

Super Genius DNA #Chapter 91: Cellicure (2) - Read

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Before coming to A-Gen to meet Park So-Yeon, Young-Joon met a guest. His name was Mckinney. He was a fifty-two-year-old American, and he was one of the big shots in the livestock industry. He was also suffering from pancreatic cancer. He had tried various intensive treatments at the hospital for two years, but it wasn't easy. When Mckinney thought that there was nothing more he could do, he volunteered for the clinical trial of the pancreatic cancer cure Young-Joon was conducting in the United States.

It was a new technology that manipulated the bornavirus, which originally destroys pancreatic cells, induced it to the pancreas and selectively killed cancer cells. The cure was administered multiple times in small doses, and the size of the tumor decreased daily when he examined it through imaging. Mckinney was able to see the difference with his own eyes as his doctor showed him pictures every day. It felt like magic as the efficacy of the cure was amazing. He wondered how the disease that caused him so much pain in the second half of his life could be cured so easily.

After two weeks of medication, he was completely clear of cancer cells; they had been completely destroyed. And so, Mckinney was determined to meet Young-Joon.

Mckinney, who came to A-Bio, expressed his gratitude to Young-Joon over and over again.

"I regained my health thanks to you."

"It's a relief that the pancreatic cancer cure worked well. I'm glad it helped."

Young-Joon was sincerely happy. He was always proud when he saw the new technology he developed cured patients who were in despair.

"There is something I would like to discuss with you," Mckinney said. "There are one hundred twenty-two animal drugs among the international patent applications, right?"

"Where did you hear that from?"

"I hear rumors from here and there since I'm in the livestock industry. I heard that incredible drugs are coming out, although it seems like it hasn't been revealed because it hasn't been a year and a half and approved yet. I heard that the approval takes a long time because there's a lot of them and because it's an international patent, but it's almost done."

Taking a sip of his tea, Young-Joon didn't reply and waited for him to finish.

"Mr. Ryu, along with those treatments, is there any way to use the diagnostic kit for livestock epidemics?"

"Infectious diseases of livestock?" Young-Joon asked.

"Yes. I don't know about biology that much, but I thought you could somehow do it," Mckinney said. "Mr. Ryu, with that and the treatments, we could save countless livestock and people from the national disaster of livestock epidemics that returns every year."

"Save people?"

"Yes, it can save people."

"Hm. I guess the economic damage is big if an epidemic occurs. It can help farm owners."

Young-Joon nodded, but that wasn't Mckinney's point.

"Sir, I was talking about the cull house workers. Their job is a lot different from what people usually think. If you throw chickens or ducks into the rendering machine, you get screams, bits of meat flying around, and splashes of blood. It's a mess. If you get ten day laborers, eight of them run away after the morning job. They vomit and get nightmares. The cull house is a living hell."

"..."

"They used to originally use public officials, but they outsourced it to day laborers because they were taking sick leave due to trauma, quitting, and there were protests from the union. Usually, poor immigrant workers do that job. It's like that in the U.S., so it's probably the same in Korea as well. You have to bulldoze pigs to death, and you have to keep grinding up animals in a machine in the metallic smell of blood and bits of meat and bones from God knows what animal," said Mckinney.

“Hm...”

“And people spend the night in that bloody hellhole and even eat there because they have to get rid of it quickly. After that, they all get PTSD or depression.”

“I see.”

“The economic damage is enough to drive a farm owner to take their own life, but you also can’t ignore the trauma of cull house workers. They provide psychological treatment with state funds in the United States, but I don’t know about Korea.”

“I don’t think they do.”

‘They don’t even take care of their veterans.’

With a sigh, Young-Joon said, “Like you said, it will be very helpful in catching livestock epidemics if we reform the diagnostic kit for animals. But the problem would be reducing the unit price of the kit since there are tens of millions of livestock culled just in Korea.”

“... Is there a way?”

“I will think about it. With this, we will definitely be able to create synergy with the treatments and bring about important changes in the livestock industry.”

* * *

“That’s why you came to see me,” Park So-Yeon said.

“Yes. I think we can lower the unit price by dividing the diagnostic kit by the disease,” Young-Joon said. “We don’t have to produce a lot of large kits that diagnose a bunch of diseases at once since the type of infectious disease is already specified when the animals are about to be culled. We don’t have to spend more money diagnosing other diseases when we just have to determine whether it’s AI[1] or not.”

“So, people will have one condensed kit that can diagnose all livestock diseases, use it on chickens or pigs that aren’t in good condition, check what disease it is, then track that disease spreading with the cheap kit, right?”

“That’s right.”

Young-Joon nodded.

“That’s why we need to reduce the size of the PDMS chip and make a small kit that can diagnose specific diseases like hoof-and-mouth disease, bovine tuberculosis, and bird flu one by one. And lower the unit price as much as possible.”

“I understand,” Park So-Yeon replied.

“But not everyone from the Life Creation Team will be able to join this project. Only Koh Soon-Yeol-ssi and Jung Hae-Rim-ssi will participate.”

“Yes, that’s alright. I just have to be better,” Park So=Yeon said calmly.

Ring ring!

Young-Joon’s phone rang loudly.

“Just one moment.”

Young-Joon picked up the phone. It was Song Ji-Hyun.

“Hello?”

—Doctor Ryu!

Park So-Yeon’s head fell as she heard a woman’s voice coming out from the other side of the phone.

—It succeeded. Cellicure. We said that we were going to coat it in an exosome and improve its efficiency by only sending it to cancer cells in the liver, right? It worked!”

“Oh, really?”

Young-Joon smiled brightly.

“Congratulations. Good work.”

—I was just passing by A-Bio. Are you free for a meeting right now? Or I can send you the data by email.

“No, let’s discuss this in person. I’ll head there.”

Young-Joon hung up.

“I have another meeting, so I have to go. Thank you,” Young-Joon said to Park So-Yeon.

* * *

Young-Joon arrived at A-Bio and met Song Ji-Hyun at the main entrance. She immediately got up from the bench when she saw Young-Joon. Her face was flushed with excitement.

“Doctor Ryu! Look at this.”

She ran towards Young-Joon, basically jumping in joy, and opened the data on her tablet.

“Haha, are we going to stand here and talk about it? Let’s look at it at that cafe over there.”

“Should we?”

Embarrassed, Song Ji-Hyun put her tablet back in her bag. Young-Joon was somewhat glad to see her so happy. He had become dull to this kind of feeling because he had spent half a year succeeding with everything he touched. As a scientist, Young-Joon knew what that felt like: the thrill of seeing the results of long, hard research because the desired data popped out miraculously.

“If you were part of A-Bio, I would have given you a bonus,” said Young-Joon as they walked.

“Should I go there right now? Will you hire me if I apply?”

“Of course.”

“Haha, thank you. But I still like Celligener.”

The two went into a quiet cafe that was in front of the company. Young-Joon met someone unexpected there.

“Doctor Ryu?”

Hong Ju-Hee greeted him with a bright face.

“Who is it?” Song Ji-Hyun asked.

“She’s a doctor who works in the newborn intensive care unit at Sunyoo Hospital,” Young-Joon explained.

The daughter of Son Soo-Young, the first clinical trial patient who was treated with the glaucoma cure, suffered from a disease called persistent pulmonary hypertension of the newborn. The baby’s primary doctor was Hong Ju-Hee. They had become familiar with each other when Young-Joon gave her a hint about treating the patient.

“It’s been a while, Doctor Hong. You’re probably so busy, but what brings you here?” Young-Joon asked as he greeted her.

“Oh, I’m actually here because I wanted to ask you for something, but... I was thinking about it by myself here because I didn’t know if I should call you.”

“Ask me for something?” “There’s a patient with pediatric liver cancer at Sunyoo Hospital.”

Young-Joon flinched.

“Pediatric liver cancer...”

—Agh...

Rosaline groaned.

“Sorry, wait.”

Young-Joon got a small headache. He excused himself and went to the washroom. He felt like he was going to vomit for some reason.

“Why am I like this all of a sudden?” Young-Joon asked.

—It’s because of me.

“Why?”

—Do you remember when I was created and established myself in your body?

“Of course.”

—I have over a hundred million cells in your body right now, but I only had one before. It's the mother cell that is basically my main body. After the creation, the mother cell moved to your brain through your blood vessel.

“To my brain?”

—The easiest energy source to consume is glucose, and it is supplied to the brain the most. And it located itself where the ganglion signal was the strongest. Do you know where that is?

“Where?”

—Among the nerve cells inside your hippocampal tissue responsible for long-term memory. The place where your obsession with science and research ethics is rooted.

Rosaline said.

—It's where the memory of Ryu Sae-Yi, your youngest sister who died at nine-years-old, was located. She died of pediatric liver cancer.

“Oh...”

Young-Joon held his head.

—The moment you heard that it was pediatric liver cancer, the nerve cells near my mother cell suddenly got excited and affected it.

“I understand what you mean. Then, will this happen when I hear about pediatric liver cancer from now on?”

—It's fine now. I have relaxed those nerve cells. I am stronger than the hippocampal nerve cells.

“Alright.”

Young-Joon caught his breath and left the washroom. In the meantime, Song Ji-Hyun and Hong Ju-Hee were having a serious conversation.

Young-Joon went to their table.

“How old is that patient?” Young-Joon asked Hong Ju-Hee.

“The patient is female, and she is nine-years-old.”

“ ... ”

It was the exact same state as Ryu Sae-Yi. Something ached in his head again.

[I relaxed it again. It's fine.]

Rosaline sent him a message.n

“How is the patient?”

“It's a hepatocellular carcinoma. The tumor is located in the right lobe, and we are treating it with CCG 8881B therapy.”

“8881B?”

“It's a treatment where we intravenously inject cisplatin and doxorubicin under the conditions provided by the American Academy of Pediatrics.”

“Is the reason you came to see me because it is not working well?”

“... The cancer cell gained resistance,” said Hong Ju-Hee in a depressed voice.

“What about other drugs?”

“The child's prognosis isn't that great. Using a drug that is more toxic isn't recommended, so I came to see you in case you had any other way. But here... Doctor Song, was it? She said that she had a good drug,” Hong Ju-Hee said as she looked at Song Ji-Hyun.

Song Ji-Hyun nodded with a tense face.

Young-Joon said, “Doctor Song, let's see the data for Cellicure.”

Cellicure was the most effective and safe drug among the existing liver cancer treatments, at least it was from the data from the first phase of clinical trials. It was also true from the data that Rosaline analyzed. There were barely any side effects.

* * *

Lee Yoon-Ah, who was nine-years-old, was admitted to Sunyoo Hospital when her friends entered elementary school. It wasn't easy for a small child to tolerate chemotherapy that even adults had a hard time with. She cried and threw a tantrum every time she got a shot, but the surprising thing was that she did not lose her smile. Even then, Lee Yoon-Ah was sitting on her bed and laughing while on her phone. magic

"Hahaha. Mom, look at this."

Lee Yoon-Ah showed her phone screen to the woman, who aged dramatically in just two years, who was sitting beside her.

"Someone is having a staring contest with a dog."

"Yeah..."

The extremely exhausted woman laughed feebly as she glanced at Lee Yoon-Ah.

Kim Hyo-Jin was a young mother, just thirty-three-years-old. She got married in her early twenties and had her first child when everyone else was in university. All of her memories in her twenties were with her daughter; she had traded her youth with this child.

Kim Hyo-Jin stroked her forehead, which was completely bald.

Click.

The door to her room opened. There was Professor Kim Chun-Jung, Lee Yoon-Ah's primary doctor, Hong Ju-Hee from the newborn intensive care unit, and a few nurses.

But Kim Hyo-Jin shot up from her chair after she saw the person behind them. Her eyes widened. She didn't blink once as Young-Joon approached her with the doctors. She thought she was dreaming.

"Doctor... Ryu Young-Joon?"

Her voice trembled.

"Hello."

Young-Joon greeted her, then glanced at Lee Yoon-Ah. He didn't know if he was mistaken or it was because all her hair had fallen out due to chemotherapy, but she looked very similar to Ryu Sae-Yi.

1. short for avian influenza, or bird flu ?

Chapter 92: Cellicure (3)

Um Doctor Ryu, can you cure my little girl? Kim Hyo-Jin, the patients mother, said with desperation in her voice.

I dont know yet. We do have a new liver cancer treatment, but we have to see if we can use it, Young-Joon answered briefly.

He leaned towards Lee Yoon-Ah.

Hi, Yoon-Ah.

Lee Yoon-Ah giggled, then turned away and buried her face into her pillow. Then, she peeked so that only her eyes were out and glanced at Young-Joon.

Say hello to the doctor, said Kim Hyo-Jin as she patted Lee Yoon-Ah on the shoulder.

Lee Yoon-Ah just bowed her head without saying anything.

How is it?

Young-Joon asked Rosaline.

You can cure her with Cellicure. But to destroy the cancer cells completely, you have to precisely measure the number of doses and the amount. It will damage regular cells if it is too much, but the cancer cells will gain resistance if it is too weak.

How do I adjust it?

You have to use fitness to check that.

Then use it.

Oh

Rosaline moaned again.

Theres a problem. I will send you a message later.

What? Why?

You are more important to me than hundreds of those children. Theres a problem in your hippocampus.

Bleep.

Rosalines status window disappeared.

Hey? Rosaline?

Baffled, Young-Joon called Rosaline, but she did not reply. He couldnt even pull up her status window.

Rosaline was focusing all her strength on examining his hippocampus. In front of her were over ten million neurons. Each neuron formed networks with about twenty or thirty thousand neurons and formed a large neural net of long-term memory. This was Young-Joons library of memories.

Rosaline was examining each of the electrical signals. In between the large nerve cells among the subiculum and presubiculum, there were heavy black nerves; they were very old tissue. To Rosaline, they looked like a dormant volcano or a dead old tree.

In those cells, there were memories such as the time Young-Joon met Ryu Sae-Yi for the first time in her cradle when she was a baby, the stone wall road that he used to take when walking her to kindergarten while holding her hand, and the time he worked a part-time job as a university student and bought her crayons when she was about to enter elementary school.

...

They hadnt had any activity for a long time.

And now that Young-Joon had found Lee Yoon-Ah, neurotransmitters such as norepinephrine were flowing out like lava.

I am going to use some fitness.

Rosaline sent a message to Young-Joon.

Huh? Hey, tell me what to do with the Cellicure concentration!

A little later. I have to pour all the fitness into this right now, Rosaline answered briefly.

