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The Subcellular Psychobiology Theory: Connecting Epigenetic Biology to Trauma

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One of the biggest unknowns in epigenetic research is how to target specific genes to restore their inhibited expression. In this paper, we give a solution to this problem by describing how to target and repair an epigenetically inhibited gene using simple psychological trauma-healing techniques (e.g., Eye Movement Desensitization and Reprocessing (EMDR)). Importantly, we also show how to find the causes of psychological disorders, other diseases of unknown etiology, and the relevant inhibited genes of these disorders and diseases. Together, this means that a psychotherapist, using simple trauma-healing techniques, can target and quickly eliminate a specific psychological disorder in their clients. Most importantly, we can now treat disorders that were not treatable before.

In this paper, part two of a three-part series, we derive the subcellular psychobiology theory by examining the biology of the primary cell (Lykkegaard et al., 2024). Using prenatal regression to observe the cell interior, we find that *traumatic* memories are accessed in ribosomes inside the primary cell. In turn, we show how epigenetically damaged gene coatings are the source of the traumatic feelings found in these memories. Effective trauma-healing techniques take advantage of this intracellular biology. We also discuss some

The Institute for the Study of Peak States was founded in Canada in 1998 by Grant McFetridge, PhD (ORCID: 0000-0002-8917-6613). This privately funded international research, training, and clinical institute focuses on understanding the psychobiology behind exceptional mental and physical wellness. Many talented volunteers did this work without funding as part of the research efforts of the Institute. Kirsten Lykkegaard, DVM, PhD (ORCID: 0000-0001-7602-1578) directs the fundamental research team, and Mary Pellicer, MD (ORCID: 0000-0002-5335-7957) directs the psychoimmunology applications team. We have published five textbooks so far; in particular, the *Subcellular Psychobiology Diagnosis Handbook* (2014) for trauma therapists covers diagnosis and treatment for several intracellular diseases. This paper is dedicated to our inspiring research colleague and close friend, Adam Waisel MD (Israel), who died of a heart attack in 2006. Please address all correspondence to kirsten@peakstates.com and learn more at PeakStates.com.

safety issues with research using psychobiology techniques that interact with or change the primary cell's intracellular biology.

Part three of this paper (published in *JOPPPAH* 39.2) gives three examples of practical applications of the subcellular psychobiology theory: dizziness, hearing voices, and Asperger's Syndrome.

The Primary Cell Model Explains Edge Cases in Trauma Therapy

In part one, we described the primary cell model (Lykkegaard et al., 2024). Experientially, the primary cell is where our consciousness resides, and our everyday experience is a mixture of sensations, feelings, and perceptions from the body mixed with those from inside the primary cell. This was an unsuspected link we discovered between intracellular biology and psychology. But did it really exist? Our first evidence came from trauma therapy.

By 1995, seven years before we discovered the primary cell, we had already developed a very effective regression technique (Whole-Hearted Healing (WHH)) for healing trauma (McFetridge & Pellicer, 2004). Over time, we encountered clients with specific emotional and perceptual issues that would not heal using regression on the presenting symptoms (roughly 20% of typical client issues). Examples include feelings of loss coming from defined areas in the body, copies of other people's feelings, and many others. By trial and error, we eventually identified the indirect traumatic feeling driving each of these problem categories we called *special situations* (Courteau, 2013). However, we had no idea what was causing them. They were just observed phenomena with empirical solutions. By 2003, after we discovered the primary cell, it was tremendously exciting to find that these special situations came from specific biological problems inside the primary cell (McFetridge, 2014). It was a relief to finally have a model that explained what we saw, and it affirmed that the primary cell model was valid.

Despite this, in those first four years of working with the primary cell, our team would still sit around the kitchen table and say repeatedly, "This can't be real!" and "We must be crazy!" Our paradigm conflict of using prenatal regression and primary cell perception instead of conventional microscopy to make biological observations was strong. Acceptance only came gradually from innumerable observations, predictions that worked, verifiable therapeutic results, and much time. Eventually, we fully accepted the primary cell model and the subcellular psychobiology theory that was built on it.

