

18+ IMMUNITY TO LIFE



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Аннотация

A young doctor, Cody, full of enthusiasm and scientific curiosity, takes a radical step. To save an old friend from a mysterious immune suppression, he transfers his consciousness into a miniature exoskeleton the size of a human cell. With his loyal robot assistant Vivian, they journey through the body aboard the vessel Vascularius, sailing through blood and lymph. Not just a story — a bridge between medicine and imagination.

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Preface

The human body is a strange, messy, wonderful thing.

When I was a kid, I devoured sci-fi novels about space — about distant stars, alien oceans, ships that sailed between galaxies. But there was always another world that pulled me in harder. Not the one out there. The one right here. Under my skin. Inside us.

We're made of atoms that were born in exploding stars. Those stars probably never imagined that their particles would one day wake up, start asking questions, and begin exploring themselves — through us.

Our story started with supernovae, and it ended with something incredible: life. Messy. Complex. Beautiful. Our bodies built an entire army of cells that protect us, fight for us, die for us, and keep going. And I thought: why not tell their story as an adventure?

Let me tell you something about medical school.

Medicine is important — no doubt. But sometimes it's painfully, soul-crushingly dull. Professors and the whole system manage to turn it into a pile of dry facts, like tasteless porridge without salt. Immunology is often taught as a checklist of allergies and diseases — not as the incredible, bloody, non-stop battle happening inside you every second.

Between the first lecture about 'innate' and 'acquired'

immunity, and the later lectures about ‘what goes wrong,’ there’s a huge, dark gap. And students fall into it.

But immune cells aren’t mindless soldiers. They’re scouts, strategists, messengers. They talk to each other, coordinate, adapt. If you’ve ever played strategy games, you know: each unit has a role. You command, you plan, you attack.

But immune cells do all of that on their own. No commander needed. They just *know*.

That’s what I wanted to capture. Not the dry facts, but the story behind them. To give each cell a personality, a purpose, a voice. Because when you care about something — when you feel it — you remember it.

I won’t drown you in biochemistry. I’ll only touch on what you need to understand the story. Just enough to make you feel like you’re *inside* that world — the one that lives under your skin, right now, without you even noticing.

Because it’s there. Always. Fighting. Breathing. Waiting. And that, my friend, is worth a story.

Chapter One

‘Do you realise how risky this is?’ Anna’s voice was tight, but she already knew the answer. He’d do it anyway. ‘Are you sure you can pull this off?’

Cody didn’t answer. He just sat there, still.

Her hands — steady from years of practice — slid the needle into the patient’s vein. The IV drip started its quiet work, carrying nutrients straight into his blood. She adjusted the flow, calm and precise.

Her dark-blond hair fell over her white coat, almost blending with her pale skin. Her brown eyes — sharp, alive — showed worry. Not for the patient. For him. She was already calculating the next move. She hadn’t slept in two days. Not because she was preparing the room, but because she knew she’d spend the next hours — maybe days — watching over two people: a dying man and a reckless doctor. Both unconscious.

‘Don’t just sit there in silence,’ she said, turning to face him. Her voice cracked just a little.

Cody’s private office — once just an examination room — was now flooded with harsh light. At first glance, it still looked like a doctor’s space, but now it was crammed with resuscitation gear, two hospital beds, and a machine designed to transfer human consciousness. It looked like a futuristic hospital chamber.

‘Chaos’ — that’s what Anna would’ve called it. Despite the scattered books and notebooks on the windowsill and desk, Cody somehow kept the place sterile. When there were no patients, the UV lamp would burn for hours, killing bacteria, viruses, fungi. Now, with the patient here, he couldn’t use it. Instead, a bacterial recirculator hummed in the corner — safe for people, but useless against the microscopic world crawling over every surface.

That was the problem. Those invisible enemies were normally nothing to worry about — but not in this case. Not in this story.

Cody was a doctor and a self-taught physicist. He was about to transfer his own consciousness into a tiny exoskeleton the size of a human cell. He was going to travel inside his patient’s body — for one reason: to save him.

And in that world, the invisible enemies wouldn’t be small. They’d be giants.

Cody’s body swayed gently in the chair, rocking with the rhythm of his heartbeat. Years of practice had taught him coldness, control — but he’d never learned to shut out his patients’ suffering. Compassion was his engine. It was what drove him to steal months, years, sometimes decades from death’s hands.

Coldness and optimism — they were just masks. He wore them so others wouldn’t panic. So they’d trust him. But Anna saw right through him.

‘Did you see the female prototype?’ Cody said, forcing a faint smile, his eyes locked on hers. A weak joke. ‘It’s got the same

cute face as you.'

Anna didn't smile. She just stared, waiting. Her patience was gone.

'Don't be mad,' he said quietly. 'I have to do this. If I don't, I'll never forgive myself.'

He paused, searching her face for any sign of understanding.

'He's an adult. Grown. Human,' she said, her gaze fixed on him. 'You're not responsible for saving everyone. You offered help. He chose to take it. You can't carry every person you've ever tried to help. What do you say to that?'

'I understand what you're saying,' Cody said. 'But right now, the only thing standing between him and death is me and my invention.'

'An untested invention,' she shot back.

