I am a chemist by training. Perhaps the first time I really paid attention to the term "quantum" was during my undergraduate studies, around the end of my fourth year, when we had a Quantum Chemistry class. My professor at the time was an extremely kind person and presented those equations on the blackboard as if they were something simple and trivial. However, they were not! I struggled to connect those concepts to the tangible world. Wave functions, probabilities, and the uncertainty principle seemed almost philosophical to me. One day, my professor told the story of the cat in the box with poison. What a wild idea! But somehow, that almost-tale made sense in my head, and in a way, I began to understand a little of what the uncertainty principle was. The strange thing about it is truly imagining the cat in a box with poison and thinking about what it would do in such a situation. This is, without a doubt, one of the most interesting didactic tools I have ever heard of. In the hallway, talking with colleagues, the definition of quantum was: "everything that doesn't have a logical explanation!" At the time, I didn't understand it very well, but these hallway conversations almost intuitively concluded that we could see classical Newtonian physics; the laws and experiments were all palpable. But the tale of the cat in a box demanded a lot. To top it off, in the chemistry curriculum, subjects related to classical physics are at the beginning of the course, meaning they anchor much of what we learn, and quantum is only at the end. Perhaps if we learned them simultaneously, we wouldn't create so much confusion. After all, is the cat alive and dead? Or half-alive and half-dead? A great paradox! All of this was to explain that you can't "grab" an electron with your hand, nor know its exact location, but only have an idea, a probability. And the electron itself was already an abstract concept, known as an arrow–up or down, never together in the same direction, Pauli's Exclusion Principle–which, along with Hund's rule, told us how to fill boxes in an orbital diagram. I couldn't see how that binary 'arrow' could have any practical consequence in the macroscopic world, much less in the biological world. Over time, I did undergraduate research with the same professor from my quantum chemistry classes, working on theoretical chemistry applied to biology. During this period, I worked with photoactive compounds that interacted with light to generate free radicals: Photodynamic Therapy (PDT). But how do I generate free radicals with oxygen? I returned to work on this theme during my doctorate, but this time on a practical level, applying the photoactive compounds to tumor cells and interacting them with light to later "activate" them. Around this time, I was introduced to something called the Jablonski diagram. Lots of electrons moving around, but this was easier to understand since the diagram functions as a map, a visual GPS, and shows us all the possible paths a molecule can follow after absorbing a photon of light. In the first conversation with my PhD supervisor, our main focus was to get the photoactive compounds as close as possible to the nucleus. The closer to the nucleus, the greater the damage, and the cells would die when we activated the light. That was the goal! A bold one! And I would only discover how bold it was as the process unfolded. I saw the cell interacting with our photoactive compound for the first time via confocal microscopy, marking the membrane and nucleus with dyes. I thought it was amazing to see a cell with that resolution and, as a bonus, to see where our compound accumulated during treatment–the membrane. We never reached the nucleus. Even so, our in vitro treatment worked perfectly, directing most cells to the process of apoptosis, a programmed death. One day, my supervisor handed a colleague and me a printed article, its pages already yellowed with age. He wanted us to start studying a "tunnel" technique; in reality, the real name was Scanning Tunneling Microscopy (STM). At the time, the topic became a joke: what on earth is this tunnel? And what is it for? It was not easy to understand, much less put into practice. We researched the topic, which brought back some of the concepts I had seen in quantum chemistry years before. Every day, I prayed my supervisor would forget this idea, but he did not forget. One day, he scheduled a meeting for us to present what we had discovered, and our conclusion at the time was that we could not execute the experiments there, with the structure we had. Life goes on, without the "tunnel" for now. But it made me reflect, through that research, that perhaps there was more to understand about cellular behavior through a quantum lens. My initial confusion with quantum mechanics was understandable, as I saw those abstract equations as tools to describe the behavior of simple molecules, isolated in a vacuum. But arriving in the lab, I saw there were many more things to consider and a host of other immeasurable ones. The immense complexity of the real world, especially that of biology, these delicate rules would become irrelevant. A cell, after all, is an organized environment, but chaotic to a certain extent. In my head, life was the domain of classical chemistry: a macroscopic game of concentrations, solutions, and "key-in-lock" interactions, originating directly from biology. What I had difficulty understanding was that this understanding was fundamentally incomplete. Up to that moment, I hadn't reflected on how quantum mechanics could be inside the cell. The differentiation between the abstract and the biological was not just an intellectual exercise for me; it was in my daily research routine in the lab. PDT appears to be a classical chemical/biochemical process, almost simple: we inject a molecule (a photoactive agent), illuminate a tumor with a laser, and free radicals are generated to destroy the diseased cells. It's a simple interaction of light with molecules and oxygen. However, this