

Super Genius DNA

Chapter 108: Plant-based Pharmaceuticals (1)

Confusion swept over Principal Scientist Kim Joo-Yeon. It was the same for the other scientists. The department that had the worst performance at Lab One was the Plant-based Pharmaceuticals Research Department. Just like Young-Joon originally thought, this department was created to produce pharmaceuticals from plants. However, their initial goal was not to mass produce pharmaceuticals; it was just an attempt to become free from bacteria and viruses that usually infected animal cells.

“All that department has been doing for the past ten years is making vitamin-rich lettuce... You know that, right?” Hwang Chan-Mi asked.

“Of course,” Young-Joon replied.

They weren't even purifying vitamins or anything, but just growing lettuce that was bred to contain a lot of vitamins. Honestly, it wasn't much different from what the Health Food Department was developing. It was an awkward research direction considering that the name of their department was the Plant-based *Pharmaceuticals* Research Department.

“To be honest, the reason they have been doing that for ten years is because our lab has given up on making pharmaceuticals in plant cells,” Kim Joo-Yeon said.

“The Plant team said that during our meeting. I am thinking of restarting the business they gave up on,” Young-Joon replied while calmly nodding.

“But... Director, I'm sorry, but it's not going to work well. I know this because my colleague who joined the company with me is the head of that department, but they all tried really hard back then. But it doesn't work. The process of expressing genes in plants is very different from animal cells.”

“I know.”

“The reason that most viruses and bacteria that infect animal cells do not have pathogenicity against plant cells is because their environments are completely different. The pattern of sugar chains attaching to peptides translated from RNA is completely different in plant cells compared to animal cells. Even if you put in the same gene, the results will be different. To analyze that pattern and put in a gene that matches it? That is... That is incredibly difficult. It's harder than getting an anticancer drug like Cellicure to Phase Three of clinical trials.”

“But we can’t just let antibody drugs or biopharmaceuticals be produced and sold at extremely high prices, right? A lot of money is going into the vaccines that are being used for HIV eradication as well. There is progress being made for that project because the WHO is backing it up and numerous charity organizations are pouring money into it,” Young-Joon said. “I have no intention of being satisfied with just HIV eradication, and along with the extinction of mosquitoes, I am going to eliminate countless infectious diseases from this planet. For this, it is essential to lower the unit price of biopharmaceuticals overall.”

“ ... ”

“I will give you the direction for the basic research, so don't; worry and follow me.”

“Have you discussed this with the Plant team?” Kim Joo-Yeon asked.

“Of course. They are burning with passion right now.”

“ ... ”

Kim Joo-Yeon was at a loss for words. This was the democratization of drugs. There were actually a lot of expensive pharmaceuticals that cost hundreds of millions of won until complete recovery, but they just didn’t receive a lot of attention because the number of patients was so small. With Young-Joon, these highly expensive drugs may all become as cheap as vitamin supplements.

‘Wait. Can vitamins be produced this way as well? Then, the supplements on the market right now will...’

A chill ran down Kim Joo-Yeon’s neck.

“We might be shooting ourselves in the foot with this,” Kim Joo-Yeon said.

“Director, if we succeed in what you said, there will be a revolutionary change in the price of pharmaceuticals. There will be pharmaceutical companies that go out of business if the prices drop that low. We don’t know the changes that happen to A-Gen’s financial structure. There may no longer be a merit to the pharmaceutical industry itself, and...”

Kim Joo-Yeon stopped talking mid-way. It was because Young-Joon was staring at her.

“Um... I would like to reduce the prices, but I just wanted to tell you that I am worried that management will not like it.”

“From now on, we will call this the plant-based pharmaceutical production method. In five years from now, the trend in pharmaceutical companies will

change to this,” Young-Joon said. “And as you said, it will become a huge variable in the management budget of many pharmaceutical companies. There will be companies among them that will go bankrupt.”

“ ... ”

“We can’t do anything about those that cannot adapt and collapse. For people who lose their jobs, we can hire them if they are talented and someone we need. But we can’t not develop cars because we are worried about coachmen, right?” Kim Joo-Yeon nodded in confusion. Conversely speaking, they were developing cars in a time when people rode carriages. What she meant was that it would be too difficult.

‘Maybe it’s not a big deal to Ryu Young-Joon?’

Kim Joo-Yeon could not guess how confident Young-Joon was in starting this project as he was a person who had done incredible research like it was nothing. free(w)ebnovel(.)com

* * *

In the pediatric ward at Sunyoo Hospital, a group of children were joking around and playing. A ten-year-old boy put on a white mask that he got from somewhere and pretended to be a doctor.