Building the Theory: Subcellular Markers for Diagnosis and Treatment

A major issue that plagues psychiatric and psychological diagnosis and treatment is trying to identify what the patient's problem is, or if they even have a problem at all, given all the emotional noise of daily life. Fortunately, there is a simple, definitive solution by using subcellular psychobiology. When something is wrong in the primary cell, everyone feels it as if it were inside, on, or outside their physical body. However, even if a given sensation feels like it is from one's body (such as pressure or pain), some sensations are unmistakably subcellular. For example, one might experience a sensation akin to a bottomless black hole in the body, perceive a part of their body to be missing, experience bubbles protruding out of the body, or notice sucking sensations along their midline, and the list goes on. We call these unusual sensations, often accompanied by a visual component, *subcellular markers*.

Since, in our experience, psychological disorders are caused by physical, biological problems inside the primary cell, specific subcellular markers will uniquely identify the disease. These markers are not subtle – if a client has one, they can immediately describe it when asked an appropriate question. However, because the marker sensations make no sense from our normal ideas of what the body should feel like, clinicians (and clients) ignore this data. After all, who wants to seem crazy? These markers also let us know when healing is complete—the disorder is gone when the marker is gone. Part three of this paper will give treatment examples using this powerful concept of subcellular kinesthetic markers.

Finally, astute readers may have already spotted this model's most important use, finding the causes (and treatments) for diseases of unknown etiology. The model says that all disorders and diseases can only exist because of underlying problems in the primary cell. With training, one can search the primary cell for the pathogen or damage that causes the symptoms. Prenatal regression is then used to find the moment when the problem first started. At that point, a variety of treatment options become possible.

The subcellular psychobiology theory is a boon to psychology (and, interestingly enough, to spirituality), as many mysterious problems sometimes encountered with existing techniques can now be understood and treated as primary cell issues. It is as if we have all been trying to fix the dense smoke from our car's muffler by working on the muffler instead of the engine where the problem lies.

Building the Theory: Trauma Results from Epigenetically Inhibited Gene Expression

What might come as a surprise is that no one knows why effective trauma therapies work on post-traumatic stress disorder (PTSD) or why talk therapy does not. To give perspective, before 1996, PTSD was considered incurable. That year, a groundbreaking article in the *Family Therapy Networker* (now *Psychotherapy Networker*) was published that described treatment modalities (e.g., EMDR) that cured PTSD (Wylie, 1996). What made this credible was that Dr. Charles Figley, a Florida State University professor and the person who first coined the phrase PTSD, described the stunning results of tests he ran using these therapies (Carbonell & Figley, 1999). Now, many practicing therapists routinely use these therapies (or more recent variations) with great client success. However, conventional psychological models cannot explain how they work. Regardless, these therapies work extremely well, and they work fast.

Conventionally, trauma is assumed to be somehow stored in the brain. Yet, trauma therapies eliminate the painful feelings but leave the memory of the event intact, suggesting two *different* storage mechanisms. Based on our work with the primary cell, we have found that trauma feelings are an intracellular problem. In this section, we explain how trauma feelings are present in ribosomes and how vulnerability to trauma is caused by epigenetic damage. From an application viewpoint, we show how trauma therapies heal trauma and repair epigenetically inhibited gene expression simultaneously. In fact, some of the most useful subcellular psychobiology techniques turn out to be trauma therapies.

