

Title: Bio-Medi English

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🔊[0:30]

So you don't have to study stroke. I will not put any questions about stroke to make it fair. Because, other class did not have stroke lecture. So, the topics will be cloning, Alzheimer's, stem cells, and neuroscience. These are also going to be the teams today for the game.

All the questions will be from your lecture notes or the PowerPoint that we did in class. So if you study those, you should be no problem.

Okay, I think we are ready. So, cloning, one member come and sit. Alzheimer's, one member, stem cells and neuroscience, one member come up and sit. Let's go. Good.

Alright. You are sitting first. What team? You are Alzheimer's? Are you sure? Maybe you are Alzheimer's. Okay, what is your team?

Neuroscience. Okay. Your category. You choose. Neuroscience, 100.

Oh, this is only for you. Double points. This is 200 only for you.

These are the four lobes of the cortex. Remember with the Alzheimer's disease? We talked about the part of, the lobe of the brain responsible for memory?

Can you tell me one lobe?

(Student Speaking)

Frontal lobe. Front. In the front. Frontal lobe. Can you tell me another one? Occipital lobe.

🔊[3:00]

Occipital lobe. Occipital lobe responsible for seeing, okay? Anymore? What about Alzheimer's disease? It begins with T. Temporal lobe? Looks like you guys didn't review very much, huh? Alright, 따라하세요.

Frontal lobe. Occipital lobe. Temporal lobe. Parietal lobe. Why are those on the review today? Because those are probably you are going to see on the test. So, make sure you know them.



We will give 50 points to the Alzheimer's. Alzheimer's is winning. That's very scary. Okay, good, change.

That was the one hundred question. Oh boy, we are in for a long day.

Okay, Alzheimer's. Cloning for 200.

These are the three types of cloning.

Okay, think about cloning. We talked about cloning. Tell me one type of clone.

(Student Speaking)

Sweetheart, that's stem cells. We are trying for cloning.

(Student Speaking)

Okay, embryo cloning. Artificial embryo cloning. Okay, that's one. What's the other one? We did the experiment with the mice. Four letters. 0-0-0-0 Clone. S-C-N-T cloning, right?

🔊[6:09]

Embryo cloning, adult DNA cloning and therapeutic cloning. Embryo cloning, we talked about. Adult DNA cloning, this is SCNT cloning. Therapeutic cloning, cloning organs for stem cells therapies.

Alright, we will give embryo cloning 50 points. So you are what team? Okay, we have a tie. Alright, next.

Okay. That was cloning. Oops. Alright, cloning.

This degenerative disease may be helped through the use of stem cells.

Think of our stem cell lecture. What disease did we talk stem cells, maybe in the future, stem cells can help this disease?

If this continues, I am going to have to stop and everyone study for ten minutes.

Degenerative disease. That is like Alzheimer's. Alzheimer's is degenerative. Alzheimer's breaking down the neurons in your brain. We talked about stem cells. In the future, stem cells can help people who have this disease. It is similar to Alzheimer's because it affects old people. And the DA neurons are breaking down in their brain or dying. DA neurons produce dopamine.

People with this disease, these neurons are dying. So they don't have dopamine in their brain. Begins with a P. It's a disease.

Guys, what's the answer? 크게.

🔊[9:02]

Parkinson's disease.

Guys, I hope that you are going to study better than what you did for now, because everyone right now is getting an F, alright?

This is easy. This is the easiest question. Disappointing.

We talked about Parkinson's disease. Parkinson's disease, I told you DA neurons are dying. There is not enough dopamine. So people, they can't move.

Scientists are using, right now, with mice. They are taking fetal stem cells. They take it from the fetus. Stem cells come from the fetus. And, they take it from fetal brain tissue, and they take those stem cells, they change the stem cells, they differentiate those stem cells into DA neurons and they put them into the mice's brains and those DA neurons helping them cure Parkinson's disease.

Okay. Parkinson's disease is degenerative same like an Alzheimer's disease. Alzheimer's and Parkinson's disease is affecting old people. Okay? These are the things you need to know. For next week's test.

Okay change.

Alright, stem cells.

200 points for you. Alzheimer patients suffer mostly from problem with this.

Let me give you a hint.

It's the problem that everyone is having today.

It's a problem what you are having right now.

What is memory. Yes.

People with Alzheimer's disease, affects their memory.

I have a feeling that all of you must go get checked for this disease after our class today. Because there's some problem with your memories.

Yes very good sir.

That was 200 points for Stem cells. Okay, good, change.

🔊[12:00]



Alright, Stem cells.

Stem cells for 100.

