8:40:29 PM KAREENA: ok  
8:41:49 PM Annie Chien: questions questions anyone??  
8:41:55 PM Adam: i think i got it  
8:42:22 PM Annie Chien: ok im gonna post the chat script online now.  
8:42:25 PM Annie Chien: see you guys tomorrow