'Isn't that the perfect time to test it?' he said, barely holding back a laugh.

'When you get back, I swear I'll kill you,' she muttered, turning away and pulling ampoules from her bag.

'I love it when you're angry. You look even cuter,' he said, grinning.

She cracked a smile. She couldn't help it.

The vacuum of silence stretched for several minutes before her gentle voice broke it again.

'Explain to me,' she said, 'how exactly your consciousness is supposed to transfer into that tiny robot?'

Cody opened his mouth, but she kept going, not waiting for

the answer.

‘I get how the body works. I get the brain. But I don’t understand how your consciousness can exist in two places at once!’

‘Quantum entanglement,’ Cody said flatly, taking a slow sip of tea. He liked drinking tea during serious conversations. It annoyed people. But if the tea got cold, he got annoyed.

‘Thanks for the detailed explanation,’ she said, rolling her eyes with a theatrical sigh.

‘Let me explain,’ he said, setting the cup down. ‘Two particles collide and interact. They become linked.’

His hands started moving, performing the old familiar dance — touching, parting, drawing shapes in the air. When Cody talked about something he cared about, his hands became part of the story. His eyes burned. He locked onto her.

‘So. The neurons in the brain generate electromagnetic impulses at a certain frequency. Inside the robot’s ‘head’ — he pointed to the container with the exoskeleton — there’s a chip. Inside that chip are particles entangled with the ones generated by my brain. Particles that mirror my consciousness. Make sense?’

‘No,’ she said bluntly. ‘No one’s ever pinpointed what part of the brain creates consciousness. And what makes you think your consciousness inside the robot can’t be damaged? And if the robot’s consciousness gets damaged, does the real you get hurt?’

‘You’re already a little off. I mean a different kind of ‘broken’,’ she added.

‘Fine. Listen,’ he sighed dramatically. ‘The chip is sealed inside a container that should — theoretically — block external electromagnetic fields. The entangled particles interact in isolation, even when they’re far apart. In theory, changing the state of one particle changes the other.’ His hands started doing the particle dance again, pulling apart, snapping together.

‘I still don’t understand why they’re connected like that,’ she said with a shrug.

‘I don’t either, honestly,’ he admitted. ‘The point is it works.’

‘And what about the damage?’

He said the thing he’d been avoiding.

‘I don’t know.’

He bit his lip. They both knew the risks. Anna’s scepticism had always been his shield — she was the one who kept him from chasing every crazy idea. But this time, she saw the look in his eyes. She knew he was already gone.

Cody’s actions always seemed illogical at first — reckless, even. But slowly, piece by piece, they’d form a clear picture.

Anna genuinely admired him.

The first time they met — back when ‘Cody’ was still just a pseudonym — he’d told her everything: his wildest ideas, his strangest theories. She listened, even when she didn’t understand.

The human brain is incredibly complex. When part of it dies — from a stroke, for example — other neurons take over. Neuroplasticity. And despite the old myth, we use all of it, not ten per cent. Every time we learn, new synapses form. The more

you build, the faster the signals travel. The sharper your thinking.

Cody felt the limits of his brain. He was born smart, but he never stopped feeding it. He consumed knowledge. Sometimes he used nootropics to speed things up. But it wasn't enough. There was always a wall.

Living matter is limited.

That thought became his starting point.

What if you could expand the number of 'cores' in your brain using external modules? It turned out you could. But he didn't stop there. Once he increased his processing power, he brought in a partner — an AI. Cold, unconscious, just a set of algorithms. No creativity. No spark. Just data.

But something unexpected happened.

The living mind and the dead algorithm started something new — a way to bring impossible ideas to life.

That's how consciousness transfer was born.

The key was the bridge between human reason and terabytes of encrypted data — an AI that gave Cody instant access to information without the burden of memorisation. No risk of forgetting.

It's no surprise he chose that pseudonym.

It wasn't planned. But one day, he tried to create a digital copy of his own consciousness — a matrix. He fed it into the AI he'd built. He named it Vivian. From the Latin *vivus* — alive.

But Vivian never woke up. No personality. No emotion. No dreams. No will to live.

Still, Cody kept the name.

Chapter Two

‘Time to start,’ Cody said calmly, lying on the couch, his body covered with electrodes, his head wrapped in a strange cap of wires and sensors. ‘After I inject the Vascularius, I’ll have about twelve seconds — just enough to take control and stop before I end up in a vessel the size of a thread.’

Anna smiled, but there was a hint of mockery in her voice.

‘Vascularius’ — that’s an interesting name for your ride. Why not ‘Nautilus’?

Cody sighed; a flicker of regret passed through his eyes.

‘I really wanted to. But I can’t steal everything from my favourite books.’

‘Are you taking Vivian with you? Can he actually control the exoskeleton?’ she asked, carefully filling the syringe with a tranquiliser and sedative. The doctor’s pulse suddenly jumped to a hundred and twenty, and his hands started trembling — betraying him. He breathed in deeply.

‘Yes, I’m sure he’ll handle it. Tie my arms and legs to the couch, please. I don’t know what’ll happen to me during the transfer. Unfortunately, lab rats can’t tell you how it feels.’

