

# SUPPORT FOR CRITICAL DRUG REPURPOSING DECISIONS

ELSEVIER LIFE SCIENCE SOLUTIONS  
PROFESSIONAL SERVICES

## The importance of drug repurposing

All pharmaceutical companies understand the importance of comprehensive drug repurposing strategies. Finding new indications for drugs can breathe new life into an abandoned drug or expand the profitable life cycle of an approved drug. Simply put, drug repurposing increases the return on R&D investment.

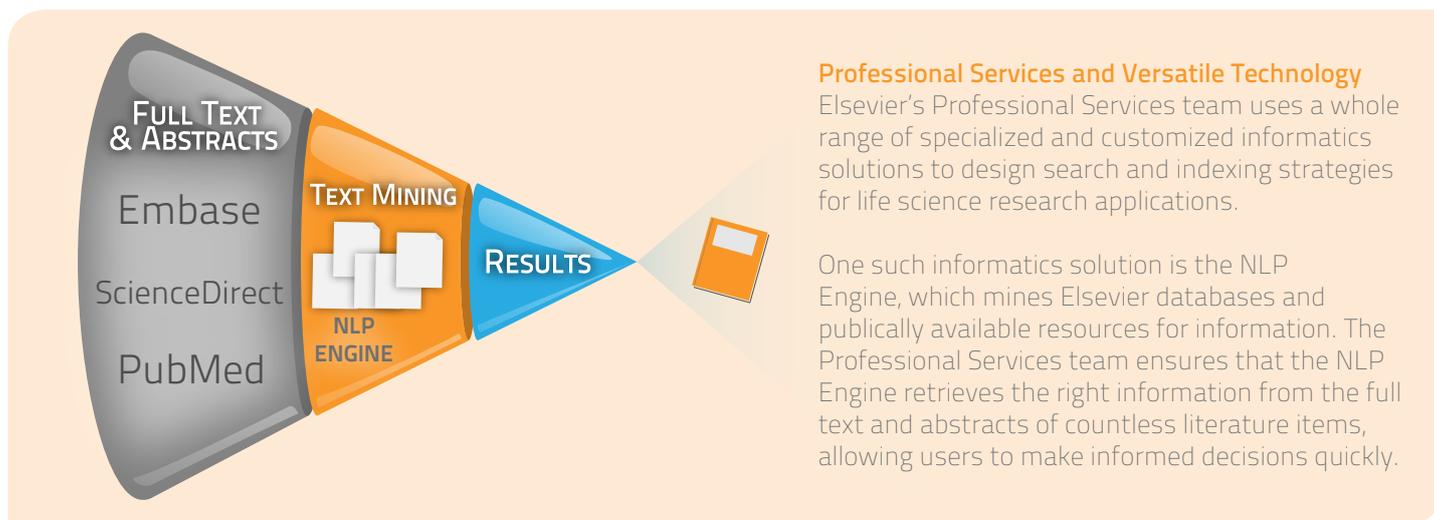
However, it is a challenge to successfully repurpose a drug, involving considerable research with as much potential for dead ends as in the development of a new lead.

## Finding a new use for an anti-inflammatory

A major global pharmaceutical company was faced with precisely this challenge. One of their anti-inflammatory drugs was performing well as a medication for rheumatoid arthritis and Crohn's disease, but they wanted to see if it had even greater potential. The drug in question has the generic name adalimumab. It targets the tumor necrosis factors (the TNF family), which are components of the immune response. The company wanted to find other diseases that involve TNF pathways and see if adalimumab would help sufferers.

## How Elsevier got involved

The pharmaceutical company approached Elsevier's Life Science Solutions Professional Services team with this challenge. What evidence could Elsevier find that adalimumab might combat other diseases?



### How did Elsevier help?

The Professional Services team set out to design the right inquiry and prioritize the results. There were two main approaches. For both, the team used the Elsevier Natural Language Processing Engine (NLP Engine) to mine commercial and publicly available databases.

First, the Professional Services team focused on alternative indications reported in the published literature for adalimumab and other anti-TNF drugs. By assessing the supporting evidence (clinical trials, role of the drug target in the biology of the disease) and the number of such reports, they could prioritize the indications.

Then, they looked at reports of diseases that involve TNF pathways — in this case, the focus was mechanism of action of the drug. Again, the team could prioritize the diseases based on the supporting evidence for the effect of the drug on the pathway.

### What was the outcome?

Ultimately, Elsevier delivered a report with lists of prioritized indications. It took just under one week to produce the information.

The project was very successful. The Professional Services team's approach confirmed all of the previous indications for adalimumab and revealed new indications.

The information Elsevier provides helps to support decisions. It allows researchers to prove their ideas. Helping researchers connect the science, in particular by supporting cross-disciplinary research, is critical to drug development and repurposing.

#### How else can Elsevier support drug repurposing?

Elsevier directly supports drug repurposing by finding new indications for a drug, but these search strategies can also reveal other information that is crucial to clinical feasibility assessments. Where is the disease most common? What centers have developed that specialize in treating the disease? Where would clinical trials best be held? Does the drug have potential for a rare disease where treatment is supported by a government program? All these questions can be answered with a properly designed search.



Discover more about Elsevier's support for drug developments and repurposing