

**ONLINE REVIEW CHAT: IB BIOLOGY HL Juniors**  
**1.18.2010**  
**TOPIC: Cells**

8:02:12 PM Sarah: thanks! oh wow i'm the first one here ok

8:02:19 PM ANISA: hello

8:02:23 PM MsChien: ok invite anyone you see online

8:02:44 PM ANISA: I have to leave in a bit to pick up my family. Will this be online?

8:03:09 PM MsChien: yeah if enough people show up

8:03:52 PM MsChien: but ill start with questions

8:04:09 PM MsChien: \*\*\*\*Which part of a phospholipid is hydrophilic?

8:04:13 PM ANISA: :-/! I have to go!

8:05:04 PM Sarah: um the heads?

8:05:09 PM MsChien: yep

8:05:15 PM Sarah: what's that called?

8:05:22 PM Sarah: g something..

8:06:08 PM MsChien: just the head?

8:06:30 PM Sarah: yeah, isn't it?

8:06:40 PM Sarah: oh yeah what's just the head called

8:07:21 PM MsChien: are you talking about a glycerol group?

8:07:29 PM Sarah: ohh ok

8:07:31 PM Sarah: yeah

8:07:43 PM MsChien: thats for fatty acids

8:08:08 PM MsChien: ok

8:08:18 PM MsChien: Which part of the phospholipid is hydrophobic?

8:08:25 PM Sarah: oh not for all phospholipids?

8:08:27 PM Sarah: the tail

8:08:40 PM MsChien: no you are right

8:08:49 PM MsChien: What type of protein in the cell membrane extends from inside of the cell to the outside of the cell?

8:09:32 PM Sarah: membrane protein

8:09:43 PM MsChien: what type?

8:09:49 PM Sarah: protein pump?

8:10:17 PM MsChien: true, but what type of a protein is that

8:10:55 PM Sarah: if that's not it i have no clue

8:11:05 PM Sarah: tamana! =)

8:11:09 PM MsChien: transmembrane or integral

8:11:11 PM Tamana: Hi

8:11:39 PM Tamana: have no idea what we're talking about

8:11:43 PM MsChien: its transmembrane because it goes through the protein

8:11:44 PM MsChien: What type of protein in the cell membrane extends from inside of the cell to the outside of the cell?

8:11:48 PM MsChien: taht was the questin

8:12:23 PM Sarah: other membrane proteins don't go all the way through the membrane?

8:12:29 PM MsChien: no

8:12:45 PM MsChien: Where are glycoproteins located on a cell membrane?

8:12:49 PM Sarah: what's their point then?

8:12:57 PM Tamana: thats the one that does the whole sodium potassium thing rii

8:13:18 PM MsChien: got to give me a general description

8:13:27 PM Sarah: i have no clue but i know those are the ones made by the golgi apparatus =)

8:15:17 PM MsChien: <http://en.wikivisual.com/images/e/ee/CellMembraneDrawing.jpg>

8:16:20 PM Sarah: i don't see glycoprotein on there at all

8:16:28 PM Sarah: just glycolipid..

8:16:40 PM MsChien: its on the right....

8:18:49 PM Sarah: ok maybe i'm just blind but i still don't see it

8:18:53 PM Sarah: not labelled anyway

8:19:08 PM Tamana: arent they located on the cell membrane..

8:19:22 PM MsChien: <http://faculty.southwest.tn.edu/rburkett/GB1-os10.jpg>

8:19:55 PM Sarah: ok there it is! so they're located on the surface, facing the outside of the cell?

8:20:03 PM MsChien: yes

8:20:14 PM MsChien: they are made of partially glycogen and protein

8:20:30 PM Tamana: are they the ones that are used to signal...like the antenna

8:20:40 PM MsChien: yes

8:20:49 PM MsChien: Where are cholesterol located on a cell membrane?

8:21:16 PM Tamana: they're though out the cell membrane..