These are the type of stem cells found in the umbilical cord.

There are stem cells found in the zygote, there are stem cells found in blastocyst, there are stem cells found in the fetus, there are stem cells found in the umbilical cord, and there are stem cells found in the adults, like you and me.

What type of stem cells, we talked about potency of stem cells.

What type of stem cells are found in the umbilical cord?

What are, what are multi potent stem cells. That is correct.

Very, very good. Our first good answer.

Alright, three type of potency, what are they?

Multipotent, totipotent, and pluripotent.

What are the most potent?

What are the strongest, the most potent? Totipotent, total. And then, pluripotent, and then multipotent. The multi-potent are the least strong of those three.

Multi potent can only change into a limited range, right?

Pluripotent can turn into a lot of different cells in the body, and totipotent 100% all cells.

Okay, very good. Next.

That was Alzheimer's.

How many points? 100.

Okay, Alzheimer's.

Cloning for 100 is still available.

This one.

Oh, 800 points. These are chemicals in the brain that are released into the synapse.

🔊[15:07]

Okay, that is one type, but that is one type of chemical, but you just give me the word for... acetylcholine is one, and dopamine, GABA they are all what? What are they



called?

Those are... what are these chemicals called? Chemicals in your brain.

Dopamine, GABA, acetylcholine, serotonin, norepinephrine...

What are... Good try, but no.

Neurotransmitters. These are called neurotransmitters.

Transmit, what does transmit mean? Transmit what is that mean?

Send. Send. You transmit things, you are sending it.

Neuro, brain. Brain sending chemicals. Yes. Right? The neuron sends the chemicals into the synapse.

800 points, no one gets the answer.

Alright, let's go.

You guys have to study, this is online lecture. People are going to think Chungnam's students have an Alzheimer's disease.

Alright. Neuro-science 300.

🔊[18:00]

These are the 3 parts of the human brain.

Okay, we talked about four lobes of the cortex, these are the three parts of the human brain and someone was telling about this already one is here, one is here, one is the top layer, layer here in the middle, and the back.

Already he said one today.

Tell me one part.

What are fore brain, okay, everybody this is called your forehead, this is called forehead.

Right? Did you know that? This is called forehead. So forebrain is the top layer that's the fore brain.

Good.

And then, so the top layer is the forebrain then there is a part that is in the middle, midbrain, and then there is a part that is... back brain? Oh back brain.

What's another... if someone is standing here, what we are say? They are standing

What did you say?

If someone is standing here, they're standing where?

Behind teacher. Behind brain? No. be 없어.

Student: Hind-brain

Hind-brain.

Forebrain, midbrain, middle, midbrain and behind... because this cerebellum, behind your brain. Okay it is behind of hind brain. Okay. Go out.

What team?

Student: Cloning.

Cloning, I'll give you 100.

Change!

Did anyone study at all? Did you study? Did you study a little?

Thank you for studying.

🔊[21:01]

Okay, Cloning.

Let's study this one. Cloning for hundred.

Right. 300 points. This is the number of animals needed when performing SCNT cloning.

What are...?

what are three... yes.

Can you tell me... There are... you are right.

There are three.. you need three animals when you do SCNT cloning. Can you tell me? What is one of the animal is.

Student:

Donor, donoring(donating) what?



Good. One is excel donor. The other one is a somatic cell donor.

So, you have an excel donor, somatic donor, and other one is surrogate mother.

Good. I'll give you 600 for that. Your answering. Oh that was...

Student: Neuroscience

Very good neuroscience. Nice!

Best job. Okay, now I am happy. Good. All right.

Change

All right. Neuroscience.

Student: Choosing

These are 3 risks associated with cloning.

What are the risks with cloning?

Actually just 3, you guys today just tell me one.


Student: LOS

LOS. Very good. What is LOS.

Large Offspring Syndrome. Large Offspring Syndrome. Good. That is one.

Another one. Telomere, telomere differences, very good sir.

Another one? The number one thing about cloning. Remember cloning is it very successful?

 **[24:00]**

Fail. High failure. Cloning is one risk is its high failure rate.

Next risk is problems after development. LOS is one.

And another one is telomere differences.

Last one. There is four main one. Abnormal gene expression. Okay?

Development problem is LOS, high failure rate, telomere, abnormal gene expressions.



Gene don't express well and development problems.

All in the lectures, obviously you didn't study. But very good sir. Excellent job.

So that was cloning... 300? So I will go to give you 400. And we are very nice today.

Cloning? Right, change!

Cloning.

(Student Speaking)

Alzheimer 200.

These are the two abnormalities found in the brains of Alzheimer patients.

