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*From Nano to Nature: the biochemical transformations of nanomaterials in the body and environment*

As scientists and engineers, we design and synthesize nanomaterials as essential components in batteries, solar cells, drugs, antibacterial products, and diagnostics. Yet, the transformative promise nanotechnologies has, in some cases, been slowed by the profound physical and chemical transformations that alter the intended reactivity of nanomaterials in living systems. The talk will explore the diversity of nanomaterial transformations from a biochemical perspective and examine emerging methods to evaluate and predict these transformations throughout a nanomaterial's lifetime in the human body or environment. With these advances, we can begin to address grand challenges of nanotechnology, including targeted nanomedicines and the development of safe-by-design nanomaterials.