“Where are you feeling pain?” A girl who looked to be about eight-years-old lied down on the bed and touched her stomach.

“My tummy hurts.”

“Let’s take a look.”

The boy put the wire of his earbuds on his friend’s stomach instead of a stethoscope.

“Hup! This is a stomachache!”

“What’s a stomachache?” the girl asked with wide eyes.

“A stomachache is a very scary disease. You need to get a needle this big.”

“Stupid, a stomachache means that your belly hurts. She came because her belly hurts, but how can you say that she has a stomachache?”

A nine-year-old girl who was beside them interrupted. She was one of the legendary patients of Sunyoo Hospital. She was the child who had survived an extreme situation where cancer cells spread to her pelvis during her end-stage liver cancer. To put it strongly, she had crossed the River of Styx

halfway and returned. And now, she had recovered enough to join the relatively healthy group of kids and play with them.

“No, Yoon-Ah. I diagnosed her with a stomach ache because her belly hurts. That’s what my doctor said, too. He said I have a stomachache,” said the boy.

“He was talking about your symptoms. A symptom and a disease are different things.”

Lee Yoon-Ah flinched. She would have been hurt by that statement in the past, but she was not that surprised now. All she felt now was a little bit sorry and disappointed.

“I’m getting discharged tomorrow,” Lee Yoon-Ah said.

“You’re getting discharged?”

“Discharged?”

Surprised, all the children gathered around her.

“You’re all better now?”

“Yeah.”

“Then you’re going home?”

“Yeah...”

“It’s fun when Yoon-Ah is here. She’s going because you said that your tummy hurting is a stomachache, Ho-Taek-oppa.”

The girl who pretended to be the patient got up and scolded the boy.

“Don’t go home, Yoon-Ah. Play with us, okay? I’ll be good,” the boy said in disappointment.

The adults who were watching them smiled slightly.

“He said that he’ll be good. My husband always says that, too.”

The women chatted playfully.

“I’ll visit often,” Lee Yoon-Ah said.

Creak.

The door to the patient room opened. A nurse and Kim Hyo-Jin appeared and looked for her.

“Come here, Yoon-Ah.”

This was her last examination before being discharged. Kim Hyo-Jin was overwhelmed to the point where she felt emotional. She took Lee Yoon-Ah's hand and went to the examination room. There were two scientists sitting beside Kim Chun-Jung, their doctor. It was Young-Joon and Song Ji-Hyun. They were reading the data that checked how much Cellicure and the chimeric immunotherapy was discharged from the body and the presence of any side effects.

"There aren't any problems so far," Song Ji-Hyun said.

"There is a lot of clinical data that Conson & Colson had about chimeric immunotherapy. It hasn't been tested on a lot of children, but since all the values are consistent with clinical data, it shouldn't cause any side effects if everything has been okay so far," Young-Joon said to Kim Chun-Jung.

To be honest, that data was additional, and Young-Joon actually examined Lee Yoon-Ah in Synchronization Mode. Being extra cautious, Rosaline came out herself and observed her condition up close.

—She is cured. There aren't any cancer cells left. None.

Rosaline said as she patted Lee Yoon-Ah's shoulder. Lee Yoon-Ah didn't feel anything, but Young-Joon was relieved.

"There isn't a lot of clinical data on Cellicure, but the results are generally consistent with Phase One data of the old version," Song Ji-Hyun said.

Kim Chun-Jung thoroughly examined the data sheet, then talked to Lee Yoon-Ah.

"Do you feel any discomfort anywhere?"

"No."

"And it doesn't hurt?"

"No."

"..."

Kim Chun-Jung smiled.

"Mrs. Kim."

"Yes!" Kim Hyo-Jin replied right away.

"We don't know what kind of aftereffects she will have because Yoon-Ah resected a lot of her liver. If possible, try not to eat anything heavily seasoned, and if you ever need to go to the hospital, make sure to let them know that her liver has been resected when they use medicine."

“Yes, I will make sure to do that.”

“And because she’s still developing, we don’t know how her liver will recover. It will be best for her to come in regularly and be examined for the next five years.”

“Of course...”

“Anyways, I’m very glad that Yoon-Ah has become much better. You’ve worked so hard. You can leave tomorrow morning. And I want to especially thank Doctor Ryu and Doctor Song,” said Kim Chun-Jung as she gestured to them. magic

Kim Hyo-Jin quickly bowed.