He raised his hands, clenched them into fists a couple of times, then thoughtfully scratched his nose.

‘I wonder — what if my nose starts itching? Or something else?’

‘Hmph! You said you were calm, but your heart’s pounding like crazy, and you’re asking stupid questions. Actually, no — you always ask stupid questions,’ Anna shot back.

‘How could it not pound when I’ve got such a beautiful girl in front of me?’ he replied with a grin.

‘I’ll be the one needing sedatives soon. Why are you like this?’ she said, barely hiding a smile.

‘If I weren’t like this, you probably wouldn’t be sitting here right now, worrying about me,’ he admitted.

‘So explain this to me: why won’t your immune cells try to destroy you like some foreign microorganism?’ Anna asked, her eyes fixed on him.

‘I have a plan for that. Didn’t you read it?’ Cody said, with a hint of reproach.

‘Your notes are chaos — you never write anything in order,’ Anna said, her patience wearing thin.

‘Alright, don’t be mad,’ he said, smiling, though he knew that phrase usually made her even angrier. ‘I’ll get a protein from a healthy cell...’

‘Yeah, right! If you can find one — just look at him!’ she interrupted. ‘He’s got such a list of pathologies that it’s a miracle he’s still alive!’

‘That’s exactly why I’m going in — to find out what’s shutting down his immune system. And the fact that he’s still breathing — that’s all your doing.’

‘Protein,’ her voice cut in, firmly bringing him back on track.

‘Right! So, I’ll get the protein, and when I find an immune cell, I’ll present it for inspection — like a citizen’s passport.’

Cody had equipped the exoskeleton with a special double ‘hand’ that, like a tray, carefully holds out the protein structure to any immune cell — a macrophage¹, a natural killer², or any other. After a thorough check, he’d be free to go about his business.

The protein is synthesised inside the cell, and all the information about it is encoded in DNA³. If the genetic machinery is damaged — for example, by a viral infection or a mutation, like in cancer cells — the protein structure presented for inspection changes. That’s why it’s crucial to find a healthy cell with intact DNA and, consequently, a correctly synthesised protein.

The patient’s immunity was suppressed for an unknown reason, and Cody was counting on having enough time. Besides, Vivian was supposed to find a suitable ‘victim’. At this scale, the doctor’s consciousness is closely tied to his software assistant — only through Vivian can he distinguish between different cell

¹ Macrophages — a type of white blood cell that acts as a “cleaner” in the body. They engulf and destroy harmful microbes, dead cells, and other debris.

² NK cells (Natural Killers) — another type of white blood cell that protects the body from infections and cancer. They “sense” dangerous cells and can destroy them quickly without prior activation.

³ DNA — the molecule that carries all genetic information. It’s like a long chain of “letters” (nucleotides) that encode instructions for building proteins and determine hereditary traits. If DNA is damaged, cells may malfunction, leading to diseases like cancer.

types.

In reality, cells are stained with special dyes for microscopic examination. If you've ever seen colourful images of immune cells, those were always the result of stains. Vivian, however, digitises the images from Cody's visual sensors and converts them into colour — familiar and comfortable for human perception.

'After the transfer, a special window will appear on the laptop screen where we'll communicate.' His face suddenly became deadly serious.

'You know how much I hate all this tech,' she protested. 'I can barely work with it...'

'Don't worry. You'll manage.'

Anna noticed he was looking at her intently, almost demanding, but also with hope. She was the only person in his life he trusted completely, and that was no secret to either of them. She wanted to look away — her natural shyness told her to — but her heart wanted the opposite.

'And don't think it's only because of that look that I'm ready to do anything for you,' she said, holding his gaze.

'Isn't it?' The room filled with laughter, and a moment later his left shoulder felt a gentle shove, which only made him laugh harder.

'Alright, that's enough! You're blushing already! Go on, or you'll forget something important again,' she said, still smiling.

'If I find anything important, I'll report back immediately —

the transmitter is on the Vascularius.’

‘So you’ll only report when you’re back on your ship?’

‘Yeah. Unfortunately, it can’t travel in the intercellular space — it’s only designed for vessels — veins and arteries. Can’t even squeeze through capillaries⁴.’ Cody’s brows furrowed. That limitation had always irked him.

Anna yawned so wide that a tear ran down her cheek.

‘Why didn’t you make it like a red blood cell⁵?’ she asked, stretching in her chair.

‘Get some rest when we start, okay? You mean how a red blood cell is larger than a capillary but still squeezes through?’

‘Yes.’

‘First of all, I don’t even know how to do that, and second...’

Cody paused. ‘Actually, why *does* it work?... Either way, red blood cells deform every time they pass through a vessel smaller than themselves. And I’d rather not cause a thrombosis⁶ — even at the level of a tiny capillary.’

‘You’re worried about one capillary?... Let’s just start: the sooner we begin, the sooner we’re done. Why aren’t you asleep yet?’

⁴ Capillaries — the smallest and thinnest blood vessels in the body. They connect arteries and veins, allowing oxygen, carbon dioxide, and nutrients to exchange between blood and tissues.

⁵ Red blood cells — the cells responsible for carrying oxygen from the body’s tissues to the lungs and carbon dioxide back to the lungs for exhalation.