8:21:22 PM MsChien: describe

8:21:43 PM Sarah: looks like they're kinda in the middle of it, but close to the edge, closer to the inside of the cell than the outside

8:21:48 PM MsChien: good

8:21:56 PM MsChien: List 2 out of the 3 ideas in the Cell Theory.

8:22:03 PM Tamana: actually i see them close to both edges

8:22:07 PM Tamana: the inside and the out

8:22:19 PM Tamana: all living things are made of cell

8:22:23 PM Sarah: oh yeah, they were just labelled close to the inside

8:22:34 PM Tamana: cell are the smallest unit of life

8:22:43 PM MsChien: ok

8:22:56 PM Sarah: all cells come from preexisting cells

8:23:00 PM MsChien: ok

8:23:29 PM Tamana: yea that all living organisms are composed of cells

8:23:34 PM MsChien: yes

8:23:42 PM MsChien: What is one exception to the cell theory?

8:23:46 PM Tamana: for teh cholestral is tha all we have to say

8:24:11 PM Tamana: that they're close to the edges of the cell membrabe

8:24:13 PM MsChien: yes

8:24:16 PM Tamana: membrane

8:24:25 PM Sarah: there's an exception?

8:24:26 PM Tamana: virusus

8:24:30 PM MsChien: tamana good

8:24:46 PM Tamana: see i was awake...lol

8:24:47 PM MsChien: dentify 2 differences between a plant and animal cell.

8:25:02 PM Sarah: freakums i lost my pen one sec

8:25:09 PM Tamana: cell wall....golgi apparathus

8:25:10 PM Sarah: ok cell wall

8:25:18 PM Sarah: and don't plants not have vacuoles?

8:25:29 PM MsChien: plants have vacoules

8:25:35 PM Tamana: no plants have bigger vocoules

8:25:40 PM Tamana: more water i guess

8:26:08 PM MsChien: yes very good

8:26:09 PM Sarah: how are ciruses an exception to cell theory?

8:26:14 PM MsChien: circus?

8:26:20 PM Sarah: viruses lol sorry

8:26:20 PM Tamana: and umm chloroplast

8:26:21 PM MsChien: virus?

8:26:27 PM Sarah: yeah woops

8:26:29 PM MsChien: virus are not considered living

8:26:37 PM Sarah: but they're made up of cells?  
8:26:39 PM MsChien: no  
8:26:48 PM MsChien: they rely on other living things to reproduce  
8:26:50 PM MsChien: and live  
8:27:02 PM Sarah: so they live, but they're not...living  
8:27:05 PM Sarah: ?  
8:27:43 PM MsChien: they technically dont live  
8:27:45 PM Tamana: but they have like dna...some of the stuff that cells have  
8:27:50 PM MsChien: they dont have a metabolism  
8:27:54 PM MsChien: they have RNA  
8:28:02 PM MsChien: they dont absorb your nutrients  
8:28:05 PM MsChien: like parasites  
8:28:27 PM Sarah: so how exactly ar they an exception?  
8:28:36 PM Tamana: oh okay..do they have mitochondrias and vocoules and stuff  
8:28:50 PM MsChien: yes  
8:28:58 PM Tamana: because they live jus through others  
8:29:16 PM Sarah: yeah but if they're not considered living really and they don't have cells, then...?  
8:29:43 PM MsChien: they are considered non-living  
8:29:44 PM MsChien: There are 6 functions of life. All living things must perform all of the 6 functions in order to be classified as living. Name these 5 functions.  
  
8:29:46 PM Tamana: thats why they're an expectaion...scientists are still arguing abt it  
8:30:04 PM Sarah: i'm soooo confused =(  
8:30:16 PM MsChien: about viruses?  
8:30:27 PM Sarah: still don't know why they're an exception  
8:31:03 PM MsChien: well ok answer the next question and we can check off to see if viruses have them  
8:31:04 PM MsChien: There are 6 functions of life. All living things must perform all of the 6 functions in order to be classified as living. Name these 5 functions.  
  