“Thank you so much. All three of you have saved my daughter’s life. Thank you so much. Especially Doctor Ryu... Chimeric immunotherapy is really expensive, but you gave it to us free of charge... How can I thank you...”

“I can’t take money since it’s a clinical trial. We should actually be the ones paying you,” Young-Joon said.

To be honest, Lee Yoon-Ah was a reason why he was determined to develop the plant-based pharmaceuticals production method. He was interested in research related to this from before, but it was less important compared to other things; he thought that developing drugs for incurable diseases was first. However, the emails he received after successfully treating Lee Yoon-Ah showed him the reality.

[Hello, I am a father in my forties living in Chungcheongnam-do. My son has pediatric cancer that has metastasized to the bone, but I heard that you have succeeded in curing this with the chimeric immunotherapy. I am asking if we could receive the treatment. I heard that not anyone can get the treatment as it is still in clinical trials, and that it is very expensive, but...]

Young-Joon received hundreds of emails like this, and they weren’t just from Korea; he got countless emails regarding this from overseas as well. However, he could tell that everyone struggled with the financial situation as he was classifying the emails. This situation was actually ironic as the clinical trial was completely free. The patients and their families weren’t talking about money because they didn’t know that.

When Young-Joon read their logic, it was usually in this order:

1. Not everyone can get into the clinical trial.
2. This treatment was extremely expensive.

3. Then, won't they include us in the clinical trial if we pay money?

However, the chimeric immunotherapy was an ultra-expensive treatment that cost over four hundred million won for one round of the treatment. How could regular people pay that? As such, there were usually two kinds of people. The first were people who were financially well-off. The best of them was an oil king from the Middle East, and they wrote Young-Joon an email.

[To Doctor Ryu. I am Aziz, and I live in Saudi Arabia. I have seven sons, and my first son is very sick from pediatric cancer. He received treatment in America, but he was declared terminally ill. We thought about receiving chimeric immunotherapy through Conson & Colson, but they didn't do it because they thought the success rate would be very low and if it failed, it could be a problem when getting approval from the FDA. However, I know that the child you successfully treated with this treatment was in worse condition. I can donate over thirty billion won to A-Bio, and if you would like to expand your business to Saudi Arabia...]

And as expected, the other type of people were regular folks who didn't have a lot of money. Unexpectedly, there weren't a lot of people who appealed to human compassion. They actually told him not to worry about the cost of treatment, saying that they would steal, or sell their house or organs for it. They were scared that they would lose their opportunity to be treated if they acted timidly.

'The problem isn't other pharmaceutical companies going out of business when this is the situation...'

Young-Joon thought about what Kim Joo-Yeon said again. To be honest, other pharmaceutical companies weren't really where problems could occur in this ambitious business.

* * *

"We have to prepare to fight insurance companies," Young-Joon said. Park Joo-Hyuk squinted.

"With who?"

"Insurance companies."

"Woah... Now that you've killed all your competitors in the STEM,[1] you're going to take over business and economics?"

"Do you think I'm a gangster or something?"

"But why are you fighting insurance companies?"

“I’m in charge of Lab One now, right?”

“Yeah.”

There are two big projects that I can start from here,” Young-Joon said. “One is the revolution in drug prices. The other is the Genome Project through the Diagnostic Device Department.”

Park Joo-Hyuk had heard a general explanation about the way he was going to lower the price of pharmaceuticals. He had also heard about the Genome Project, but he didn’t understand them completely.

“But what does that have to do with insurance companies? Because the prices of drugs will fall?”

“Do you know that Angelina Jolie had surgery to resect her completely normal breasts?” “Really? She cut them off even though they were fine?”

“Yes. The probability of breast cancer was high according to her DNA test.”

“Just because of that...”

“It’s not just because of that. She predicted it and dealt with it before the tumor formed. It’s one of the most common things we’ll see in future medicine. But it would have started in the West.”

“...”

“If we conduct the Genome Project on all races and build a dense DNA database, that future will start in Korea.”

“Oh, I get it. It’s because insurance is a business where you bet on the uncertainty? If we can predict diseases, insurance has no place to stand?”

Young-Joon nodded.

“It will take time to predict it precisely, but in addition to that, we have powerful, rapid, and cheap diagnostic kits, treatments that are the price of vegetables, and a next-generation hospital armed with a future technology called regenerative medicine.”

“Woah...”

The big picture was already completed: they would predict the disease, quickly diagnose it with a cheap diagnostic kit, rapidly cure and discharge the patient by using the next-generation hospital system, which is based on cheap pharmaceuticals and regenerative medicine. What point could insurance companies target if the uncertainty of disease development significantly

decreased, treatments became so cheap that even poor people could buy it, and patients could quickly recover and return to their everyday lives?

