The Case of the Missing Glucose



**Characters:**

* **Phyll Pigment,** Reporter
* **Bailiff** (Mr. Greening)
* **Judge Newt Cleus**
* **Colonel Chlor O. Plast**, plaintiff
* **Mr. Mite O’Chondria**, defendant
* **Plaintiff’s Attorney**
* **Defendant’s Attorney**
* **Head Juror**
* **Jury Members**
	+ Each juror will be given a specific question to pose during the juror debate at the end of the play
* **Court Illustrator**: draws pictures or diagrams of evidence
* **Dr. Gary Fermentation,** physical trainer
* **Mr. Ethan Ol**, Brewmaster – Cactus Cell Spirits Company

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**Phyll Pigment**: “In the remote town of Cactus Cell, Arizona a trial has just begun. Colonel Chlor O. Plast has filed suit against Mr. Mite O’chondria for theft of goods and property and we are here live to bring you the inside scoop on this landmark trial. Live from Cytoplasm Court, this is Phyll Pigment.”

**Bailiff:** “All rise! The Honorable Judge Newt Cleus presiding.”

**Judge Newt Cleus**: “Be seated. We are here today to reach a decision in the matter of Colonel Chlor O. Plast v. Mr. Mite O’Chondria. Members of the jury, you have been specially selected to decide this landmark and critical case for the wonderful town of Cactus Cell, AZ. Counsel for the Plaintiff, please proceed with your opening remarks.”

**Plaintiff’s Attorney**: “Thank you, your Honor! Esteemed organelles of the jury, today you will be called upon to make one of the most crucial decisions ever to face Cactus Cell. You will hear testimony from both sides, and I have no doubt that my counterpart for the defense will try to impress you with fancy legal tricks and jargon. Please don’t be fooled by this misdirection. This case is cut and dry; night and day; black and white. My client is an extremely hard working organelle and has always obeyed the rules and laws of Cactus Cell. Yet my client has been victimized! Today you will hear how Col Chlor O Plast has been routinely wronged, unfairly treated, and chronically abused at the hands of Mr. Mite O’Chondria (*points to the defendant).* You will likely hear many tall tales from Mr. Mite O’Chondria about his contribution to our small cellsciety, but please don’t be duped by this clever symbiote as he is nothing more than a thief with a long history of invasive behavior. The truth is simple. The truth is short. Mr. Mite O’Chondria knowingly stole my client’s property without remorse, compensation, or even consideration. Heck, he never even said ‘Thank you!’ This impropriety and misconduct cannot go unpunished, and only you hold the power to stop it once and for all so that Colonel Chlor O. Plast can live and work in peace!”

**Judge Newt Cleus**: “Counsel, please call your first witness.”

**Plaintiff’s Attorney**: “The plaintiff calls Colonel Chlor O. Plast to the stand. (*He pauses as Col. Chlor O. Plast takes the stand. Then he resumes.*) Sir, can you please state your name and profession for the record.”

**Colonel Chlor O. Plast**: “Certainly. My name is Colonel Chlor O. Plast, and I am a confectioner, of sorts.”

**Plaintiff’s Attorney**: “What do you mean ‘of sorts’?”

**Colonel Chlor O. Plast**: “Well, confectioners constantly work with, refine, and change sugar, but I really focus on making it. That’s kind of my passion.”

**Plaintiff’s Attorney**: “I see. And isn’t that why you are here today? Aren’t we here because the defendant has been unjustly stealing this product, the fruit of your labors, if you will?”

**Colonel Chlor O. Plast**: “Yes, sir. That’s correct.”

**Plaintiff’s Attorney**: “Perhaps you can explain this situation a little more and tell us how exactly Mr. Mite O’Chondria has harmed you.”

**Colonel Chlor O. Plast**: “Yes, sir, I sure can. You see, since my ancestors first got into the confection business a few billion years ago we have worked extremely hard to create the perfect recipe for sugar. Well, by gosh, we found the perfect sugar for Cactus Cell, which we named Glucose. Now Glucose is our intellectual property so I can’t go into too many details without jeopardizing my business, but what happened is that Mr. Mite O’Chondria and his family found out about our Glucose and decided to take it for themselves. It never sat right with me that the O’Chondria’s just took what we worked so hard to make, but my Papa always told me to let it go. Well, I can’t just let it go. An organelle can only watch so much Glucose diffuse out of his life without so much as a ‘Thank You’ from those receiving it, you know?”