8:31:14 PM Sarah: ok metabolism, reproduction  
8:31:24 PM Tamana: the six functon does that include digestion  
8:31:28 PM MsChien: its 5  
8:31:29 PM MsChien: sorry  
8:31:40 PM Tamana: respiration..  
8:32:05 PM MsChien: ok  
8:32:25 PM Sarah: transportation?  
8:32:34 PM Sarah: maybe not..  
8:32:41 PM Tamana: homeostasis  
8:32:46 PM MsChien: Metabolism  
Growth  
Reproduction  
Response  
Homeostasis  
Nutrition  
  
8:32:54 PM MsChien: sorry there are 6  
8:32:58 PM MsChien: :-P  
8:33:05 PM MsChien: SO  
8:33:12 PM MsChien: a virus doesnt do metabolism  
8:33:12 PM Tamana: lol..ms.chien  
8:33:24 PM MsChien: it doesnt grow, but it does reproduce  
8:33:33 PM MsChien: it does respond to the environment  
8:33:45 PM MsChien: but it does not need nutrition  
8:33:55 PM Tamana: isnt response and homeostasis the same thing

8:34:03 PM MsChien: no

8:34:12 PM Tamana: since both have to do with being stable...

8:34:21 PM MsChien: yes but one depends on another

8:34:22 PM Tamana: having a stable inner environment

8:34:29 PM MsChien: but that does not mean they are the same thing

8:34:39 PM Sarah: response can help with homeostasis

8:34:45 PM MsChien: yes

8:34:46 PM Sarah: but it's not homeostasis

8:34:50 PM MsChien: yes

8:34:51 PM MsChien: good

8:35:03 PM MsChien: so do you see why scientists don't see why viruses are not considered living?

8:35:04 PM Tamana: okay :d

8:35:13 PM MsChien: In the Paramecium culture there may be both small cells and large adult cells. What two life processes does this suggest are occurring in the culture?

8:35:29 PM Sarah: growth

8:35:37 PM MsChien: yes

8:35:51 PM Sarah: reproduction?

8:35:56 PM Tamana: reproduction

8:35:59 PM MsChien: ADVANCED QUESTION: How does the paramecium eat yeast cells?

8:36:00 PM Sarah: =)

8:36:02 PM MsChien: that too

8:36:18 PM Sarah: not so advanced question: what's a paramecium?

8:36:25 PM Tamana: paramecium??.yea

8:36:26 PM Sarah: is that the worm?

8:37:07 PM MsChien: it's a single cellular organism in fresh water

8:37:14 PM MsChien: how would it eat yeast cells?

8:37:27 PM Tamana: oh oh

8:37:28 PM Sarah: is also a deep oral groove containing inconspicuous compound oral cilia (as found in other [peniculids](#)) used to draw food inside

8:37:35 PM Tamana: endocytosis

8:37:51 PM Sarah: wikipedia =)

8:38:02 PM Sarah: what's endocytosis?

8:38:10 PM MsChien: tamana very good

8:38:16 PM MsChien: xtamana define!

8:39:15 PM Tamana: isn't that how our cells and other macromolecules eat food...cell membrane extends and wraps around the molecule to be transported inside

8:39:43 PM Sarah: i thought that was endocytosis

8:39:43 PM MsChien: yes very good

8:40:00 PM MsChien: sarah, same thing, tamana was just speaking tamananese

8:40:04 PM Tamana: yes that's what it is

8:40:09 PM Sarah: haha kaykums

8:40:10 PM MsChien: How does a cell's surface-to-volume ratio help it obtain a lot of nutrients?

8:40:16 PM Tamana: hahaha...

8:40:41 PM Sarah: if you cut a house in half, you have to paint more walls =)

8:40:48 PM Tamana: the more surface area exposed the more nutrients it'll absorb

8:40:55 PM Sarah: that too.

8:41:01 PM MsChien: HOW

8:41:23 PM Tamana: because more surface area will be exposed..