It was obvious that this major structural reform that was going to happen in medicine was going to cause huge changes in the insurance market.

“We have to begin preparing for that future,” Young-Joon said.

1. acronym that stands for Science, Technology, Engineering, and Mathematics ?

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“These are the forty completed kits that diagnose thirty-two diseases in groups or individually,” said Park So-Yeon as she pushed the box containing forty kits towards Young-Joon. “I backed up all the research notes of the development process on the company’s cloud, and I left the hard copy in the laboratory archive, so you can use it when you need. And this is an explanation of each project. I just wrote the basic things.”

Young-Joon took the explanation that Park So-Yeon handed him. He flipped over each page and read through it.

“Wasn’t yesterday your last day? I heard that you left everything in my secretary’s office when I wasn’t here,” Young-Joon said.

“I did, but I had a couple of things to add to this explanation and data, so I came for that. I dropped off all the products here in the secretary’s office yesterday.”

“I see.”

Young-Joon organized the explanations and put them on one side of his desk.

“So, are you leaving now?”

“Yes. I’m going straight to the airport because my flight is soon.”

“Do you want me to go with you?”

“Oh, it’s okay...”

“Let’s go in my car.”

Young-Joon took Park So-Yeon and went to the parking lot. He shook his hand as the K-Cops security team was about to escort them to their van.

“It’s alright. I will drive.”

Young-Joon declined and went into the driver’s seat.

“Then we will follow you in a different car,” Kim Chul-Kwon said.

“Alright.”

Young-Joon took Park So-Yeon, who was sitting in the passenger’s seat, out of the company. On the way to Incheon Airport, he asked, “Where are you going now?”

“America. I’m going into the WHO,” Park So-Yeon replied while staring at him as the strictly formal tone he had been keeping with her disappeared.

“The WHO?”

“Yeah. I’m already confirmed to join them.”

“It’s not easy to get into there. It’s amazing.”

“They took me as soon as I said that I was one of the developers of the diagnostic kit.”

“Haha, I guess it was a valuable project. Then what are you going to do there?” “I’m going to go to Switzerland after I finish a few things in America. The WHO headquarters are there. After that, I’ll probably be dispatched to Africa.”

“Africa?” “The place where the diagnostic kit is being used the most is Africa. They’re using a lot for HIV eradication.”

“So, you’re doing something related to the diagnostic kit in Africa?”

“Yeah. I think they talked about the need to produce the diagnostic kit within Africa. I’ll probably go there and work on optimizing the production process in their conditions.”

“ ... ”

Young-Joon thought for a moment, then said, “So-Yeon, the Diagnostic Device Department is going to start the Genome Project.”

“The Genome Project? You’re talking about collecting DNA data from different races?”

“That’s right.”

“You’re going to find disease-related mutants based on the DNA data you obtained from the Genome Project?”

“Yeah.”

“It’s not going to be easy. The relationship between gene mutations and diseases is clear, but the data will greatly vary between individuals. The same mutation can present differently in different people.”

“Probably. So, I’m thinking of gathering the genomic data of at least one hundred million people.”

“What?”

Park So-Yeon was filled with shock.

“How many people did you say?” she asked again.

“One hundred million.”

“...”

“Individual differences will gradually fade as the sample size becomes enormous. If one million people out of one hundred million are skin cancer patients, I can get values beyond individual differences if I compare their genetic variation against the remaining ninety-nine million people.”

Chills ran down Park So-Yeon’s spine.

“You’re probably the one person who can start a project that big.”

“I am going to request cooperation from other companies and universities that work on DNA analysis. It’ll be an international project like HIV eradication.”

Of course, Young-Joon could find genetic mutations with Rosaline. However, the fitness consumption to scan the entire DNA of humans, which was about three billion letters, would be too great. Additionally, it would be difficult to convince people if he found mutation points like that. In this project, it would be most effective to use Rosaline to overcome the important obstacles.

“Come back any time if you are interested in the Genome Project,” Young-Joon said.

“This is why you offered to give me a ride, isn’t it?”

Park So-Yeon smiled.

“That’s not why. It’s just... I wanted to see you off.”

“I know how you feel. Thanks.”

“It’s easy for former employees to join the team because the process isn’t very picky. And you can come back whenever you want, especially because you were a key person in developing the diagnostic kits.”

“Thank you, but it’s okay. I am going to find what I should do in Africa.”

