

## A new study points to \$6.5B in public support building the scientific foundation of Gilead's remdesivir. Should that be reflected in the price?

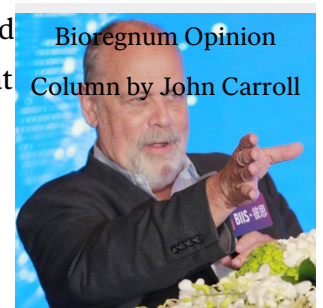
by John Carroll on July 8th, 2020



By drug R&D standards, Gilead's move to repurpose remdesivir for Covid-19 and grab an [emergency use authorization](#) was a remarkably easy, low-cost layup that required modest efficacy and a clean safety profile from just a small group of patients.

The drug OK also arrived after Gilead had paid much of the freight on getting it positioned to move fast.

In a study by Fred Ledley, director of the Center for Integration of Science and Industry at Bentley University in Waltham, MA, researchers concluded that the NIH had invested only \$46.5 million in the research devoted to the drug ahead of the pandemic, a small sum compared to the more than \$1 billion



Gilead expected to spend getting it out this year, all on top of what it had already cost in R&D expenses.

But with a heated ongoing debate over the [price of drugs](#) and vaccines for Covid-19 — and the public investment going into them — Ledley can point to a much larger investment by taxpayers into the science that made remdesivir available for the pandemic in just a few short months.

On the biological target for remdesivir — RNA dependent RNA polymerase (RdRp) — Ledley's team found 6,567 research publications. The government provided \$1.9 billion to back work on 1,263 of those publications.

The chemistry of the drug's parent chemical structure – nucleoside analogs (NcAn) was even more popular, spurring 11,073 research publications and NIH support of \$4.6 billion for 2,319 of them.

Add it up, and Ledley can point to \$6.5 billion in NIH funding needed to lay the scientific foundation for the drug.

That kind of analysis raises all sorts of interesting questions on how many of these studies simply replicated earlier work or frittered away money. But Ledley's point is that the public provided billions of dollars for what added up to important translational research — long before Gilead's team carried the ball over the marketing goal line.



“Although it appears that remdesivir was approved in record time, this drug would not be available today if the NIH and others had not invested billions of dollars over the past decades in basic research on how different viruses work and the chemistry of nucleosides over the past decades,” Ledley said. “While Gilead Sciences is investing billions of dollars in bringing this drug to the public, the substantial public sector investment that made this drug possible also needs to be recognized.”

Ledley has specialized in drawing links between NIH funding and approved therapies, often sparking intense arguments over how much biopharma companies should charge for drugs that relied on public funding for their existence.

Back in late April, Reps. Lloyd Doggett (D-TX) and Rosa DeLauro (D-CT) wrote a letter to HHS secretary Alex Azar to make that very point, noting:

Taxpayers are often the angel investors in pharmaceutical research and development, yet this is not reflected in the prices they pay.

Gilead also jumped into the middle of this debate after raising hackles over its earlier decision to aim

high on [hep C prices](#). But the company is now under new management, with Dan O'Day's team on the ground. And they are much more sensitive to the pricing debate now underway, even after the big biotech set the US insurer price at \$3,120 for the full course. Developing nations will pay a fraction of that.

About the only guarantee here is that most companies will pay heed to these studies in crafting their prices for pandemic drugs and vaccines — especially as the industry's rep has suffered rock bottom ratings. But don't expect anyone to give it all away for free — as is often demanded. The current system we have for drug development — with billions of taxpayer support for basic research — is not fair to everyone, but it does work. And the world is much better off with the drug than without it.

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