8:41:29 PM MsChien: elaborate

8:41:31 PM Sarah: like in a cell the more cell membrane, the more places things can get in

8:42:03 PM MsChien: saraha good

8:42:10 PM Sarah: since cells take in whatever passes by, if all the membrane's taken up taken stuff in already it won't take in everything passing by

8:42:22 PM Tamana: huh?

8:42:27 PM MsChien: What is the purpose of the cell membrane (other than the fact that organelles flow in it)?

8:42:43 PM Sarah: um the cell membrane? organelles flow in it?

8:42:48 PM Tamana: to provide protection and shape

8:42:58 PM Tamana: and sustain its little world

8:42:59 PM Sarah: and regulate

8:43:03 PM MsChien: yes

8:43:04 PM MsChien: good

8:43:06 PM Sarah: homeostasis

8:43:11 PM MsChien: "little world" dont say that

8:43:18 PM Sarah: haha i like it

8:43:20 PM Tamana: yes ms.chien

8:43:27 PM MsChien: What is the purpose of the ribosomes?

8:43:33 PM Tamana: thanks sarah ;D

8:43:46 PM Sarah: they help with response. messenger RNA do anyway

8:43:47 PM Tamana: transport material

8:44:03 PM Tamana: they contain copy of the dna rii

8:44:09 PM MsChien: they help copy DNA

8:44:13 PM MsChien: not transport material

8:44:22 PM MsChien: and make proteins

8:44:29 PM MsChien: Where are most ribosomes located in a cell? AND WHY?

8:44:30 PM Tamana: n thats it purpose

8:44:36 PM Sarah: oh that's right they're on the rough ER right?

8:44:57 PM Tamana: is that where they're produced

8:45:40 PM Sarah: where the ribosomes are produced?

8:45:47 PM MsChien: they are on the ER

8:45:53 PM MsChien: they are produced on the ER

8:46:01 PM MsChien: but where in the cell would they be near???

8:46:16 PM Sarah: golgi apparatus

8:46:26 PM Sarah: ?

8:46:45 PM Sarah: wait wait wait cell membrane

8:46:56 PM Sarah: so the proteins can get to the membrane

8:47:02 PM Tamana: oh..

8:47:16 PM MsChien: close

8:47:20 PM MsChien: its near the nucleus

8:47:23 PM Sarah: why?

8:47:44 PM Tamana: because the replicate dna

8:47:46 PM MsChien: What's in the nucleus that the ribosomes need access

8:47:49 PM MsChien: TAMANA good

8:48:16 PM Sarah: so they replicate the DNA and then the DNA goes into the nucleus?

8:48:25 PM Sarah: or does it need to come out first so it can be replicated?

8:49:00 PM MsChien: wait

8:49:13 PM MsChien: DNA actually does the replication in the nucleus

8:49:19 PM MsChien: when it needs to make proteins

8:49:25 PM MsChien: the RNA comes out

8:49:33 PM Sarah: what?

8:49:36 PM MsChien: and the ribosomes uses the RNA to make proteins

8:49:57 PM Sarah: aren't ribosomes part of RNA?

8:50:00 PM Sarah: am i making that up?

8:50:05 PM MsChien: tRNA

8:50:09 PM MsChien: thats different

8:50:23 PM MsChien: double helix DNA never leaves the nucleus

8:50:33 PM Sarah: ok so where does the non-t RNA come out from?

8:50:38 PM Sarah: is that in the nucleus too?

8:50:41 PM MsChien: in order to give instructions to outside of the nucleus, it sends out a copy, which is usually rna

8:50:45 PM MsChien: yes

8:51:01 PM MsChien: analogy: boss' office (nucleus)

8:51:04 PM Tamana: oh.okay i think i get it

8:51:12 PM MsChien: boss NEVER leaves office with the business plans

8:51:14 PM MsChien: plans

8:51:20 PM MsChien: always sends out a COPY Of the business plans

8:51:27 PM MsChien: secretary makes the plans happen

8:51:31 PM MsChien: OUTSIDE of the office

8:51:31 PM Tamana: dna makes copy...sends them out as rna to make proteins

8:51:35 PM MsChien: yes

8:51:45 PM MsChien: so why are ribosomes always near the nucleus

8:51:47 PM MsChien: ?