“Okay.”

“We might meet again someday because of how small this society is. I look forward to working with you.”

Young-Joon drove to Incheon Airport. Their romantic relationship ended long ago, and they had settled all their old feelings last time. The project they worked on together as an employee and executive was over as of today. Their emotions and power would be equal the next time they met; they would just be another colleague working in the same field.

Young-Joon waved goodbye to Park So-Yeon who was going into the airport terminal and returned to A-Bio.

* * *

The most powerful technology that existed in manipulating genes was Cas9, the genetic scissors. The Cas9 and RNA complexes were going to be wrapped in double lipids and introduced to the chloroplast. If they put in the desired gene at this time, the gene would be inserted into the sliced part, which was cut by Cas9, through homologous recombination. It couldn't be described as sophisticated work, but a chemical probability game. The success rate was very low, but it wasn't that difficult for Young-Joon.

'Finished.'

Young-Joon completed the experiment and cleaned up the sterile hood. There was no way to observe the molecular phenomenon even with a microscope, but he confirmed that he succeeded with Synchronization Mode.

“Please grow this cell,” Young-Joon said as he handed a scientist a cell culture plate.

“Yes, sir!”

Lead Scientist Jang Jin-Ho of the Plant-based Pharmaceuticals Research Department took the plate. He was a little amazed. This department was the one that lagged behind the most at Lab One. Then, someone huge called Young-Joon just burst onto the scene. Lab Director Kim Hyun-Taek berated the Plant Department a lot in the past, but he didn't really provide any good directions for their research.

However, Young-Joon was different. He actually came into the lab himself and started off this major project himself. Dozens of department members were watching Young-Joon's experiment behind Jang Jin-Ho with a tense expression.

“It was a simple transfection, but it looks different than us,” Scientist Lee Shin-Ju said.

“It looks like the pipette is shining...”

“Will the target gene really be expressed from that?”

The other scientists murmured.

Before leaving the lab, he said to them, “I am going to come to this lab for the next three weeks. Let’s correct the tobacco plant genome together. We have to manipulate a few genes that affect the sugar chain with Cas9 for the target gene to be properly expressed.”

Young-Joon actually came to the lab for the next three weeks. He was probably constantly busy as he held big titles like the CEO of A-Bio and Lab One Director, but he never left the frontlines of research. Since the project was in its beginning stages, the employees needed to become familiar with improving plants using Cas9 at the least. They were smart people, so they would follow along well if Young-Joon just showed them once.

However, Young-Joon was not only focused on this experiment.

“The Diagnostic Device Department will be divided into two teams. One team will work on the Genome Project. It will take at least two years, and they will be analyzing the DNA of over one hundred million people of all the races in the world,” Young-Joon said to the entire department. “You will obtain some skin tissue cells from subjects all over the world and use the Illemina equipment to analyze their entire DNA. There are two major points: one is to collect the entire three billion letters of DNA data of each subject, and the other is the subject’s disease information.”

“Disease information? I don’t think we can collect that information because it’s private information,” Song Yu-Ra said.

“That’s right. Because of that, we cannot record any personal information when conducting this study. Only write the age, sex, and race. Destroy all personal information like their name or contact information,” Young-Joon replied. “The Genome Project can be done because it is an academic study as long as it remains anonymous. We will also distribute all the data we have free of charge.”

“What will the other team be doing?”

“All academic studies are bound to be used commercially.” Young-Joon grinned.

* * *

SG Life was one of the oldest insurance companies in Korea's private health insurance industry.

Senior Managing Director Lim Gil-Won was doing a presentation at the board meeting. He had become a senior managing director in his late forties, and he had quickly predicted problems for the company's future with his unique sense of insight and danger detection skills. And recently, he had been focusing on Young-Joon's new technology parade.

"The item I am bringing up today is regarding CEO Ryu."

"Ryu Young-Joon again?" fr eeweb novel

Executive Vice President Baek Joong-Hyuk frowned.

"I keep bringing up this item because we have not come up with a concrete alternative," Lim Gil-Won explained.

"Now, stop with all this."

"CEO Ryu bought DNA analysis equipment."

"DNA analysis equipment?" Chief Executive Officer Hwang Jun-Young asked.

"Yes. I heard he bought two hundred of them. Where would CEO Ryu use that? I believe that he will use that to start a gene analysis business." "A gene analysis business?"