Then, she began controlling the expression level of a few genes. The neurons began relaxing, and the neurotransmitters that were being produced slowly disappeared. This had happened in a flash, but it felt like hours of work for the cells.

Rosaline was now able to take a breath.

But why does he keep getting so stimulated when I stopped it earlier?

Rosaline stared past the neural net and examined it. The start of the excitation was not the hippocampus; the signal was coming from the other side.

The trauma left a scar on part of Young-Joons hippocampus, which preserved memories of Ryu Sae-Yi, but the trauma was mainly located in the amygdala. The amygdala was the structure that controlled the unconscious connected to the end of the hippocampus. And some information from memories was trapped there in the form of emotions.

Maybe when Ryu Sae-Yi died

Rosaline loaded herself into the blood vessels. She moved through the bloodstream that was beating from the heart.

I like that theres a lot of glucose.

There was an extreme abundance of glucose, the sole energy source for the brain, here. The carbohydrates Young-Joon ate for lunch flowed through here in the form of sugars.

Rosaline absorbed the glucose within the blood and moved towards the amygdala, a complex neural tissue that controlled emotions. She had influenced that region many times since she entered Young-Joons body, but she had never directly entered a cell into it.

Doctor Ryu? Professor Kim Chun-Jung, Lee Yoon-Ahs primary doctor, asked Young-Joon. But she was a little surprised when she saw Young-Joon, who

turned to look at her. His stone-cold face and the strange look in his eyes gave off an alienating feeling.

Doctor Ryu? Kim Chun-Jung called him again.

Yes.

Are you feeling alright?

Yes.

Young-Joon was really fine. He was fully conscious as well, but for some reason, he felt like a psychopath who had no feelings. He felt the sympathy and sadness he felt for Lee Yoon-Ah just a few moments ago disappear instantly. And like how it was easy to find a needle in the haystack if the hay was all burnt away, the only thing that filled Young-Joons void head was pure logic and reason. His thinking had been extremely sharpened to the extreme as he was under the influence of Rosaline.

Can we cure her with Cellicure? Kim Chun-Jung asked.

I can tell you after I look at her chart. Give me the data, Young-Joon said mechanically.

Song Ji-Hyun stared at him in shock. His face and way of speaking was extremely awkward; he didnt seem like the Young-Joon she knew.

* * *

The discussion on how to administer Cellicure began in Kim Chun-Jungs office.

Hepatocellular carcinoma. Tumor is located in the right lobe. Treated with 8881B therapy after removing the tumor with surgery, said Young-Joon as he read the chart. The tumor began growing in the liver again on day 174. Cisplatin and doxorubicin didnt work, and it is currently two centimeters big.

...

Where is the childs weight shown? Young-Joon asked.

Its at the very top, replied Kim Chun-Jung.

Young-Joon checked Lee Yoon-Ah's weight at the top of her chart. She was twenty-four kilograms.

We intravenously inject 0.6 milliliters of Cellicure, which has been developed into a new form, per kilogram. We have to inject it with a steady flow for two hours. The duration of the treatment will be two weeks, and administered twice a day.

...

Kim Chun-Jung, Hong Ju-Hee, the nurses, and Song Ji-Hyun were staring at Young-Joon quietly.

Why? Young-Joon asked.

Nothing. It was just fascinating how you can just determine the administration conditions of a new drug just like that, said Hong Ju-Hee.

She and Song Ji-Hyun believed Young-Joon, but Kim Chun-Jung wasn't that easy, as Lee Yoon-Ah was her patient. The entire process of treating a patient could not be done just by having trust in someone, no matter how brilliant they were.

I'm sorry, but what is the evidence behind that method? Kim Chun-Jung asked. Why is it 0.6 milliliters per kilogram?

If you convert the concentration of Cellicure for the patient, we are injecting sixty percent of the dose that was used in patients in the first phase of clinical trials. However, because it is more stably introduced into the patient's cancer cell when administered due to the change in drug form, the increase in efficiency should be taken into account. It is about 1.6 times more efficient than the original Cellicure if you induce exosome integration when it uniquely recognizes XRCC, a liver cancer cell marker. As such, the right amount of the drug is being injected compared to Phase One of clinical trials, considering that the patient is a child, Young-Joon said.

For a moment, Kim Chun-Jung was at a loss for words. She stammered, then finally opened her mouth.

T-Thank you. Then, why are we injecting it twice a day in twelve-hour intervals and limiting the administration time to two hours?

Like I said before, Cellicure is packaged in an exosome, so it attaches to cancer cells by recognizing the unique markers on liver cancer cells. The reason why we don't pour in Cellicure all at once is to give it time to access the entire liver. Two minutes after the exosome enters the cell, the cell membrane collapses so that other exosomes cannot enter.

Young-Joon poured out an explanation.

As such, the exosomes that are injected slower in the span of two hours have the opportunity to enter the cancer cells sequentially and access many more cancer cells more effectively. If you pour it in all at once, all the exosomes would enter only a portion of the cancer cells.

...

The reason we have to treat the patient for two weeks is because of the size of the tumor. If Cellicure eliminates seventy percent of the tumor surface with one administration, it has to be administered for a total of twenty-six times with said conditions to theoretically kill all cancer cells. The extra two times are considering the proliferation of the cancer cells.

...

Thud.

Hong Ju-Hees elbow accidentally bumped her notepad onto the floor.

... Sorry.

She quickly picked it up.

Kim Chun-Jung didn't show it, but she was extremely shocked.

Humans aren't robots. How can he analyze things like that?

She asked for his evidence behind the administration method, but she would have approved of the treatment if Young-Joon said something about the clinical data and how Lee Yoon-Ah was still a child.

However, the person who was the most surprised was Young-Joon himself. It felt like Rosaline had borrowed his mouth and was explaining it for him. But that sense of surprise was also a rational sense of surprise; it was a sort of a

reasonable doubt about whether he was someone who was capable of such accurate analysis.

There was no sense of emotion at all since it was fully removed from him.

* * *

-Ugh

Rosaline groaned on the way out of the hospital. At the same time, Young-Joon felt like a loose screw in his head had been tightened again. He felt like he was back to normal now.

Hey, what happened? Young-Joon asked. Did I explain everything right?

Everything was correct. Dont worry.

... Where did you go? What did you do to my body?

Thats what I want to ask you What are you going to do about this amygdala?

What?

You should clean up. Its not like youre using this body alone.

...

Young-Joon was baffled. What was she saying?

I explored your unconscious mind where your trauma was. It was like hell. I have never seen such a vast universe like that in my life.

Isnt six months your entire life?

Thats true. Anyway, I cleaned up the unique structures that were floating around in your unconscious mind.

What trauma? I have trauma?

Are you kidding? You have so many. Starting with your lame inferiority complex from your poor childhood, its just Clean it up!

...

Of course, the most severe one among them was about Ryu Sae-Yi.

Rosaline said.

I couldn't dare to touch it. Haha. Kim Hyun-Taek stimulated this when he stole Cellicure? He's crazy. If he was unlucky, he could have been murdered.

...

Anyways, there's no way for me to get rid of this because it's so big. You have to take care of it yourself.

Me?

You will need like ten thousand fitness to remove it through cell apoptosis. But you can uproot it depending on the situation since you are not a cell, but a large human. If I'm a citizen, you are as big as a country. You can do things I cannot do by myself.

Doctor Ryu!

Someone shouted and followed Young-Joon. It was Song Ji-Hyun.

You just left alone without saying goodbye when I was out for a moment. That was mean, Song Ji-Hyun said like she was disappointed.

When he didn't have emotions, Young-Joon just left because he was done with his business, but now he felt a little sorry. They came together, so it was also kind of weird to leave alone without even saying goodbye.

Young-Joon said, Sorry. Let's go. I'll drive you home.

He and Song Ji-Hyun went to the parking lot where his company car was parked.

Song Ji-Hyun said to him in the elevator, Um Are you okay?

Me?

You just seem a little different. You also look a little upset.

Oh, I'm fine. It's just

Young-Joon was thinking of an explanation, but he couldn't talk about Rosaline. So, he came up with a similar reason.

I have a trauma about pediatric liver cancer.

A trauma?

My youngest sister died of liver cancer.

Oh

Song Ji-Hyun looked like she felt bad for him.

There was a moment of silence, and the atmosphere became sad very quickly. Young-Joon said something first because he felt bad.

That's also the reason why I went to grad school and started studying science. It was because I wanted to make a pediatric liver cancer cure.

Song Ji-Hyun stared at Young-Joon.

I see. So was that why you fought with the lab director when Lab One stole Cellicure?

Young-Joon smiled. magic

Yeah. How do you know about that?

Everyone in this industry knows, said Song Ji-Hyun. Back then, I was a rookie student, but now I am a scientist leading a company like A-Bio. I hope it really succeeds this time.

... Don't worry.

Song Ji-Hyun lightly patted him on the back.

You rescued this drug that was buried after Celligener worked on it for seven years.

Ding!

The elevator arrived at the underground parking lot.

The elevator doors are opening.

Chapter 93: Cellicure (4)

Gu Sung-Woo, the Commissioner of the Korean Intellectual Property Office, was looking over the patent applications that came in this morning. These patents, which had been filed through the International Patent Cooperation Treaty (PCT), were documents that had come for the final approval stamp.

The Patent Cooperation Treaty was the standard model of international patents that pursued the protection of patents regarding inventions in more than one hundred fifty countries with an international patent treaty.

The patents that Lee Hae-Won spent several nights filing was now Goo Sung-Woo's problem. A large pile of documents came into his office in a small cart.

What is this? he asked with wide eyes.

It's CEO Ryus from A-Bio.

Goo Sung-Woo covered his face with his hands after he heard the employee, who was moving the documents into his office. He figured out what this was after he heard that it was Young-Joons. This was well-known from the examination stage. They were all animal disease treatments, and there were one hundred twenty-two patents of them. The patent attorney had grouped it by disease when writing the statement instead of separating them into individual ones, but there were still thirty-two. Additionally, there were about four hundred pages for each patent statement written for every group.

Is the attorney who filed these still alive? asked Goo Sung-Woo as he stacked the documents on his desk.

I heard that the attorney went into Ryu Young-Joons company as the in-house patent attorney.

They wrote this, and they're still working for him?

Yes.

Is it like Stockholm Syndrome or something?

I don't know. But the examiner used all his time off after this and disappeared.

...

Anyways, these are all the documents about the one hundred twenty-two new drugs. They have all been approved.

I didn't think they would actually all get approved. I think I'll get a cramp in my arm just from stamping it.

The patent examiners from other countries probably put their blood, sweat, and tears into this.

Phew. What can you do? It came in for priority review.

Starting with the first drug, Goo Sung-Woo began looking over them one by one.

* * *

The first group of livestock infectious diseases included rinderpest, hoof-and-mouth disease, swine fever, highly pathogenic avian influenza, vesicular stomatitis, Valley fever, Bluetongue, and sheep pox. The second group of diseases included tuberculosis, Aujeszky's disease, equine infectious anemia, rabies, chronic wasting disease, anaplasma, and Duck virus hepatitis. The third group of diseases included bovine ephemeral fever, akabane disease, avian mycoplasmosis, porcine reproductive and respiratory syndrome, porcine epidemic diarrhea, avian encephalomyelitis, Marek's disease, and infectious bursal disease. It also included pet diseases for dogs and cats like the parvovirus infections and leptospirosis,

Patents for one hundred twenty-two drugs for a total of thirty-two groups of diseases were approved. There were basically three drugs for one disease, and there were two reasons for this. The first was to completely prevent competitive drugs from being discovered later and patented, and the second was to use another drug as a backup in case one drug does not work due to animal specificity.

These incredible drugs were examined from all over the world and approved.

[Ryu Young-Joon publishes patents for one hundred twenty-two types of animal diseases.]

[A-Bio CEO Ryu Young-Joon secures one hundred twenty-two animal drug patents personally.]

[How will all these drugs transform the livestock market and the pet industry?]

The news articles that were coming up one after another were more provocative than usual.

Professor Shin Jung-Ju appeared on the radio for the first time in a while.

CEO Ryu had commissioned these experiments to famous, mid-sized companies called Reaction Chemistry and Cell Bio. He spent over a million won on commission fees and patent publishing. And he succeeded in all of them.

Is this possible? How can an individual do something like this just with experiment agencies?

The interviewer asked.

Usually, they cant.

Some say that CEO Ryu may have registered personal patents by stealing internal data from A-Gen.

Haha, conspiracy theories like that are coming out because he succeeded in publishing an unbelievable amount of patents, but they will disappear soon. It is because A-Gen has never studied animal diseases before. No matter how talented the thief is, how could they steal something that doesnt exist?

Of course. But how did CEO Ryu do it?

No one knows. But there is something more surprising. Its that CEO RYU requested Reaction Chemistry to design a total of one hundred twenty-two drug candidates, and the number of animal experiments commissioned to Cell Bio was one hundred twenty-two. What do you think this means?

What does it mean?

It means that CEO Ryu already knew all the results when synthesizing the new drug candidates, whether the drug cured avian influenza in chickens, cholera in pigs. He knew this for all one hundred twenty-two.

Oh!

The interviewer exclaimed like they realized what she meant.

I understand what you are saying, Professor. You're saying that you don't know what disease in what animal it cures even if you synthesize the drug since it's not like the information about the disease is written in the molecular formula or something, right? And if you don't know that, you need to do much more than one hundred twenty-two animal experiments because you need to test one candidate on various animals and diseases?

That's exactly right. It's shocking that he requested the synthesis of exactly one hundred twenty-two candidate drugs. It means that he only requested that many because he was confident that the structure of the designed molecule would be effective. Usually, people synthesize around a thousand different molecules and do experiments to pick out the ones that are effective.

Wow! But CEO Ryu synthesized one hundred twenty-two drugs, only did one hundred twenty-two experiments, and succeeded in publishing patents for all of them?

Now can you see how unbelievable this work is?

... Professor Shin, do you think CEO Ryu actually knows that the new drugs and treatments he is developing for human diseases right now are going to be successful? Do we need a clinical trial?

As an individual, I would honestly believe him if he said that he was confident in human diseases as well given his accuracy. But I shouldn't believe him as a scientist since there are rules about the steps to developing a drug, and they are there to protect everyone.

Shin Jung-Ju said.

I see.

But from this point on, it's clear that the clinical trials of new drugs developed by CEO Ryu will gain a lot of credibility. He did succeed in every clinical trial he conducted before this, but this is a completely different magnitude than before in terms of quantity.