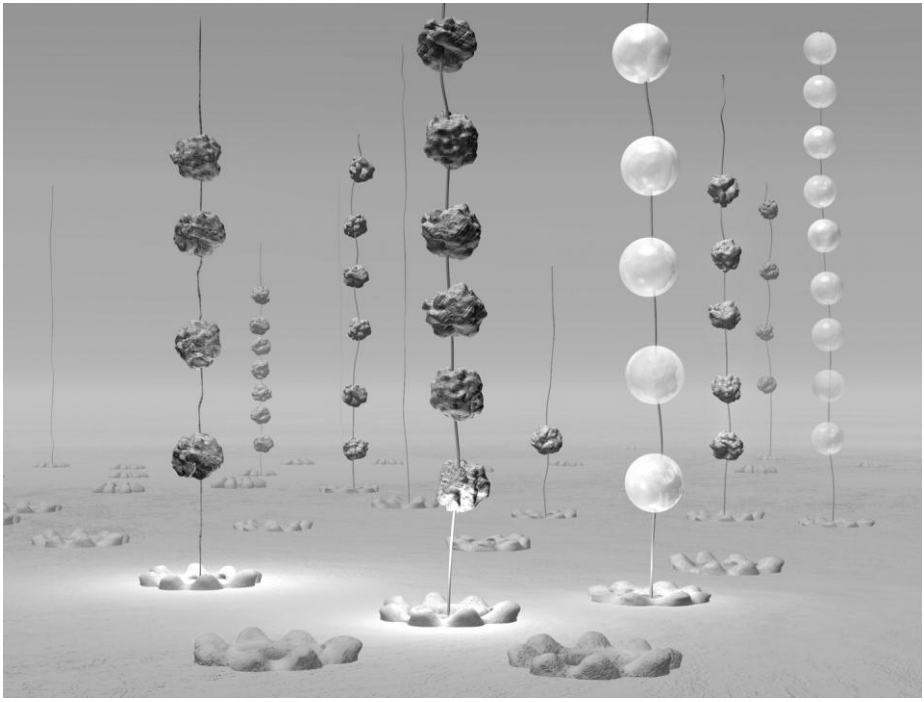
Trauma and Subcellular Biology

To grasp the connection between trauma and intracellular biology, we will revisit our early primary cell experiment where we pulled what looked like seaweed out of the sea floor, and traumatic feelings would vanish (Lykkegaard et al., 2024). (Note: this action damages the nuclear membrane). When we focus on the primary cell, we normally find ourselves floating in a light gray fog (the cytoplasm). However, if we think about a traumatic memory, we instantly find ourselves hanging beside what looks like a crumpled-up paper bag (a ribosome) also floating in the fog. This ribosome has a thin string (mRNA) running through it, with other ribosomes attached like beads on a string (Figure 1). When we look at these other ribosomes, each triggers a different traumatic

memory with the same emotional tone. These trauma events are arranged chronologically, the earliest at the sea floor (the nuclear membrane) (Figure 2).

Figure 1

3D Artist Drawing of Stuck mRNA Strings



Note. An artist's approximation of trauma strings in the primary cell. Stuck mRNA strings stick out of nuclear pores on the nuclear membrane, looking like seaweed from the sea floor. mRNA strings with ribosomes attached cause biographical trauma, and mRNA strings with spherical balls cause generational trauma. (Image: Piotr Kawecki)

This pattern of traumas was familiar to us from another context. In the field of trauma psychology, a surprising phenomenon has been observed by trauma therapists for many decades but with no biological explanation. When a person experiences painful, traumatic feelings, there is a serial (stacked) nature to trauma, where a presenting trauma will trigger earlier traumatic moments that have identical sensations and emotions. Examples of trauma therapies that recognize this phenomenon include Holotropic Breathwork (Grof, 1985), Traumatic Incident Reduction (TIR) (French & Harris, 1999), and Whole-

Hearted Healing (WHH) (McFetridge & Pellicer, 2004). We had accidentally stumbled upon the subcellular psychobiology reason for this empirically observed pattern of stacked trauma events.