⁶ Thrombosis — a condition where a blood clot (thrombus) forms inside a blood vessel, potentially blocking blood flow.

‘In the grand scheme of things, one capillary is a minor loss,’ Cody said. ‘But what could become of me, stuck in that one?’

The room filled with laughter again — this time it was Anna’s. She remembered how, one winter, Cody had tried to take off his anorak, but the zip jammed treacherously, and he ended up literally trapped, waiting for her to rescue him. She couldn’t help laughing at the memory.

A minute later, Anna broke the silence.

‘Anything else you want to say?’

‘Yeah,’ came the reply, without a trace of emotion.

A few seconds passed. Anna prompted him.

‘Well? Spit it out! Why are you frozen?’

‘Scratch my nose, please,’ Cody said, equally deadpan. His eyelids were already starting to droop.

‘Right. That’s it. Sleep!’ Anna said decisively. ‘The sedative finally kicked in.’

‘What would I do without...’

She spent another minute watching him sleep, drinking him in. Then she sat down at the laptop...

Chapter Three

‘How?!’ Cody yelled as he fell. *‘How do you fly this thing?!’*

Vivian approached slowly, silently, stopping beside Cody’s motionless body on the floor of the Vascularius. He leaned in and froze, staring through two glowing lenses. Inside them, smaller lenses spun, emitting a faint blue neon glow.

‘First of all, that’s creepy. Don’t look at me like that. And second — I didn’t design my visual apparatus this way. Do I have to turn my head like an owl?!’

‘Doctor, you need to focus on me. I’ve made some adjustments to the lenses — creating servos small enough for their movement was impossible.’ Vivian didn’t look away until he saw movement in Cody’s “eyes.”

‘Is the image clear?’

‘Yeah... Almost. But I can’t move. Take control yourself and activate the sensors — you need to simulate the movements. And don’t forget the sensors — I can’t feel my body... I think something’s wrong, Vivian... Vivian!’ Cody was straining every fibre of his composure.

In reality, a person always knows where their hand, leg, or any other limb is. This is thanks to proprioception. Though I prefer the term “kinesthesia” — it includes not just “body position awareness” but also the information gathered by the senses.

Muscles are equipped with special nerve endings — receptors,

which in this case are proprioceptors. They receive information about body position, about how other objects affect it — like clothing — and send that information to the brain. The brain collects these signals from the entire body and creates a complete picture.

Cody's condition could be called sensory ataxia — he couldn't feel his mechanical arms, his legs, or even the white coat he was wearing — a set of elastic plates that mimicked a doctor's attire. The coat recreated the authentic look and also served as a protective suit. At least, its creator wanted to be safe.

Vivian knelt down and placed his three-fingered hands on Cody's head. Surprisingly, the doctor vaguely resembled his real self — especially the tousled “hair” on his head, which doubled as antennas and receptors.

Cody felt every part of his new body come to life in response to Vivian's touch. He felt an unfamiliar warmth and lightness, as if his own skin had absorbed new sensations, and the world around him was opening up in a completely new way.

Exactly like after a limb falls asleep — he felt a tingling, like sparks of electricity shooting through his limbs. His arms began to move, then his legs. A tremor ran down his “spine,” and he tried to take a deep breath — the kind you take after falling flat on your back, painful but necessary. But apart from the panic, nothing happened. No matter how hard he tried, he couldn't breathe. The two bright flames inspired no calm.

“Doctor, you're in the exoskeleton... Consciousness successfully

transferred... Doctor, are you alright?” — the two glowing eyes stared relentlessly at the trembling mechanical body. First his head stopped moving, then the rest of him. The joints of this invention looked like intertwined cables — they coiled, uncoiled, and returned to their original position, moving the body parts like levers.

‘That’s better. I can manage on my own now,’ Cody said, his voice shaking as he struggled to stay upright after standing up; his head turned twice on its axis. ‘How wonderful! Now I just need to fix the focus.’

‘I’m calibrating it now. Just a little more and it’ll be ready.’

Cody fumbled for the chair and dropped into it. The body bounced slightly. The fear of death still hadn’t left him.

‘Funny! Feels like a video game,’ he tried to calm himself.

‘Can you simulate emotions?’ the doctor asked the motionless Vivian.

‘Why?’

‘It’s easier for me to perceive you as alive. Real people... feel things. I’d like you to... you know, at least pretend to be worried about me.’

‘Doctor, that never bothered you before.’

‘Right now, you’re a humanoid. I think you understand that as a human, I’m used to human company.’ If Anna could see Cody under a microscope, she would immediately recognise from his habit of gesturing that he was talking. She could even gauge his emotional state from the amplitude and intensity of those

movements.

‘You don’t like society,’ Vivian stated.

‘But I like people. You can’t be a doctor and not like people.’

‘Then why don’t you like society?’ Vivian asked with complete indifference.

‘Because individually — people are interesting! Stupid, smart, decent or not — they’re fascinating. But when they form groups, their differences create a chaos that’s only controlled for so long.’

‘For so long,’ Vivian repeated, as if to himself, followed by silence.

‘And don’t think I don’t fit in,’ the doctor continued with annoyance. ‘I’ve given society a lot — you know that. But it’s not always appreciated, and it doesn’t always turn out well.’