**Plaintiff’s Attorney**: “So Mr. Mite O’Chondria has never offered to pay you? Never offered a thank you? How rude!”

**Colonel Chlor O. Plast**: “You’ve said it, sir. And, if that wasn’t enough, he has also been stealing all our O2. I’ve really just had enough!”

**Plaintiff’s Attorney**: “I don’t think anyone blames you. That certainly seems like quite the ordeal. What is this O2 that you mentioned? Is that another special type of sugar?”

**Colonel Chlor O. Plast**: “Oh, no, sir! No, O2 is inorganic, so it couldn’t possibly be a sugar. All our sugar is 100% certified organic. O2, that’s oxygen.”

**Plaintiff’s Attorney**: “I see. And this O2, is it produced through a different process than your Glucose? Is that why it is inorganic?”

**Colonel Chlor O. Plast**: “No, sir. It’s just another product produced in our photosynthesis reaction. You see, basically we take water and carbon dioxide, which are both organic, and then use a lot of energy from the sun to make two new, different molecules: the ever-sweet Glucose, and the atmosphere enhancing oxygen.”

**Plaintiff’s Attorney**: “Amazing. And what is this process called again?”

**Colonel Chlor O. Plast**: “Photosynthesis.”

**Plaintiff’s Attorney**: “It certainly seems that you work hard. I can’t fault you for being upset that someone simply stole these products after you put such effort into them. Now, just to clarify, you and your family make sugar and oxygen out of thin air. Is that correct?”

**Colonel Chlor O. Plast**: “Yes, sir. That’s correct. All that is required for photosynthesis is carbon dioxide, water, and light.”

**Plaintiff’s Attorney**: “So, what would you say the problem is with Mr. Mite O’Chondria? And what is a reasonable solution?”

**Colonel Chlor O. Plast**: “I just don’t think an organelle should treat another organelle this way. I’m working hard to make these goods, so I want to be compensated. I think he should pay me for my goods, or at least find some way to compensate me for my effort. It’s just not fair!”

**Plaintiff’s Attorney**: “I think that sounds pretty reasonable. After all, we all want to be compensated for what we do. Thank you! You are excused.” (*He pauses and turns to the defendant as the plaintiff leaves the stand. Once the plaintiff is seated, he begins.*) “I now call Mr. Mite O’Chondria to the stand.” (*He pauses as Mite O’Chondria takes the stand.*) “Please state your name and profession for the court.”

**Mite O’Chondria**: “My name is Mite O’Chondria, and I am in the energy and refining business.”

**Plaintiff’s Attorney**: “Pardon my ignorance, but what exactly do you mean that you are ‘in the energy and refining business’?”

**Mite O’Chondria**: “It’s really quite simple. All I require is some raw sugar and oxygen and from that I produce a lot of energy, or ATP, to be used for cellular processes. Essentially I refine sugar into energy, so, as I said, I’m in the refining business.”

**Plaintiff’s Attorney**: “I see. This sugar you use wouldn’t happen to be Glucose, would it?”

**Mite O’Chondria**: “Yes.”

**Plaintiff’s Attorney**: “And where exactly do you get this Glucose”

**Mite O’Chondria**: “Well, that’s kind of complicated. Really, I don’t get Glucose delivered directly to me. It gets delivered to my business partner, Cy Toplasm, and he breaks it down into smaller molecules called Pyruvate which he sends to me.”

**Plaintiff’s Attorney**: “So you expect me to believe that you don’t have any idea where this Glucose first comes from… (*pauses*, *then indignantly says*) that you haven’t knowingly stolen Colonel Chlor O. Plast’s personal property?”

**Mite O’Chondria**: “I don’t really care what you think. That’s the truth.”

**Plaintiff’s Attorney**: “And I suppose you want us to believe that you don’t use oxygen or know where that comes from either.”

**Mite O’Chondria**: “Not at all. I definitely use oxygen. In fact, without oxygen my aerobic respiration process would be pretty inefficient at refining energy for Cactus Cell. Heck, if it wasn’t for oxygen I’d be no better at my job than those anaerobic yeast cells and their silly fermentation process and its measly 2 ATPs.”

**Plaintiff’s Attorney**: “I see. I suppose that you pay for all of these raw materials that you use, so don’t your invoices let you know where they come from.”