It's truly fascinating. How did CEO Ryu do this?

No clue. Maybe he has an answer key to biology? Hahaha.

Young-Joon was listening to the radio in his car.

I guess Professor Shin Jung-Ju was right.

Rosaline said playfully.

You're right.

Soon, the world will know about me.

You want to be?

No. What if you get captured by the U.S. army and experimented on?

Where did you hear that from?

I saw a few movies while I was searching through your memories. But there are times when I am really worried. I can fight off some sloppy gangsters, but I won't be able to stop an attack like a machine gun because of the fitness limit. magic

Dont worry. Thats why I travel with these security guards right here, right?

Young-Joon glanced at Kim Chul-Kwon, the head of the security team, who was sitting beside him with his arms crossed. He was muscular like a lowland gorilla, and his suit looked like it was going to explode from being so tight.

Do security guards usually look like this? All his muscle fibers are enlarged to their limit.

Really?

I have never seen someone with such a trained body.

I guess Park Joo-Hyuk introduced me to the right guy.

Ring!

Yoo Song-Mis phone rang from the passengers seat. She took the call, then handed it to Young-Joon.

Its Mr. Mckinney.

Young-Joon took the phone.

The news and media is going crazy in the United States. I keep getting messages from people in livestock associations about this.

Really?

Should I read some of them to you? Um From Fox News this morning, they said, The experimental data released from Ryu Young-Joons patented treatments showed that the designed experiments were strictly controlled like academic papers, and they are expected to have a great impact on the actual treatment of animal diseases. The U.S. livestock industry is worth one million dollars; being able to save them from livestock epidemics, which can cause considerable damage to the industry, is expected to bring tremendous benefits not just in bioethics, but economically as well.

Mckinney read the news report to Young-Joon.

It feels good to be complimented.

How is the diagnostic kit going? We can do this with certainty only if we have that.

We are working hard to develop it. Weve also found a way to lower the unit price as well, Young-Joon said.

I see. Mr. Ryu, when will you begin production?

I am on my way to meet the CEO of A-Gen to discuss that, he replied.

* * *

Young-Joon, who arrived at A-Gen, was alone with Yoon Dae-Sung.

I knew that you were smart and you made good drugs, but I didnt know that you filed one hundred twenty-two patents without A-Gen knowing, Yoon Dae-Sung said.

A-Gen had the idea, but didnt work on animal disease treatments.

Those patents. Theyre not A-Bios or A-Gens, but your own, right?

Yes.

Yoon Dae-Sung put his hand on his head like this was trouble.

Are you here to sell that to me?

You also know how much money these patents will generate. They won't just be produced at A-Gen, but pharma companies all over the world that are in the livestock industry will want to pay royalties and make the drug.

Of course, especially companies like Conson & Colson. They will do it since the United States is one of the countries with a powerful livestock industry.

Yes. But a patent is only a patent. It's another story from commercialization. You know that, right?

...

Yoon Dae-Sung understood what Young-Joon was trying to say. He was trying to make a deal with commercialization while he kept the patent.

I can make A-Gen the first to succeed at commercialization out of any company, Young-Joon said. The one hundred twenty-two drugs that were registered were all manufactured on the laboratory scale. They only make like five or ten milligrams. They were produced in a very rigorous process and were tested with a very pure formulation. But it's not used like that in real industries. Everything changes when you manufacture a drug on a factory scale.

Yes.

Making a drug in a lab and manufacturing a drug in a factory was completely different. Let's say that it cost one million won to produce one dose of the drug in a lab. It couldn't be produced like that because the unit price was too expensive. The drug would be sold for over two million won including the distribution fee and profit margin in pharmacies, so who would buy something like that?

As such, the process of commercialization was an essential adjustment process that reduced the cost of production for factory manufacturing. In this process, everything changed, like the reaction buffer, the boiling equipment and column. Optimizing this was also a process of research and development.

As I am the developer of the one hundred twenty-two drugs, I also know how to make it into a factory scale.

And you are going to hand that over to A-Gen?

Yes, because I am a director of A-Gen. Its important to grow our company, right? We have to start producing before everyone else.

What do you want for it? Do you want the next CTO position when Nicholas term is over and it becomes vacant?

I will get that position even if you dont want me to, Young-Joon said.

...

The shareholders will support me a lot if I reveal that I have established all the commercialization methods and are going to supply them to A-Gen for free. It will be difficult for the CTO to hand over the position to someone else after his term ends in that atmosphere.

Then what do you want?

Yoon Dae-Sung gulped. He felt like Young-Joon was going to ask him to give up his seat. Right now, the shareholders were absolutely on Young-Joons side. Yoon Dae-Sung had no choice but to accept it, even if Young-Joon was asking for too much, since his management abilities would be seriously questioned if he declined sloppily and the commercialization methods went to Conson & Colson. And in Young-Joons perspective, it didnt matter who made the product as he would be the one making money. Where Stories Blossom: NoveLjn.

Yoon Dae-Sung had been dragged along by Young-Joon several times, but he could never stop him, even if he knew. He couldnt even imagine what it is Young-Joon wanted

Is it shares?

Young-Joon smiled as he saw Yoon Dae-Sungs tense face.

Sir, you dont have to be so tense. I have no intention of asking for too much.

“I am planning to buy a large number of DNA analysis equipment from Conson & Colson,” Young-Joon said. “DNA analysis equipment?” Yoon Dae-Sung asked.

“I am buying two hundred.” “Two hundred!”

Yoon Dae-Sung was shocked. Of course, he knew the things that happened while Young-Joon developed the diagnostic kit. He knew that Conson & Colson’s plan to install Illemina’s DNA analysis equipment in hospitals around the United States went up in smoke. However, what happened to the two hundred pieces of luxury equipment that was already purchased hadn’t been revealed.

“The cost aside, why would you buy that?”

“Of course, tens of billions of won wasn’t something that would make a company as big as A-Bio tremble, but they didn’t have a reason to waste it unnecessarily even if it was a small amount. What were they trying to do? Yoon Dae-Sung couldn’t even predict what Young-Joon was going to use them for. Companies that did a lot of DNA analysis usually had five units at most, did they not? And Young-Joon was going to buy two hundred of them?”

“What in the world are you going to use them for?” Yoon Dae-Sung asked.

“Geneticists have continued to work on discovering the entire DNA sequence of humans after the Human Genome Project. The scientific community was successful in accumulating a huge amount of data and has revealed many variants associated with disease.”

Analyzing the enormous database, which consisted of twenty thousand types of genes and three billion letters of DNA, against tens of thousands of people could unveil the secret of biology one by one. For example, it was revealed that people with an indel[1] variants in the BRCA gene had a higher chance of getting breast cancer.

“It’s the most valuable treasure that modern science has ever achieved,” said Yoon Dae-Sung.

“But seventy-eight percent of that DNA data is from Europeans,” Young-Joon replied.

“Oh...”

Yoon Dae-Sung nodded like he knew what Young-Joon meant.

Young-Joon said, “Recently, *Nature* has described this as an injustice in genome science. I fully agree.”

“Hm... But Mr. Ryu, the reason that most of the data is geared towards Western people is because they are the ones that lead science, especially in America. Isn't it natural for them to analyze their own data first since it's easy to get samples?”

“I understand. I'm not saying that it is their fault, but I am going to lead science now.”

“ ... ”

Yoon Dae-Sung had nothing to say when Young-Joon said that arrogant comment because he was actually doing exactly that.

“And this imbalance in data is actually a problem in science. All of the new drugs being developed based on genetics are centered around European DNA, but if you do that, it can act differently when using it on other races. All scientists know that, don't they? For example, gluten allergies are quite common in Western people, but it is very rare in the East. If a new drug is developed based on that gene, it is highly likely that it will not work in the bodies of Asian people or cause side effects,” Young-Joon said.

“Then are you going to analyze the DNA of other races?” “It was something that someone should have done already.”

“Hm...”

“I am going to begin the Human Genome Project again. I am going to analyze the genes of minority races in science, such as Asians, Africans, Oceanians, Native Americans, Hispanics, and Latin Americans, since science is a study of objectivity. The data should not be ethnically biased to one side,” Young-Joon said.

“Yes. I agree. Everyone in the scientific community is neglecting that issue, but it is necessary work.”

Yoon Dae-Sung nodded.

“Then what is it that you want from me in order to do that, Mr. Ryu?”

“Scientists who can run DNA analysis equipment and analyze the data are very professional human resources. There aren’t many people who can operate two hundred of them either.”

Yoon Dae-Sung felt chills run down his spine. He immediately understood what Young-Joon was asking for.

“Are you asking for people?”

“Please let me have the Diagnostic Device Department at my disposal.”

“ ... ”

“They do not have to transfer to A-Bio. They will still be part of A-Gen and the Diagnostic Device Department, but they will just work with me, the CEO of A-Bio.”

“Lab Director Kim Hyun-Taek would scream if he heard this.”

“But you know that this work cannot be done by requesting departmental cooperation. As big as the project is, I have to be able to dispatch the department as a whole.”

“*Sigh...*”

“Mr. Yoon, this is more than the profit of A-Gen or growing A-Bio. You have to consider this as a scientist leading the scientific community, not as a CEO of a company. This is work that creates base data that countries not in the anglosphere can reference when developing new drugs.”

“... Alright. But I have to discuss it with Lab Director Kim Hyun-Taek.”

“I believe that you will convince him well. Call me if you can’t; I’ll tell him myself.”

“Let me ask you one thing,” Yoon Dae-Sung said. “Mr. Ryu, are you doing this because you are holding a grudge about what happened before with Lab Director Kim Hyun-Taek? Trying to steal the department he is fond of?”

“If that was my goal, I would have asked for the Anticancer Drug Research Department. I still don’t like him, but I don’t do science with personal feelings,” said Young-Joon.

“Alright,” Yoon Dae-Sung said.

* * *

‘All done.’

At ten o’clock at night, Park So-Yeon picked up a standard model of the single disease diagnostic kit. She succeeded in diagnosing rabies using the blood of a beagle and disease DNA she obtained from the Experimental Animal Resource Center. She didn’t know exactly how much the unit price would be when produced on a factory-scale, but she knew that it would be very cheap. It would be able to diagnose other diseases if they used the same strategy and changed the target DNA; they would be able to find thirty-two different types of diseases. If it was supplied to the industry, they would be able to quickly quarantine the diseased animals and put them under intensive care to stop the spread of the disease and minimize the damage.

“Phew...”

It was very fascinating now that she was looking at the final product. How did Young-Joon think of this idea and know that something like this worked>

Park So-Yeon stored the diagnostic kit in the cold room and left the office. When she pulled out her phone, she saw Young-Joon’s name as one of the most searched-up keywords. She wasn’t all that surprised as it happened often, but she wondered what he did this time.

‘Huh?’

The second searched-up keyword was Celligener. Park So-Yeon knew this company. The reason she broke up with Young-Joon started from this, as he constantly complimented Celligener during their dates after Celligener showed Cellicure’s efficacy in Phase One of clinical trials, which ultimately led to Young-Joon fighting with Kim Hyun-Taek, getting punished, and her breaking up with him.

Surprisingly, Cellicure was the third most searched-up keyword. Park So-Yeon pressed on the news article.

[Ryu Young-Joon of A-Bio enters Phase Two of clinical trials with Cellicure, a liver cancer cure co-developed with Celligener, a venture pharmaceutical company.]

[Usage of experimental therapy on a nine-year-old girl as a last resort as no other existing liver cancer treatments work.]

[Is the Ryu Young-Joon legend going to succeed again?]

‘...’

Park So-Yeon read the news article closely. Below the article, there was a picture of Young-Joon standing with Celligener. He was standing next to a middle-aged man, and there was a surprisingly beautiful woman standing to Young-Joon’s right. She even caught Park So-Yeon’s eye.

There was a caption below the picture.

[Choi Yeon-Ho, Celligener’s CEO, Ryu Young-Joon, A-Bio’s CEO, and Song Ji-Hyun, the scientist who developed Cellicure.] magic

‘Song Ji-Hyun...?’

A little while later, the fourth most searched-up keyword became Song Ji-Hyun. It was for no other reason than the fact that she was so beautiful in the picture she took with Young-Joon. Reporters began releasing articles about her as they saw that she was attracting attention.

[Who is Song Ji-Hyun, the goddess of the scientific community?]

[The past of Scientist Song Ji-Hyun, the key developer of Cellicure.]

[Picture collection of Scientist Song Ji-Hyun from Cellicure in real life.]

In addition, a bunch of online communities were putting Young-Joon and Song Ji-Hyun together as she was also a scientist with intellect and beauty who had developed an important drug like Cellicure at a young age. Song Ji-Hyun standing beside Young-Joon, who was rewriting history in science, was quite a pretty picture to look at as they had good chemistry. Park So-Yeoo turned off her phone. Nøv€l-B1n was the first platform to present this chapter.

* * *

“It was huge yesterday. The goddess of the scientific community,” said Young-Joon playfully on the elevator heading to the fourth floor of Sunyoo Hospital.

Song Ji-Hyun’s ears reddened.

“Ah... It’s too much.”

“You’ve become a star on Instagram,” Young-Joon said jokingly.

“I don’t even use social media nowadays, but reporters keep taking photos of me from the past and writing articles with it...”

“It was when you were younger. No wonder you look a little different now.”

“Really? Do I look different? A lot different?”

“I worked with you for a long time, but goddess? You are pretty, but are you *that* pretty...”

Young-Joon tilted his head in puzzlement as a joke.

“Hey.” Song Ji-Hyun poked his shoulder like she was disappointed

“But to be honest, I was a little frustrated,” she said.

“Really?”

“When A-Gen stole Cellicure, I reported it to the Pharmaceutical Association and to reporters. I tried really hard to expose A-Gen for being evil. No one paid any attention, but I am on the most searched-up keywords with just a few photos. It feels so meaningless.”

“That’s true.”

“And they don’t even care about the fact that an important drug like this is going into Phase Two of clinical trials on an actual child.”

“They will pay attention to that from now on, if we are successful in treating the patient,” Young-Joon said.

The two went to Lee Yoon-Ah’s room. It was the first day that Cellicure was being administered. Professor Kim Chun-Jung called Young-Joon and Song Ji-Hyun as the technology advisors.

A moment later, Kim Chun-Jung was getting ready to administer Cellicure in the patient room. Lee Yoon-Ah was laying still on her bed after multiple rounds of check-ups. Kim Hyo-Jin, who was sitting beside the bed, continuously stroked her head.

