**Head: COVID-19 brings open source medicine into the limelight**

**Slug:** *The hunt for a COVID-19 vaccine is making the scientific and pharmaceutical community think again about the benefits of the open source model for developing therapeutic treatments*

**Body:**

Through radical sharing and collaboration, open source medicine will help accelerate the discovery of a COVID-19 treatment and lead to cost-savings for companies and patients, according to academics, researchers and in-house pharma attorneys.

Much like open source forums for software, open medicine involves freely sharing data, know-how and tools with the wider community. Early stages of research are done in collaboration with universities and pharma companies, and all results are shared with each member.

The advantage of this radical approach is that it speeds up medical trials by avoiding duplicating failure.

**Patent pros and cons**

Matthew Todd, chair of drug discovery at University College London (UCL), says the traditional pharmaceutical business model that relies heavily on patents does not work very well for all areas of human therapeutics.

He points out that there are considerable challenges when it comes to incentivising organisations to focus on rare diseases and antibiotics because companies often do not see the necessary return on investment for developing such therapies.

Because open medicine accelerates research and cuts costs, it could be a solution to finding cures for these neglected illnesses.

“We are hampered by the current IP system. We have some good medicines that come out of the traditional system, but there are many areas where we don't have any new medicines coming through at all,” says Todd.

“If I work on a disease that kills many people in Sudan, I am unlikely to make a return on investment. We just need an alternative that is able to operate, something that can step in when the traditional system is unable to act.”

Helen Cline, legal director of IP and life sciences at Pinsent Masons in London, does not believe that the patent system inherently stifles research. As an example, she cites pharmaceutical companies that have voluntarily surrendered their patent portfolios to allow different pharma companies and research institutions to conduct trials for a COVID-19 vaccine.

“A patent can be a sword or a shield. In the current environment, you will find an awful lot of companies that are doing the right thing and are not using their patent portfolios as a sword,” she says.

She explains that although open medicine is not a magic bullet for all the current challenges in developing new medicines, the model has an advantage in the current climate because it can speed up research and then lower costs to make treatments more widely accessible.

“If a therapeutic target fails, everyone knows about it because it goes into the public domain straight away. If you can take some of the cost arguments out of the equation, we may get to a position where pricing is less of an issue,” she says.

Richard Gold, professor of law and medicine at McGill University in Montreal, says that pharma innovators waste money with the patent system because they could be conducting research on something that their competitors have already learned does not work.

“Open science is this idea that we do things best when we do it together, that we avoid duplication and we do science quickly,” he says.

“A problem with drug discovery is we plough more and more money into it and we get less per dollar, or even less per researcher. The reason is because there is a lot of duplication and everybody is out to get their own patent and they don't share enough.”

**Pulling together**

Necessity is often said to be the kick-starter of innovation. With the pandemic claiming thousands of lives every day, the global scientific community is quickly learning to pool resources for the betterment of humanity. The global research head for a pharma innovator in California says that big pharma companies are coming together in a way that he has never seen in his professional career.

Novartis, Mylan and Teva have pledged to produce millions of samples of chloroquine, which is known for its antiviral properties and is in trials to treat COVID-19. Sanofi and GSK also [announced](https://www.sanofi.com/en/media-room/press-releases/2020/2020-04-14-13-00-00) that they will work together to develop a vaccine using technology from both companies.

The global research head says that the coordinated work of pharmaceutical firms combines an unprecedented effort of each company playing to its strengths to contribute to a solution. “We are approaching the COVID pandemic by putting things out in the open and doing what we do best,” he says.

“We are a chemistry company, for example, and there might be another company that does antibody research and another vaccines. We are saying to each other: ‘you do your bit and I’ll do mine and we’ll come together and find a solution.’”

Chas Bountra, professor of translational medicine at Oxford University and a former researcher at GSK, says that whenever research is risky or expensive, it makes sense to pull ideas together and not to be secretive about the research.

“At Oxford we have more than 100 people working on novel drug targets, often intractable areas of biology, generating novel high quality tools and sharing them with hundreds of academics, disease foundations, biotech and pharma companies. We are crowdsourcing science,” he says.

Gold at McGill in Montreal helped to create the [Rapidly Emerging Antiviral Drug Development Initiative](http://news.unchealthcare.org/news/2020/april/open-science-drug-discovery-partnership-readdi-aims-to-invest-125-million-to-prevent-future-pandemics) at the University of North Carolina Chapel Hill The organisation is an international effort to develop drugs that will be ready for clinical testing in the event of another pandemic.

The project uses an open medicine model that will share all results publicly in real time. “When we get to pandemic research, the first thing that researchers, governments and industry did was abandon the patent system and go for radical sharing,” says Gold.

“The medical community took tissue samples in labs around the world, determined their genetic code, got diagnostic kits out quickly, and developed vaccine candidates that they quickly got into clinical trials. It's because of this radical sharing that we can do this.

“When push comes to shove, people realise the system is broken and they adopt this other method.”

Todd at UCL says that it is disappointing that it took a crisis like COVID-19 to make people re-examine the way pharma companies do research. He says that the current pandemic is making people realise that if medicines are going to be produced quickly and cheaply, pharma companies cannot rely on the old patent system and instead need to share their knowledge with the wider community.

“After this is over, are we going to go back to the old way? If we are going to prepare better for the next pandemic, we need to change the way we do things, fundamentally. We need to share,” he says.

However this pandemic unfolds, there is at least hope that along with finding new treatments, the scientific community will learn better ways to work together to more efficiently develop products and new revenue streams that can be reinvested into new life-saving drugs