**Mite O’Chondria**: “As I said earlier, my Glucose goes through Cy Toplasm first, and the oxygen diffuses in from a variety of carriers, so I can’t be fully sure where any of these substances come from. As far as payment, I’ve never really thought too much about that. I just do my job and create ATP as best I can.”

**Plaintiff’s Attorney**: “So it never even occurred to you that you might be stealing someone else’s property? You never stopped and said, ‘Hey, maybe I should be paying for all these materials’?”

**Mite O’Chondria**: “No, I…” (*He tries to continue but is interrupted*)

**Plaintiff’s Attorney**: “No! And that’s because you don’t think about anyone else. You just sit there in your double-membrane palace cranking out ATP with no concern for the hard work or well-being of the other organelles that make your job possible! You make me sick!”

**Mite O’Chondria**: “That’s not it…you’ve got it wrong!”

**Plaintiff’s Attorney**: “Okay, if I have it wrong I’d like you to answer a simple question for me. If you are honest as you say, then you must pay for these materials you receive and use. So, how much do you pay for them and where’s your proof?”

**Mite O’Chondria**: “I don’t have any records like that, but I’m sure I pay somehow.”

**Plaintiff’s Attorney**: “If you ask me, you don’t have proof because it doesn’t exist; and it doesn’t exist because you have never even thought about paying Col. Chlor O. Plast for his materials, have you?”

**Mite O’Chondria**: “No, that’s…” (*He tries to continue but is interrupted*)

**Plaintiff’s Attorney**: “My point exactly! The witness is excused.”

**Judge**: “Thank you, counsel. Do you have any more witnesses to call?”

**Plaintiff’s Attorney**: “Yes, your honor! We call Dr. Gary Fermentation to the stand. (*Waits for Dr. Fermentation to take the stand and then continues.*) Sir, would you mind stating your name and credentials please.”

**Dr. Fermentation**: “Yes, sir. My name is Dr. Gary Fermentation, and I am a physical trainer and anaerobic respiration specialist.”

**Plaintiff’s Attorney**: “That sounds fancy. Can you explain what you mean by an ‘anaerobic respiration specialist’”?

**Dr. Fermentation**: “Well, pretty much what I do is help cells perform cellular respiration without oxygen. We spend a little ATP energy at the beginning to get our Glycolysis up and running, but ultimately we net 2 ATP to use for other cell processes. It’s a pretty neat little process.”

**Plaintiff’s Attorney**: “I think I heard you say that you do respiration without oxygen, is that correct?”

**Dr. Fermentation**: “Yes, that’s right. As a physical trainer I specialize in Lactic Acid Fermentation and I try to teach muscle cells how to make energy this way. Perhaps you’ve heard of my books: *Feel that Burn* or *If It’s Burning, It’s Lactic Acid Fermentation*.”

**Plaintiff’s Attorney**: “No I have not, but they sound painful. I guess no pain, no gain, as they say. So, do you use as much Glucose as Mr. Mite O’Chondria?”

**Dr. Fermentation**: “Well, like me, the Glucose he uses is first broken down by Cy Toplasm’s Glycosis process, so I don’t know that you can say he actually uses Glucose. But, in general, no, I don’t use nearly as much Glucose as him. See, Mr. Mite O’Chondria does aerobic respiration and since he has a pretty steady supply of oxygen he is always working. I really only get a chance to do my job when the muscle cells are doing a lot of work, like during exercise.”

**Plaintiff’s Attorney**: “I see. But if Mr. Mite O’Chondria weren’t around, would you still be able to break down Glucose?”

**Dr. Fermentation**: “I suppose I could, but I don’t do that for Cactus Cell. I live in Hyena Butte, MN so you’d have to find another specialist for your Cactus Cell fermentation.”

**Plaintiff’s Attorney**: “Thank you. That is very helpful. I have no more questions. You are excused. (*As Dr. Fermentation walks off the stand, the attorney continues.)* The plaintiff calls Mr. Ethan Ol to the stand. (*Once Ethan Ol is seated he begins speaking again.)* Mr. Ethan Ol, it is my understanding that you are a brewmaster. Is that correct, and what does that mean exactly?”

**Mr. Ethan Ol**: “Yes, that is correct. Basically what I do is take sugars, like Glucose, and break them down into usable inorganic materials, like carbon dioxide and ethyl alcohol.”