This time, the directors' faces changed. The gene analysis market was one of the future industries that was quite worrisome among insurance planners. Of course, the insurance industry still required information such as family history when customers subscribed to insurance products. However, if gene analysis data became commonplace, the probability that was previously lumped with family history would become much more accurate. From the perspective of insurance companies that developed and sold products based on uncertainty, the future of more accurate predictions was burdensome.

"Is that information accurate?" Hwang Jun-Young asked.

"I am certain. Dozens of Illemina's equipment came into A-Bio," Lim Gil-Won said. "And I don't think that is all. We need to come up with countermeasures against the huge structural changes that CEO Ryu will make in the..."

"Stop," Baek Joong-Hyun cut him off. "Director Lim, you're talking about CEO Ryu like his work is going to cause some sort of structural reform in the whole

insurance industry, but have there been any kind of changes to our work even though he has been on the news countless times?”

“ ...”

“Now there are only people who think that glaucoma is no longer one of the three major eye diseases. Now, our insurance covers glaucoma stem cell therapy. That’s all the change we’ve seen.”

“That is because the only kit that has been commercialized is the glaucoma cure kit. If you look at the business that CEO Ryu is doing...”

“You keep bringing up that item every time we have a board meeting, but I don’t think we need to be that nervous. Let’s keep watching. Slowly. Let’s hear the next item on the agenda,” Baek Joong-Hyuk said.

“One of the new cancer insurance products that Boryung Life has released provides living expenses...”

The next director began presenting.

An hour later, the board meeting came to an end. Lim Gil-Won, who returned to his office, couldn’t calm down his anger and kicked his sofa.

Thud!

“Damn it, these grandpas...”

He swung his fists in the air. He felt like he was going to die from frustration. Stagnant water was bound to rot; those senile old men were so stuck in the old-fashioned insurance industry and could not predict the future.

‘The entire medical insurance industry is on the verge of chaos. What good is the new product that Boryung Life released?!’

Knock knock!

“Mr. Director!”

Executive Manager Lee appeared outside.

“Yes.”

“You have to see this.”

He handed Lim Gil-Won his tablet. A news article was on it. As soon as he saw Young-Joon’s name in the headline, he thought that the time had come.

[Ryu Young-Joons succeeds at producing Alimap, a kidney cancer treatment, from plant cells.] *freeweβnovel.com*

“Plant cells?”

He was expecting something about the Genome Project, so he was a little surprised when he saw that it was completely different. However, his fingers trembled as he read the news.

[... As such, it is predicted that Alimap's production price will fall to less than one-thousandth of the original price, and Director Ryu Young-Joon stated that he would apply this production method to other drugs as well. Each drug will need its own optimization process, but theoretically, there will be a major drop in the price of all kinds of bio-based drugs, and...]

"No way." Lim Gil-Won turned off the news. The diagnostic market was not the only problem; he could also reform the price of treatments like this.

"Damn it."

He sighed.

"I didn't even think of this... Anyways, thank you for giving me this important information, Mr. Manager."

"Um... Sir, there's more news after it."

"There's more?"

Lim Gil-Won turned on the news again.

[Ryu Young-Joon begins Genome Project for one hundred million people.]

[Ryu Young-Joon provides genetic testing services.]magic

Chapter 110: Plant-based Pharmaceuticals (3)

There was a gene named BRCA. It was one of the most famous genes in the world of genetics. There were two types of BRCA that existed in the body: BRCA1, which existed on the seventeenth chromosome, and BRCA2, which existed on the thirteenth chromosome. The reason why they were famous was because they were cancer inhibiting genes.

Human DNA was continuously destroyed by ultraviolet rays, chemicals, and naturally occurring reactive oxygen species in the body. Because cells with destroyed DNA died, there was a mechanism in the cell to repair damaged DNA to prevent death, and the BRCA gene was one of the genes that repaired DNA damage. But if there was a mutation in the BRCA gene and it could not function properly, the cell would be left with damaged DNA and just die. However, there were some unlucky cases where the DNA would repair itself in a slightly misaligned shape with BRCA. Then, those cells would turn into cancer cells.

“... As such, there is a high chance that cells with broken BRCA will become cancer cells,” Young-Joon said.

The members of the Diagnostic Device Department were taking notes in their notebooks while listening to Young-Joon’s presentation.

Young-Joon continued with his lecture.

“The probability of cancer occurrence changes depending on where the mutation is in the BRCA gene, but women who have a mutation in BRCA have a fifty percent chance of getting breast cancer and a fifteen percent chance of getting ovarian cancer. In Angelina Jolie’s case, there was an eighty-seven percent chance of her getting breast cancer and a fifty percent chance of ovarian cancer. Ultimately, she got surgery to remove her breasts, ovaries, and fallopian tubes.”