8:52:03 PM Sarah: wait what do proteins have to do with replicating DNA?

8:52:09 PM Sarah: wasn't that what we were talking about?

8:52:53 PM MsChien: nothing, the test will be on cells, and understanding organelles is a part of it

8:53:20 PM Sarah: no but i thought we were talking about replicating DNA and then tamana said something about proteins

8:53:41 PM MsChien: ribosomes help make proteins

8:53:48 PM MsChien: that's its job

8:53:57 PM MsChien: next question

8:53:57 PM Sarah: then how's the DNA replicated?

8:54:02 PM Sarah: no no no not yet

8:54:05 PM MsChien: that's another chapter

8:54:17 PM MsChien: for now you need to know it's in the nucleus

8:54:19 PM Sarah: so that's not what we were talking about at all??

8:55:09 PM Tamana: yea the dna replicates it...sends the rna to help produce proteins

8:55:23 PM MsChien: we got side tracked!

8:55:33 PM Tamana: aww..

8:55:40 PM MsChien: Identify 2 differences between a prokaryotic and eukaryotic cell.

8:56:27 PM Tamana: sarah u kno the answer

8:56:42 PM Sarah: uh nope

8:56:58 PM Sarah: wait don't prokaryotic have those things on the outside to help them move?

8:57:16 PM Sarah: oh and they don't have a nucleus

8:57:24 PM Sarah: and they do have a cell wall

8:57:42 PM Sarah: moving stuff's called flagellum

8:57:56 PM MsChien: sarah: yes they have a flagella

8:57:58 PM MsChien: and cilia

8:58:03 PM MsChien: yes

8:58:08 PM MsChien: don't they have a TRUE nucleus

8:58:11 PM MsChien: they do have DNA

8:58:13 PM Sarah: and something called pilus?

8:58:18 PM MsChien: but they are free flowing all over the place

8:58:19 PM MsChien: place

8:58:23 PM MsChien: yes

8:58:39 PM Tamana: is that the prok or the euk

8:58:46 PM MsChien: prok

8:58:47 PM Sarah: prokaryotic

8:58:56 PM MsChien: can you name examples ?

8:59:00 PM Tamana: so what kinda cells do we have

8:59:23 PM Sarah: amoeba

9:00:12 PM MsChien: amoeba is actually eukaryotic

9:00:18 PM Sarah: really?  
9:00:20 PM MsChien: we are eukaroytes  
9:00:23 PM Sarah: oh well parameium  
9:00:51 PM Sarah: are ameobas mucholy mini though?  
9:00:59 PM Sarah: thjey're still not single celled  
9:00:59 PM MsChien: WHAT?  
9:01:07 PM Sarah: they're small...  
9:01:09 PM MsChien: paramecium is eukaroyoic  
9:01:14 PM Sarah: what??  
9:01:14 PM MsChien: bacteria is prokaroytic  
9:01:33 PM Sarah: gyarg how, it's a single celled organism i thought that like always means they'  
9:01:35 PM Sarah: re prokaryotic  
9:01:41 PM MsChien: <http://en.wikipedia.org/wiki/Paramecium>  
9:01:46 PM Tamana: so exactly what the difference....jus that they flow all over  
9:02:07 PM MsChien: prokaroyotes do not have membrane bound organelles  
9:02:50 PM Tamana: omg so how do they function  
9:02:55 PM Tamana: if everything is everywhere  
9:03:08 PM MsChien: they still funcion  
9:05:05 PM MsChien: ok  
9:05:08 PM MsChien: we are done  
9:05:14 PM MsChien: REVIEW!  
9:05:22 PM MsChien: we will do more later in the week  
9:05:26 PM Tamana: thats it...  
9:05:30 PM MsChien: yeah one hour  
9:05:55 PM Sarah: kaykums byebye  
9:06:08 PM Tamana: oh okay...so um how do they function though  
9:06:20 PM Sarah: they're magical =)