**Plaintiff’s Attorney**: “And what exactly do you do with these inorganic materials?”

**Mr. Ethan Ol**: “Well, I can do a number of things. As a Brewmaster, I use the carbon dioxide to add some extra bubble to the alcohol so that people have really fun and tasty Champagne for their New Year’s parties. The CO2 is great. It really gives the Bubbly its bubbles. I also make beer and other spirits. Plus, bakers often use my patented Alcohol Fermentation process to help their bread and baked goods rise.”

**Plaintiff’s Attorney**: “Do they use this ethyl alcohol also? Is that what makes the bread rise?”

**Mr. Ethan Ol**: “No, no. It’s the CO2, or carbon dioxide, that does that. It’s kind of like blowing into a balloon. The exhaled CO2 makes it grow.”

**Plaintiff’s Attorney**: “Just one final question. Are you, like Dr. Gary Fermentation, able to do this process anaerobically…you know, without oxygen? And, if so, can you do it for us here in Cactus Cell?”

**Mr. Ethan Ol**: “I don’t need oxygen at all, so I could do fermentation for you. The problem is that I tend to specialize in yeast and bacteria, so I’m a bit overbooked right now.”

**Plaintiff’s Attorney**: “I see. Thank you very much for your testimony and for letting us know that we can do respiration without Mr. Mite O’Chondria’s aerobic process. You are excused. (*Turning to the judge*) Your honor, the plaintiff rests.”

**Judge**: “Very well. Then the defense may present opening remarks.”

**Defense Attorney**: “Thank you, your honor. And thank you, counsel, for that interesting show. I’m sure the jury enjoyed it, but I’m sorry that it lacked substance. Now, I’m not going to have nearly as much trickery up my sleeve, but I’ve got something better in store, something fool proof…the truth. That’s right, the TRUTH! And, the truth is that these charges are contrived and that my client is a victim of his own ignorance. Not that it’s his fault. I mean, how can you blame him for not understanding his product cycle when he only exists in plants and some algae. I’m sure that everything’s greener in his world, so his perspective may be a bit skewed. My client, on the other hand, has representatives in all walks of life, so he is more fully connected with life around him. What better way to get to the bottom of this then to ask the important questions? So, without further ado, I call Mr. Mite O’Chondria to the stand.” (*Mr. Mite O’Chondria takes the stand. Defense Attorney waits until he’s seated and then proceeds.*) “Mr. Mite O’Chondria, do you feel that you have been accurately portrayed by the defense and Colonel Chlor O. Plast?”

**Mite O’Chondria**: “No, I don’t! In fact, I feel pretty unfairly treated.”

**Defense Attorney**: “And why is that exactly?”

**Mite O’Chondria**: “Well, I never really thought about where my raw materials were coming from or who might have originally produced them. My suppliers always just delivered the materials required for respiration and I went to work as efficiently as I could.”

**Defense Attorney**: “I see. And what were those required materials again? What is it you need to have in order to perform this Aerobic Respiration process you mentioned?”

**Mite O’Chondria**: “Glucose and Oxygen.”

**Defense Attorney**: “That’s funny. In his testimony, I’m pretty sure that Colonel Chlor O. Plast referred to these substances as his products? Which are they? Reactants or Products? Required Inputs or Synthesized Products?”

**Mite O’Chondria**: “I’m not really sure. I guess we both have different uses for these materials. I’m not sure about him, but I can’t do my respiration without Glucose and oxygen.”

**Defense Attorney**: “So, there’s no way for you to do your job without Glucose and oxygen?”

**Mite O’Chondria**: “Let me clarify. It’s not that I can’t do it, but I would be much less efficient. Glucose is a must since I can’t make any energy without it, but the real difference comes in producing energy with Oxygen or without it. Without oxygen I can produce a net gain of 4 ATP molecules for each Glucose available. But with oxygen I am much more efficient. I can make almost 10 times as much ATP with oxygen as I can without! It’s pretty amazing.”

**Defense Attorney**: “How very impressive! This ATP stuff, what is it exactly?”

**Mite O’Chondria**: “Why, it’s energy of course! It’s like the battery of life and it’s only fully charged when we have 3 phosphate groups attached to our Adenosine and Ribose sugar. From my understanding, ATP is energy that makes cells do work and perform life functions, like transport, regulation, reproduction, and maintain homeostasis. For me, personally, ATP starts the Glycolytic pathway, and fuels the Kreb’s Cycle.”

**Defense Attorney**: “Wow! That sounds like a wonderful and important product. Is there anything else that you create?”

**Mite O’Chondria**: “Indeed. I also create the by-products carbon dioxide and water, but they are really just waste products that I can’t use.”