Lee Yoon-Ah glanced at Young-Joon when he and Song Ji-Hyun approached her.

“Mister,” Lee Yoon-Ah said.

“Yeah?”

“My mom told me to say thank you.”

“... Tell that to her over here.”

Young-Joon pointed at Song Ji-Hyun.

“Thank you,” Lee Yoon-Ah said.

Then, the drip was changed to the one containing Cellicure. Kim Chun-Jung was about to turn the infusion pump and inject Cellicure into Lee Yoon-Ah’s body. When her hand touched the pump...

[Synchronization Mode: Observe Metastasis. Fitness consumption: 5.3]

Metastasis referred to the phenomenon where the tumor cells spread and caused a new tumor in another location.

“Professor, a moment...”

Young-Joon took Kim Chun-Jung outside the patient room.

“Did the cancer cells spread anywhere?”

“No?” Kim Chun-Jung said like she didn’t know what Young-Joon was talking about.

“Stop the administration for a moment,” Young-Joon said to her and went back inside.

In end-stage liver cancer patients, there were some cases where the large tumor ruptured and caused internal bleeding in the organs. Then, the immune

response would be promoted and the patient could die from shock. As such, it was better to conduct the tumor destruction strategically in the treatment process as the patient could be put in danger if it was done recklessly.

The administration method Young-Joon set up right now was a treatment method against cancer in the liver. It would be different if it metastasized to other places. Cellicure had the ability to find cancer cells, and they would look for and destroy the metastasized regions. There was no telling what side effects would happen based on the location and the level of metastasis.

1. Indel is short for insertion or deletion, which is a deletion or insertion of nucleotides in the DNA, causing a variant. ?

Chapter 95: Cellicure (6)

Young-Joon stood in front of Lee Yoon-Ah and hit Synchronization mode.

Whoosh.

Young-Joon felt like he was standing alone in the middle of the beach as the wave was rushing in. The biological processes that were occurring in Lee Yoon-Ah's liver were being reconstructed in his head.

The liver was the organ that had the most cells as a single structure in the body. All those cells processed enormous amounts of metabolism. It was enough to call it the chemical lab within the body.

In order for the liver to do its job, it had to constantly receive numerous substances equivalent to raw materials from other organs. For this, the liver had two arteries; it received blood loaded with fresh oxygen from the hepatic artery connected to the heart, and it received blood containing absorbed nutrients from the portal vein connected to the intestine. About two thousand liters of blood were supplied a day from the two arteries, and 1.4 liters of blood passed through the liver per minute. As it was an organ with an active blood flow, it also had the property that blood vessels were easily produced. That also applied to cancer cells.

Angiogenesis.

It was the biological process for cancer cells to pave a new way for blood to flow through; the new blood vessels would become entangled in a disorderly way, forming a turbulent flow.

The goal for that was to supply glucose. The main source of food for rapidly multiplying cancer cells was glucose as it was the easiest material to change into energy. Cancer cells would absorb a huge amount of glucose from the newly formed blood vessels and grow.

The multiplying cancer cells also conducted this process in Lee Yoon-Ah's young and weak liver. They didn't stop there, but moved to the blood vessels and loaded themselves onto the flow of blood. This was similar to a carrier of a virus leaving the area of the epidemic. The immune cells, which acted like police, tracked them and eliminated a lot of them, but there were ones they had missed.

Lee Yoon-Ah's liver cancer cell traveled through the blood and

Ack!

Rosaline suddenly screamed.

[Synchronization Mode over.]

A message popped up in Young-Joon's head. At the same time, he stumbled while holding his temple after feeling a piercing pain in his head.

Song Ji-Hyun, who was standing beside him, was surprised.

Are you alright?

... I'm fine. Doctor Song, I'm sorry, but let's talk later. Professor Kim, I will visit your office later. I have to think for a little bit, Young-Joon said.

Song Ji-Hyun looked worried, but she did not follow him out. For some reason, she felt like she shouldn't bother him.

Young-Joon, who walked to the end of the hall, went halfway down the emergency stairs and stood in a place where no one was around.

What happened?

Young-Joon asked Rosaline.

... I cannot analyze this.

Rosaline replied. magic

What?

Tracking the spread of cancer is difficult, even for me. You have to use a large amount of fitness to see it.

But you said the fitness consumption was 5.3? I had that much.

Now it is at zero.

Rosaline replied.

It was true when Young-Joon looked at the status window. He had completely run out of fitness.

Do you know?

What?

The liver cancer metastasized in Ryu Sae-Yi before she died as well. Your fitness decreased significantly because of that trauma.

I dont remember.

Young-Joon said.

You erased it from your memory because the pain was too strong. But I went into your amygdala and saw your trauma that was black and entangled. There was definitely a memory about the metastasis of liver cancer among the stored fragmented memories. You heard it directly from Ryu Sae-Yis doctor at the time.

I heard it myself?

Yes. The memory of you hearing that her liver cancer had spread is in your unconscious mind.

All of a sudden, Young-Joons legs gave out and he stumbled. He was surprised. Tears were also rolling down his cheeks. He felt like an alternate self hiding in his body shed tears; he didnt feel any sadness, but his eyes were crying.

You have to pull yourself together. From the beginning, this wasnt just treating a child to me, but fighting with your trauma.

Rosaline said.

Wait

Young-Joons shoulders trembled lightly. Some scenes floated around in his head like hallucinations: the hospital room that felt dim and gloomy for some reason, doctors and nurses who were coming and going busily, and the small, thin body of his youngest sister who was dying. He remembered the horrible sense of helplessness he had when there was nothing he could do.

Those days seven years ago that felt like hell slowly began to rise to the surface of his memory. He felt like those memories, which were like faded black-and-white photos, gained color and were being played in front of his eyes like a video.

Then, Rosaline witnessed the huge rush of neurotransmitters erupting from the boundary between the hippocampus and the amygdala. It was like a tsunami that was rushing in after a big earthquake.

Oh Crap This is trouble.

...

Young-Joon was seeing the fragments of his memories with Rosaline. Ryu Sae-Yis voice lingered in his ears like he was hearing a ghost.

I dont want to get treatment anymore, oppa[1] I think Im all better now. Please help me

Ryu Sae-Yi always used to throw up on the bedside after undergoing radiation and strong chemotherapy. Then, she cried for an hour while suffering from a stomach ache.

Ryu Sae-Yi, who was a lot younger than Young-Joon, used to act childish a lot of the time; she always pouted whenever she tripped or bumped into something. But from some point, she didnt even react when a needle was put in her as if she was a corpse.

The cancer has spread.

Her doctors voice rang in Young-Joons head.

It has spread to the lungs. A lot of new blood vessels were created there as the cells had similar properties to the liver cancer cells, and they are pressing down on the alveoli and blocking her breathing.

His mother collapsing to the ground was vivid in his mind like it happened just yesterday. She collapsed onto the floor like people did in the movies. Young-Joon remembered how she blamed herself, saying that it was because she had Ryu Sae-Yi when she was so old, and that it was all her fault. He could see Ryu Sae-Yi, who was dying, holding his hand and faintly smiling.

Hello? Ryu Young-Joon..?

Rosaline called Young-Joon repeatedly like she was anxious. Young-Joon was out of breath. It was hard for him to breathe as if excessive stress and tension were physically putting pressure on his lungs.

I will activate the parasympathetic nervous system and calm you down.

Rosaline squeezed out the little bit of fitness that was recovered and controlled the expression of acetylcholine, a hormone.

Young-Joons heart rate and breathing was slowly returning to normal.

Are you feeling better?

Yeah Thanks.

Ryu Young-Joon. Your amygdala is basically doing a coup detat, okay? I think I have to go over there.

...

To be honest, Im not confident Ill be able to stop it that easily. Its better for me to correct a forward head posture or a spinal disc herniation; what can I do about that massive nerve cell rebellion alone when I dont even have fitness?

... Sorry.

Lets do this. I will engulf a portion of the glucose rushing to your brain right now. Ill try to fend off the trauma with that. Eat foods with a lot of sugar for a week.

Rosaline. I have to save Lee Yoon-Ah.

Im sorry, but theres no way for me to help. You are more important to me than Lee Yoon-Ah.

Young-Joon clenched his eyes shut.

But Ryu Young-Joon, we exchanged quite a lot of things with each other in the meantime. I received your feelings, and you have a lot of the knowledge I have.

Rosaline said.

Do you know that there are genes that determine intelligence?

...

If you measure the expression level of those genes, it is ten times higher in you than Einstein right now. Even if Im away, even if you cant use Synchronization Mode, youll be able to do it on your own. Believe in yourself.

...

Then, Ill be back.

Click.

The status window that was floating in front of Young-Joons eyes disappeared. Rosaline was gone. She didnt respond even if he called her, as she went over to the amygdala and buried herself within his trauma; she was controlling the neural signal herself and fighting against it.

Young-Joon could feel that she was fighting as the memories and emotions that were rushing in so hard from his unconscious mind that it was making him breathless had calmed down quickly. But it wasnt like he had become an emotionless psychopath like the last time Rosaline went into his amygdala. It was because she was not active there, but only combined with the trauma.

Young-Joons conscience was not any different.

He went to see Professor Kim Chun-Jung.

Can I see Patient Lee Yoon-Ahs CT scans again? Young-Joon asked. Kim Chun-Jung pulled up the scan file on her computer and showed him.

Young-Joon said, I think the cancer has crossed over to the portal vein.

Its near the boundary.

Then isnt there a risk of metastasis?

There is. N^ov^el B^jn: Inspiring Minds, Illuminating Souls.

Cellicure can track the metastasized cancer cells and destroy them. It is effective in killing cancer cells. However, if we dont check where and how much it spread beforehand and poke around recklessly, there might be severe side effects.

Phew Kim Chun-Jung let out a long, worrisome sigh.

You are right, Doctor Ryu. But even if the cancer spread, there is no way to find out in the early stages.

...

Young-Joon thought about it for a moment, then said, I will find a way.

What way?

A way to diagnose the metastatic tumor early on. Please confirm the location when I find a way. Lets hold off on administering Cellicure until then.

Wait, what are you talking about? You are going to find the trace amount of metastasized cancer?

Of course, Young-Joon was the person who invented a technology that diagnosed cancer from one drop of blood. However, that was just diagnosing whether cancer existed in the body or not; finding out where it had spread to was a completely different matter. From the outside, cancer cells were no different than normal cells, and it was indistinguishable from regular tissue until it swelled and became a tumor. But how was Young-Joon going to find cancer cells that had just metastasized?

Patient Lee Yoon-Ah doesnt have that much time, Doctor Ryu. How long will it take to develop that technolog

I will bring it next week.

... Next week?

Yes. I do not want even a little bit of uncertainty in treating that patient. I will cure her no matter what I do. Give me a week.

Young-Joon rose from his seat. He went downstairs to find Song Ji-Hyun.

Lets go, Young-Joon said.

What? What about Cellicure?

We have decided to hold off on it for a little bit. Before that, I think I need to make a more thorough diagnosis of the patient.

* * *

Whats up with our CEO recently? Park Dong-Hyun asked Jung Hae-Rim.

After returning from Sunyoo Hospital, Young-Joon lived in the lab for five days. He canceled all his meetings as well. As Rosaline was pouring all her strength into stopping the trauma, he had to do everything by himself.

Young-Joon went back to his old ways; he let go of the convenience of being able to select all the right answers from Rosalines perspective and returned to the fundamental attitude of a scientist.

However, everything changed after he met Rosaline. Although he couldnt use Synchronization Mode, which allowed him to vividly observe microscopic phenomena at the cell level, he had Rosalines insight.

Young-Joon read seventy papers about the characteristics of liver cancer, cancer cells, the metastasis mechanism of cancer cells, and the diagnostic methods of cancer in five days. Yoo Song-Mi was shocked every time she came into Young-Joons office when she saw the pile of sugar supplement wrappers in the garbage can.

It was true that the CEO was acting weird nowadays. Everyone wondered what was driving someone like him insane. Although, everyone thought that it maybe had something to do with Cellicures clinical trial since he was acting that way after visiting Sunyoo Hospital.

Click.

Young-Joon opened his office door and came in. His complexion was pale.

Yoo Song-Mi, who happened to be in his office, said, Sir, you are going to get diabetes. Why do you keep taking sugar supplements?

I had quite a bit, but not all of them.

Pardon?

They are for experiments, Young-Joon said.

He took another supplement that was on his desk, put it in his mouth and chewed it.

Cancer cells ate about twenty times more glucose than regular cells, so the concentration of glucose in cancer tissue was very high.

Cancer cells like glucose. They like it so much that they relocate blood vessels for it, Young-Joon said. We will track glucose. That will tell us where the cancer cell is.

1. Oppa means older brother, and is used by younger women to refer to older men.

Chapter 96: Cellicure (7)

On the sixth day, Young-Joon visited Sunyoo Hospital again. He was alone without Song Ji-Hyun. He met Professor Kim Chun-Jung and pitched the idea.

“Let’s scan glucose and see where the cancer has spread since cancer cells eat a lot of glucose.”

“Are you going to use FDG?”

FDG, or fluorodeoxyglucose, was glucose that was labeled as a radioisotope. It was a drug that was often used to study diabetes and such, and it was easily absorbed in places where glucose was absorbed as it had a very similar structure. FDG emitted positrons from where it was absorbed, so it allowed one to see how the glucose moved with a positron emission tomography scan.

The problem was that FDG was a radioactive material. It constantly emitted radiation, internal contamination occurred continuously within the body, and it

wasn't metabolized and destroyed easily like glucose. It was discharged from the body as urine after a long time, but until then, the patient's body was like a walking, radioactive lump.

"I'm against using it." Kim Chun-Jung shook her head. "She is still young. I would use it if the patient was old and there was a high risk of metastasis. But not Lee Yoon-Ah."

"You're saying that since cell division must keep occurring in the body as she is young, internal contamination, which can cause damage to DNA, will do more harm than good, right?"

"That's right," she replied firmly.

"I thought so as well," Young-Joon said. "I don't want to use FDG. Let's just scan glucose."

"Pardon?"

"Since we don't have time, I wasn't going to develop a new technology that had to go through clinical trials. I am going to change how we use existing technology, and we are going to track glucose with the safest material possible. Give a few candies to Lee Yoon-Ah. Then let's take a picture of the change in glucose concentration with an MRI."

Kim Chun-Jung froze for a moment. For a second, she thought that Young-Joon had gone insane.

"Um... Mr. Ryu, we can't take a picture of glucose concentration with an MRI."

