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Anti-science in the 21st century

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#### SECTION: Pipeline, Gary D. Novack, PhD, Section Editor

TITLE: Anti-science in the 21<sup>st</sup> century\*

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#### FOOTNOTES

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Disclosure: Gary D. Novack PhD consults with numerous pharmaceutical firms.

\*While Pipeline this month may seem a bit far afield to be published in Ocular Surface, it does have a couple of secondary take home messages- 1) are we using therapies for dry eye that are based on poorly designed or conducted research and studies or, on the other hand, are we rejecting therapies (and ideas) because we disagree with the outcomes of well-designed studies?" 2) Do we attribute poor efficacy or safety outcomes to specific therapies when they actually are coincidental and not causal (i.e., the logical fallacy of post hoc obiter propter hoc)?

#### (Note to compositor: footnote ends here; text begins below)

We live in a world of remarkable scientific breakthroughs. For example, over 100 years after Albert Einstein proposed the general theory of relativity, evidence was found to support his theory. In 2015 and 2016, the Laser Interferometer Gravitational Wave Observatory (LIGO, with observatories in Washington and Louisiana, managed by California Institute of Technology) detected two instances of gravitational waves.<sup>\*</sup> Yet we live in a world where effective, safe, approved preventative, affordable therapies for severe disease are not being utilized. The reader might infer that I am thinking about therapies such as ivermectin for onchocerciasis (river blindness),<sup>1</sup> or vitamin A for xerophthalmia and child mortality,<sup>2</sup> and indeed, those are diseases

<sup>\*</sup> https://www.ligo.caltech.edu/news/ligo20160615

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