Journal club

THE RIBOSOME PROPHECY

In 1834, the English philosopher William Whewell coined the term 'scientist' to describe an individual who studies the physical and natural world through observation and experimentation. However, travelling back in time more than a millennium, Greek philosophers such as Euclid (the father of geometry) or Ptolemy (the famous astronomer) made achievements that would by all accounts befit a 'scientist'. An interesting dichotomy arises when we compare ancient Greek thinkers who relied on formulating a series of elegant arguments to the current paradigm composed of running actual experiments to prove a hypothesis. With the rise of modern science and technological advances, such as the ability to sequence the genome of almost every creature — whether a cat, carp, cholera or Caesar — there has been an inherent shift in the value of experimental versus theoretical scientific arguments. We — modern scientists — rarely go out on a ledge to openly propose our theories without *a priori* concrete experimental evidence at hand.

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I was compelled to share my view on this issue after reading a single article in my field that I believe reflects the value of publishing purely theoretical arguments. The ribosome has historically been thought of as a massive molecular machine, serving largely a rote-like function in translating the genetic code. In 2002, Mauro and Edelman published a purely theoretical argument, the ribosome filter hypothesis, postulating that ribosomes are not simply machines but also regulatory filters that control gene expression. More than a decade later, when we unexpectedly identified that not all ribosomes are the same and that ribosome heterogeneity provides a novel means for diversifying the proteomes of specific cells, I was truly inspired by the hypothesis of Mauro and Edelman. Drawing from this experience, I have come to a newfound appreciation for theoretical perspectives as valuable avenues of scientific inquiry. Akin to ancient Greek amphitheatres, where great thinkers relied on the power of logical deduction to enable scientific discovery, a modern day version of such debates could be inspirational to the science that we practice. We just need to find a venue in which to publish them.

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