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# Symbolic Manufacturing in Biomedicine: Unlocking Placebo Boosters and Markers

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## ABSTRACT

This article critically examines the reductionist paradigm of biomedicine, highlighting the significance of the body's symbolic functions and their role in healing processes. Through a biosemiotic perspective, the human body is not merely understood as a material system but as a living network of vibrational, material, and symbolic signs. From this standpoint, elements such as the therapist–patient relationship, cultural narratives, bodily awareness, and ritual practices are not peripheral but central to mechanisms of healing. Ignoring these symbolic dimensions leads not only to theoretical limitations in understanding health but also to missed clinical opportunities in harnessing the placebo response and preventing nocebo effects. The author introduces the concepts of “placebo boosters” and “placebo markers” as practical tools for organizing and intentionally utilizing symbolic capacities. These include strategies such as cognitive reframing, narrative restructuring, interoceptive imagery, and conditioned sensory cues, all of which can reinforce psychophysiological processes and support the body’s capacity for reorganization and recovery. From an epigenetic perspective, repeated symbolic activations may influence gene expression and immune regulation, further validating their biological significance. Ultimately, the article calls for a paradigm shift from the “will to control” toward the “will to heal.” It argues that the future of medicine lies in the development of “symbolic biomedicine,” which integrates material and symbolic processes into innovative protocols for health promotion. Such an approach expands therapeutic potential while fostering a convergence of science, culture, and lived human experience in healthcare.

**Keywords:** biosemiotics, symbolic medicine, placebo, nocebo, epigenetics.

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## Introduction

As a physician and researcher, I have often found myself questioning the dominant paradigm of reductionistic biomedicine. At the same time, the personal and social symbolic worlds are considered complementary considerations and possible factors. Through a biosemiotic lens, our living bodies work as a multilingual system of vibrational, Material, and symbolic sign systems (Goli, 2016). It is time to awaken from the Cartesian dream that believes in existing pure material human bodies without symbolic functions. I do not have any problem with a non-reductionistic biomedical paradigm that considers all the mechanical and semantic functions of our living bodies.

While the mainstream of clinical trial tradition centered on isolating the verum effect as the measurable efficacy of drugs, devices, or procedures, it neglects all the complex intra-inter-transpersonal symbolic interactions and synchronizations that are put into a black box named “placebo” (Ashar et al., 2017). Randomized controlled trials (RCTs), celebrated as the “gold standard” of biomedical science, are designed to strip away the contextual and symbolic dimensions of healing and avoid opening the Pandora's box of the placebo response. Despite ever-rising trends of placebo studies, this paradigmatic resistance to acknowledging the biological function of the symbolic agents has not been broken.

Symbolic meaning-making systems that are often excluded in the laboratory and clinic, such as expectations, narratives, relationships, bodily awareness, cultural rituals, and symbolic contexts, precisely saturate the lived reality of clinical practice (Benedetti, 2013; Goli, 2016). Healing can be mentioned as a biological phenomenon, but it is not merely a biochemical process; it is a profoundly symbolic and reflective one. Healing is a meaning-making journey, a dynamic interplay of the vibrational, material, symbolic, and reflective semiosis.

### *The Extended Definition of the Verum Effect*

Every year, billions of dollars are invested in the pursuit of gradual improvements in the measurable efficacy of drugs or surgical procedures. However, these marginal gains often come at staggering costs: financial burdens on health systems, adverse side effects, and emotional exhaustion for patients. Meanwhile, the placebo effect—the mind-body's innate and

interpersonal capacity to mobilize healing pathways—is a verum and authentic healing response that is dismissed as a nuisance variable, something to be controlled and eliminated in clinical trials!

We must profoundly distance ourselves from the modern myths of “treatment as battle” with pathogenesis and focus more on healing as facilitating and deconditioning, thereby promoting salutogenesis. The unconscious healing power represents the body's remarkable ability to reorganize and reintegrate itself, a capacity that is deeply intertwined with symbolic and relational factors. Ignoring this aspect of healing impoverishes our understanding of health and limits the potential of medicine.

### Healing Programs as Meaning-Making Systems

#### *An Epigenetic Symphony*

In my chapter *Body, Meaning, and Time* (2022), I describe the healing response as a “transtemporal and multimodal meaning-making process.” I view the body not as a fixed object but as a living hologram, continuously integrating remembered, felt, and anticipated states. This perspective aligns with Friston et al. (2010) “free energy principle” and Mihai's (Nadin, 2022) insights into the anticipatory nature of biological systems, which constantly project and recalibrate in response to symbolic and temporal cues.