‘Doctor, there’s no need to justify yourself to a machine. You felt fear, even though people with more composure are hard to find. It bothers you that I don’t feel emotions — including fear. Don’t think you’ve shown weakness — I was created to help you, not to judge your abilities. I also know you start arguments every time you try to distract yourself. And Anna is waiting for your signal.’

‘Hang on, I haven’t even seen my spaceship yet — only sketches,’ Cody looked away from his companion. ‘You could at least play along in the argument, you pedant.’

‘This vessel is not designed for space travel,’ Vivian corrected him, equally monotonously. But the objection was ignored — the yellow glow in his eyes, like an incandescent lamp, grew brighter.

They greedily examined the interior of the “spaceship.” If the doctor’s eyes radiated the warmth of the human soul, Vivian’s were cold as ice — and their blue colour only emphasised that coldness.

‘You pe-e-edant!’ the doctor said, and started pacing, remembering childhood dreams of interstellar voyages.

In the centre of the vessel rose a hall with a high, dome-shaped ceiling that seemed alive, like the heart of a microscopic sea giant. A central “spine” or “backbone” ran from tail to head, with thick, intertwined fibres (wires) that resembled the skeleton of a fish designed to sail through the circulatory system.

The ship’s walls were lined with rows of smooth, glowing tiles that emitted a soft beige light.

Many instruments and sensors were attached to the fibres descending from the “spine” down the walls, like ribs. This equipment was used for data collection, repairs, and maintenance — Vivian often worked with it and knew the purpose of every tiny part.

The captain’s bridge was slightly elevated and separated from the rest of the deck by a transparent screen. On the bridge stood the captain’s chair, upholstered in black fabric with a high curved back. Next to the chair, above the control panel, was a helm — its shape resembling the ship’s wheel used by ancient sailors who conquered seas and oceans. But this one was smaller and equipped with buttons and levers.

The instrument panel in front of the captain’s chair was

crowded with screens, buttons, and levers.

At the base of the “spine,” above the captain’s chair, was a cylindrical structure covered in a mesh of thin silver wires, containing the main systems and components — the brain and heart of the Vascularius.

A circular platform in the centre of the room, surrounded by a halo of chaotically flickering luminescence, was where Cody had appeared during the consciousness transfer. He stood there now, caught in the bitterness of the sensations he’d experienced when he couldn’t control his new body.

A complex mechanism where every element worked in unison. And Vivian was part of that mechanism.

Cody had his reasons for disliking society, but he hated loneliness even more.

The desire to see a friend in his creation was reflected in his attitude towards Vivian: seeing the world through new eyes, he felt a strange closeness to this mysterious creation, as if they shared something beyond mere inventor and invention. If the fear that had enveloped him at the beginning of the transfer was slowly fading, his doubts — mixed with disappointment — about those two icy lights were only growing.

Chapter Four

‘Turbines are operational,’ Vivian reported.

‘Will the hull coating actually let us attach to the vessel endothelium?’ Cody asked suspiciously, gripping the helm tightly with his mechanical hands.

‘Yes,’ Vivian confirmed. ‘What’s more, it will prevent platelet adhesion, just as you designed.’

Cody nodded silently, thinking through the next steps. He stared through the bridge’s porthole, visualising the contours of enormous endothelial cells lining the vessels like a mosaic of diamonds. Before his inner eye, the heart muscle shimmered with electric light.

In reality, if a blood vessel — specifically the endothelium, its inner lining — is damaged, platelets immediately rush to seal the breach. They attach to the rough edges of the endothelium, and the already-adhered platelets release chemical signals, calling their free-floating comrades to join them. These tiny heroic creatures seem to cry out: *“We’re here! We need help! Our world is in danger!”* The whispers of chemical language weave with the waves of blood, creating a musical symphony of survival. These minuscule particles, whose sacrifices and lives seem insignificant on the grand scale of the human body, make an invaluable

⁷ Vessel endothelium — the thin layer of cells lining the inner surface of blood vessels (arteries and veins).

contribution. They announce their activation and set about their primary task — stopping the bleeding. Initially round, upon activation platelets sprout tendrils that others grab onto as they drift past.

In this story, Anna had repeatedly administered various medications to the patient, keeping his body alive. If the platelets — of which, incidentally, he had very few, the cause of which our heroes are trying to discover — hadn't sealed the vein after the syringe was withdrawn, the patient could have bled to death from even that tiny wound.

For Dr. Cody, it was crucial that the Vascularius's hull remained perfectly smooth, without the slightest irregularity. This ensured that passing platelets wouldn't mistake it for a damaged vessel wall. Even the two turbines, designed to counter the blood flow, only extended from the hull when the submarine detached from the vein or artery wall.

In large arteries with high blood flow — where the turbines can't provide enough thrust — Dr. Cody relies on a simple trick: laminar flow. Just as a river flows faster in the middle and slower near the banks due to friction, blood speed inside vessels follows the same laws. In the centre of a large artery like the aorta, blood flows significantly faster than near the walls. There, where the Vascularius hugs the surface, the speed is much lower. This helps the submarine move in the right direction.