“Are you going to begin BRCA gene testing services with this diagnostic project?” Song Yu-Ra asked.

“That’s right.” Young-Joon nodded.

“As you all probably know, according to WHO statistics, four hundred fifty-eight thousand people die of breast cancer each year. If we can recognize the risk of developing it by genetic testing, it will help us control the incidence of cancer.”

“... ”

“What I want is for people to receive our services and test genes like BRCA, and I want people with a high chance of developing it to receive preventative surgeries or check frequently with the diagnostic kit. The survival rate will increase dramatically if it is diagnosed early and they receive treatment right away.”

Young-Joon handed out documents to the department members.

“There are twenty-four famous gene mutations in the data provided. This data includes three BRCA mutants. From now on, we will start a business that diagnoses twenty-four of these target mutations.”

The scientists looked over the documents and checked the list of mutations.

—P53

—KRAS

—EGFR

They were all famous ones like BRCA, and they were genes that controlled the apoptosis signal of cells or growth signals. And everyone knew that these twenty-four targets weren't all of them. Young-Joon began a huge Genome Project, and it was to discover new targets; he was trying to find indicators of cancer that the scientific community did not know yet, but were as important as the BRCA mutation. If the mutation of an unknown gene A was only found in lymphoma patients, it could be called a sign of lymphoma, couldn't it? A huge genome project that decoded the DNA of one hundred million people. The big data to be obtained from it may be able to read all cancerous species that occurred in the human body.

“ ... ”

Song Yu-Ra's hands trembled in shock.

There were a lot of changes that happened to the disease treatment market after Young-Joon began induced pluripotent stem cells. Now, a lot of developed countries were building next-generation hospitals and investing in stem cell technicians. The treatments and cures that were in clinical trials right now were soon going to become products and pour out.

Additionally, a major structural reform was happening in the disease prediction market.

“You are the best technicians at DNA analysis, and there are two hundred of Illemina's DNA analysis machines here, the best equipment in the world. Let's begin the genetic testing business as early as next week,” Young-Joon said.

* * *

The Anticancer Drug Research Department and the Plant-based Pharmaceuticals Research Department were both in shock. It had already been a week, but their shock seemed to not go away. “How did he do it...?” Kin Hyun-Seok mumbled.

Young-Joon had succeeded in producing Alimap from plant cells; it really worked.

“Seriously, this makes no sense. What do you think?” Kim Joo-Yeon asked like she was dumbfounded.

“We tried to express animal genes in plant cells for ten years, but we have never succeeded once,” Jang Jin-Ho replied.

“But the director did it in one month?”

“Yes...”

“ ... ”

Young-Joon picked out around a dozen locations from the hundreds of millions of target locations in the tobacco plant, as if he knew it all and it was obvious to him to manipulate them. After he cut them and stuck them together with genetic scissors, he put the new genes in the chloroplast. Then, all of a sudden, Alimap began coming out of the leaves. It was like looking at AlphaGo put together a one hundred thousand-piece puzzle in ten minutes; no matter what piece he picked up, he put it into the right location as soon as he picked it up.

“Can a human be like that?”

“ ... ”

Click.

“Oh, you were using the conference room. I thought it was empty.”

“No, we’re done now. We were just leaving,” Jang Jin-Ho said as he got up. “You can use it, direc... Hup.”

The end of his sentence was stopped by bewilderment. It was because a guest was standing behind Young-Joon. It was Yoon Dae-Sung, the CEO of A-Gen.

“Sir!”

Surprised, the employees all greeted him.

“They are the scientists who were responsible for and drove the expression of Alimap in plant cells. A word of encouragement, please.”

Young-Joon introduced them to Yoon Dae-Sung.

“Great work, everyone. Thanks to you, we are able to produce Alimap very cheaply. Honestly, I don’t know if this is good for the company, but... Hahaha.”

Yoon Dae-Sung laughed awkwardly.

“Hahaha.”

Young-Joon laughed with him and let him into the conference room.

“T-Then we’ll be on our way.”

The members of the Anticancer Drug Research Department and the Plant-based Pharmaceuticals Research Department bowed to Young-Joon and Yoon Dae-Sung, then quickly ran outside. Young-Joon closed the door and sat across from Yoon Dae-Sung.

“Mr. CEO, there was a plan to build a large GMP facility in Pyeongtaek, right?”
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Young-Joon got straight to the point.

“There was.”

“What if we set that up as a plant-based production facility?”