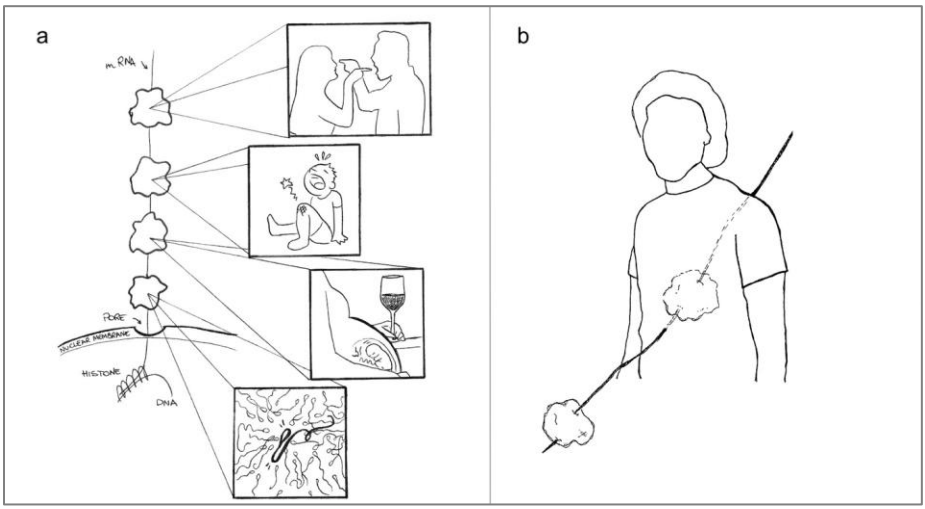
We observe that access to a trauma experience is found inside ribosomes. In other words, stuck mRNA strings with attached ribosomes and stuck traumas are two sides of the same coin. However, why are these mRNA strings present at all? Let us briefly review what happens during normal gene expression when a protein is needed. A gene unrolls from its tight histone-packed form (chromatin), and an mRNA copy is made (transcription). The mRNA string goes out a nuclear pore into the cytoplasm, where a floating ribosome attaches to one end of the mRNA string and reads along it like a ticker tape. This gives the ribosome the pattern to make a protein (translation), and when the task is finished, the ribosomal complex dissociates, releasing the protein. Ribosomes continuously attach to the string like an assembly line (a polyribosome). When enough proteins are made, the mRNA string dissolves.

We observe that the stuck mRNA strings arise from disrupted gene expression. When the mRNA string copy is nearly complete, the transcription stops because the end of the mRNA string inside the nucleus stays stuck to damaged (ripped, torn, shriveled, or coated) material on the surface of the gene. Despite this, the other end of the mRNA string stretches out through a nuclear pore into the cytoplasm. Ribosomes still attach and move down the string but stop because the nuclear membrane or other ribosomes are in the way. Instead of dissolving and starting anew, the entire structure locks up. Most of these stuck strings form just after conception.

Thus, damaged material on the surface of the gene is the culprit responsible for the cascade of events resulting in a stuck mRNA string of ribosomes (which is experienced as a sequence of traumatic memories). The emotions and sensations of trauma are sourced in this damaged material and flow up the mRNA string to the ribosomes. The ribosomes only act as gateways to the non-feeling (factual) content of the event memory (Figure 2). The traumas on a string are those moments when the cell needed the inhibited protein to respond properly but could not.

Figure 2

Sketch of a Stuck mRNA String with Attached Ribosomes



Note. a. Each ribosome corresponds to a traumatic incident, each with the same emotional content, going back through time. b. The sensation of a triggered ribosomal trauma string from the primary cell superimposed on the body. Location and size can differ. (Drawings: McFetridge, 2014)

Trauma Therapies and Epigenetic Damage

We can now understand the subcellular psychobiology of how trauma therapies work. When healing trauma, we observe the following sequence: the damaged coating undergoes repair; this releases the stuck mRNA string with its attached ribosomes; the string then floats upwards into the cytoplasm, where it breaks down, eliminating the associated trauma feelings. However, we have observed that different trauma therapies exploit different metabolic pathways to eliminate symptoms, ranging from repairing the underlying coating damage (e.g., EMDR, WHH, Emotional Freedom Technique (EFT)) to inhibiting trauma access but leaving the stuck mRNA string intact.

This damaged material on the DNA surface is an epigenetic inhibitor of gene expression, and so far, we do not know what the damaged material is. It could be histone protein, regulatory RNA molecules, DNA methylation, or other unknown epigenetic molecular material. Using regression, we found that the damaged material on the genes is inherited, and vulnerability to trauma is

thus a biological pre-existing condition. Unfortunately, a typical person has a lot of these damages.