This explanation is meant to help the reader understand how a tiny underwater vessel can resist the powerful, rushing current

of blood inside the body.

‘You know, Vivian, what really interests me?’ Cody asked his assistant. Not waiting for an answer, he paused briefly and continued. ‘Even in a mechanical body, I’m still aware that I am me.’

Vivian met Cody’s gaze, using his processing power to make sense of what he’d heard.

Cody felt the need to explain before Vivian got lost — the idea was so deep it didn’t seem obvious at first.

‘When I was human, I knew there was ‘me’ and there was the world around me. That my hands, my legs, my head, even my hair — all of it was part of me, and the world was something separate. You understand? Even though I rationally knew I was part of that world, made of the same atoms as everything else. And even now, in a mechanical body, it feels exactly the same. Why is that? And it’s not about nerve endings.’

‘It’s a feature of human psychology. I don’t have it. Your consciousness needs to recognise ‘itself’ as ‘itself.’ Even at the immune level, your cells distinguish ‘self’ from ‘non-self.’ And it’s the same at every level of your makeup. Even if a person loses a limb, because of this property, they’ll feel for a long time that it’s still there — and sometimes even feel pain in it,’ Vivian concluded.

‘Every person,’ Cody continued, ‘is like a little universe. He knows he’s a whole world, that there are other worlds like his, and that there’s a much larger world beyond. Sounds interesting,

don't you think?" Cody's eyes sparkled, as if he was on the verge of a philosophical breakthrough.

'I understand that you, as an emotional and creative being, have a tendency to exaggerate,' Vivian said flatly.

'You don't understand anything,' Cody hissed, turning to the porthole in irritation. 'Anna would definitely have appreciated my thoughts.'

'Anna would have pretended to listen, doctor, because she clearly doesn't enjoy these kinds of conversations,' Vivian said. 'By the way, are you sure she can handle the task?'

'Anna is very responsible. She always worries when someone — especially me — needs her help. I think she'll manage,' Cody replied, keeping his faith in his companion, though his voice still sounded irritated.

'Then you should have fully briefed Anna, since...' Vivian began.

'She's responsible, sure, but if she knew everything, she'd start worrying... And excessive worry would just ruin everything, you understand?' Cody cut him off sharply.

'So she doesn't even know you kidnapped your friend from the clinic to find the cause of his suppressed immunity?' Vivian's words struck like weapons. 'Does she know your friend became your enemy? Does she realise the danger of the adventure you've recklessly dragged her into?' The last sentence sounded like a verdict.

After a long silence, Cody finally answered.

‘I can’t do this without her.’

There was a pause — the kind where he would normally take a deep breath.

‘I have no one else. I think I’ve thought this through. The fact that she doesn’t know the whole truth — that’s irresponsible. I agree. It’s just... you don’t understand that even someone as smart as she is makes mistakes that could have been avoided. She worries about everything. I’ll tell her everything. Later.’

A moment later, Cody smiled faintly, remembering something funny.

‘Once, Anna had dinner later than usual...’ The doctor glanced at Vivian, as if sharing something childishly naive but with a touch of admiration. ‘And instead of going to bed, she stayed awake for three whole hours. You know as well as I do that people lose weight while they sleep — growth hormone breaks down fat and all that... Well, Anna knows that too. She also knows that if she eats right before bed, it triggers insulin production.⁸ And what does that lead to?’ Without waiting for an answer, he continued. ‘Right. Less growth hormone, less fat burned, and insulin helps store new reserves... Women, you know — always dieting, watching their weight. But Anna’s different — she was exhausted, desperate to sleep, her body running on fumes, but instead of closing her eyes and resting — what did she do? She watched movies. Exactly long enough to wait out that damn

⁸ Insulin — a hormone produced by the pancreas that plays a key role in regulating blood sugar levels. It helps cells absorb glucose (sugar) and convert it into energy.

insulin phase. And she made it, even though she usually falls asleep like a log at that hour. I don't think she'd ever watched a single movie all the way through before — because she always fell asleep halfway. And you know what? She didn't regret it one bit — even though she was sleepy and grumpy the whole next day. But then she fell asleep with a sense of duty fulfilled. That's Anna,' Cody said, captivated by the memory.

As he sank into memory, he stopped being here and was already there — in that place where countless fragments of memory are stored, like film reels, texts, barely perceptible emotions he himself had once felt. Immersing himself, he didn't just remember — he watched himself from the outside, as if everything he'd experienced no longer belonged only to him, but also to that other person he had been before.

Cody wasn't a machine — his smile was genuine, and the smallest details of his “face” conveyed the kindness of a human soul. That kindness was as mysterious and unfathomable as human nature itself. No one had ever seen a soul, but everyone knew it existed — some called it a divine gift, others a product of the brain, consciousness.

The robot, however, knew nothing of kindness, compassion, or sincerity. It simply processed data, retrieving it from memory without the slightest trace of emotion. For him, this process was merely mechanical, unconnected to that half-dream state where, against a backdrop of emptiness, a bright or faded cloud would appear. In that cloud, a memory didn't play — perhaps distorted,

worn by time and new experience. But for a human, that cloud was precious, because it held the most intimate moments of their life.

‘Are you still sure about your plan?’ Vivian asked, his voice now serious.