**Defense Attorney**: “What happens to these waste products after you create them?”

**Mite O’Chondria**: “Usually I have one of my buddies in the waste business transport them out of my factory to wherever they need to go. I’m not quite sure where they end up.”

**Defense Attorney**: “Do you think it’s possible that another organelle might possibly take these for their own use?”

**Mite O’Chondria**: “I guess anything’s possible, but why? It’s just junk! Who would want that?”

**Defense Attorney**: “Thank you, Mr. Mite O’Chondria, you’ve been very helpful. You are excused.” (*He waits as Mite O’Chondria takes his seat. Then he says…)* “The defense calls Colonel Chlor O. Plast to the stand.” (*He pauses as Col. Chlor O. Plast takes the stand.*) “Sir, please remember that you are still under oath. Now, if you’d be kind enough to indulge me briefly, could you please explain photo…photo... this process that you do? I’m old and can’t recall all the details.”

**Colonel Chlor O. Plast**: “I told the court earlier, but I guess I can repeat it. In photosynthesis I use carbon dioxide, water, and sunlight to make Glucose and oxygen. Really not too much more to it than that.”

**Defense Attorney**: “Where exactly do you get your supply of carbon dioxide and water?”

**Colonel Chlor O. Plast**: “Obviously the sunlight comes from the sun. I trap it with a special pigment, called Clorophyll, that lets me trap it for photosynthesis. As for the water, it’s usually delivered via Xylem & Phloem Ground. The CO2 almost always comes directly to my stomates from Interorganismal Air.”

**Defense Attorney**: “I see. And where do these substances originate?”

**Colonel Chlor O. Plast**: “Like I just said, they come from air and ground delivery services.”

**Defense Attorney**: “No, what I mean is who creates the carbon dioxide and water that you ultimately use for this photosynthesis thing you do?”

**Colonel Chlor O. Plast**: “Nobody creates them, they’re just there for everyone to use. They are public domain, so anyone that requires them can access them at will.”

**Defense Attorney**: “So you’re telling me that these substances just appear out of nowhere so that you can use them as you please. Sounds a little fishy to me. Sounds like perhaps you don’t know enough about your supply chain.”

**Colonel Chlor O. Plast**: “I take offense to that sir! I am an honest businessman and I do nothing but give to my community.”

**Defense Attorney**: “I guess what confuses me the most Colonel, is that you are entirely comfortable free-loading on carbon dioxide and water, but you expect others to pay for your products.”

**Colonel Chlor O. Plast**: “It’s different. Mite O’Chondria doesn’t make anything of use to me, yet he steals my Glucose to make his precious ATP. He’s a criminal! I’m simply using resources wisely.”

**Defense Attorney**: “Your honor, the defense presents exhibit A: the Photosynthetic and Cellular Respiration equations. (*A member of the defense team walks a poster with the cycle to the board. Once it is up in the front of the class, the lawyer continues.*) As you can see, your honor, not only does my client create the carbon dioxide needed for photosynthesis, he also creates the water the Col. Chlor O. Plast so heavily relies upon for his sugar-making process. The plaintiff has been doing exactly the same thing that my client has: using readily available supplies to produce key materials for other life processes. I think it would be a great injustice and disservice if we forced my client to pay for Glucose when Col. Chlor O. Plast does not pay his equal share for carbon dioxide and water. The defense rests, your honor.”

**Judge Newt Cleus**: “Ladies and Gentlemen of the jury. You have heard the arguments and testimonies brought forth for each side. You must now decide the outcome of this trial. Think clearly and review your notes carefully as your determination could have real and deep consequences for all organisms of the world. Carefully review the evidence and court illustrations as you make your decision. Good luck!”

(*Aside: Jurors hold a discussion that the audience is privy to. Jurors each have a specific question that they will ask. Once it is addressed another juror will raise a question, simulating a debate between jurors, but allowing students to ad lib answers. One student is ordered to hold out the entire time so that each question is addressed. Once all questions are addressed the skit briefly resumes.)*

**Bailiff**: “All rise!’

**Judge**: “Be seated. I understand the jury has reached a decision?”

**Head Juror**: “Yes, your honor.”

**Judge**: “And how does the jury find?”

**Head Juror**: “On the count of Conscious and Intentional Theft of Property, the jury finds the defendant…”