From an epigenetic standpoint, these symbolic interactions are not merely psychological; they have tangible biological effects. Repeated symbolic activations, such as rituals, narratives, and interoceptive imagery, can influence gene expression and immune regulation (Goli & Farzanegan, 2016). For example, mindfulness practices and guided imagery have been shown to modulate stress-related gene expression, enhancing resilience and recovery. These findings support my conviction that symbolic meaning-making systems are not merely complementary to biomedical interventions; they are integral to the organism's self-regulatory processes (Goli, 2022).

Functionally, symbolic systems can act as psychophysiological modifiers, and synchronizing symbolic cues with biochemical processes may induce a synergetic healing effect (see Stahl, 2012). This dynamic interplay allows the body to mobilize its inherent healing capacities, creating a feedback loop between meaning and physiology (Moerman, 2002). These symbolic

systems represent an emergent level of biological organization, one that demands recognition within the biomedical framework.

### Placebo Boosters and Markers

#### *Tools for Symbolic Healing*

Suppose we want to formulate information in clinical practice to maximize the placebo response and minimize the nocebo response using a biosemiotic clinical syntax. In that case, we require a translational approach that enables us to monitor and control the flow and translations of both vibrational and material signs, as well as symbolic and reflective signs (Colloca & Miller, 2011; Goli, 2016, 2024; Miller & Brody, 2011). Currently, most of our knowledge is inferential; however, with the rapid development of technology, it appears that we are moving towards a more objective science.

In this way, we need a sophisticated, innovative technology to formulate “placebo boosters” as deliberate mind-body practices designed to amplify healing response, such as cognitive restructuring, attention processing, interoceptive awareness, guided imagery, and narrative reframing, which work as psychophysiological healing reinforcers.

We recognize that commitment to exercise is a significant challenge in health behavior change programs. Therefore, for a greater chance of healing, we need to find shortcuts to remind ourselves of the symbolic and somatic memories that facilitate healing responses. “Placebo markers”, on the other hand, are conditioned sensory cues that can act as shortcuts for recalling healing states, see e.g., (Wager & Atlas, 2015). The ritual of swallowing a pill, a reassuring touch, or even the scent can serve as symbolic triggers.

Both boosters and markers are tools for harnessing the body’s symbolic and anticipatory capacities, but they require careful design and intentionality to be effective.

### Symbolic Events

#### *A Level of Biological Organization*

The symbolic events of the body—such as healing rituals, interoceptive imagery, and anticipatory cues—represent a distinct level of biological organization.

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### Declaration of Interest

The authors of this article declared no conflict of interest.

These events are not optional add-ons to biomedical practice; they are foundational to the organism's self-regulation and healing. (Nadin, 2022) argues that the anticipatory nature of biological systems necessitates a shift from reductionist paradigms to a non-reductionistic monism that integrates symbolic and biochemical processes. My own work in biosemiotics echoes this sentiment, advocating for an approach that synchronizes physical, symbolic, and reflective signs.

#### *Towards a Paradigm of Symbolic Biomedicine*

Based on my previous conceptual research and years of clinical experience as a medical and body psychotherapist, I think that the future of symbolic biomedicine holds promise as a legitimate paradigm, with several key pathways shaping its research and practice. One area of focus is the neuroepigenetics of symbolic healing, exploring how repeated symbolic interventions can lead to lasting changes in gene expression and immune regulation (Goli, 2022; Goli et al., 2016). Another promising direction involves the use of AI to personalize and optimize symbolic therapies while ensuring a lively human-centered approach. Additionally, the design of clinical settings and rituals aims to create therapeutic practices that maximize symbolic resonance without relying on deception. Ultimately, integrating symbolic interventions with conventional treatments aims to develop biosemiotic protocols that harmonize symbolic and pharmacological approaches to achieve enhanced therapeutic outcomes.

### Conclusion

#### *The Will to Heal*

At this threshold, the challenge is not technological but conceptual. We must shift from the will to control toward the will to heal. By integrating symbolic events as a core level of human biological organization, we can create a healthcare system that invests as much in cultivating relational and mind-body pathways as it does in molecular innovation. These new horizons in human health and wellness may integrate phenomenal worlds and consciousness-based interventions into biomedicine.

### Ethical Considerations

The study protocol adhered to the principles outlined in the Declaration of Helsinki, which provides guidelines for ethical research involving human participants. Ethical considerations in this study included the fact that participation was entirely optional.

## Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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