"We can. It was just that there was no one who tried to take a picture of glucose concentration with an MRI."

"..."

Kim Chun-Jung was extremely confused.

'What the hell is he talking about?'

MRI was a diagnostic imaging technique that was able to provide abundant information about things such as bone marrow or soft tissue in bones by imaging water molecules in the body. However, glucose wasn't water, and an

MRI wasn't an optical device, such as a microscope. It was impossible to measure the flow and concentration of that fine substance.

Young-Joon, who saw her confused face, began explaining.

"The human body is mostly made of water. An MRI involves applying a strong magnetic field on a patient's body, which forces the protons of water to align in one direction. Then, the protons emit a certain wave of energy when you shoot electromagnetic waves at a specific frequency due to resonance. If you measure that, you can see the flow of water molecules in cells. That's how an MRI works."

"That's right."

Kim Chun-Jung nodded.

"I did a few simple experiments, and I found that I can track down the protons attached to the hydroxyl groups on glucose with an MRI."

"How?"

"When you produce a magnetic field with an MRI, the protons of both glucose and water are aligned in a specific direction. Then, if you shoot an electromagnetic wave that matches the frequency of the protons on glucose, they will fall off of glucose, transfer onto water, and change the frequency value of water."

"..."

"You can find where glucose is if you fire an electromagnetic wave that matches the frequency of glucose, then track where the intensity of the electromagnetic wave signal of water molecules drops."

Kim Chun-Jung literally felt like someone had hit the back of her head with a hammer; she felt lightheaded after hearing Young-Joon's explanation because it was so shocking.

The MRI, which was first invented in 1983, was being used for forty years, but no one had thought of anything like this. The basic way to use it was to fire an electromagnetic wave and measure the wave the body shot out in response. Even if they sent out electromagnetic waves to glucose, the signal that would

be generated as a reaction would be very weak. As such, everyone thought something like this was impossible.

However, Young-Joon's idea right now was to measure the decrease in the electromagnetic wave emitted by the body. He was proposing to measure how the water molecule changed due to glucose since the signal glucose emitted would be too small to measure. It was a simple way of thinking outside the box, but it was shocking.

"How much glucose can you measure with this method?" Kim Chun-Jung asked.

"According to my experiment, I was able to measure glucose levels as low as a micromole (μM)," Young-Joon replied. "I tested it by injecting glucose into a mouse's veins, and I think it can work in the human body as the metabolic process of glucose is well-known."

"..."

"Professor Kim, glucose concentrations are usually constant in the body except for the brain, while it is twenty times higher in places where cancer cells are present. If it has metastasized, there will definitely be a spike in the value. I'll pay for the MRI scan, so please just try it once."

* * *

Lee Yoon-Ah tensed up a little bit when Young-Joon and Kim Chun-Jung returned to her room. It was because Young-Joon left after discussing something with a serious face and her mother was upset. After predicting a few possibilities based on that situation, she came to the result that she was going to be receiving a very painful treatment.

Lee Yoon-Ah held Kim Hyo-Jin's hand tightly out of anxiety. However, what Young-Joon handed her was candy.

"Yoon-Ah, do you want some candy?" said Young-Joon as he sat on the edge of her bed.

After hesitating a little, she took the glucose candy that was in his hand. When she paused, Young-Joon said, "You can eat it."

"... Lemon..."

“Hm?”

“Lemon flavor...” said Lee Yoon-Ah as she pointed to the candy bag that was poking out of Young-Joon’s pocket.

“Oh, you want the lemon one?”

Young-Joon looked for the lemon flavored candy, but ended up giving her the entire bag. This time, Lee Yoon-Ah hesitated because of her mother.

“You can have it,” Kim Hyo-Jin said as she hugged Lee Yoon-Ah’s shoulder tightly. Only then did she relax and open the lemon candy wrapper.

She went to take an MRI after having two pieces of candy, but she didn’t look very scared.

“This one is loud, but I like it because it doesn’t hurt.”

Children were usually terrified of this equipment because of the loud roar when the chiller ran and the feeling of being trapped in a small space. A nine-year-old child who had come to like MRIs after suffering from all kinds of chemotherapy: this situation was ironically pitiful.

With the help of Young-Joon and the MRI operator, Kim Chun-Jung set the frequency of the electromagnetic wave to glucose.

“Lie down over here.”

The MRI operator laid Lee Yoon-Ah down on the table and put a towel under her arm.

“There aren’t any metals on her, right?” the operator checked again out of habit, then started the machine.

The table where the patient was laying went up and moved into the circular magnetic field. Kim Chun-Jung and Young-Joon nervously watched the data screen the operator was taking on their laptop. As the electromagnetic wave was fired, the image appeared on the screen like ripples on water.

The operator of the MRI tracked the signal by moving the image, which was by the millisecond. They put a filter on the intensity of the signal so that decreasing values would be highlighted.

“ ... ”

Kim Chun-Jung’s jaw slowly dropped. A strong red signal was popping out from below the pelvis.

“It metastasized under the pelvis.”

“Hm...”

Kim Chun-Jung groaned like she was in pain.

“Let’s discuss this outside.”

Young-Joon took Kim Chun-Jung outside.

* * *

A million thoughts were racing through Kim Chun-Jung’s head on their way back to her office.

The very first emotion that popped up in her head was a sense of relief. It could have been a big problem if they administered Cellicure at that dosage without having diagnosed the metastasis to the bone.

The by-products of cells destroyed by necrosis, the cancer cell’s destruction mechanism, would be littered in the bone. But immune cells had a tendency to flock to clean up these messes; the bone marrow was also where immune cells were created. If they used Cellicure, the entire bone could be destroyed with a strong inflammatory reaction from the pelvis.

Or, there could be no reaction if the cancer cells already took over the immune system. In that case, the remains from cell necrosis could stick to nearby tissues and spread, causing another side effect. Plus, no one knew what this would bring as Lee Yoon-Ah was a child who still had to grow for a long time; no one could predict the outcome as this was a very unique clinical trial case.

When Kim Chun-Jung reached this conclusion, she relied on Young-Joon again.

‘Maybe he will be able to predict the consequences of Cellicure. Maybe he’ll be able to find the way with the least side effects.’

And when she was close to her office, the small sliver of hope turned into a stronger anticipation. Maybe...

'Maybe Ryu Young-Joon will be able to cure bone metastasis.'

An effective treatment method for bone metastasis currently didn't exist. There was a high possibility that even Cellicure wouldn't be able to fully cure it. Even if it caused a strong inflammatory reaction as it destroys the affected area, including the bone, it wouldn't be able to completely eliminate the cancer cells. After a few years, the cancer cells would return and grow in the bones. All Cellicure was going to do was prolong the patient's life until relapse.

However, Young-Joon had cured pancreatic cancer, the most difficult one of them all.

'Maybe this person can cure bone metastasis.'

Kim Chun-Jung, who began the meeting at her office with a sliver of hope, heard something shocking from Young-Joon.

"It's a relief," he said.

"A relief?"

"Since we caught it early."

"... Can we treat it? Should we use Cellicure?"

"Using Cellicure right now could be a gamble. Let's leave the liver cancer for a moment. We have to get rid of the cancer cells that spread to the bone."

"Is there another way?" asked Kim Chun-Jung in desperation.

"What do we have to do?"

"This is also an experimental therapy, but it's a technique that has gone through Phase Three of clinical trials in the United States. And it is very effective in treating blood cancer or myeloma. It's a third-generation cancer immunotherapy. Since manipulated immune cells are used to directly remove cancer cells instead of chemicals like Cellicure destroying them, it will be taken care of neatly without the remains of the necrotized cancer cells flowing into the bone marrow." This was a new cancer immunotherapy that had

finished up to Phase Three of its clinical trial in the United States. Kim Chun-Jung's jaw dropped.

"No way." magic

"I bought this technology from Conson & Colson when I went to America. And A-Bio has the best scientists who are able to perform it."

* * *

Carpentier was a scientist who had succeeded in regenerating bone marrow from stem cells. He was a Nobel Prize recipient and one of the greatest experts in immunology.

He entered the lab and called for Jacob. Where Stories Blossom: NoveleBjn.

"Jacob!"

"Yes?"

"What experiment are you working on right now?"

"I did a cell transfection yesterday, and I am maintaining other cells..."

"Can you go to Sunyoo Hospital right now as technical support?"

"Why?"

"Orders from the CEO. Come with me."

"Orders from the CEO? What's going on?"

"You know the Chimeric Antigen Receptor T-Cell Therapy, right? The third generation cancer immunotherapy that Conson & Colson had."

"Yes. Isn't that the one that he bought by selling the shares of our cancer lab?"

"We have a patient we have to treat with it. We are going to manipulate a target marker in the patient's stem cell and make T-cells from it."

Jacob seemed intrigued.

“Who’s the patient?”

“They have liver cancer, but apparently it metastasized to the bone.”

“Oh... Is it the nine-year-old kid that was on the news? The clinical trial patient for Cellicure?”

Jacob frowned.

“That’s right.”

“Oh...”

“End-stage liver cancer and bone metastasis. It’s the worst, right?”

“It really is.”

“This is the email from the CEO. Take a look.”

Carpentier showed Jacob the email.

[We are going to get rid of the trace amount of cancer cells that have metastasized to the bone with chimeric antigen receptor T-cell therapy, then treat the liver cancer with Cellicure. I think that this patient is past the current boundaries of current medicine, but it is our job to explore that territory.]

Chapter 97: Cellicure (8)

All the drugs that were administered to Lee Yoon-Ah now were strong painkillers like morphine. None of the existing anticancer drugs worked, and there were no other treatment options. It could be said that current medicine had given up on them, but from the perspective of a nine-year-old, it was nice because she didn’t have to get any more painful anticancer drugs. She couldn’t go around alone because she was in pretty bad condition, but she was quite cheerful, which was fitting for her age.

“Mom, YouTube.”

Lee Yoon-Ah was into this YouTube channel that a nine-year-old elementary student, who was the same age as her, had. Now, she was watching a video of them going to an amusement park.

“I want to go here when I’m all better,” Lee Yoon-Ah said.

“Mhm...” Kim Hyo-Jin replied weakly while patting her on the shoulder.

That was when Young-Joon, Jacob, Professor Kim Chun-Jung, and the nurses came in.

“We’re going to draw some blood,” said Kim Chun-Jung.

She had already told Kim Hyo-Jin the situation that the liver cancer had metastasized to the pelvic bone and that there was no way to treat the cancer cells in the bone as of right now. She had also told him that Young-Joon had stopped the Cellicure treatment and was preparing a new technology called chimeric antigen receptor T-cell therapy.

“Can we talk outside for a moment?”

Sniffing, Kim Hyo-Jin took the medical team, Young-Joon, and Jacob outside.

“I’m thinking of stopping treatment now,” she said.

“Stopping treatment?” Kim Chun-Jung asked in surprise.

“... Yoon-Ah wants to go to the amusement park... She was always in the hospital. We can stop now, and I can take her to the amusement park, go play by the river...”

Kim Hyo-Jin wiped away her tears. After a short moment of heavy silence, Kim Chun-Jung spoke.

“As your doctor, I respect the guardian’s wishes first and foremost. But you have Doctor Ryu... You know the effects of what he has given to the medical community, right?”

“Of course, I don’t know as much as you, but I studied a lot about cancer while looking after my daughter. I memorized names of difficult drugs and I know papers, too. I know about the chimeric antigen receptor T-cell therapy... It takes three months to prepare it for use,” Kim Hyo-Jin said. “Doctor Ryu, be honest. What is the probability that my child will live with that technology?”

“Because Lee Yoon-Ah’s case is very unique, we can’t calculate the probability because we don’t have any clinical data,” Young-Joon said.

“ ... ”

Kim Hyo-Jin clenched her eyes shut. She tried her best to smile.

“Thank you. Thank you for working so hard. I’ll take my baby and get discharged.”

“Three weeks,” Young-Joon said. “I will get the treatment ready in three weeks.”

The chimeric antigen receptor T-cell therapy: it was a technology with the largest potential among existing cancer treatments. The technology extracted the patient’s immune cells, then gave them a machine gun to obliterate the cancer cells. The immune cells that were supplied with the best weapon would immediately wipe out the cancer cell as soon as they returned to the body and cure the patient.

“But it isn’t very effective against solid tumors. So, we are going to eliminate the myeloma in the bones and the cancer cells that are floating around in the blood with chimera immunotherapy, and then we’re going to treat the liver cancer with Cellicure. I’m planning to finish this in five weeks, and I have set this as the final deadline. I cut off the time required for the chimeric immunotherapy preparation at three weeks,” said Young-Joon.

“... Three weeks... I-Is that possible?” Kim Hyo-Jin asked like she couldn’t believe it.

This technology cost nearly four hundred million won for one round of treatment. As astronomically high as the price was, it took a very long time to design and create the treatment. The reason was that it was very difficult to grow immune cells, and it was also very hard to manipulate genes. Three months was the minimum amount of time required.

“Three weeks...?” Kim Hyo-Jin mumbled in hesitation.

“I have stem cell and Cas9 technology,” Young-Joon said.

“...”

“We can grow immune cells and manipulate genes a dozen times more effectively than what Conson & Colson used to do. We can make it much faster, although we are still racing against the clock.”

“Excuse me...” Jacob, who came with Young-Joon, interrupted carefully as he glanced at everyone. In English, he said to Young-Joon, “Sir, it seems pretty serious right now; what’s going on? I haven’t learnt a lot of Korean yet.”

“It will end soon. I will explain it to you later,” replied Young-Joon briefly. Then, he turned to Kim Hyo-Jin again.

“This scientist right here is one of the best technicians at A-Bio. He graduated early from Caltech in bioengineering and published a paper in *Cell*, one of the best scientific journals, from a Nobel Prize recipient’s lab. He is one of the young scientists in the spotlight of the world.”

“ ... ”

“We have already succeeded in bone marrow regeneration, and we have also manipulated genes with Cas9 when we cured HIV. Carpentier, a Nobel Prize recipient, Jacob, and I will do the experiments ourselves.”

“ ... ”

“We promise to cure Lee Yoon-Ah by the deadline. Please have hope one last time.”

* * *

After a week at A-Bio...

“Give me the media,” said Young-Joon.

Media referred to an animal cell culture medium. Jacob handed Young-Joon the RPMI culture medium.

They had dedifferentiated Lee Yoon-Ah’s cells into stem cells, and Young-Joon was now differentiating it into T-cells, a type of bone marrow.