Snapped back to reality by the question, Cody nodded slowly, his gaze fixed on the floor beneath his feet.

‘Almost,’ he replied quietly. He seemed to be wrestling with doubts, bubbling up again in his dishevelled head, irritated that he couldn’t bite his lower lip as he usually did.

Vivian paused for a moment, his voice growing stricter.

‘In your situation, ‘almost’ is not acceptable.’

Despite the tension, Cody smiled ironically and shook his head slightly. The hair on his head seemed to compress under electromagnetic tension for a moment, then returned to normal.

‘Very ‘almost,’ he added. ‘Who am I even wasting my breath on here?!... Alright, let’s get started,’ Cody concluded, annoyed.

‘The red button on the control panel — slightly to your right...’

‘No, wait. I’m not done!’ Cody turned back to the robot, this time with his whole body. ‘Why do you doubt me? If I could come up with you, design you, then...’

Cody was about to continue, but Vivian cut him off.

‘No one doubts your intelligence, doctor,’ he said firmly.

‘Then why — if I’m so clever — why does everyone around me, and what hurts more — even you, even a ‘cold’ hunk of metal that doesn’t even know how to doubt properly — think I can’t

plan anything in real life? Why?!' Cody's voice was laced with resentment, its roots clearly reaching deep into the past.

'Because nothing ever goes according to your plan.'

'Maybe I planned it so that it *wouldn't* go according to plan? Maybe my plan is that everything will go off-plan?' The doctor no longer cared whether his words reached the mechanical heart or what objections would follow, because the chair spun quickly towards the control panel, and the red button became the full stop of the conversation.

'Next stop: the right atrium! Everyone fasten your seatbelts!'

The Vascularius lurched into motion: turbines extended from the hull and spun in reverse, resisting the flow of blood as they entered the vessel.

Anna received the signal...

Chapter Five

‘This is magnificent! Absolutely incredible! Do you even realise how cool this is?!’ Cody exclaimed, pressing his face against the porthole, unable to tear his gaze away from the beauty around him. His eyes burned brighter with wonder as he watched the red blood cells drift past — disc-shaped, shimmering in the light of the Vascularius.

Vivian, focused on the instrument panel, didn’t even glance at Cody.

‘The sonar indicates we’re moving almost flush against the vein wall,’ he said, not looking up from the instruments. ‘I’ll relay the image to you.’

Cody let out a joyful cry in response. The sound waves the Vascularius sent towards the surrounding cells, and which bounced back, allowed the doctor to see everything around him — much like a bat navigating in the dark. And he could see surprisingly far.

This is exactly how ultrasound machines work: sound waves are directed into the body, where each structure has its own unique density. The reflected signals return to the device, which records not only the intensity of the reflected sound but also the time it took to return — allowing it to determine distance, size, and volume. Processing this data, the machine creates a complete image of the body’s internal structures.

However, while a standard ultrasound displays a two-dimensional, flat image, Cody and his companion saw a volumetric, three-dimensional picture. This was possible because the processing and reconstruction happened directly in the “brain” — capable of creating a full, detailed map of the surrounding space.

‘Doctor, directly ahead — a red blood cell,’ Vivian said. ‘Be careful.’

Red blood cells are shaped like discs — or even doughnuts, but without a hole in the middle and without icing. Concave and slightly flattened, they appear red due to haemoglobin, which carries oxygen to various organs and tissues. Unlike other blood cells — except perhaps platelets — red blood cells have no nucleus or DNA, making them incapable of self-repair. Over time, they wear out, as they travel through vessels, colliding with walls, each other, and squeezing, deforming, through capillaries narrower than themselves. Such trials mercilessly damage their membranes.

Like diligent workers, after serving their time, they die in the spleen — a kind of “red blood cell graveyard.” It sounds a bit frightening and even sad, but such is the fate of these deliverers of life-giving oxygen.

Like a nimble fish, the Vascularius wove through clusters of dark-crimson cells. Its streamlined hull cut decisively through the viscous, pale-amber fluid. The blood itself appeared as burnt gold, which to human eyes took on a different hue due to the red

blood cells, giving it a fiery-ruby tint. As the Vascularius cruised through the vein, its thin tail fin left a trail behind — like the white contrail of an aeroplane in the sky — a brief life tracing the path of its creator.

The whitish-yellow walls of the veins, lined with diamond-shaped endothelial cells, seemed to blur as the Vascularius rushed past with a quiet, almost imperceptible hum. The fluid seemed to come alive; its foaming molecules danced and swirled chaotically around the ship.

Cody turned the helm to the right and tilted his head the same way.

‘Hey! What the...?!’ The Vascularius shuddered — and Cody with it.

‘You collided with a red cell on the right,’ Vivian said, not even flinching, as if he’d known it would happen.

‘No problem, I’ll get the hang of it! Just need to get used to it!’ The doctor imagined himself as a spaceship pilot, weaving through an asteroid field.

He’d spent countless nights playing computer games — whether out of boredom, or trying to escape into a more interesting, colourful world than the one around him, fleeing loneliness. Even in the real world, the doctor imagined himself as the protagonist of a game called “life” — it helped him cope with everyday struggles, which felt like new quests, missions, or levels. On the one hand, this approach really does generate motivation, fuelling him with energy, as a nuclear reactor would, and every

small victory strengthens his self-belief. On the other hand, you mustn't forget that every person you meet is a hero in their own story.