Alright. Says two tell me one.

Remember Alzheimer we talked about there are two abnormalities.

Two things. They find two things in their brain that is not normal.

You look inside the cell and outside the cell there are the sticky things.

(Student Speaking)

Okay. You are talking about atrophy. The brain atrophies.

But why, because of these abnormalities the brain is shrinking. What are these things?

They are look in the brain and they found these things.

Okay. This is important. You are needed to know this. Anybody tell me out here.

What is one abnormality?

🔊[26:51]

Yeah. You can look in your notes and tell me two abnormalities.

What? Tell me one. Two abnormalities. What are they?

Twisted nerve cell fibers and?

(Student Speaking)

And beta amyloid plaques



Right. Neurofibrillary tangles and beta amyloid plaques.

These are two abnormalities that they find outside people's brain.

Right? Do you remember that? Don't remember with us? That was important.

These are two main differences about Alzheimer's brain and normal brain.

Okay, change! 900points.

These are 2 differences between adult stem cells and embryonic stem cells.

What is different between adult stem cells, stem cells that you have in your body

And embryonic stem cells, stem cells found in embryo.

Tell me two things are different.

Good. Embryonic stem cells have more potency than adult stem cells.

Adult stem cells are multipotent, and embryonic stem cells can be pluripotent or even totipotent, ok.

Good, can you tell me one more thing that there is different?

(Student Speaking)

Ok of course, all of us have it.

Adult stems cells but we don't have embryonic because we are not embryos.

Ok, that was good try, and I would say yes.

Ok, very good, actually what I'm looking for, the other thing we talked about was location.

How do you find it, right?

🔊[29:58]

Which stem cells are easier to obtain, which ones are easier to get, easier?

Embryonic stem cells are much easier to find, to locate.

Locating embryonic stem cells we know, we find a blastocyst, and then inside the blastocysts are the stem cells.

Adult stem cells are difficult to find in the body and also very difficult to remove, right?



Very painful, surgery, surgical procedures to get them out.

So alright, location, accessibility, how easy to get them and potency, ok?

Very good, No, stem cells.

Ok, this stage of Alzheimer's disease is when the person usually begins to forget who their relatives are?

We talked about 3 stages, 3 stages about Alzheimer's, mild, moderate, and severe.

So, there are your answers. You have 30% chance.

What stage is when they forget who their relatives are?

What is? I'm sorry that is incorrect.

Now, you have 50% chance. 50,50.

We talked about 3 stages mild(x), moderate, or severe.

What is moderate? That is correct.

Alright, 3 stages about Alzheimer's disease; mild stage is the beginning stage of Alzheimer's.

Alzheimer's disease is progressive, progressive, overtime, it's giving worse and worse.

So, there are 3 stages; mild, moderate, severe.

Severe is when the person is really serious.

They don't, they can't remember anything.

They need help all the time.

They can't walk, severe? No.

Moderate is when its, mild is one, is just beginning.

🔊[33:01]

They are having some problems with memory, but relatives, they still remember relatives, pretty ok.

At the moderate stages, they start to forget relatives, their mother, their sister, their brother.



Ok so, that is moderate. That was good guess.

This is your chance of getting Alzheimer's when you are 85 or older.

This is your chance, this is your percent, percentage.

Your chance of getting Alzheimer's disease when you are 85 years old.

What is your chance?

What is your percent? No, that's the age.

65%? No, that's incorrect.

When you are 65, ok, when a person is 65 or older, 65 years, you have a 10% chance.

85? What is 50%? Yes, 85 years, 85 years old, you have a 50% chance, 30 to 50% chance but in this class, we say 50% chance of getting Alzheimer's.

You can see how high your risk is.

Ok, very good, Hematopoietic stem cells can become white blood cells, red blood cells or these sticky parts found in our blood.

These types of stem cells, Hematopoietic stem cells, we talked about.

These stem cells are in the umbilical cord.

Alright, these stem cells can become blood cells.

Alright, there are 3 types of blood cells; white, red, and one more type, begins with a 'p'.

What are... Sorry about that.

What are platelets?

🔊[36:00]

따라하세요. Platelets. Alright, blood cells in your blood you have white blood cells, red blood cells, and platelets.

Platelets are sticky parts of our blood.

We talked about last weekend, the lecture we talked about with a stroke, ok?

It is called platelets.

They make your blood clot, ok.

Ok, this is the area of the brain deep inside the temporal lobe.

Alzheimer's disease, this area of the brain, there is a lot of atrophy.

Inside the temporal lobe, in the power point, there is a green area, begins with a 'h'.