Carpentier and Jacob were helping him; they were the first people to complete a technology that developed hematopoietic cells, which create blood in the bone marrow. This couldn’t be done simply with knowledge and required practical skills and excellent technique. Young-Joon had never made hematopoietic cells before, but he was skilled in cell experimentation. Also, he had Rosaline’s senses left in his fingertips. He didn’t have the precision to excite exactly 1.17 million nerve cells in his left hand, but he could mimic it.

Drr!

Young-Joon held the flask lid, which spun exactly twelve and a half times, with his left pointer finger and thumb, then took out the culture medium and cell with a pipette-aid.

“Please give me the SFG-1928z,” said Young-Joon.

It was a type of retrovirus. It was used to put specific genes into a cell. He received the designed virus solution from Carpentier and infected the stem cells with it. He had already treated it with the virus that differentiated it into immune cells. The only thing left to do was manipulate a few genes with Cas9. He was going to add Cas9 in the form of a protein complex when gene expression stabilized after the virus fully entered and the cell condition improved.

An additional five days were spent, and Young-Joon’s face became more and more thin.

“Sir, aren’t you going to shave?” asked Yoo Song-Mi when she found Young-Joon collapsed on the sofa in his office like a corpse in the morning.

“I have no time to. I’m showering as fast as I can in the office shower as well.”

“ ... ”

“I’m concerned about this more than anything else I have invented.”

Young-Joon went back to the lab. This time, he had to use a piece of equipment called a flow cytometer and only select the cells that were in the desired condition in the most optimal state.

Young-Joon ran the flow cytometer he bought before and extracted cells with fluorescence. Of the ten million cells from the culture that he started with, only one hundred thousand were left. As there may not be enough cells to cure the patient, he had to put in cell stocks, which was in the intermediate stage, to make more of the treatment.

‘I guess three weeks is still tight even when I have good technology.’

Young-Joon had set the deadline even shorter on purpose as Lee Yoon-Ah's treatment was a race against the clock. Removing cancer cells from the bone marrow wasn't the end; the real enemy was liver cancer.

Since chimeric antigen receptor T-cell therapy wasn't very effective on solid cancers like liver cancer, it would only be able to treat the blood cancer and myeloma in the pelvis. Having to use Cellicure afterwards meant that the liver cancer treatment was delayed for that long.

That was what Young-Joon was worried about, as her liver was already completely taken over by cancer cells.

When Young-Joon was pushing himself, Jacob, and Carpentier and conducting the experiments, Song Ji-Hyun came to visit A-Bio.

* * *

"Doctor Ryu, I heard about your treatment strategy. You're going to get rid of the cancer cells that metastasized to the bone with chimeric antigen receptor T-cell therapy, and then administer Cellicure, right?" "That's right."

"But... If you do that, you may run out of time. The clinical trial patient's liver is barely performing normally right now. We need to administer Cellicure quickly."

Young-Joon sighed.

"I agree with you, so I am working day and night."

Song Ji-Hyun could tell even if he didn't say it. Looking at his thin face, his grown-out stubble, and greasy hair, it was clear that he probably only washed once every two to three days.

"Do you get some sleep...?" Song Ji-Hyun asked like she was worried.

"I sleep a little sometimes."

"... Administer Cellicure right now."

"We can't. It will cause problems in the pelvis."

"I know. But at this rate..."

Song Ji-Hyun sighed.

“It would be nice if we could send Cellicure only to the liver. Then, we could cure her by treating the liver cancer without any problems happening in the pelvis and treating the bone metastasis with the chimeric antigen receptor T-cell therapy.”

“I wish,” Young-Joon replied.

“But it won’t be easy. It really is depressing. Cancer is so hard,” Song Ji-Hyun said like it was painful.

“Doctor Ryu, I thought it would work if we attached a receptor that recognized things on the surface of cancer cells on the exosome. What if we use it without the exosome coating at all? I think the chances of it moving to the pelvic bone would decrease.”

“It will still go there eventually. We have to make it so that Cellicure only enters the liver cells.”

“... Even the notorious pancreatic cancer has been successful in clinical trials, but I didn’t know that liver cancer would be so difficult.”

“Pancreatic cancer?”

Young-Joon’s eyes suddenly shone.

“Pardon?”

“Pancreatic cancer?”

“Yes... You developed it. A pancreatic cancer cure.”

“Yes. Why didn’t I think of that?”

“Pardon?” “The pancreatic cancer cure used the bornavirus. It’s a virus that only infects pancreatic cells. We just have to use that same strategy in the exosome, right? We already know a very famous virus that only infects liver cells.”

“... Hepatitis...?” Song Ji-Hyun said, frozen.

“It’s the virus that causes hepatitis. Separate the materials on the shell of the hepatitis E virus and mix it with the exosome. Then, it won’t be able to infect healthy liver cells, but make it so that Cellicure only goes to the liver.”

Young-Joon jumped up from his seat. He went straight to the computer and searched up the virus’ information on Google.

[Hepatitis E virus]

Watching the structural diagram of the virus come up, Young-Joon called A-Gen’s Research Support Center.

“Could I get the hepatitis virus?” he asked.

—Do you need the live form of the bacteria?

“It doesn’t matter whether it’s in the DNA form or the live virus as long as it comes out quickly. Give me anything.”

* * *

Song Ji-Hyun, who could be said to be the greatest expert in the world about capsule coating of drugs, exosome creation, and the drug form of Cellicure, was responsible for hepatitis. She took the hepatitis virus DNA she received from Young-Joon and began staying up as soon as she returned to Celligener.

Young-Joon, who she hadn’t seen for a long time, looked pretty bad. She could tell that he was fully concentrating on this clinical trial. As the developer of Cellicure and one of the managers of this clinical trial, Song Ji-Hyun was a little ashamed.

‘I have to work on this as hard as Doctor Ryu.’

Young-Joon was also the one who came up with the idea that could send Cellicure only to liver cancer. She had to be able to complete this at the least in order to be able to look him in the eye.

This case wasn’t just the clinical trial of a new drug or the treatment of a young child to Young-Joon; Song Ji-Hyun felt like she knew what he was feeling right now.

‘Doctor Ryu said that his youngest sister died of pediatric liver cancer.’

That was probably a reason why he was holding onto this so desperately. She couldn't even predict what kind of shock and pain this genius would receive if he failed at treating Lee Yoon-Ah.

Song Ji-Hyun wanted to protect Young-Joon. It was time to advance Cellicure one step further for him, who she had gotten help from numerous times. Young-Joon would complete the chimeric antigen receptor T-cell therapy... magic

'And I will finish Cellicure and meet him on the day of the clinical trial treatment.'

The structure of the hepatitis virus was relatively well known. Song Ji-Hyun focused on the structure known as HEV-2, one of the receptors that existed on the surface of the virus shell. It corresponded to the second open reading frame in the gene of the virus. After separating this gene, she synthesized the biomaterial through in vitro translation and coated it on the exosome. For the week that the experiment was being conducted, her face also started becoming thin like Young-Joon.

* * *

On the day the new drug was to be administered, Young-Joon showed up to Sunyoo Hospital with a brown bottle, which contained the purified chimeric immunotherapy treatment, and Song Ji-Hyun showed up with a small vial, which contained Cellicure. Both were products that had been refined at the GMP facility at A-Gen.

Everyone was nervous.

"We will begin."

Kim Chun-Jung injected both drugs into Lee Yoon-Ah's veins.

Chapter 98: Cellicure (9)

The white liquid traveled into Lee Yoon-Ah's thin arm; it was Cellicure and the chimeric immunotherapy treatment. The results of all the research Young-Joon and Song Ji-Hyun struggled to create were mixing into one and being administered. If they were right, the drug would cure her liver cancer and bone metastasis.

Lee Yoon-Ah just stared at the medical team calmly. No one could predict the results yet.

Song Ji-Hyun snuck a glance at Young-Joon. She too wasn't in good condition as she buried herself in experiments for the past few weeks, but he looked worse. She was worried about him. Most of all, Young-Joon had special feelings towards this child because of his trauma. That bothered her all along.

"I'm going to step out for a moment."

Young-Joon excused himself and left the room. He could not bear to watch her. He was so nauseous that he felt like he was going to vomit.

'Is this really the best thing to do?'

He felt like an unknown sense of anxiety and frustration were engulfing his entire body. The chimeric immunotherapy and Cellicure were clearly reasonable treatment methods. It was the best plan at the moment, and the chances of success were clearly high no matter how many times Young-Joon ran a simulation with his knowledge.

However, it was not one hundred percent, and he couldn't guarantee it as there were no clinical cases. As such, he told Kim Hyio-Jin that he didn't know about the success rate.

'I didn't get it confirmed by Rosaline.'

Rosaline could predict the results of all molecular biological phenomena, but not him. All he had done was infer without Synchronization Mode, but only the problem solving abilities and knowledge that Rosaline had left him. He had convinced Kim Hyo-Jin under the judgment that the success rate was high from his calculation.

Ryu Sae-Yi's death kept coming to mind. She had died at the hospital. Maybe Young-Joon should have discharged Lee Yoon-Ah. Maybe he should have given her some happy memories before she left.

Young-Joon expected the success rate of the treatment to be high, but an irrational anxiety weighed heavily on his heart: a feeling that it was going to fail, an unfounded sense of guilt, and a bad feeling.

“...” Young-Joon flopped down onto the emergency exit staircase. His hands were trembling.

“Doctor Ryu!”

Someone wrapped their arm around his shoulder from behind. It was Song Ji-Hyun.

“What are you doing here?”

“...”

Song Ji-Hyun looked at him with pity.

“The stairs are cold. Get up. Let’s go back inside.”

“What do you think the success rate of this treatment is, Doctor Song?” Young-Joon asked.

“You can’t calculate it because it’s a very unique case and we have no clinical data, right?” Song Ji-Hyun impersonated Young-Joon.

“I know. But... You have a feeling as the developer of a treatment.”

“I think one hundred percent,” she said firmly.

Young-Joon was a little surprised.

“For a scientist, aren’t the results of our research like our children? How can we not have faith in our own technology?” Song Ji-Hyun smiled. “Don’t worry, Doctor Ryu. The treatment we made is the best. You have cured the notorious pancreatic cancer before, right? This will be successful as well.”

“... But I keep thinking of my sister. To be honest, it bothers me. I thought maybe I was being stubborn because of my trauma. Maybe I should have given Yoon-Ah a chance to make memories like her guardian said. I’m just worried about that...”

“It’s different from your sister,” Song Ji-Hyun said.

“...”

“It’s not Ryu Sae-Yi, but Lee Yoon-Ah. Their names are different except for one syllable[1] They look different, too, right? Different genes as well. Did your sister have bone metastasis to the pelvis?”

“No, it metastasized to the lungs.”

“See? It’s a totally different clinical case. And most of all, you’re a different person than before. You were a university student back then, and now, you’re the world’s greatest scientist and the CEO of A-Bio. We can do it. We have Cellicure and chimeric immunotherapy.”

“... Alright. Thank you,” Young-Joon replied weakly.

* * *

Young-Joon’s amygdala was completely surrounded by Rosaline’s cells. She was controlling them right now and was in a kind of siege. This battle wasn’t going to end easily, as her mother cell was directly affected by the stimulation that occurred from the amygdala. She was able to control most biological processes, but there was nothing she could do about the shock to her mother cell. All of Rosaline’s cells had divided from a single mother cell, as the mother cell was the first organism that was created from Young-Joon’s blood, and it was the root of Rosaline’s existence.

‘The tissue of the trauma has fully taken over the mother cell.’

Rosaline realized that it was impossible to transfer her consciousness to the mother cell as it had gone into the trauma tissue of the amygdala.

The trauma tissue looked like a giant black hole; it absorbed all the energy and neurotransmitters from its surroundings and it did not expel anything. It was basically impossible to destroy this monster that was deep in the amygdala without damaging Young-Joon’s body. It was also difficult to take out the mother cell.

Rosaline gathered the accumulated fitness and set it off all at once.

[Promotion of AKAM1 expression by 80%] magic

[Promotion of KROII expression by 120%]

[LOX switching.]

[Promotion of epinephrine by 30%]

Splash!

Some of the lipids that were flowing in the vessels of the trauma tissue splashed out. Amines and neuropeptides were flowing out. Rosaline collected and absorbed some glutamic acid and drilled a hole in the trauma tissue.

[Promotion of perforin expression by 200%.]

'Sorry, Ryu Young-Joon.'

This was like a perforator used to destroy harmful organisms such as bacteria that invaded Young-Joon's body from the outside, but it bothered Rosaline that she was using it on his cells. However, even a powerful weapon like perforin only left a small injury on the trauma tissue; it wasn't able to pierce it.

'This doesn't work?'

Her plan to rescue the mother cell kept failing. As the mother cell was captured there, Rosaline couldn't think of a good way even with her insight.

In this situation, there was only one answer.

'I have to combine the mother cell with the trauma.'

It was better for the mother cell to engulf the trauma rather than being taken over by it. Cell fusion was when two different cells combined into one. It seemed like humans had done this kind of work before according to Young-Joon's memories of the papers he had read before, but Rosaline could do it better.

[Activation of all GPCRs.]

[Major activation of membrane proteins.]

Rosaline controlled the genes that were involved in cell membrane formation and ruffled the mother cell's membrane. It seemed like a part of the apoptosis mechanism, but it wasn't.

Slrr...

The mother cell, which now had its membrane broken, began entering into the trauma tissue by endocytosis.

'Hup!'

Although Rosaline had no respiratory organs, she took a breath or surprise in her heart. The trauma, which had slowly merged, was coming into her consciousness. The first thing she felt was a huge sense of sadness.

"I can't believe it!"

To Rosaline, this was a similar shock to discovering the New World. Perhaps this was the wonder that a person who was blind since birth and had never experienced vision before actually saw for the first time. She never knew that emotions and senses could be this intense. The depth and weight of them were incredible. It was also very intense as it was the emotion from long-term trauma.

'Oh my...'

Rosaline felt the touch of Ryu Sae-Yi's thin fingers from Young-Joon's hand. It was a direct sense of touch that she had never experienced before. Additionally, there was also the smell of medicine in the hospital room, the smell of hydrangeas that Ryu Sae-Yi used to like, the taste of MSG in the *soondaeguk*[2] that he had at the restaurant in front of the hospital, and his guilt towards Ryu Sae-Yi. All his experiences were awakening each and every one of Rosaline's cells. Her mother cell absorbed it like a sponge and acquired it. It was not a phenomenon that could be interpreted by theoretical explanations such as the transfer of signals.

