Public- versus private-sector research: what do they bring to the table?

How important is the contribution of public-sector or academic research to the development of new medicines? In comparison with research conducted in the private sector by pharmaceutical companies, does it lead to more drugs that represent a therapeutic advance?

A team of researchers from the UK, Denmark and the US studied the new drugs introduced to the French market between 2008 and 2018, and quantified their therapeutic value in relation to existing alternatives using two ratings: the "clinical added value" (ASMR) rating attributed by France's National Authority for Health (HAS) and the rating attributed by Prescrire (1,2). 73% of the 632 drugs identified originated from industry research and 27% from academic research or public-private partnerships (1).

135 drugs were first-in-class (i.e. the first drug on the market from a new pharmacotherapeutic class, defined by a new mechanism of action or new molecular target), and were therefore supposed to be "innovative". 71% of these first-in-class drugs had their origins in industry research and 29% in academic research or public-private partnerships (2).

Considering all 632 drugs that were new to the French market, the HAS and Prescrire determined that about three-quarters of those that arose from industry research, versus two-thirds of those that arose from academic research, did not constitute a therapeutic advance. Compared to the drugs derived from academic research, a statistically significant higher proportion of those derived from industry research did not represent a therapeutic advance, based on both the HAS and Prescrire ratings (1).

These results confirm the findings of others: the research conducted by pharmaceutical companies is far from being the sole source of new drugs, and a large proportion of new drugs have not been shown to represent a therapeutic advance (1-3).

Another research team showed that the US National Institutes of Health (NIH) had played a key role in research leading to the 84 new first-in-class drugs that entered the US market between 2010 and 2016 (4). Continuing their analysis, the team showed that this was also the case for the 356 new drugs that entered the US market between 2010 and 2019; these drugs had benefited from a total of $187 billion in public funding (5).

The authors conclude that their analysis "*demonstrates the importance of sustained public investment in basic biomedical science*" (5).

Prescrire

References **1-** Osipenko L et al. "Provenance and clinical benefit of medicines introduced to the French market, 2008 to 2018" *JAMA Intern Med* 2024; online: 7 pages. **2-** Osipenko L et al. "The origin of first-in-class drugs: Innovation versus clinical benefit" *Clin Pharmacol Ther* 2024; 115 (2): 342-348. **3-** Lexchin J "Therapeutic benefit from new drugs from pharmaceutical companies" *JAMA Intern Med* 2023; online, 2 pages. **4-** Prescrire Editorial Staff "New drugs: the key role of publicly-funded research in the United States" *Prescrire Int* 2019; 28 (210): 306. **5-** Cleary EG et al. "Government as the first investor in biopharmaceutical innovation: Evidence from new drug approvals 2010-2019" Institute of New Economic Thinking Working Paper n° 133 2021: 70 pages.