Thus, from a disease treatment perspective, we can use simple trauma-healing techniques to target and repair epigenetically inhibited gene expression. Since the primary cell sets a dynamic pattern for all other cells, this also means this repair almost instantly echoes out into making the same repair in every relevant cell in the body. This vastly simplifies therapeutic intervention, as all we have to focus on is the damage inside just one cell, not intracellular damage scattered haphazardly throughout various body cells.

Epigenetic Damage Causes Three Different Types of Traumas

Our original regression trauma therapy identified three different types of trauma, along with specific protocols to treat them (McFetridge & Pellicer, 2004). We observe in the primary cell that each type corresponds to a specific variant of epigenetically inhibited gene expression:

1. **Biographical Trauma:** This is the most recognized trauma type (PTSD is the extreme example) and was described in the previous section as traumatic memories. Experientially, biographical trauma causes a person to have stuck beliefs and responses to life events. In the primary cell, stuck mRNA strings come out of a nuclear pore with ribosomes (looking like crumpled paper bags) attached along its length. These traumas affect cell activities and communication.
2. **Generational Trauma:** This is called *transgenerational epigenetic inheritance* in the literature. Experientially, generational trauma causes a person to feel personally and fundamentally defective. In the primary cell, this type of trauma also has stuck mRNA strings coming out of a nuclear pore, but with the ribosomes replaced by spherical balls (we do not know what these balls are) with a size similar to ribosomes. These traumas all affect the way the cell is built.
3. **Body Association Trauma:** Examples are Pavlov's dog or Robert Ader's initial psycho-immunology experiment that linked a taste to immune system function (Ader & Cohen, 1991). Experientially, body association trauma causes different feelings (sensations or emotions) to link in completely illogical associations. In the primary cell, associational traumas are structurally different from the other two types: the mRNA string from a stuck gene in the nucleus is still present,

but the mRNA string runs up a tube in the endoplasmic reticulum (ER), with attached ribosomes embedded in pores in the rough ER. Associational traumas all affect cell metabolism.

Why does epigenetically inhibited gene expression show up in three different ways? We believe that Margulis' endosymbiosis theory of the evolution of eukaryotic cells provides the answer (Margulis, 1992). According to her theory, different early bacterial ancestors of the eukaryotic cell combined and stored their genes in the nucleus (except for a few genes in the mitochondria). As each of these primordial bacteria contributed different intracellular functions, it would make sense that epigenetic damage to their genes would cause very different functional problems.

How Do Our Observations Fit with Current Biological Models?

Since we made our observations using prenatal regression and perception of the primary cell interior instead of microscopy or lab assays, we looked to the molecular biology literature to support or disagree with our findings. To our surprise, fascinating experiments with animal models had already demonstrated that trauma is an intracellular phenomenon not dependent on neural brain networks. Bédécarrats et al. (2018) showed that trauma memory (from electrical shock) in sea slug *Aplysia* is carried in RNA extract and can be transferred to non-traumatized sea slugs. Similar experiments in *planarians* using various extracts had the same effect (Gold & Glanzman, 2021). "Many of these studies performed on a variety of organisms, including flatworms, goldfish, and rats, reported positive transfer of memory; in addition, there were reports of successful cross-species transfer of memory via injection of RNA or brain extract" (Gold & Glanzman, 2021).

Our observation that epigenetic inhibition of gene expression is paired with trauma has also been experimentally verified (Jarwaid et al., 2018; Roth et al., 2015; Uddin et al., 2010), with these epigenetic changes being transgenerationally inheritable (Dias & Ressler, 2013; Pembrey et al., 2006). Our finding that an intervention on either gene inhibition or trauma fixes both has also been observed experimentally. Using a chemical compound, fear was extinguished in traumatized rodents by disinhibiting gene expression by increasing histone acetylation (Whittle & Singewald, 2014). Using trauma therapy, EMDR reversed epigenetic DNA methylation marks in people with PTSD (Vinkers et al., 2019).

