



CLEVER NANO-TECH TAKES ON CROHN'S

Hungarian and Israeli biotech companies teamed up to tackle Crohn's, an intractable inflammatory bowel disease that affects five million people worldwide. Its causes are uncertain. There is no foolproof cure and poor public understanding of the pain and chronic suffering it causes. But things are looking up thanks to the work of the Eureka PIP-4-CD team.

Crohn's disease is an inflammatory bowel disease (IBD). When active or flaring up, the inflammation can cause abdominal pain, severe diarrhoea, fatigue, weight loss, malnutrition and in some cases death. While there is no known cure for Crohn's, therapies can greatly reduce its signs and symptoms and even bring about long-term remission.

Treatment options are limited to controlling the symptoms with medication, combined with lifestyle and dietary changes. Front-line drugs used include mesalazine, corticosteroids and immunomodulators. Anti-tumour necrosis factor agents have recently been added to the regime for many patients in recognition that TNF-alpha (TNFa) – a cytokine or substance secreted by the immune system which affects or interferes with other cells – plays a central role in CD onset.

"If you can tie down the TNFa you can gain some control over CD events," says Tamas

Letoha, MD of Pharmacoidea in Hungary. "For example, patients using infliximab – a commonly used TNFa-binding antibody branded as Remicade® – were one-third more likely to enter remission," he explains.

But there is a problem. Infliximab has been associated with increased risk of patients developing serious infections, lymphoma, melanoma, sarcoma and other malignancies. So, the Eureka-backed PIP-4-CD project set out to develop more targeted solutions.



Eureka support was the catalyst for bringing together PIP-4-CD's three "unlikely yet really complementary" teams from Hungary and Israel

Straight to the destination ... no spillage

"To give patients a better chance and reduce risks associated with medications like this, we had to find ways not only of boosting their potency but also of getting them precisely where they need to be in the bowel and intestines with no harmful 'spillage' along the way," explains Dr Letoha. The idea was to 'imprint' the active agents (protein-imprinted polymers) to bind specifically to TNFa and knock it out before it can cause further harm.

Eureka support was the catalyst for bringing together PIP-4-CD's three "unlikely yet really complementary" teams from Hungary and Israel, says Dr Letoha who is project leader with expertise in target-specific reporter gene assays. Israeli partner Semorex was able to provide synthesising technology based on its proprietary molecularly imprinted polymers, and Hungary's Greenformatix's skill set covering in silico and analytical research held the testing environment together.

During the project, Pharmacoidea developed several bioassays and preclinical protocols for testing the anti-inflammatory potential of drug candidates, along with consumer-friendly products, such as patent-protected specialty nutraceuticals (drug-free inflammation treatments). These bioassays and nutraceuticals are currently being sold on the respective national markets. Turnover is expected to double in the coming years.

The project also broadened the science behind protein-imprinted polymers, leading to a new publication co-authored by researchers from the consortium.

Plans are now under way to further develop the products and launch them on international markets. For this, the team is confident that the PIP-4-CD partnership will provide enduring benefits down the line.

MAIN PARTNER

Pharmacoidea Ltd., Hungary
<http://www.pharmacoidea.eu/>
Tamas.letoha@pharmacoidea.eu

OTHER PARTNERS

Greenformatix Nonprofit Ltd., Hungary
Semorex technologies Ltd., Israel

TOTAL R&D INVESTMENT

€ 500.000

DURATION

March 2015 to February 2017

COUNTRIES AND NATIONAL FUNDING BODIES INVOLVED



National Research, Development and Innovation Office, Hungary

Israel Innovation Authority

EUREKA is
a European network for
market-oriented R&D.