“And mass-produce Alimap from there?”

“Yes. I am thinking of taking all biodrugs to a plant-based production system from now on. The possibility of contamination is low, and the amount of production is much higher. In particular, antibody types that were previously produced using eggs will be produced more efficiently if they are made from plants,” Young-Joon said. “As you probably know, producing biodrugs based on plants will be the new trend in drug production because we succeeded in producing Alimap from plants. To be ahead in this field, we need a huge GMP plant-based production facility.”

Yoon Dae-Sung already knew that Young-Joon would propose this. As such, he was not that surprised at this request. However, he was worried about something else.

“But Doctor Ryu, will it be okay to reduce drug prices this sharply? I think we might be destroying our livelihood with our own hands.”

“We could be. However, we need to adapt and change our livelihood if science advances. We can't take swords to a battlefield when tanks have been developed, right?” Young-Joon said.

“...”

Yoon Dae-Sung closed his eyes and thought. After a moment of silence, Young-Joon spoke.

“And there is something I would like your help with.”

“My help?”

“The genetic testing business and cheap treatments might pressure insurance companies.”

“Probably.”

“I am also working with the legal team and preparing a response. But I need your help in this process.”

“Hm.”

Yoon Dae-Sung's worries about their livelihood disappeared completely from his mind. This project was not being done by A-Bio; they were participating in this business by lending Illemina's equipment, and it was Lab One of A-Gen who was in charge of the project. This meant that if insurance companies attacked this business, they would not only be shaking up Young-Joon, but Yoon Dae-Sung as well.

'What a shrewd man...'

Yoon Dae-Sung clicked his tongue in his head. Young-Joon, who was eating away at A-Gen's shares and at odds with Yoon Dae-Sung, was now trying to throw Yoon Dae-Sung in front of him as a shield

"How can I help?"

However, Yoon Dae-Sung couldn't ignore him, as this project was being done by the Anticancer Drug Research Department and the Diagnostic Device Research Department, the two most well-known and high-performing departments among all the research departments at A-Gen.

Plus, Yoon Dae-Sung didn't dislike Young-Joon. Even if they were going to end up fighting for the management rights to A-Gen, it bothered him that other people were attacking Young-Joon right now.

"I will support you fully if it is something I can help you with."

* * *

A new board meeting was held.

"CEO Ryu... is moving faster than we thought," Baek Joong-Hyun, the executive vice president, said cautiously as he glanced at Lim Gil-Won in guilt.

Lim Gil-Won felt like his head was going to explode from stress as he listened to his frustrating voice.

'He's moving faster than we expected? Is he kidding? How can he say something like that when he knows the number of drugs that Ryu Young-Joon put into clinical trials in a year?'

Young-Joon's research was completely different from other scientists. Lim Gil-Won evaluated him as more of a trend of advancement or a social phenomenon, such as the Bio Revolution or the Fourth Industrial Revolution, rather than an individual concept of a genius scientist.

'We could have ridden this wave well if these old gits listened to me earlier.'

Lim Gil-Won sighed.

“Um... It is a little late, but do you have any good ideas, Director Lim?” Baek Joong-Hyuk asked.

“Not anymore. I kept giving reports of this since Doctor Ryu Young-Joon came up with a cure for glaucoma. We should have dealt with it from then,” Lim Gil-Won replied as he pushed down his irritation.

“... What if we challenge the credibility of genetic testing and do media play?”

“We cannot do that!” Lim Gil-Won screamed in shock. “The credibility of genetic testing! That’s a scientific problem! That is something that can be calculated with experiments and be in papers!”

‘Is this grandpa crazy? I know that he is old-fashioned, but he wants to go into that monster’s home ground and fight?’

“We will end up like the HIV opposition, one hundred percent. We will be completely destroyed if he proves it in front of everyone’s eyes with a crazy, unimaginable experiment. And Ryu Young-Joon is someone who is capable of doing that.” magic

“... Is he?”

Baek Joong-Hyuk scratched his head.

“Phew...” Lim Gil-Won sighed. “What if we just give up on keeping him in check? Let’s actually get close to him, learn about his genetic testing business and support it. Then, we can develop a new insurance product based on that.”

“Develop a new insurance product?”

“We’ll design an insurance product that fits the generation of genetic testing. I don’t know what it will look like but...”

“Let’s do this,” Hwang Jun-Young, the CEO, said. “Let’s do what Director Lim said, and on the other side, let’s put pressure on the government to legalize and regulate genetic testing because it violates the Personal Information and Privacy Act.”