Safety Issues in Subcellular Psychobiology Research

It was not until 2014, twelve years after the discovery of the primary cell, that we published our first subcellular psychobiology desk manual for therapists (McFetridge, 2014). It took us this long to solve the major safety problems we had found and to have enough years of testing on the tools and techniques to trust they were safe for publication. However, doing new psychobiology research remains inherently high risk, as it can trigger unexpected emotional or physical problems. A good way to visualize this is to imagine that there are events in prenatal development or situations in the primary cell that can sit there like dormant landmines but, when examined, are set off. Since new psychobiology treatments or techniques use cues to trigger specific prenatal developmental events that a client would not normally access, they have to be tested for unexpected problems. Some examples:

- The cord-cutting trauma at birth can sometimes trigger suicidal feelings and actions.
- A particular developmental event in the primordial germ cell formation can trigger a severe, debilitating inability to focus attention (attention deficit disorder).

These rare problem developmental events can be dealt with if they are recognized and managed as part of the treatment protocol. Fortunately, ordinary regression on client symptoms does not generally pose this risk since the client is already living with their prenatal event trauma symptoms.

After the research phase, all new techniques and processes must be safety tested. Like drug testing, you look for rare or unexpected problems in larger populations. Thus, we routinely do in-house phase 1 and 2 clinical trials. For example, we look for:

- new symptoms that only show up days or weeks after treatment;
- compensation problems due to changing intracellular homeostasis;
- unexpected problems from not finishing a treatment.

Yes, research into subcellular psychobiology has risks, but this is not the whole picture. To give perspective, once these new, powerful psychobiology processes are optimized and tested, they are extremely safe and effective, allowing therapists to quickly and easily heal client problems that have previously been incurable.

Summary of the Subcellular Psychobiology Theory

The subcellular psychobiology theory is built on the primary cell model's existence and properties. The theory explains how psychological phenomena arise inside this cell, how to find the causes of psychological disorders and other diseases of unknown etiology, and how to design trauma psychobiology techniques to modify the cell interior to treat disease.

Key points:

- Our everyday experience is a mixture of sensations, feelings, and perceptions from the body, along with ones inside the primary cell.
- The primary cell cannot easily discriminate between sensations from inside itself and sensations from the body.
- Biological problems in the primary cell are experienced as physical and psychological symptoms (emotions, sensations, and perceptions) inside, on, or outside our physical body.
- Primary cell diseases or disorders create unique symptoms we call subcellular markers, which can be used to diagnose and target treatments.
- Biographical, generational, and associative trauma healing can be used to eliminate epigenetically inhibited gene expression.
- Effective psychological trauma techniques work by interacting with the intracellular biology inside the primary cell.
- New psychobiology techniques can be designed to interact with and repair the primary cell, automatically affecting all relevant cells in the body.
- Symptoms from an intracellular pathogen can be greatly reduced or eliminated with simple targeted trauma healing.
- We can repair damage or infections in the body by fixing the primary cell's underlying vulnerability.
- The causes of mental and physical diseases of unknown etiology can be found in the primary cell.
- Psycho-immunology techniques derived from subcellular psychobiology theory can eliminate targeted pathogen species (beyond the scope of this paper).

Conclusion

The subcellular psychobiology theory provides a novel framework for understanding how psychological techniques modify intracellular biology. By targeting epigenetically inhibited gene expression, we can develop effective treatments that address the root causes of psychological disorders. This paper barely touches the edges of all the extraordinary implications of the subcellular psychobiology theory. It is a basic building block for understanding and solving many fundamental problems and questions of humanity, the world, and our place in it. Applications range from consciousness research, spirituality, religion, and exceptional states of consciousness to psychological disorders, diseases of unknown etiology, medicine, drug development, and cell and developmental biology. After two decades of using this theory in research, therapist training, and client treatment, we believe it is time to introduce it to a larger scientific audience to encourage a robust debate and further investigation.

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