classical description hides the true magic, which responds directly to the question associated with this competition: "How can quantum effects not only exist but also play a functional role in biology?" What my research investigates is precisely this mechanism. PDT does not work without a discrete and "forbidden" quantum event. The entire treatment depends on that same "spin arrow" that confused me in my undergraduate studies. The Jablonski diagram shows this, which took me so long to see. When the laser (a stream of photons) hits the photosensitizer molecule, it absorbs this energy, and an electron jumps to an excited state. In a "classical" world, this electron would simply return to its original state, releasing the energy as heat or a glow (fluorescence). The energy would be wasted. But in PDT, something extraordinary happens. For the therapy to work, this excited electron must first perform an acrobatic "leap": it must flip its spin. It transitions from the singlet state to the triplet state, an event known as Intersystem Crossing (ISC). This is not a classical movement; it is an evidently quantum phenomenon, governed by spin-orbit coupling. The triplet state has a much longer lifetime (microseconds instead of nanoseconds), which gives the molecule enough time to collide with the oxygen present in the tumor and generate free radicals and possible cell death, depending on factors like the amount of light irradiated, drug concentration, cellular internalization, among others. Without intersystem crossing–without the electron flipping its spin–singlet oxygen is not formed, and the treatment fails. The more I advanced in trying to understand this entire process, it seemed that the cellular environment–with its membrane, mitochondria, ribosomes, nucleus, among others–does not destroy this quantum state, but is rather designed for this type of application. In this respect, we observe a fascinating contrast. On one hand, we have the cell, the fundamental unit of life and the center of all biological processing. On the other hand, we have us, humans, using nanomedicine to 'engineer' the spin and force a quantum result (PDT) inside this very cell. The success of this nanoscale intervention–the fact that we can "manipulate" a quantum phenomenon in the heart of a living system–forces us to confront a much deeper and more fundamental question, one that echoes the core of this competition: Is life, itself, quantum? Perhaps from a classical biology perspective, the answer would be "no." But how can a cell assist in a quantum process to generate a triplet state? Where a spin state (Triplet) must survive long enough to find an oxygen molecule in this same chaotic environment, perhaps this proves that quantum processes are even inside cells, or "alive" in the biological view. Quantum mechanics is necessary whenever biology performs a task with a specificity that classical physics simply cannot explain. My work with PDT is a clear example: classical physics does not predict the generation of singlet oxygen from a triplet state; the event is quantum. Reflecting on the theme, I see that the quantum view is necessary even in something as established as photosynthesis, which can actually be seen as nature's engineering solution against energy loss. More profoundly, if life is, in fact, an information processor that contains quantum mechanics at its core, as we speculate, then quantum mechanics is necessary not only to describe the cell's hardware but also its software. It is perhaps the programming language behind biological function, which can be associated with biological "decision-making" and the search for efficiency, even if that means, at times, putting energy into the system to recover it later. Therefore, quantum mechanics cannot be something we ignore, as I did for a long time of not understanding its basic aspects, but an essential tool of evolution that can be applied to solutions for contemporary problems in health, energy, and others. Perhaps the path of talking about controlling quantum mechanics is superlative, but we can at least learn, understand, and thus apply. Today, I see that the story of the cat in the box has a lot to do with the perspective from which one looks, and this same perspective emerges for the conclusion of life being quantum. Schrodinger's thought experiment perhaps scoffs at the idea that quantum rules could leak into the macroscopic world of a cat. For decades, the prism of perception adopted by biology remained firmly on Schrodinger's side: the cell was a "cat"–classical, macroscopic, and palpable. The environment was the poison that would instantly kill any superposition. From the confusion of quantum classes to the practice in the laboratory, it was a journey to change this "perspective." Perhaps when I was younger, I had no concept of the existence of such subatomic layers. Like a child in a sandbox, perhaps it was too difficult for my mind to admit that there was something below and beyond it all. What my research in Photodynamic Therapy and nanomedicine showed me is that the cell is not a passive cat in a box. It is an engineer who learned to tame the "radioactive atom" for its own purposes. That arrow from my undergraduate days, that abstract "spin" which seemed to me just an illustrative arrow in a diagram, is the fundamental switch that PDT explores–a switch applied in life, in enzymes, in photosynthesis... It's not that the cell is in a superposition of "alive and dead"; it is that it actively uses coherence, tunneling, and spin to keep itself resolutely alive. Perhaps this is the paradigm of Quantum Biology. Perhaps the question is no longer whether the box is open or closed, but how we, as observers, can try to enter it and, with our nanoengineering tools, learn to observe and perhaps minimally direct the spin, transforming the most fundamental physics into a precise therapy. That quantum concept that once seemed so distant and confusing is not only an essential tool but also a discussion of what life is.