Students, what is this area called?

I can't hear. Hippocampus, what is the hippocampus?

The hippocampus is inside the temporal lobe.

What is the hippocampus?

What is important?

What is it due?

What is it responsible for?

What does hippocampus help you do?

Short-term memories, changing into long-term memories.

Short-term memory is changing into long-term memory.

Alzheimer's disease, the area, the brain a lot of atrophy.

Ok, no point, change. Ok, Stem Cells. 800 points for stem cells.

These are 2 developmental stages of a growing embryo.

The embryo is growing.

Stage 1, sperm, the egg, what are we call?

What is zygote okay and now it's growing zygote grows, grows, grows and then it becomes, zygote keeps dividing and then it becomes a hard ball inside we can find stem cells, what is this stage?

🔊 **[39:05]**

Begins with B. B...B...blastocyst then it becomes the blastocyst we talk about inside the blastocyst through they find stem cells pluripotent stem cells inside the blastocyst.



Blastocyst continues to grow it's an embryo it's growing, growing and then it starts to look like a baby, look more like a baby. What is that stage? Begins with F.

Looking like a baby begins with an F, do you remember? With Parkinson's disease we talked about Parkinson's disease today using stem cells to help Parkinson disease.

They take the stem cells from the embryo when it is at the stage when it looks like a baby starting to look it has a head, you can see arms, you can see legs, what is it called?

Begins with an F. Thank you. Fetus okay? 따라하세요. Fetus, zygote, blastocyst, fetus, embryo, okay, and embryo is a growing ball of cells first stage of an embryo is a zygote, next stage we talked about blastocyst, next stage we talked about fetus, those are stages of the embryo.

And we talked about stem cells, good to remember those. All right.

He got zygote, we will give him 200points. You're welcome I'm giving you credit for very little. Okay change.

Guys is there some reason? This is the worst in my team teaching career.

I have ever seen students on this type of activity what happened?

🔊[42:00]

Why you didn't study? Can someone tell me? Is there some reasons? Was there big event? Why did you not study? Umm? Why? Why did you not study? Why did no one study? I don't understand.

I think you usually study very well. Why did you only study little? You don't care about bio-medi? You think it is, I have enough time, I don't need to study until after?

It's so hard. Really? Is it hard to look at your nose? This class, very difficult for you this year? In your, In all your classes in 충남 my class is most difficult?

No. I don't think so. I know that is not true. So I'm a little disappointed.

Before we started today, before we start I said thank you guys, you class, you've done well, and oops.

I should've stopped saying that. Because today I'm a little disappointed in you guys. You let me down. Now I'm very sad. Today... 아이고...

You guys, I wish you had prepared a little better, it's little embarrassing today. I've never had class this poorly performing okay? So a little bit disappointed.



All right. Anyway. Alzheimer, ooh, 1200points. This is when something becomes weaker and smaller from non-use.

Something is getting weak and small because you're not using it.

What is the vocabulary word? In the lecture I talked about this word very carefully.

Maybe five minutes of talking.

🔊[45:00]

Alzheimer's disease the brain is getting weaker and smaller. Today I've talked about this word many times. The hippocampus.

What is the vocabulary word? Shrinking, getting weaker, getting smaller. Shrinking.

Nobody know? Do you know sir? Do you know?

Degenerate, that's a good answer but it's wrong. Degenerate [46:03] Alzheimer's disease, hippocampus, getting weaker, getting smaller.

In the lecture I told you the story about my arms. I break my arm. I have to wear a cast. I did this a whole story. So you remember this one word.

You remember the story right? Yeah I think. I wear a cast for two weeks, I take the cast off, I looked and this arm is weaker and it's smaller. My arm, what happened to it.

It atrophied. Atrophy. 5minutes of lecture time I told you one word. 5minutes for one word. You don't remember. Weaker and smaller. Atrophy.

The brain with Alzheimer's disease it gets weaker, it gets smaller, it atrophies. My arm atrophied.

Your brains had atrophied. In one week I think had atrophied. All right change.

Okay. Actually it's okay. We are finished. We're done.

Guys, we're stopping, it's embarrassing. No one prepared, this is going nowhere. No one gets bonus points for the test, because no one cares enough to study for the review.

So I don't care about giving anybody bonus points. Little disappointed.

Anyway you have your lecture notes, I hope you have power points, I put them on the computer here last week.

I suggest that all of you study a little bit and we'll see what happens next week at



when you have your test.

🔊[47:57]

Does anyone have any questions about the test, the final exam? No questions? Okay.

Well, good luck, I'll see you here next week.