Spinning the helm, Cody manoeuvred deftly between red blood cells, lifting, dipping, pulling the ship close. But a sudden impact from the left threw the vessel to the right, provoking the pilot's outrage.

'Where did that one come from?!' Cody yelled.

'Cell movement is sometimes chaotic,' Vivian explained immediately. 'One of them ricocheted straight into us. Be careful. Remember: the Vascularius's eyes are your eyes. Concentrate.'

'I know!' Cody grumbled, but kept dodging one red disc after another. Then another impact — the Vascularius spun, and the image in the porthole blurred. But Cody quickly cut the turbines, and the current levelled the ship.

Ahead of the pilot, two cells were moving towards each other. The Vascularius held its course, heading straight for them. A moment more — and the ship reached the critical point, but the cells collided and scattered in opposite directions. In that instant, the Vascularius shot through the gap between them.

'Ha-ha! See that?!' Cody exclaimed proudly, and immediately spotted another cell. 'Come on, then!...' The pilot yanked the helm down, throwing his whole weight into it. 'Yes!...' Another threat neutralised by a virtuoso manoeuvre, and the deck rang with laughter and triumphant cries.

‘See? And you doubted me,’ Cody said gleefully.

As he travelled deeper through the circulatory system towards the heart, the sound waves from the sonar reached farther — the vein’s diameter was growing, and with it the pulsating surges forward grew stronger, merging with the heartbeat.

The ship quickly reached the superior vena cava.

‘Doctor, according to the sensors, we’re about to enter the right atrium. Activate the electromagnetic field...’ Vivian said, and Cody automatically pulled a small lever on the left side of the helm.

The giant vein launched the Vascularius into the void like a cannonball. Red blood cells stretched, blurred, and lost their familiar shape at high speed. For a moment, Cody lost control and gripped the wheel with all his might, resisting the vortex. But the Vascularius, like a living creature, fought the turbulent blood flow entering the atrium and rushed towards the negatively charged endocardium.⁹ The electromagnetic field on the hull began pulling it towards the inner wall, where the flow was weaker. The turbines, working at full capacity, allowed full manoeuvrability again, and Cody, still disoriented, turned to Vivian and asked uncertainly.

‘Have we arrived?’

‘Almost,’ Vivian said, releasing the levers that had served as handrails. ‘At least we’re safe now. We’ve reached a spot where

⁹ Endocardium — the thin inner lining of the heart. It coats the internal walls of the chambers and valves, providing a smooth surface for blood to flow freely.

the heart's contractions aren't felt as strongly.'

They had likely been pulled towards the boundary between the right and left atria — the interatrial septum. Here they amplified the energy field, retracted the turbines into the hull, and docked against the endocardium, feeling a gentle jolt.

'Now we've arrived,' Vivian said after the docking.

Cody continued sitting, staring through the porthole, gripping the helm with a death grip. His mind was a tangle of thoughts — the thrill of the journey, countless drifting cells, the vortex of blood. And perhaps most importantly — he was in the heart. A place where every emotional wound left its scar.

The pain that every person on earth had ever felt was like a hammer striking fragile glass. Every sorrow was like a sea flooding a barren landscape — the garden of joy where happiness bloomed. Every moment of love was like a ray of sun warming the soul. Every smile was like a melody echoing somewhere in the chest. Every tender moment was like a soft, pulsing touch.

Cody remembered every emotion he'd experienced with every heartbeat. And like any other person, the heart held a sacred, special meaning for him — even though it was just a pump moving blood through the body.

Cody released the helm, stood up, and walked slowly towards Vivian, who was busy pulling flasks from a small cabinet.

'What are you doing?' Cody asked, his "brows" furrowing with curiosity.

‘These are for collecting protein,’ Vivian replied, ‘as well as cytokines¹⁰, enzymes, and other substances that might prove useful, doctor.’ His hands moved quickly and confidently, with his characteristic mechanical precision. ‘Our supplies are limited, but we’ll most likely have to replenish them on site.’

‘I see,’ Cody said quietly, his gaze dropping thoughtfully. His eyes slid over the cables hanging down and the shimmering panels of the Vascularius’s interior.

The robot didn’t pause.

‘Doctor, perhaps you should contact Anna?’

The doctor’s gaze instantly shifted to Vivian, then to the bridge. Those words snapped him out of his daze, and a faint smile appeared on his face.

‘What, you can read my mind now?’ he asked, feigning surprise.

And throwing himself into the chair, he dropped into it, bouncing slightly as usual.

He activated the console, and the screen came to life, becoming a thread connecting him to the outside world. The smile on the doctor’s face brightened with anticipation, and his fingers glided smoothly across the keys, like a dance, drawing out the hidden letters: “Anna.” His eyes fixed on the screen.

¹⁰ Cytokines — protein molecules that regulate the immune response and allow immune cells to communicate with each other. They act as signals, coordinating the body’s reaction to infections and inflammation.

Конец ознакомительного фрагмента.

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