'... It's euphoric.'

Rosaline didn't have eyes, but she felt like crying. Was this what organisms who acted with fully functioning bodies felt? It was very impressive for Rosaline, a cellular organism who had only lived in the bubble called Young-Joon.

Like a rollercoaster, Young-Joon's emotions soared up to the climax. With the moment when a flat line that was calm like an ocean was drawn onto Ryu Sae-Yi's monitor, and the moment everyone burst into tears and the doctor announced the time of death, Rosaline's consciousness slowly drifted away with a powerful, uncontrollable emotion that had reached its limit.

'It's not easy.'

The mother cell had succeeded in fusing with the trauma, but it was still too powerful. The mother cell had fallen into a state of suspended animation, like a cryogenically frozen human falling asleep with the hopes of being revived in the future.

'I've never felt this kind of threat after being born into this world. This is what a treat to life feels like. My life might end here.'

Rosaline had thought the attack by the sloppy gangsters who had been influenced by Ji Kwang-Man was nothing, but this was different.

Now, her only hope was for Young-Joon to overcome this trauma.

‘...’

Rosaline, whose consciousness had drifted away, fell into a deep sleep. She could not feel anything.

But after two weeks had passed in real life, Rosaline, who was half-dead, was engulfed in a light so intense it could burn all of her cells at once. She could feel it; she could feel that major structural reforms were happening in Young-Joon's amygdala.

* * *

“Ninety-two percent of the liver cancer tissue, and one hundred percent of the bone metastasized cancer cells have died,” Kim Chun-Jung reported. “We still have to administer more Celicure. But I believe it can be cured at this rate. We will have to monitor her for five years to see if it returns, but in my opinion... I think she will be able to be discharged sometime next week. The clinical trial was a success.”

Kim Chun-Jung choked up a little at the end. This clinical case was touching even for an old warhorse like her, who had spent forty years at Sunyoo Hospital as a professor. One couldn't even imagine the depth of emotion the child's mother was feeling.

“...”

Kim Hyo-Jin sat in her chair, unable to say anything. All she could do was bury her face in her hands with trembling shoulders.

Song Ji-Hyun, who was watching her, tapped the end of her nose with her finger as it was so touching. She glanced at Young-Joon. Unexpectedly, he didn't cry or be amazed; he looked calm just like any other day.

"Thank you. Good work." Young-Joon said briefly and got up. Dive into Stories, Embrace Enchantment: N♡vℓBjn.

As he looked like he was going to get up, Kim Hyo-Jin quickly got up and held onto him.

"Thank you so much, Doctor. Thank you..." said Kim Hyo-Jin, her face all messy from tears.

"It's alright. I just did my job."

Young-Joon forced a smile and opened the office door. He meant everything he said, and he didn't want to be thanked, as the person who was saved might have not been Lee Yoon-Ah or Kim Hyo-Jin, but Young-Joon himself.

"..."

Young-Joon, who was walking outside, stumbled a little as his legs were giving out. Song Ji-Hyun quietly trailed behind him. With her hands behind her back, she cautiously followed him at a distance as it was difficult for her to call him for some reason.

Young-Joon went to the end of the hall and stepped out to the small balcony. He was holding onto the railing and looking down at the entire hospital.

"It's over... It's really over, Sae-Yi. Really. Now, no one your age will die of liver cancer," Young-Joon mumbled quietly.

His head was clear; he felt like he had been born again.

"Doctor Ryu."

Song Ji-Hyun quietly approached and stood beside him. The smell of shampoo wafted over to his side. She had recovered her original beauty as she started to shower, eat, and sleep regularly after the treatment began.

“Are you okay?” she asked.

“Yes, thanks to your concern.”

With a smile, Young-Joon turned to face Song Ji-Hyun. And...

“Huh?”

Young-Joon’s eyes widened.

“What is it?”

“Um...”

[Synchronization Mode: Analyze Song Ji-Hyun’s oxytocin, vasopressin, and dopamine expression levels. Fitness consumption rate: 0.7/second.]

A message window popped up.

—Have you been well?

Rosaline sent him a message.

—You succeeded. Congratulations. Thanks to you, I was also able to escape the trauma. I knew you were going to rescue me.

‘But what’s with the expression level of oxytocin or vasopressin and all that? You can analyze these things, too?’

—I think this incident has created new changes for me as well. I have grown.

[Now, Rosaline’s cell can survive for thirty minutes outside of Ryu Young-Joon’s body.]

[Rosaline’s Synchronization Mode has become more sophisticated. You can observe phenomena with a finer resolution, and you can see things that you were unable to before. Your fitness consumption has become more efficient.]

‘Things I couldn’t see before?’

—Like the ratio of Song Ji-Hyun’s hormones.

‘What use do I have for that?’

—Oxytocin, vasopressin, and dopamine are hormones that rise sharply when people feel love. Hehe.

‘...’

—And there is another new ability.

‘Another new ability?’

[Now, you can use Molecular Biology Simulation Mode through Rosaline.]

—What you can do in Simulation Mode depends on the fitness consumption. If you use less, you can set up virtual patients and run clinical trial simulations when you develop a new drug.

Rosaline said.

‘If I use a lot?’

—When an epidemic for a particular infectious disease occurs, you can track the global path of the spread and everything about the results, and you can calculate the number of possibilities. You are able to see biological phenomena from a global perspective.

‘Holy...’

—The perspective of someone who has succeeded in creating an organism like me should be special.

1. Yi and Lee are the same in Korean, but written differently in romanization. ?
2. Korean blood sausage soup ?

Chapter 99: Laboratory One (1)

“Doctor Ryu?” Song Ji-Hyun called.

“Oh, yes.”

“What are you thinking so hard about?”

“It’s nothing,” said Young-Joon as he organized the message windows in front of his eyes.

“Are you going to go back to work?”

“No. I’m going to have dinner and then rest for today.”

Song Ji-Hyun nodded.

“You need to recharge. It was very hard on you even after Lee Yoon-Ah started the treatment. Rest well today.”

“I will. Are you going back to work?”

“No, I’m going to go home after dinner as well.”

“I see.”

After some hesitation, Song Ji-Hyun asked, “If it’s okay, Doctor Ryu, would you like to have dinner with me?”

For her, she had built up a lot of courage to say that. They have had drinks together in the past, but for some reason, it was awkward now. And that went for Young-Joon as well.

‘Rosaline, it bothers me because you said something stupid about Doctor Song’s hormones and stuff.’

—Would you like to be synchronized? Would you like to in more detail? Doctor Song is worse than before. I can hear her heartbeat and it’s no joke.

When Young-Joon stared at her, Song Ji-Hyun avoided his gaze. Her ears were a little red.

“Let’s have dinner together,” he said.

They went together in the car as their houses were in the same direction.

At a restaurant near their houses, they ordered a steak, salad, and wine.

Song Ji-Hyun said, “Honestly, I thought you were a super genius and knew all biological phenomena.”

“Haha, no way.”

“Doctor Ryu, do you know the syphilis treatment called Salvarsan, one of the top ten medicines in scientific history?”

“Yes, it’s a pretty famous drug in organic chemistry.”

“Professor Ehrlich, the person who invented it, failed six hundred times until he reached Salvarsan. He kept changing and changing the compounds, and repeating the experiments to get the structure of Salvarsan.”

“I remember hearing that when I was in undergrad.”

The conversation topic that Song Ji-Hyun chose for a date-like situation was Salvarsan; she was something else as well. She was as much a science nerd as Young-Joon, who lectured Park So-Yeon about how the smell of rain was a material emitted by bacteria when they first met.

Song Ji-Hyun said, “Doctor Ryu, I thought that the most difficult aspect in doing science was that you can’t tell if the research you are doing is going in the right direction. Ehrlich got lucky with Salvarsan; he succeeded in six hundred tries, but you might not even gain anything even if you fail thousands of times.”

“That’s right. Science is like inching forward in a dark room by feeling the ground. It’s really hard that you can’t figure out what the right direction is at all.”

“Right!” Song Ji-Hyun shouted. “It’s just like that metaphor. But it seemed like you knew where everything was and in what direction you had to go.”

“Oh, no. It’s not like I’m a fortune teller or something.”

“But you succeeded in everything you put your hands on. And you always seemed confident that you would succeed,” Song Ji-Hyun said. “There was a time where I imagined something unbelievable. I thought you could figure out successful drugs with a superpower that I didn’t know about.”

—Like Professor Shin Jung-Ju, people nowadays are getting close.

Rosaline sent him a playful message. Young-Joon quickly closed it and focused on his conversation with Song Ji-Hyun.

“But while working with you, I was very inspired by the human side of you that was behind everything.”

“ ... ”

“You were also struggling and afraid that the medicine you developed wouldn’t work. But you pushed for it because you thought it was the right direction, right?”

“Um... Yes, that’s right.”

“Doctor Ryu, apart from our personal relationship, I respect you as a scientist. I just wanted to tell you that. I am so glad that you are here in this world.”

“... Thank you.”

“I would like to work with you in the future as well.”

“I also have a lot to ask you, Doctor Song.”

Song Ji-Hyun smiled like she was satisfied as Young-Joon replied.

“I’m just going to go to the washroom before the food comes.”

Song Ji-Hyun left the table. While she was gone, Young-Joon began a conversation with Rosaline again.

‘I couldn’t ask you before because Doctor Song suddenly called me, but what are you talking about when you say you can survive for thirty minutes outside of my body?’

—It’s exactly like it says. Do you remember the time I first went into your blood?

‘Of course.’

—At the time, my mother cell was on a slide. And your finger was a few centimeters above it. But how was my mother cell able to go into the cut on your finger?

‘Moving in the air...?’

—That’s exactly right. I can float in the air. It’s a property I originally had, but I couldn’t do that in the meantime as I would die if I left your body. But I can withstand thirty minutes now.

‘Do you want to try it?’

Right after he told Rosaline... “Ack!”

In shock, Young-Joon shouted and almost fell off his chair. It was because a figure of a nine-year-old girl suddenly appeared out of thin air. She turned her face to glance at him with a playful face and lively eyes. Her face was...

“Sae-Yi?”

—My cell that is floating through the air probably looks like this to you. I look the same as your youngest sister, right?

“Shit... What kind of joke is this?”

—I did not control this. This is because my mother cell fused with your trauma. Your limbic system is creating an illusion.

“ ... ”

—Don’t worry. I won’t be visible to other people, and they won’t be able to hear my voice either. They won’t be able to see me without a microscope because the size of my body is only micrometers wide in diameter. I’m like a ghost that only you can see.

“But why is your hair red?”

—The hair follicle cells where hair grows is one of the places with the fastest cell division in the human body. Maybe it’s because of that, but my hair resembles the characteristics of my mother cell more than the trauma tissue.

“Hm.”

—I won’t come outside if you don’t like that I am borrowing your youngest sister’s appearance.

“No, it’s okay.”

—That’s a relief. To be honest, I was quite looking forward to leaving your body and traveling the world myself.

“ ... ”

Rosaline hopped down from the table as light as a feather and stood on the ground.

—I wanted to experience the world with my own body. I am very excited.

With her hands behind her back, she leaned back and turned to look at Young-Joon. Her face really looked like Ryu Sae-Yi before getting cancer, healthy and full of dreams.

—Can I go?

“Uh... Yeah.”

Young-Joon allowed her to go in a hesitant voice.

—Thank you!

Rosaline ran through the restaurant quickly.

“Don’t go too far!” Young-Joon shouted, not realizing the fact he just said that.

—Don’t worry! I can send you a message as well.

Rosaline was already out in the hall.

—And it’s okay since my mother cell is in your head.

With that message, there were no more. Rosaline was like an excited young child who was visiting the amusement park for the first time.

“ ... ”

Young-Joon was kind of worried. He felt like he had become a dad even though he wasn’t married.

Young-Joon took a sip of wine and waited for Rosaline and Song Ji-Hyun.

Ring!

A message popped up with a notification sound.

[Rosaline is exploring the outside space. You can use the mother cell's fitness and Rosaline's senses can be shared with you.]

[Share Rosaline's senses. Fitness consumption rate: 0.8/second.]

'Share senses?'

The fitness consumption rate was pretty steep, but he was so curious about how it would feel.

Young-Joon pressed the button.

Click.

The view that Rosaline was seeing showed up in his head. It was Song Ji-Hyun's pale, lean calf and thigh as she was standing up.

"Eek!"

Young-Joon's shoulders flinched in surprise.

It was in the women's washroom. Rosaline, whose viewpoint was quite low compared to Song Ji-Hyun, was right at her leg, she did not feel anything at all. However, that was normal because it was impossible to see a cell with the naked human eye.

Rosaline sent him a message.

—I am going to observe Song Ji-Hyun more closely. This woman played a big part in rescuing me from the trauma.

Rosaline climbed up to the sink and stared at Song Ji-Hyun's face very closely. She was looking in the mirror and fixing her makeup. She reapplied her lipstick and tidied her hair. Then, she made a few expressions.

"Ahem, hm."

She cleared her throat.

"It's really good."

She smiled into the mirror.

“Hm... Maybe this doesn't seem genuine? If we're in the middle of eating...”

Song Ji-Hyun puffed her cheeks with air and pretended to chew.

“It's so good!” she said in a bright voice as she looked into the mirror. “Doctor Ryu, thank you for recommending such a good restaurant.” Song Ji-Hyun tucked her hair behind her ear and smiled towards the mirror.

—...

Rosaline froze.

—Ryu Young-Joon, what is Doctor Song doing right now? Rosaline asked like she was shocked. Young-Joon had his eyes shut at the table like he saw something that he shouldn't have.

—Ryu Young-Joon, this is the most incomprehensible situation that I have ever heard and seen. Is Doctor Song chewing air? I don't think she has any mental illness...

‘No... It's not that. Stop looking at her and come out. I feel like I'm committing a sin.’

Young-Joon's face was flushed. He hastily stopped sharing senses as he felt like he shouldn't see any more.

* * *

Park So-Yeon completed thirteen types of the animal disease diagnostic kit. The rest were going as planned as well. Young-Joon was all over the place with the clinical trial of the pediatric liver cancer patient. She was motivated pretty hard after hearing that he was focused on experiments day and night. It was because she felt like she knew how he felt.

‘I really hope it goes well.’

Park So-Yeon, who knew about Young-Joon's trauma, prayed for that little girl whenever she thought of her. She hoped the clinical trial patient would be cured and that he would overcome his pain. And on one side, she focused on what Young-Joon had assigned her, as she wanted to welcome Young-Joon, who was busy with the clinical trial, with huge results when he returned. As

such, Park So-Yeon worked as hard on experiments as Young-Joon, and the results until now were quite successful.

'Hoof-and-mouth disease, AI, bluetongue disease, sheeppox, rabies, anaplasmosis, duck virus hepatitis, chicken mycoplasmosis, Akabane virus, Marek's disease, infectious bursal disease, porcine reproductive and respiratory syndrome.'

Single diagnostic kits for thirteen diseases.

'He'll like it, right?'

Park So-Yeon organized the diagnostic kit samples in the cold room and left the lab. It was already nine o'clock at night. Time flew by when she was working nowadays. Then, her eyes widened when she unlocked her phone.

[A-Bio's Cellicure clinical trial succeeds again. Their victory continues.]

[Confirmed that liver cancer and bone metastasis have all been destroyed.]

[The spotlight is on Cellicure, a miraculous liver cancer cure.]

[A-Bio finds commercialization potential in chimeric immunotherapy, a third-generation anticancer treatment.]

Park So-Yeon clicked on additional articles.

[Two genius scientists saved the life of a nine-year-old girl.]

[Song Ji-Hyun of Celligener, the new talented scientist who will follow Ryu Young-Joon and lead science in Korea.]

[What impact did the Ryu Young-Joon Syndrome have on young scientists in Korea? Focusing on Song Ji-Hyun, the influence on young scientists...]

Park So-Yeon stopped scrolling for a second. She read the articles one by one. Foreign media was also covering this news like it was really big. On the homepage of the New York Times and Le Monde, an article about the clinical trial was on the front page, and an interview that was linked as a special edition was written beneath it.

[Miracles can be produced in the laboratory.] magic

[Interview of CEO Ryu Young-Joon, who placed a conquer flag in pediatric liver cancer.]

[Interview of Song Ji-Hyun, the partner of humanity's greatest genius.]

On the main screen, there was a picture of Young-Joon and Song Ji-Hyun sitting beside each other. They were smiling in a friendly way.

Park So-Yeon read Young-Joon's interview first.

—The key developers of Cellicure are Doctor Song Ji-Hyun and her colleagues at Celligener. We bought this drug, which was in a clinical trial conducted by A-Gen, and ended up developing it together. All the credit should go to Doctor Song Ji-Hyun and Celligener.

Young-Joon gave up all the applause for Song Ji-Hyun in that humble interview. Song Ji-Hyun was worthy of it as Cellicure was something she achieved at Celligener from start to finish without Young-Joon's help. Honestly, the real genius might be Song Ji-Hyun if Rosaline wasn't there.

And in Song Ji-Hyun's interview, she thanked Young-Joon.

—I got a lot of hints as I watched Doctor Ryu's research. I also thought of the exosome coating technology thanks to him. Celligener received a lot of help from Doctor Ryu in the past, and he is a huge inspiration to me. I wouldn't have been able to do the clinical trial this well if it wasn't for him.

How they were flattering and respecting each other after a huge success looked very heartwarming. Song Ji-Hyun had made headlines before because of her beauty, but this time, she was rising to stardom at once as the focus was put on her skills as a scientist.

Chapter 100: Laboratory One (2)

Young-Joon, who had a good rest at home, something he hadn't done in a while, spent the weekend morning lazily. It wasn't until eleven o'clock that he slowly got out of bed and came out into the kitchen. He saw Ryu Ji-Won, who was watching the TV while laying on the living room couch, laughing.

"Oh, you're up. Mom made *kimchi-jjim*[1] before she left. Have some," she said after briefly glancing at him.

"What about you?"

“I had some before.”

“Where’s Mom?”

“She went out on a date with Dad.”

“Ha. You’re not going anywhere today? You don’t have any plans?”

“No? Should I have some?”

“Shouldn’t you be going on blind dates and meeting boys at your age?”

“It’s so bothersome.”

“If you have a mutation in the SLC35D3 gene, the dopamine receptors in your brain get dull and you get lazy. You don’t get any activity and only eat chips while sitting on the couch.”

“It doesn’t apply to me since I’m laying on the couch.”

“...”

“Oh!” Ryu Ji-Won suddenly got up.

“Right, I had something I wanted to ask. Who is Doctor Song Ji-Hyun? Are you guys dating?”

“What kind of nonsense is that?”

“Hehe.”

Ryu Ji-Won squinted and stared at Young-Joon. “What?”

“You know that you smelled like women’s perfume when you came in yesterday night?”

“Did I?”

“I heard that the clinical trial succeeded. From what I suspect with my detective skills honed by watching Detective Conan when I was younger, you went on a date with Doctor Song to celebrate the success. Right? Hehe. Tell me about it.”

“Stop joking around and keep watching TV. Is this the *kimchi-jjim*?”

“Yeah. And look at this.”

Ryu Ji-Won ran towards him with her phone. On it were posts on Young-Joon’s fan club. It talked about Song Ji-Hyun as much as Young-Joon.

—It’s great to see two geniuses cooperate and research together while respecting each other. I’m rooting for you.

—Unnie[2] marry me...

—Ryu Young-Joon and Song Ji-Hyun. These people are driving me crazy.

—They cured end-stage liver cancer that spread to the bone marrow in the pelvis... And in a nine-year-old? It’s like a movie. Insane.

—I know I shouldn’t be doing this with actual people, but I hope they get together.

—What kind of genius would be born if those two get married and have kids?

“Stop reading useless things,” said Young-Joon as he gave the phone back to Ryu Ji-Won.

“Who did you have dinner with yesterday?”

“Doctor Song.”

“See! I knew it.”

“She is just a research partner.”

“Are you sure she’s not a life partner?”

“Phew. You’re such a kid. Getting all excited about dating.”

Young-Joon poked Ryu Ji-Won’s forehead.

“Doctor Song and I aren’t like that. Mind your own business.”

Young-Joon turned his head towards the pot again.

“Oh,” he said in surprise.

Rosaline was on top of the kitchen counter beside the sink. She was looking straight down at the *kimchi-jjim* inside the pot and examining it while on her knees.

‘I really can’t get used to this.’

Rosaline had to recover for at least six hours in Young-Joon’s body after spending thirty minutes outside. It meant that she could only go outside for less than two hours a day.

—This is a very fascinating food.

Rosaline said.

‘Is it?’

—Korean cabbage leaves with bacteria and meat were steamed together with water. To me, it’s a pot full of bacteria corpses.

‘...’

—Don’t worry; they are mostly beneficial gut bacteria. It is lactic acid bacteria to be exact.

“Hey, so you’re not going to date Doctor Song? Honestly, I think there’s potential. To meet someone like that with your face is...”

—There are a lot of microorganisms that break down glucose, but there are significantly less bacteria that break down lactose. As mammals used lactose for that merit just before the point of divergence...

“Ah, shut up!” Young-Joon shouted. “Seriously, these kids. Move. I have to eat and go out.”

* * *

Park So-Yeon was already at A—Bio. She requested a research meeting with Young-Joon regarding the development of the animal disease diagnostic kit. The reason why she came to see him even though there was a team meeting that included Park Dong-Hyun and Jung Hae-Rim was because she wanted to talk about something personal with him. Park So-Yeon knew Young-Joon well.

All he did was work during work hours, and he was as cold as a robot when it came to science. However, he was the most warm-hearted person when he wasn't working. Although she hurt him a lot by leaving him when he was going through something really difficult, she knew that he wasn't the type to refuse when she asked to talk for a little while.

'Of course, we also won't be able to date again.'

Park So-Yeon had no intention of asking for that as well. It was true that she had regrets, but it was not about wanting to date him again. What was left was something like a regret for ending things the wrong way. Park So-Yeon wanted to fix that.

Her hands trembled as she grabbed the door handle to Young-Joon's office.

'Haa. Be calm. This is really the last time, so I have to do well.'

Click.

When she came into the office, he was sitting at his desk and reading a paper. He was exactly the same person who she loved back then.

"Have a seat, Scientist Park So-Yeon," Young-Joon said as he stood up from his chair. "I had seven meetings today, and this is my last one. Let's get it over with and go home. Let's take a look at the data."

As he sat down on the sofa, Park So-Yeon sat down across from him and opened her laptop. She began briefing him on the progress.

"As you can see, we tested for hoof-and-mouth disease, swine fever, and AI forty times and succeeded in diagnosing the target disease all forty times," Park So-Yeon said. "And if you see the next chart, for rabies and anaplasmosis..."

Her briefing went on for about fifteen minutes. During it, Young-Joon asked small questions like what the error bar beside the graph represented.

And as she went onto the last side, she said, "As mentioned before, we have secured single diagnostic kits for thirteen diseases, and we believe that diagnostic kits for the rest of the twenty-one diseases will be completed in two weeks."

“Thank you. Good work. You did a lot in a short span of time. It’s amazing.”

“It was just difficult to find the right conditions the first time, but the rest was just changing the type of Cas9. The rest will come out soon.”

“Great. I wasn’t able to follow the progress of the project because I was busy with clinical trials, so thank you for coming to see me and briefing me on it. Keep up the good work until the project is over.”

Young-Joon grinned.

“Of course,” Park So-Yeon replied.

“I think that’s everything, right?”

“...”

Park So-Yeon stared at Young-Joon. It was time for her to bring up the personal conversation.

“Um...”

“Oh, right,” Young-Joon said.

“So-Yeon-ssi, you might have to work with me for two to three more years after this project ends.”

“Pardon?”

“I am going to receive temporary authority over the Mobile Diagnostic Device Research Department. I have already discussed this with Mr. Yoon.”

“Really?”

“Yes.”

“For what?”

“I am going to purchase two hundred of Illemina’s equipment from Conson & Colson. I need scientists who can operate them and analyze DNA. I am going to begin a new genome project with them.”

“The Genome Project?”

“We will analyze the genomes of different races and create background knowledge for future pharmaceuticals. All pharma companies will use it.”

“ ... ”

“You are especially good, so I look forward to working with you.”

“ ... Um, sir,” Park So-Yeon said.

“Can I talk about something personal for a moment?”

Young-Joon shrugged.

“What is it...?”

Park So-Yeon hesitantly opened her mouth while touching her hair.

“I’m leaving A-Gen.”

Young-Joon’s eyes widened.

“Leaving?”

Park So-Yeon's face had a faint smile on it.

“What do you mean you’re leaving?” Young-Joon asked.

“That is... Can we... think that this is our last time together and... go back to the past?”

“ ... ”

Park So-Yeon bit her lower lip. She played with her pants near her thigh, clenching it and letting go repeatedly.

“Okay, go on,” Young-Joon said.

“ ... ”

Park So-Yeon cautiously spoke.

“I thought about it a lot as I watched you work. I wondered what it would feel like to constantly challenge and run towards your dreams and goals so

passionately and how much fun it would be. I just get my pay by doing a few experiments every day while trying to please my seniors.”

“Um...”

“And you were so different compared to me. The happiest I’ve been at this company in the past year and a half was when I was developing the diagnostic kit. Working was really fun. It was hard to stay up and research, but it was fun. So, I’m going to try and look for something like that. I’m going to quit my job and find something that I like... Something like my dream. So, I told Lab Director Kim Hyun-Taek that I’m quitting.”

“ ... ”

“It’s funny when I think about it now. I could have quit this company this easily. I thought I’d be in trouble if I kept dating you. Why was I so stupid? What was I so scared of that I betrayed someone who believed in me? And it was when things were the hardest for you. When there was someone who pointed out the unethical behavior of the company and fought with the director, I was just afraid of getting on their bad side and having problems with promotions...”

“... No, it’s understandable. I didn’t think of you and acted rashly. I don’t regret it, but I still feel bad. So, don’t feel guilty.”

“... Things are so ironic, aren’t they? I saw that Doctor Song, the one who developed Cellicure, is famous these days.”

Park So-Yeon smiled.

“Yeah. She was already talented and she has passion, too. She should get famous.”

“You look good together,” said Park So-Yeon. “I wasn’t good enough to be by your side. The reason we broke up is because I couldn’t measure up to you.”

“ ... ”

“That’s why I’m quitting. You get what I’m saying, right?”

“... Yeah, I think I know what you mean.”

There was a moment of silence. Park So-Yeon bit her lip.

“Phew. I wasn’t going to talk about this first. I started off so weird.”

She chuckled. In contrast, her eyes were full of tears. She lowered her head.

“I’m sorry...” she said. “I’m really sorry. And congratulations on everything you achieved after leaving Lab One. I am sincerely happy for you, and congratulations.”

“ ... ”

“I know that you don’t have any feelings towards me now. I’m not asking you to take me back or anything. I just wanted to apologize and congratulate you.”

“... Okay.”

Park So-Yeon sniffled, then smiled.

“I should get home now. I’ll make sure to finish the remaining kits, so don’t worry. And you have to be professional with me like usual if you meet me in the few weeks I have left, so you don’t have to care about that.”

Park So-Yeon got her things and left.

“I’ll be on my way,” she said. “Mr. Ryu.”

* * *

Click.

Park So-Yeon felt like her heart, which was drenched in sadness, was beating out of her chest as she closed the office door behind her. She let out a deep breath. It was over now; it was a clean ending. She felt like a weight had been lifted off her shoulders.

‘Should I go to the United States after I quit... Or maybe Europe... Should I apply for the WHO?’

A smile appeared on her face. She came down from the office with light footsteps. magic

‘Did he say that he was going to get authority of the Diagnostic Device Department for a few years?’

Park So-Yeon tilted her head in confusion. Recently, Kim Hyun-Taek had been planning a new national project for the Diagnostic Device Department. Even she didn't know what it was yet in detail. All she knew was that Kim Hyun-Taek was making it a large project with all the department members participating one hundred percent. Park So-Yeon had told him that she was quitting in the process of writing the list of participants for the project as it could be a problem if she quit after the project started.

'But can they transfer the authority over the department after this kind of thing starts? When Kim Hyun-Taek is doing a national project with this department?'

Of course, it was going to take a while for it to be selected as a national project as it was just in its planning stages right now. And there wouldn't be any problem if Young-Joon got the departmental authority in the meantime; there was a high chance that that would happen.

'But something feels off for some reason.'

Park So-Yeon thought as she got on the bus.

'I should find out more about this project when I go to work tomorrow.'

1. a steamed kimchi stew, typically with pork ?
2. How a younger woman refers to an older woman informally. ?